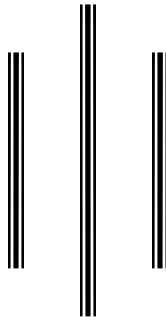


# **INVESTMENT ANALYSIS OF COMMERCIAL BANKS IN NEPAL**

**(A Case Study of Nepal Investment Bank, Himalayan Bank, Nepal SBI Bank,  
Everest Bank and Bank of Kathmandu)**



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**A THESIS**

**Submitted to:**

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**In partial fulfillment of the requirements for the Degree of Masters  
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**Shankerdev Campus**

**Kathmandu, Nepal**

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# RECOMMENDATION

This is certify that the thesis:

Submitted by

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*Entitled*

**Investment Analysis of Commercial Banks in Nepal**

**(A Case Study of Nepal Investment Bank, Himalayan Bank, Nepal SBI Bank,  
Everest Bank and Bank of Kathmandu)**

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**Investment Analysis of Commercial Banks in Nepal**

**(A Case Study of Nepal Investment Bank, Himalayan Bank, Nepal SBI Bank,  
Everest Bank and Bank of Kathmandu)**

And found that thesis to be the original work of the student and written according to the prescribed format. We recommended the thesis to be accepted as partial fulfillment of the requirements for the Master's Degree in Business Studies (M.B.S.)

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## **DECLARATION**

I hereby declare that the worked reported in this thesis entitled "Investment Analysis of Commercial Bank in Nepal: A Case Study of Nepal Investment Bank, Himalayan Bank, Nepal SBI Bank, Everest Bank and Bank of Kathmandu" submitted to Shanker Dev Campus, Faculty of Management, Tribhuvan University is my original work done in the form of partial fulfillment for the requirement of Master's Degree in Business Studies (M.B.S.) under the supervision of Lecturer Kamal Das Manandhar and Shiva Pokharel of Shanker Dev Campus.

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## **ABBREVIATION**

B.S.	=	Bikram Sambat
BoKL	=	Bank of Kathmandu Limited
C.V.	=	Co-efficient of Variation
CRR	=	Cash Reserve Ratio
EBL	=	Everest Bank Limited
EIR	=	Expected Inflation Return
ENR	=	Expected Nominal Return
EPS	=	Earning Per Share
ERR	=	Expected Real Return
GDP	=	Gross Domestic Product
GNP	=	Gross National Product
HBL	=	Himalayan Bank Limited
IRR	=	Internal Rate of Return
LTD	=	Limited
MPS	=	Market Price per Share
NIBL	=	Nepal Investment Bank Limited
NPV	=	Net Present Value
NRB	=	Nepal Rastra Bank
NSBIBL	=	Nepal SBI Bank Limited
ROA	=	Return on Assets
ROE	=	Return on Equity
S.D.	=	Standard Deviation
SCBN	=	Standard Chartered Bank Nepal

# CHAPTER – ONE

## INTRODUCTION

### 1.1 Background of Study

Investment, in its broadest sense, means the sacrifice of current currencies and resources for the sake of future currencies and resources. An investment is one of the decisions of finance function that involves the decision of capital to establish commercial or industrial venture. In other words it involves commitment of funds into long-term assets that would yield benefits in coming future period. Two aspects of the investment decisions are:

1. The evaluation of the prospective profitability of the investment.
2. The measurement and comparison of cut-off rate against that the prospective return of the investment could be compared.

Investment is primary factor for economic development of any country. Investment is refers to as using present money to get long term benefit. Investment in its broadest sense means the sacrifice of current money for future money. Two different attributes are generally involved time and risk. The sacrifice takes place in the present and is certain. The reward or result of sacrifice comes later and the magnitude is generally uncertain. Time and risk are predominates for investment. Such as Investment in government bonds time is predominates whereas in common stock time and risk both are important. (Sharpe, Gordon, Alexander and Bailey: 2000:1)

Investment also refers to the expenditure of funds for capital goods such as factories, farm, equipment, livestock and machinery. Capital goods are used to produce other goods or services.

The main source of investment is saving. A distinction is often made between investments and saving. Saving is defined as forgone consumption; investment is restricted to real investment of the sort that increases national output in the future.

This definition classified investment as real and financial investments. Real investments generally involve some kind of tangible assets such as land, machinery, or factories. Financial investment involves contracts written on pieces of paper, such as common stock and bonds. By and large, two forms of investments are complementary, not competitive.

Bank plays a very important role in Investment by collecting saving from individual and providing loans to individuals and industries for economic activities. Bank itself invests in different securities of the company and industries. It helps to mobilize the idle saving in financial activities. Banking has played a very important part in the economic development of all the nations of the world therefore it is termed as the life blood of modern commerce. The study mainly focuses on the Investment analysis of the commercial banks by comparing six main commercial banks of Nepal.

The term bank or banking can be referred to any person, firm or company accepting deposit of money subject to withdrawal by cheque, draft or order.

While talking about investment we cannot forget that saving is primary factor for investment. If there been no saving none of the investment can be expected. So saving is the backbone of investment. Saving is needed to finance capital investment to increase and maintain the productive capacity of the country. It is commonly known fact that an investment is possible when there is adequate savings. If all the income and saving are consumed for basic needs; then there is no saving, neither existence of investment. Therefore, saving and investment are interrelated.

Financial institutions play an important role to develop the business activities by collecting from the public money. Financial institutions involve commercial banks, saving and loan associations, credit unions pension fund and insurance companies. Especially commercial banks play significant role for development of financial activities. They render various services to their customers facilitating their economic

and social life. They not only collect idle money from public but also provide loan to investors, who are in need of fund. In addition they invest money in different securities.

### **1.1.1 Concept of Commercial Banks**

Commercial banks are those banks, which pool together the saving of the community and arrange them for the productive use. They accept deposits from the public and provide same deposits to the public as loan and advances. In fact, they circulate the money and create credit. The concept of the commercial banks made the economy strong. And now it's playing important role to make country economically strong. According to the Black's law Dictionary "Commercial Bank" means a bank authorized to receive both demand and time deposits, to engage in trust services, to issue letter of credit, to rent time-deposit boxes, and to provide similar services. Like wise section 2(a) of the Commercial Bank Act 2031 has defined that "Commercial Bank" means a bank which operates currency exchanges transactions, accepts deposits, provides loan perform, dealings, relating to commerce except the banks which have been specified for the co-operative, agricultural, industry of similar other specific object. (Bhandari Dilli Raj, "Principle & practice of Banking & insurance", January, 2003 edition.

Hence, the term commercial bank is used taking meaning of all banking habits. That's why joint stock banks, member banks, and credit banks are frequently used interchangeably with the term commercial banks. But it is different that central bank. Central Bank can not be interchangeable with other banks. In this way, a commercial bank is different from a central bank. While the primary objective of a commercial bank is the maximization of profit the central bank is primarily concerned with the effects of its operations on the functioning of the economy. Moreover, while there may certainly be many competing commercial banks, there exists only one central bank in a country. While the commercial banks compete against each other, the central bank comes out if any; ordinary banking business for the general public,

incomplete if confines itself mainly to controlling the operations of the banking system in country.

### **1.1.2 History of Banking in Nepal**

Similar to other countries goldsmith and landlords were the ancient bankers in Nepal. Tejarath Adda established during the tenure of then Prime Minister Rannodip Singh was the first step towards the institutional development of banking in Nepal though all the banking activities were carried out by it. Tejarath Adda did not collect deposits from the public but provided loans government employees and public against bullions.

Banking in true sense terms started with the inception in Nepal Bank Limited on 30<sup>th</sup> Kartik 1994 B.S. right from inception, it carried out functions of a commercial bank. Nepal Bank Limited had a Herculean responsibility of attracting people towards banking sectors from predominant non institutional transactions as well as introducing other banking services. Being a commercial bank, it is the one of government to look into neglected sector too.

This is the main reason of establishing Nepal Rasta Bank as a central bank of Nepal in 2013 B.S. Since then it has been functioning as a government bank it has its own limitations and reluctances of NBL to go the unprofitable sectors. To cope with these difficulties, government set up Rastriya Banijya Bank in 2033 B.S as a fully government owned commercial bank. Gradually, Agricultural Bank and Industrial bank came into existence. Despite all these efforts of the government, financial sector was found sluggish. Banking service to the satisfaction of the customer's was a far cry.

However, the inception of Nepal Arab Bank Limited in 2041 B.S. as a first joint venture bank proved to be a milestone in the history of banking.

With evolution of globalization and liberal economic policies, Nepalese financial sector is also able to attract foreign investors as well as private investors within the

country. The following is to-date list of major commercial banks operating in Nepal:

### **1.1.3 Features of a sound Investment Policy:**

Sound investment policy is not only prerequisite for banks profitability, but also crucially significant for the promotion of commercial savings of an underdeveloped country like Nepal

There are basically five features:

1. Liquidity
2. Profitability
3. Suitability
4. Safety and Security
5. Diversification

**1. Liquidity:** Liquidity refers to that state of position of bank that shows its capacity to meet all of its obligations. In other words, it refers to the capacity of bank to pay cash against deposits. In simple sense, liquidity refers to the cash or any assets that can be converted into cash immediately. People deposit their money at the banks in different accounts with confidence that the bank will repay their money when they need. Once the confidence is lost in depositor's eye, they may withdraw all their money (deposits) within a short period without giving any chance to the bank to manage. To maintain such confidence of the depositors, the bank must keep this point in mind while investing in different securities or at the time of lending. Hence, the liquidity position of a bank is such an important factor that it must be able to meet its cash requirement either by its cash in vault or by the help of converting its assets into cash in case of demand for such from its customers. There is no sense of the banks has adequate assets but not liquid.

**2. Profitability:** Commercial banks can maximize its wealth through maximization of return on their investment and lending. Therefore, these types of banks should invest their funds where they earn maximum profit. Generally

the profit of commercial banks depends upon the interest rate of the bank, volume of loan provided, time period of loan and nature of investment on different securities. A good bank is one who invests most of its funds in different earning asset standing safely from the problem of liquidity i.e. keeping cash reserves to meet day to day requirements of the depositors.

**3. Suitability:** Bank should always try to know that why a customer needs loan because if the borrower misuse the loan granted by bank he will never be able to repay loan. In order to avoid such circumstances, advances should be allowed to select the suitable borrowers.

**4. Safety and Security:** The bank must take care while investing funds. It should never invest its funds in those sectors, which are subject to too much fluctuation because a little difference may cause a great loss. Similarly, the businessman who is bankrupt at once or earns million in a minute should not be financed at all. Banks should accept that type of securities, which are commercial, durable, marketable and high market prices. For this purpose “MAST” should be applied for the investment.

Where,

M- Marketability

A- Ascertain ability

S-Stability

T- Transferability

Bank must take care of the belonging of public while investing and providing loan received in the form of deposits. The risk and return involved must be analyzed thoroughly so that depositor’s money is advanced safely where the risk of loss does not exit.

**5. Diversification:** This thing should always be kept in mind while granting loan that the investment is made not only in one sector. The bank must not invest the funds in one specific sector but the various sectors so that when something goes wrong in one particular sector, others will recover. To

minimize risk and maximize wealth, banks must diversify its investment in different sectors.

Capital market also plays a very important role in Investment. The shares issues by the company to raise capital for investment are traded in capital market. Since future is uncertain and investment decision involves risk, benefits of investment are difficult to measure and cannot be predicted with certainty. But capital market provides a means for distributing risk among various parties. It provides and allocates funds to firms with profitable investment opportunities and offers an avenue of liquidity for individuals to invest current in income or borrow against future income. Capital market brings together those who have surplus funds to lend and those who desire to borrow to finance the investment in industrial or commercial venture. Development of financial market and investment move in similar cyclical patterns.

**Table No.1. List of Commercial Banks & their Date of Operation in B.S.**

<b>S.N.</b>	<b>Name of the Commercial Banks</b>	<b>Date of Operation in B.S.</b>
1	Nepal Bank Limited	1994/07/30
2	Rastriya Banijya Bank	2022/10/10
3.	Agriculture Development Bank	2024/11/07
4.	Nabil Bank Ltd.	2041/03/29
5.	Nepal Investment Bank	2042/11/26
6.	Standard Chartered Bank	2043/10/16
7.	Himalayan Bank Ltd.	2049/10/05
8.	Nepal SBI Bank Ltd.	2050/03/23
9.	Nepal Bangladesh Bank Ltd.	2050/02/23
10.	Everest Bank Ltd.	2051/07/01
11.	Bank of Kathmandu Ltd.	2051/11/28
12.	Nepal credit and Commercial Bank Ltd.	2053/06/28
13.	Nepal Industrial and Commercial Bank Ltd.	2055/04/05

14.	Lumbini Bank Ltd.	2055/04/01
15.	Macchapuchhre Bank Ltd.	2057/06/17
16.	Kumari Bank Ltd.	2057/12/21
17.	Laxmi Bank Ltd.	2058/12/21
18.	Siddhartha Bank Ltd.	2059/09/09
19.	Global Bank Ltd.	2063/09/18
20.	Citizen Bank International Ltd.	2064/03/07
21.	Prime Commercial Bank Ltd.	2064/06/07
22.	Sunrise Bank Ltd.	2064/06/25
23.	Bank of Asia Nepal Ltd.	2064/06/25
24.	Development Credit Bank Ltd.	2057/10/10
25.	NMB Bank Ltd.	2053/08/11
26.	Kist Merchant Banking & Finance Ltd.	2059/11/09

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(Source: Banking and Financial Statistic 53, 2009, mid-July, p50)

## **1.2 Focus of the Study**

The establishment of the Joint Venture (Commercial) banks has given a new horizon to the financial sector of Nepal. The study is mainly focused on the investment policy of a joint-venture bank namely Nepal Investment Bank, Himalayan Bank, Nepal SBI Bank, Everest Bank and Bank of Kathmandu in the Five year period from 61/62 to 65/66.

## **1.3 Profiles of the Banks in study**

### **1. Nepal Investment Bank Limited:**

Nepal Investment Bank was established in 2042, under the company Act. It was a foreign joint venture bank and the foreign partner is Banque Indosuez of France, Paris. 50% of the Bank's share was, of Indosuez Bank, 15% is of Rastriya Banijya Bank, 15% is of Rastriya Bima Sansthan and remaining 20% is of the public the bank has 30 branches in the operation. Nepal Government gives the bank specific rights to manage for the 15 years. NIBL has been awarded the prestigious "Bank of the Year

2005” by the London-based Financial Times Group’s. The Banker – making it the first Nepali Bank to win the award two times in three years. NIBL had also won the “Bank of the Year 2003” award. Bank was selected for this honor amongst the Nepali banks by meeting the stringent benchmark criteria set by The Banker. The Award is based on the growth and performance in terms of capital, assets, and return on equity and management quality. Authorized capital and paid-up capital of Nepal Investment Bank Limited are Rs.4000, 000,000 and Rs.2407, 069,000. Its market value per share is Rs.1388 and book value per share is Rs.162. EPS is Rs.37.42.

## **2. Himalayan Bank Limited:**

HBL was established in 1992, under the company act. It is also a foreigner joint venture bank and the foreigner partner is Habib Bank Limited of Pakistan. This is the first Joint venture Bank managed by Nepalese Chief Executives. There are 23 branches of HBL in operation. Authorized capital and paid-up capital are Rs.2000, 000,000 and Rs.121, 6215,000. Its market value per share is Rs.1887 and book value per share is Rs.329 currently its EPS is Rs.61.04.

## **3. Nepal SBI Bank Limited:**

Nepal SBI Bank Limited was established in 1993, under the company Act. It is also a foreign joint venture bank and the foreign partner is State Bank of India, holding the 50% of equity share of Nepal SBI Bank Limited, is managing the Bank under joint venture and technical services agreement signed between it and Nepalese promoters. These are 32 branches of Nepal SBI Bank Limited in operation. Authorized capital and paid-up capital of Nepal SBI Bank Limited is Rs.2000, 000,000 and Rs.874, 527,840 respectively. Its market value per share Rs.1900 and book value per share Rs.194.68 currently it’s earning per share is Rs.36.18.

## **4. Everest Bank Limited:**

Everest Bank Limited was established in 1992, under the company Act. It is also foreign joint venture bank and the partner was United Bank of India and

managed from very beginning till November 1996. Later on it handed over the management to the Punjab National Bank Ltd, India that holds 20% equity on the banks share capital. Altogether 32 branches of Everest bank are in operation. Authorized capital and paid-up capital of Everest Bank Limited are Rs.10 00,000,000 and Rs 838,821,000 respectively. Its market value per share Rs.2455 and book value is Rs.239. EPS is Rs.99.99.

**5. Bank of Kathmandu Limited:**

Bank of Kathmandu Limited was established in 2050 B.S. in collaboration with the Siam commercial Bank PLC, Thailand under the company Act. The Siam commercial Bank has diluted and reduced its equity to 25% by selling 25% of Nepalese citizen in 1998 of its initial holding. The bank has 28 branches in operation. Authorized capital and paid-up capital of Bank of Kathmandu Limited are Rs.1000, 000,000 and Rs.844, 397,900 respectively. Its market value per share Rs.1825 and book value is Rs.206.25. EPS is Rs.54.68.

The present study will make a modest attempt to analyze Investment policy of Commercial Banks.

#### **1.4 Statement of the Problem**

The main economic goal of developing countries is to accelerate the growth rate. Although most of the developing countries are predominantly agricultural, Industrial development is crying need of these countries for their economic development and investment is the dominant factor for industrial development. But rate of investment in Nepal is very low. The main cause behind it is political instability, low investor confidences, lack of knowledge on Investment management, lack of improved prospectus to investors, restriction on foreign portfolio investment of Nepal, lack of efficient capital market and slow privatization process.

Investment greatly depends on saving behavior of citizens but the saving rate of Nepalese is very low because most of the citizens are below poverty level. They don't have enough income for daily consumption. Some people hardly save some money but they want to save for future. Only few people invest in industries. People must be motivated to use their saving and mobilize their excess fund in economic activities.

Due to tough competition and lack of peace and political instability, Nepalese banks are facing problem to invest their funds in different sectors. So the banks have facing low liquidity transaction. In other side the demand of loan is very low.

Nepal is considered much liberal as banks and finance institution are opened for foreign Investment for quite a long time. As a result, the country now has 26 commercial banks which is a lot of improvement in the banking sectors.

Few commercial banks in Nepal are joint venture with a foreign bank. Now a days commercial banks are opening without foreign collaboration. According to some analysts the withdrawal of foreigners as the result of some anomalies in the Nepali banking sector irrespective of what the withdrawing foreign bank would say officially to the Nepali authorities of the general public.

With some 26 commercial banks, 63 development banks and 77 financial companies operating in Nepal, the market seems over crowded and the banks are now finding a tough competition among themselves. Since the entry barriers are not so high due to the governments liberal policy, this competition is expected to be more intense in the near future, as there is always the possibility of a new player entering this sector.

Nepalese commercial banks have not formulated their Investment policy in an organized manner. They mainly rely upon the instruction and guidelines of Nepal Rastra Bank. They don't have clear view towards Investment policy. There is a lack of sound Investment policy of commercial bank. Furthermore, the implementation of policy is not in an effective way.

Commercial banks have to face tough competition due to limited and narrow capital market and investment opportunities. They are even discouraging depositors by offering very low interest and minimum threshold balance. This will definitely make bad impact on economy of a country. There is lack of knowledge on financial risk, interest rate risk, management risk business risk, liquidity risk, default risk, purchasing risk etc.

Commercial banks don't seem to invest their funds in more profitable sector. They are found to be more interested I Investment in risky and highly liquid sector i.e. treasury bills development bonds and other securities. They keep high liquid position and flow lower funds to the productive sectors, this result into lower profitability to commercial banks and ignorance to the national economic growth process. This is the main reason for crisis in the commercial banks and in the whole national economy as well.

## **1.5 Objectives of the Study**

Investment is necessary for economic development of the country. This study attempts to assess the role and impact of Investment on economic development of the country.

The main objectives of this study are as follows:

1. To study and analyze percentage of Investment made by selected commercial banks in total Investment made by commercial banks.
2. To analyze Investment trend and their projection for next five years of selected commercial banks.
3. To identify Investment sector of selected commercial banks.
4. To study the relationship between Investment and Deposit of the banks.
5. To make the suggestion, recommendation of the study.

### **1.6 Limitation of the Study**

This study is done for partial fulfillment for masters of Business studies (MBS). Time constraints financial problem and lack of research experience will be the primary limitations and other limitations are:-

- ) This study is confined to five commercial banks. These banks are of average in nature. They are expected to depict the true picture of banking in Nepal.
- ) This study is mainly based on the secondary data available from and concerned banks and from NRB.
- ) Validity of secondary data relies on the source.

### **1.7 Organization of the Study**

The whole study will be divided into five chapters.

#### **Chapter I:-**

This chapter will deal with introduction. This includes background, statement of problem, objectives of the study, limitation of the study and organization of the study.

#### **Chapter II:-**

This chapter deals with the review of available literature. It includes review of books, journals, previous thesis and web sites etc.

**Chapter III:-**

This chapter explains the research methodology used in the study, which includes research design, source of data, population and samples, method of data analysis etc.

**Chapter IV:-**

The fourth, which is the important chapter of the study, will include presentation and analysis of data.

**Chapter V:-**

The fifth chapter summarizes the main conclusion the flows the study and offers suggestions, recommendation for further improvement and conclusion of the study. A bibliography and appendices will be attached at the end of the study.

## **CHAPTER – TWO**

### **REVIEW OF LITERATURE**

#### **2.1 Concept**

Investment is a present sacrifice for the sake of future benefits. Therefore, investment always involves risk. Present decision about selecting the best alternatives should always take the future risk into consideration. The few alternatives of investment in the past have now expanded into hundreds. Hence, the complexity of investment has also been increasing day by day. To select the best alternative and to construct an efficient portfolio, a wise analysis and decision is required. Before making any decision on investment we must be well informed about the factors, which affect investment. Investment decision related with saving, capital formation, capital market, risk involve with it, return, inflation etc.

#### **2.1.1 Principle of Sound Investment Policy**

It is a universally known fact that the most important problem in banking administration is that of investing its deposits and paid up capital in various forms of earning assets. This is also known as portfolio policy. The bank's portfolio being nothing but an arranged and digested scheme of its assets.

The funds of banks are generally invested either in those assets, which are non-profitable, or those, which are profitable. Non-profitable assets include cash reserve and the dead stock and profitable assets includes call money, investment, advances and loan, cash credits, overdrafts, discounting of bills and acceptances etc.

The guiding principal of sound Investment is as follows:

## **1. Safety**

Safety would be the first guiding principal of a bank, so far as its advances and investment are concerned, because the very existence of a bank depends on the safety of its outstanding, which should never therefore be sacrifice to the profit-earning capacity of its advances. This has led people to believe that a bank will never advance any loan, unless it is fully secured. Such is no doubt the ideal conception of banking, but as a result of its competition from other banks, every bank has to grant a certain number of loans to its customers against their personal security. In such cases, the bank uses discretion and never lends a sum obviously beyond its customer's resources. Consequently, to maintain a banking concern in sound condition should be above suspicion. Scrupulous care should be taken that the funds lent out are not subject to any risk of being lost.

## **2. Liquidity**

While making advances and Investments, the bank must see that the money it is lending is not going to be locked up for a long time, which would make its loans and advances less liquid and more difficult to realize in cases of emergency. A bank can afford to lend funds only for a short period, as its liabilities are either payable on demand or at short notice. If it makes advances for long term there is no likelihood of it being able to recall such loans in time to meet the demands of its depositors.

## **3. Diversification of Risk**

It is also necessary to remember that a prudent bank must avoid investing all its funds in meeting the needs of any one industry or any one group of industries for considerations of self-interest as well as the larger public good. The imprudence on putting one's own eggs into one basket cannot be too often reiterated. Therefore bank should invest their funds in different field than investing in same field or sector.

## **4. Return**

Another important factor that will determine the decision of the bank whether or not to grant loan or to make an Investment will depend upon the answer to the question whether or not it will get a fair return on its Investment. A bank always aims at securing maximum profits for its share-holders. The difference between borrowings and lending rate constitutes the gross profit and no bank ordinarily will think of an advance without a satisfaction margin of profit.

### **5. Marketability**

The investments of the bank should be such as can be easily sold and realized in cash readily. Loans given against commercial paper representing goods in transit or against stocks and shares of well-known companies are easily realizable while loans given against immovable property cannot be easily realized. The bank must make sure that the securities, in which he invests his funds, are easily saleable without appreciable loss.

### **6. Stability of Price**

The primary object of a bank in buying securities is not to gain by a possible rise in their prices, which is the aim of a speculating dabbler. Therefore the price of the securities should be liable to wide fluctuations.

### **7. Stock Exchange Securities**

This consists of government securities as well as securities of the joint stock companies. These securities are easily and quickly realizable. As they are quoted on the stock exchanges so their value can be easily ascertained. In case of need, a bank can either sell them or pledge them without any hesitation. But before accepting them, the bankers should see that the shares of the companies are not partly paid, that sufficient margin has been kept and they are negotiable. Speculative shares should not be accepted. (Mali (Dr.) Ram (1965), Currency and Banking)

### **2.1.2 Some Important Terms**

The study in this section comprises of some important banking terms for which efforts have been made to clarify the meaning, which are frequently used in this study, which are given below.

#### **a. Investment on Government Securities, Share and Debenture**

Though a commercial bank can earn some interest and dividend from the investment on government securities, share and debentures, it is not the major portion of income, but it is treated as a second source of banking business. A commercial bank may extend credit by purchasing government securities bond and share for several reasons.

Some of them are given as:

- ) It may want to space its maturate so that the inflow of cash coincide with expected withdrawals by depositors or large loan demands of its customers.
- ) It may wish to have high-grade marketable securities to liquidate if its primary reserve becomes inadequate.
- ) It may also be forced to invest because the demand for loans has decreased or is not sufficient to absorb its excess reserves.

However, investment portfolio of commercial bank is established and maintained primarily with a view of nature of banks liabilities that is since depositors' may demand funds in great volume without previous notice to banks. The investment must be of a type that can be marketed quickly with little or no shrinkage in volume.

#### **b. Investment on Other Company's Share and Debenture**

Due to excess funds and least opportunity to invest there funds in much more profitable sector and to meet the requirement of Nepal Rastra Bank's directives many commercial banks have to utilize their funds to purchase shares and debentures of many other financial and non-financial companies. Nowadays most of the commercial

banks have purchased regional development bank's and other development bank's shares.

### **c. Deposits**

For a commercial bank, deposit is the most important source of the liquidity. For bank's financial strength, it is treated as a barometer. In the word of Eugene, "a bank's deposits are the amount that it owes to its customers." Deposit is the lifeblood of the commercial bank. Though, they constitute the great bulk liabilities, the success of a bank greatly depends upon the extent to which it may attract more and more deposits, for accounting and analyzing purpose, deposits are categorized in three headings. They are:

Current Deposits

Saving Deposits

Fixed Deposits

## **2.2 Review of Books and Articles**

Investment, in its broadest sense, means the sacrifice of current rupees (dollars) and resources to the sake of future rupees (dollars) and resources. In other words, it is a commitment of money and other resources that are expected to generate additional money and resources in the future. Such a commitment takes place in the present and is certain to occur but the reward comes in the future and always remains uncertain. Therefore, every investment entails some degree of risk.

Investments are made in assets. Assets generally are two types: real assets (Land, Building, Factories etc) and financial assets (Stock, Bonds, T-Bills etc). These two types of investment are not competitive but complementary, highly developed institution for financial investment greatly facilitating real investment. (Bhattari Rabindra, (2005), Investments Theory and practice 2<sup>nd</sup> Edition)

Country's growth rate is largely depending on Investment and commercial banks are key for investing funds in productive works as they deal with money. They collect funds and utilize it in a good Investment, which is not an easy task for them. Therefore an Investment of funds may be the question of life and death for the bank. They must have effective and good Investment policy to exits in this world of competition.

The problem of the investor is to select the funds whose objectives and degree of risk taking most closely match its own situation. The one that will accomplish for him what he would wish to do for himself if he could diversify and manage his own holding. (Bhalla, V.K. (1983), Investment Management Securities Analysis and Portfolio Management)

Investment is the value of that part of economics output for any time period that takes the form of new structure, new producers' durable equipment and change in inventories. (Joshi, Shyam(2057), Mangagerial Economic)

According to Sunity Shrestha (1998) bank portfolio (loans and investments) of commercial banks has been influenced by the variable securities rates Investment planning of commercial banks in Nepal is directly traced to fiscal policy of government and heavy regulatory procedure of NRB. So the investments are not made in professional manner. Investments planning of the commercial banks in are not made in professional manner. Investment planning of the commercial banks in Nepal has not been found satisfactory in terms of profitability, safety, liquidity, productivity and Social responsibility. To overcome this problem, she has suggested, commercial banks should take their Investment function with proper business altitude and should perform lending and Investment operation efficiently with proper analysis of the projects. (Shrestha, Sunita, (1998), "Leading Operation of Commercail Bank of Nepal and its impact on GDP)

Total risk of security can be divided into systematic and unsystematic components. Systematic risk is risk that cannot be diversified away for it affects all securities in the market. Unsystematic risk is unique to the particular securities and can be eliminated with efficient diversification. If the assumption of the CAPM or APT factor model holds this risk does not matter to investors. As a result, diversification of assets by a company in an effort to reduce volatility would not be a thing of value.

Investment is done usually to get some return from it in future. There is no use of Investment if there is not return. Even the parents invest on their children education with a hope that their children will earn money in future with that education they received. Therefore, there must be return from Investment made on capital goods or financial goods. It's another thing that the return may be positive and negative.

Internal Rate of Return (IRR) and Net Present Value (NPV) are the only appropriate means by which to judge the economic contribution of Investment proposal. The important distinctions between the internal-rate of return method and the present-value method involve the implied internal rate of return.

Inflation is a major concern for investors. But and large, people have come to fear significant inflation, particularly when it is unpredictable. Capital rationing is likely to result in Investment because depreciation charges do not reflect replacement cost and firm's taxes grown at a faster rate than inflation. In estimating cash flows one should take account of anticipated inflation. Otherwise a bias arises in using an inflation-adjusted required return and non-inflation-adjusted cash flows and there is a tendency to reject some projects that should be accepted.

There is no completely satisfactory way to summarize the prices changes that have occurred over a given time period for the large number of goods and services available. Nevertheless, the government has attempted to do so measuring the cost of a specific mix of major items at various points in time. The 'overall' price level

computed for this representative combination of items is termed a cost-of-living index. The percentage changed in this index over a given time period can then be viewed as a measure of the inflation (or deflation) that took place from the beginning of the period to the end period. This measure of inflation may not be relevant as the price of the goods might change according to the quality also.

The simplest view of investor's attitudes towards inflation is that they are concerned with real returns, not nominal returns and that a single price index is adequate to characterize the difference. Looking to the future, investors do not know what the rate of inflation will be, nor do they know what the nominal return on Investment will be. However in both cases they have expectation about what these figures will be which are denoted as EIR (Expected inflation rate) and ENR (Expected nominal returns), respectively. Thus the Fisher Model implies that ERR (Expected real return) on an Investment can be approximated by.

$$ERR=ENR-EIR$$

$$\text{Or, } ENR=ERR+EIR$$

If Investors concerned with real returns, their securities will be priced in the market place so that expected nominal returns incorporate the expected rate of inflation.

At the start of given Investment holding period nominal interest rate for securities having no risk of default should cover both a requisite, expected real return and the expected rate of inflation. At the end of the period, the real return actually received will be the difference between the nominal return and the rate of inflation actually experienced. Only when actual inflation equals expected inflation will the actual real return equal the expected real return on such securities. Although deviations of actual inflation from expected inflation may have relatively little effect on the real return on investments in general, they have a significant effect on specific Investment.

There is risk associated with Investment, as alas, there is risk associated with most elements of our lives. In the eyes of investors and creditors, a company's business risk complexion may change as a result of the investment it chooses. Because Investment proposals entail differing degrees of business risk, we must analyze not only their expected profitable but also the possible deviation from that expectation. Risk is expressed in terms of the dispersion of the probability distribution of possible net present values or possible internal rates of return and is measured by the standard deviation. Risk can be measured under the assumption of serial independence of cash flows over time or when cash flows from one period to the next are dependants over time. For dealing with situation of moderate correlation of cash flows over time, probability trees are useful. Simulation techniques often can be applied to analyze risk Investment. (Vanhorn, James .C (2003), Financial Management and Policy)

Most people store their money with bank, which keeps an account of how much money is costumer deposit. People gain access to their money through cash machine, counter transaction or by writing cheques. Banks may provide interest when a certain amount of money is kept in the account, but will charge customers who borrow money. Banks also provide financial services, such as pensions and insurance policies. (The world Book Encyclopedia)

According to World Bank, "Banks are financial institutions that accept funds in the form of deposit repayable on demand or in short notice." (Joshi, Shyam (1990), An introduction to Economic Theory)

In brief, bank is an institution, which accepts deposits in deposit in different accounts, provides loans of different types and creates credit.

In general, the term bank is used to mean commercial bank. The commercial bank is the oldest type of bank. The profit maximization is the main objective of this bank. The modern commercial banks collect deposits in current, saving and fixed account

from general public and the institution. It provides loans to individuals and institution from the deposits. In this way bank mobilize saving for productive works and thus for industrial development. The modern commercial banks provide loan not only to traders but also to agriculture, industry and service. Although this bank concentrates itself on short-term loan, it has started to provide even medium and long-term loans to some extent. The difference between the rate of Investment on deposits and loan is the main source of its income. The function of a commercial bank is not unique in all countries.

The banks that collect deposits and advance loans are called commercial banks. According to these definition commercial banks accepts deposit and provide loans but other financial institutions also collect deposits. To differentiate commercial bank from other institution Dr. Shyam Joshi had defined it as a great institution that conducts the payment mechanism of a country. The individuals and institution make payment to each other through the mechanism of commercial bank. The commercial bank plays a leading role in the smooth operation of an economy. It makes available all financial services to individuals and institutions.

(Joshi Shyam (1990), An introduction to Economic Theory)

In world book (2000), it states that Investment promotes economic growth and contributes to a nation's wealth. When people deposit money in a saving account in bank. For example, the bank may invest by lending the fund of various business companies. These firms, in return, may invest the money in new factories and equipment to increase their production. In addition to borrowing from the banks, most companies issue stocks and bonds that they sell to investors to raise capital needed for business expansion. Government also issue bonds to obtain funds to invest in such projects as the construction of dams, roads and schools. All such Investment by individuals, business and govt. involves a present sacrifice of income to get an expected future benefits. As a result, Investment raises a nation's standard of living. (The world Book Encyclopedia)

The above statement clearly specifies the importance of Investment and the role of banks for the development of the country. Banks is the major financial need for the various developments. The banks can play the vital role for the financing activities in the business. The saving and Investment is most necessary for the developing country, which can be managed by banks. Capital accumulation also plays vital to accelerate the economic marginal propensity of consumption. As a result, such countries are badly in trapped into the vicious circle of poverty. Therefore the basic problem of the developing of the countries is to raise the level of saving and thus Investment and the problem can be solved through well-established banks.

In general, bank means an institution that accepts deposits in different accounts and provides loans of different types. Bank can be defined according to the functions of a bank or the service it provide such as commercial bank, central bank and industrial bank. In the words of leaf a bank is a person or corporation which holds it out to receive from the public, deposits payable on demand by cheque.

With the title of 'Banking the future on competition' Mr. Sharma wrote in Business age that the commercial banks are establishing and operating mostly in urban areas. From his studies he found that:

- Commercial banks are establishing and providing their service in urban area only. They don't have interest to establish in rural areas. Only the branch of Nepal Bank Ltd and Rastriya Banijya Bank Ltd. are running in those sectors.
- They have maximum tax concession.
- They don't properly analyze the credit system.

He found that due to the lack of Investment avenues, banks are tempted to invest without proper credit appraisal and personal guarantee, whose negatives side effects would show colors only after four or five years. (Shrama, B. (2000, Oct), "Banking the future an competition")

According to Pradhana and Yadav (2002), saving is income not consumed. It is one of the important and perhaps the chief sources of Investment. In developing countries about 45% of the incremental saving is invested domestically, while in developed countries about 75% of the incremental saving is invested domestically. This suggests that capital is more mobile in developing countries than in developed countries. Saving is of great significance in a country's development. While saving results in high economic growth rate, rapid development leads in turn high savings. Nepal's saving rate is lower as to other developing countries, however, even to achieve 5 to 6 percent economic growth rate, more than 25 percent annual Investment of GDP is considered necessary. As the country's current domestic saving is about 14% the economic resources are short by nearly 11% in proportion of the GDP.

The situation is such that huge portion of Investment has still to be made with external resources. The amount of saving of a typical household in Nepal is small because of the people have limited opportunities for Investment. They prefer to spend saving on commodities rather than on financial assets. This restricts the process of financial intermediation, which might otherwise bring benefits such as reduction of Investment risk and increase in liquidity. When capital is highly mobile internationally, saving from abroad can also finance the Investment needed at home. When capital is not mobile internationally, saving from abroad will limit Investment at home.

Wherever there is Investment there must be Capital formation. The development of an economy requires expansion of productive activities, which in turn is the result of the capital formation, which is the capital stock of the country. The change in the capital stock of the country is known as Investment. Therefore Capital formation is closely related to investment. Investment generally takes two forms:

- i. Financial Investment and
- ii. Physical Investment

Physical Investment related to real Investment in the economy or industry, which is known as capital formation. Capital formation shows the change in gross fixed assets of productive units of manufacturing industries.

Capital formation refers to the creation of physical productive facilities such as building tools, equipment and roads. The process of adding to the amount of stock of the real assets produces growth in the economy. It means increasing a country's stock of real capital. It implies additions to the existing supply of capital goods in a country. It represents an additional of new capital stock to existing stock after deducting depreciation, damage and other physical deterioration of the existing capital stock. Economic progress in country depends upon its rate of capital formation. Hence, a key factor in the development of an economy is the mobilization of domestic resources. In the process of capital formation, the capacity to save by certain classes of people and institution becomes quite important. These people have varied asset-preferences, which change from time to time. The need of entrepreneurs who actually use savings for productive purpose also varies over time. (Pradhan and Yadav: 2002, Oct-Dec), "The Economic Journal of Nepal)

According to Yadav Pant (2003), a bank is a service-oriented institution, which provides many kinds of services for its customer, all of which are equally important. Moreover, the quality of services should be up to the mark to meet the customer's requirement. Customers are the key players for a service organization, without whom such organization can never exist. (Pant: 2003: 4), "Info Himalayan")

### **2.3 Review of Thesis**

There are a lot of research have been performed on Investment policy of Commercial banks. The findings of some of the studies are presented below.

S. Thapa (2001) made a comparative study on Investment policy of Nepal Bangladesh Bank Limited and other joint venture banks. Her main objectives were as follows:

- ) To analyze the relationship between loan and advance and total Investment with other financial variable of NB bank and compare them with NABIL and NIBL.
- ) To evaluate the liquidity, asset management efficiency, profitability and risk position of NB bank in comparison to NABIL and NIBL.
- ) To study the various risks in Investment of NB bank in comparison to NABIL and NIBL.

From her study she found that NB bank has good deposit collections, it has better liquidity position, it has made enough loan and advances but it has made the negligible amount of Investment in government securities. She found that credit risk ratio, interest risk ratio, capital risk ratio, and profitability position of NB bank is comparatively worse than that of NABIL and NIBL. She also found that there is significant relationship between deposit and loan and advances, outside assets and net profit of NB bank. But there is no significant relationship between deposit and Investment of NB bank and the position of NB bank in regard to utilization of fund to earn profit is not better in comparison to NABIL and NIBL. She recommended NB bank to invest more in government securities, to implement sound credit collection policy, to upgrade its banking facilities, to implement sound and liberal lending policy to make more improvement in loan and advances.

Mr. Shiba Raj Loudari (2001) conducted a study on “A study on investment policy of Nepal Indosuez Bank Ltd. in comparison to Nepal SBI Bank Ltd. with the objectives of:

- ) To examine the liquidity asset management and profitability position and investment policy of NIBL in comparison to Nepal SBI Bank Ltd.
- ) To study the growth ratios of loans and advances and investment to total deposit and net profit of NIBL ion comparison to Nepal SBI Bank Ltd.

- ) To analyze relationship between deposit and investment, deposit and loans and advances, net profit and outside assets of Nepal Indosuez Bank Ltd. in comparison to Nepal SBI Bank Ltd.

The study was conducted through secondary data.

The research findings of the study are as follows:

- ) Current ratios for both the Banks is satisfactory.
- ) Although cash reserve ratio (CRR) is managed by both banks as per Nepal Rastra Bank directives, both banks have not paid sufficient insight toward cash management. Their cash reserves have fluctuated in a high degree.
- ) Nepal SBI Bank Ltd. has increased investment in government securities where as Nepal Indosuez Bank Ltd. has decreased.
- ) Deposit utilization of Nepal Indosuez Bank Ltd. is less effective than that of Nepal SBI Bank Ltd. Further Nepal Indosuez Bank Ltd. has invested lesser amount on government securities and share and debenture than that of Nepal SBI Bank Ltd.
- ) .The analysis of growth ratios shows that growth ratios of total deposits, loans and advances, total investment and net profit of Nepal Indosuez Bank Ltd. are less than that of Nepal SBI Bank Ltd.
- ) The trend value of loans and advances to total deposit ratio is decreasing in case of both the banks. The trend value of total investment to total deposits ratio is also decreasing in case of both the banks.

Mr. Lila Prasad Ojha (2002) conducted a study on “Lending Practices: A study on NABIL Bank Ltd., SCB Nepal Ltd. and Himalayan Bank Ltd.” with the objectives of:

- ) To determine the liquidity position, the impact of deposit in liquidity and its effect on; lending practices.
- ) To measure the bank’s lending strength.

- ) To analyze the portfolio behaviour of lending and measuring the ratio and volume of loans and advances made in agriculture, priority and productive sector.
- ) To measure the lending performances in quality, efficiency and its contribution in total income.

The study was conducted on the basis of secondary data.

The research findings of the study are:

- ) The measurement of liquidity has revealed that the mean current ratio of all the three banks is not widely varied. All of them are capable in discharging their current liability by current asset.
- ) The measurement of lending strength in relative terms has revealed that the total liability to total assets of SCBNL has the highest ratio. The high ratio is the result of high volume of shareholder equity in the liability mix. Himalayan Bank Ltd. has high volume of saving and fixed deposits as compared to current deposit resulting into low ratio of non-interest bearing deposits to total deposits ratio compared to the combined mean.
- ) The loan and advances and investment to deposit ratio has shown that NABIL Bank Ltd. has developed the highest proportion of its total deposits in earning activities. This is the indicative of that in fund mobilizing activities NABIL Bank Ltd. is significantly better.
- ) The lending in commercial purpose is highest in case of NABIL Bank Ltd. and least in case of SCBNL. SCBNL has highest contribution in service sector lending. It has contributed 25.47% of its total credit in general use and social purpose.
- ) The ratio of investment to investment and loan and advances has measured the total portion of investment in total of investment and loans and advances. The mean ratio among the banks does not have deviated significantly.

I. B. Bohara (2002) also made a comparative study on Investment Policy of Joint Venture Banks and finance companies of Nepal. The main results of his study were as follows:

- i. The sample firms have the higher current ratio than 1, so the liquidity position of those firms is good, they can easily maintain the liquidity crisis, the cash and bank balance to total deposit ratios of finance companies is higher than that of JVBS.
- ii. The average loan and advance to total deposit ratios of finance companies are higher than JVBS, which indicate that finance companies are successfully invested their deposit collections as loan and advances in comparison to JVBS.
- iii. Total Investment to total deposit ratio of JVBS except BOKL is greater than that of finance companies.
- iv. Profitability position of the JVBS except BOKL is better than that of finance companies. But return on total asset ratios is higher than that of JVBS.
- v. JVBS have a large amount of risk weighted assets than finance companies. Comparatively, interest-bearing liabilities are lower in JVBS and they have more interest bearing assets.
- vi. The growth ratio of total Investment of finance companies is comparatively higher than that of JVBS.
- vii. Finance companies have the higher correlation coefficient between total deposit and Investment.
- viii. Trend values of total Investment and deposits of all the firms are in increasing trend.

He recommends evaluating the Investment opportunities and alternatives using statistical, capital budgeting and other financial tools to avoid the large amount of doubtful debt and risks. He also suggests expanding their branches in rural sectors, so

that scattered fund can be mobilized and their available deposit collections can be granted for the development of the country and improvement of living standard of the people. He recommended the selected firms to prepare future Investment policies, plan after detail analysis of causes and effect of the variables. At the end he suggested the selected firms to make continuous effort for portfolio Investment.

P. Dhungana (2002) in his thesis, “A Comparative Study on Investment Policy of Nepal, Bangladesh Bank and Other Joint Venture Banks”, tries to compare the Investment policy of NBBL with HBL and NSBI. His main findings and conclusion were as follows:

- i. NBBL has not good deposit collection, it doesn't have made enough cash and bank balance and it has made negligible amount of Investment in government securities.
- ii. The Asset management ratios were highly variable which reveals NBBL has not followed stable policy.
- iii. NBBL's ratio of OBS operation to loan and Advances lower than that of HBL but its ratio is greater than that of NSBI.
- iv. The profitability position on NBBL is comparatively not better than that of HBL but better than that of NSBI.
- v. The credit risk ratios and interest risk ratios of NBBL is higher than that of HBL and NSBI. Banks profitability is solely depends on Interest charged by a bank but the high interest rate risk of NBBL shows that bank is failure to maintain this.
- vi. Trend of deposit collection, lending, Investment and net profit were not better than HBL but better than NSBI.

He recommended increasing liquidity position of NBBL and making more Investment in government securities. He also suggested NBBL to implement a sound collection policy and more mobilization of interest bearing assets. He further suggested NBBL

to have effective portfolio management, to have liberal lending policy and to upgrade the banking facility.

T.K. Raya (2003) in his thesis, “Investment Policy and Analysis of Commercial Banks in Nepal” made a comparative study of SCBNL. With NIBL and NB Bank.

His main objectives were as follows:

- i. To discuss fund mobilization and Investment policy of SCBL in respect to its fee based off-balance sheet transaction and fund based on balance sheet transaction.
- ii. To evaluate the quality, efficiency and profitability and risk position.
- iii. To evaluate trend of deposit, Investment, loan and advances and projection for next years.

His main findings were as follows:

- i. Mean current ratio of SCBL is slightly higher than that of SCBL and Nepal Investment bank.
- ii. Mean ratio of cash and bank balance to total deposit of SCBL is lower than NIBL and NBBL.
- iii. Liquidity position of SCBL is comparatively better than NIBL and NBBL. It has the lowest cash and bank balance to total deposit and cash and bank balance to current ratio. SCBL has a good deposit collection. It has made enough Investment on government securities but it has maintained low Investment policy on loan and advances.
- iv. SCBL is comparatively average successful in it's on balance sheet operation. But off balance sheet operation activities in compared to NIBL and NBBL has maintained the strong position.
- v. SCBL is comparatively higher position than that of other banks, as well as its use to provide interest to the customers for different activities.

- vi. There is significant relationship between deposit of loan and advances and between asset and net profit of SCBL.

He recommended the SCBL for effective portfolio management and for project oriented approach. He also suggested enhancing the Off Balance Sheet operation.

D. Shrestha (2003) in her thesis, "Investment Analysis of Commercial Banks" a comparative study of HBL and Nepal SBI bank said that only joint venture commercial banks are running in profit. And HBL is one of the successful commercial bank of Nepal. Nepal SBI is still in developing period. HBL has made a great achievement within last 10 years period. It has also invested in different sectors. These commercial banks should take favorable step for the development of rural parts of the country.

Banks plays a crucial role in sustainable development of least developed countries. Because of bottlenecks inherent in the economic of least developed countries are either unemployed or under-employed or only seasonally employed. It can absorb the population in gainful employment activities. Thus, they can play an important role in poverty alleviation in the country. The major sources for financial resources to industries in the least developed countries are the commercial banks. They account almost 80 to 90% of the total lending to enterprise. This study is concerned with the Investment analysis of commercial banks of Nepal.

K.S. Silwal (2004) in her thesis, "Investment Policy of Commercial Bank" a comparative studies of NABIL and SBI Banks on the basis of analysis and findings of the study as follows:

- The liquidity position of a bank is affected by external as well as internal factors. The affecting factors may be interest rates, position of loan and advances and savings, investment situations, central banks directives, the lending policies, capability of management and so forth. As NABIL has maintained ratios of cash and bank balance to total. So, NABIL is

recommended to increase cash and bank balance to meet current obligation and loan demand.

- To get success in competitive banking environment, depositor's money must be utilized as loan and advances. Negligence in administering this asset could be one of the main reasons of a bank failure. It has been found from the study that SBI has greater ratios of all because its large portion of fund is invested as loan and advances but neglected to invest on other sectors. NABIL has not properly used its existing fund as loan and advances. To overcome this situation NABIL is strongly recommended to follow liberal lending policy.
- Commercial banks can not move away from their target that is profit and customers satisfaction. They should be careful in increasing profit to maintain the trust of shareholders, investors and customers. SBI profitability position is worse than that of NABIL. So, SBI is recommended to utilize risky assets and shareholders fund to gain highest profit margin.

Although the securities issued by government yields the lowest interest rates are considered to be risk free. From this study, it is found that SBI has maintained lowest in comparison to NABIL. Therefore, it is recommended to SBI that if it has idle funds it should invest them in government securities. It should always look from the "something is better than nothing" viewpoint.

- Most of the JVBs have focused their banking services especially to big clients such as multinational companies, large-scale industries and so forth. The minimum level of bank balance and the amount needed to open an account in banks are very high. So, small depositors are very far from enjoying the banking facilities provided by such JVBs. Therefore, these banks should open its door to the small depositors and entrepreneurs for promoting and mobilizing small investor's funds.
- The project oriented approach has be encouraged in lending business of the banks, in which security is not necessary, risk is high but the project is

important from the point of view of national economy. So, it is recommended to both banks to follow the project-oriented approach.

- In the light of growth competition in the banking sectors, the business of the banks should be customer oriented. It should focus not only towards big clients but also towards small clients.

B.B Aryal (2005) has conducted a study on “Investment Policy of JVBs in Nepal” a comparative study of EBL with NABIL Bank and NB Bank Ltd. He found that;

- The liquidity position of EBL is comparatively better than NABIL and NBBL. It has higher cash and bank balance to total deposit can cash bank balance to current assets ratio. It has made enough investment on government securities but has maintained moderated investment policy on loan and advances.
- EBL is comparatively average successful in it's on balance sheet operation as well as off balance sheet activities in compared to NABIL and NBBL.
- Profitability ratio of EBL is comparatively worse than the NABIL and NBBL.
- Risk ratio shows that EBL has maintained higher risk which indicates heterogeneous variability in its operation. Whereas there is moderate risk taken by NABIL and NBBL
- EBL has maintained high growth rates in total deposit, loan and advances but has moderate position in investment. EBL has less growth rate than NABIL and NBBL.
- EBL has the highest value of coefficient of correlation between deposit loan and advances that other compared banks. Likewise correlation co-efficient between deposit and total investment is also higher than other compared banks. EBL is moderately successful in mobilization of fund and earn return i.e. net profit from such mobilized funds.
- The deposit of EBL, NABIL and NBBL are in increasing trend which leads its profit also to the increasing trend.
- There is no significance difference in between loan and advance to total deposit, no differences to current assets ratio likewise no significance

difference in between loan and advances to current assets ratio of EBL, NABIL and NBBL.

- There is significant different between OBS operation to loan and advances of EBL, NABIL and NBBL. Likewise there is significant difference in between total interest earned to total outside assets of EBL, NABIL and NBBL.

J .Joshi (2005) has conducted a study on “Investment Policy of Commercial Bank of Nepal” a comparative study of EBL with NABIL Bank and BOK and she found that;

- EBL has higher idle cash and bank balance. It may decrease profit of bank. EBL is recommended to mobilize its idle cash and bank balance in profitable sector as loan and advances.
- Before mobilizing funds, EBL is recommended to collect a large variety of deposit through schemes like cumulative deposit scheme, price bonds scheme, gift cheque scheme, house building deposit scheme, recurring deposit scheme, deposited linked life insurance scheme, monthly interest scheme, direct finance housing scheme, education loan and scheme, vehicle loan scheme, and many others.
- It is good to invest more on share & debentures as it encourage financial and economic development of the country. A commercial bank must mobilize its fund in different sector such as to purchase share & debentures of other financial and non financial companies out of total working fund. EBL has invested its more of the funds i.e. total investment on total deposit ratio, in comparison to other commercial banks but percentage of investment on share and debenture in very nominal so, EBL is recommended to invest more its fund in share and debentures of different companies.
- Portfolio condition of a bank should be regularly revised from the time to time. It should always try to maintain the equilibrium in the portfolio condition of the bank. So it can be said “all eggs should not be kept in the same basket”. The bank should make continuous effort to explore new, competitive and high yielding investment opportunities to optimize their investment portfolio.

- EBL has to make way for small depositors and entrepreneurs for the promotion and mobilization of small investor's fund. So it is recommended that the bank should fix minimum level of bank balance and the amount needed to open an account should also be affordable for such small depositor's.
- On the basis of above facts, it is seen that EBL has invested much of its fund in total outside assets but it has not achieved the desired result. So, it is hereby recommended that the EBL should play tactfully while investing its funds keeping in mind the interest rates so as to be earns high returns from the investment.
- The risk taken by EBL, from the angle of credit and capital are in an average whereas the consistencies of the same are highly volatile which may result higher loss. The bank should not test those risks on an experiment basis as seen from the consistency angle. Rather, before taking any of the risk as stated above, EBL should carefully study it so as to achieve higher returns from the above risk.

## **2.4 Review of Legislative Provision**

Legislative environment has significant impact on the commercial banks established, their mobilization and utilization of resources. All the commercial banks have to conform to the legislative provisions specified in the NRB Act 2002 and the rules and regulation formulated to facilitate the smooth running of commercial banks.

### **Compulsory Cash Reserve Ratio (CRR) and Refinancing**

Under the provision in Nepal Rastra Bank, (NRB) Act 2002, the NRB has formulated and implemented five annual monetary policies so far. The focus of monetary policy has been to insure price, external and financial sector stability so as to create the environment supportive for high and sustainable economic growth.

NRB issues new monetary policy on July 24, 2009 for fiscal year 2009/10. The provision under this policy as follows:

- i. The compulsory cash reserve ratio (CRR) on domestic deposit has been increased from 5 percent to 5.5 percent.
- ii. The existing bank rate of 6.25 percent has been increased to 6.5 percent. This rate has been used to impose penalty on the amount of shortfall if any commercial bank fails to maintain the CRR.
- iii. The refinance rate on export credit in Nepalese currency has been reduced to 2 percent from the existing rate of 2.5 percent. The refinance rate to rural development banks however has been kept unchanged at 3.5 percent for 2008/09 as well.
- iv. The sick industries refinance rate has been kept unchanged at 1.5percent.
- v. The sick industry refinance facility of Rs. 2.0 billion has been continuing for 2008/09 as well.
- vi. NRB will continue the refinance facility of Rs. 500milliion, similar to sick industry refinance, on the loans used by dalits, indigenou, backward, madeshi, and marginalized group as defined by the GON and on the loans used for foreign employment with objectives of providing relief to these sections of society and promoting foreign employment.
- vii. In the context of commercial banks providing substantial amount of short -term credit to the development banks and finance companies, the penal rate has been increased from 2 percent to 3 percent to check the misused of standing liquidity facility (SLF).

(Source: Monetary Policy for Fiscal Year 2009/10 NRB, Central office, Baluwatar, kathmandu, Nepal)

### Guidelines on the Establishment of the Commercial banks

Under the act of bank and financial institution 2063 NRB issue new policy to establishment of bank and financial institution on 2063/03/29 and timely changed on 2063/12/13 as follows:

1. Paid up Capital: To establish a commercial bank of national level the paid up capital must be at Rs. 2000 million.
2. Share Capital: In general, the share of commercial banks will be available for the promoters (70 percent) and general public (30 percent). To operation joint venture of the foreign banks and financial institution could have a maximum of 85 percent to minimum 20 percent share investment on the commercial banks of national level. In order to provide adequate opportunity for investment to the Nepali promoters in national level banks, only 15 percent of total share capital will be made available to general public on the condition that the foreign bank and financial institutions are going to acquire more than 50 percent of the total share. Within 15 percent the bank and financial institution put off provision 5 percent for its staff.
3. Banks already in operation: Banks that is already in operation and those who have already acquired letter of intent before the enforcement of these provisions have to bring their capital level within seven years, i.e. by 30Ashad 2070, as per the recently declared provision.
4. Legal procedure: Banks to be established with foreign promoters' participation have also to be registered fulfilling all the legal processes prescribed by the prevalent Nepal laws.
5. Promoter's share payment procedures: Of the total committed sharer capital, the promoters has to deposit in NRB an amount equal to 5 percent along with the application and another 45 percent at the

time of receiving the letter of intent on a interest fee basis. The bank should put into operation within one year of receiving the letter of intent. The promoters have to pay fully the remaining balance of committed total share capital before the bank comes into operation. Normally, within 4 months from the date of filling of the application, NRB should give its decision on the establishment of the bank whether it is in favor or against it. If it declines to issue license, it has to inform in writing with reasons to the concerned body.

6. Promoters' qualification and experience: Action on the application from promoters will not be initiated if it is proved that their collateral has been put on auction by the bank and financial institution as a result of non-payment of loans in the past, who have not cleared such loans or those in the black list of the Credit Information Bureau and 3 years have not elapsed from the date of the removal of their name from such list. The application will be deemed automatically cancelled irrespective of it being on any stage of process for license issuance if the above events are proved. Of the total promoters, one - third should be at least a graduate of Tribhuvan University or recognized institutions with major in economics or accountancy, finance, law, banking or statistics. Likewise, one-fourth promoters should have the work experience of bank or financial institution or similar nature.
7. Promoters' share: Promoter Group's share can be disposed or transferred only on the condition that the bank has been brought in operation, the share allotted to the general public has been floated in the market and after completion of 3 years from the date it has been registered in the Stock Exchange. But before the disposal of such shares it is mandatory to get approval from NRB. The share allotted to general public has to be issued and sold within 3 years from the

date the bank cannot issue bonus shares or declare and distribute dividends, shareholders of the promoters group and their family members cannot have access to loans or facilities from the same institution.

8. Disqualify from becoming director: An individual who is already serving as a director in one of the bank or financial institutions licensed by NRB cannot be considered eligible to become the director in other banks or financial institutions. Also, stock brokers, market makers and also an individual and institution involved as an auditor of the bank and institutions carrying on financial transactions cannot be a director.
9. Investment: One person, family, firm, invest maximum 15 percent of a firm and 1 percent of another firm.
10. Promoter: No more than one promoter from one family in one firm.

(Source: Licensing Policy Bank and Financial Institution 2063, NRB)

While reviewing the books and articles and past studies, it is found that banks are not just the storehouse of the country's wealth but are the reservoirs of resources necessary for economic development and employment generation. There are still different obstacles in the effective operation of the commercial banks in Nepal. Therefore these obstacles should be eradicated for the economic development of Nepal.

The review of above relevant literature helps me to better understand the Investment policy of Commercial banks and its main drawbacks and problems. On the basis of feedback derived from the literature review further analysis of my study had been under track.

## **New Directives on Investment**

Under unified directives 2067 Nepal Rastra Bank issue new directives on investment as follows:

1. The government policy and process of the organized organization in the government Securities, NRB bond, Share and Debenture of other organized institution can be implemented only with the approved of Board of Directors.
2. There is no restriction to invest in government securities and NRB Bond for the licensed organization.
3. The licensed organization should invest in shares and debenture of the organizations who are listed in the Nepal Stock Exchange market. If the Shares and Debentures are not listed in Nepal Stock Exchange market in one year, an adjustment fund should be created and deposit fund equal to the amount not listed in the stock exchange market.

The fund cannot be mobilized elsewhere unless and until the shares and debentures are not listed.

In case of investment of new organizations, if the investment in Share is not listed in stock exchange market for two years, adjustment fund with equal investment amount show be created.

4. If the authorized organization invests in the shares and debentures of and organized institutions should not be exceeded the ten percent of the primary capital mobilized during the three months earlier. In case of investment in share and debentures of all organizations, it should not exceed the thirty percent of its primary capital. In the same way, if the investment if share and debentures exceed the limit of paid capital of the organized institutions, excess investment will deducted from the primary capital to establish capita fund for such institutions. If a company has financial invest up to twenty percent of its primary capital, for the investment is shares and debentures .The Company which has a financial interest, calculation of capita fund is maintained after deducting primary capital from capita fund.

5. The Board of Directors/Chairman of the Board of Directors of members of the primary company cannot be the member of subsidiary company. This is applicable to institutions who are effective before 2067/02/10 but they should be withdraw before the adjacent general assembly of the main company with in one year of date of circulation.
6. No restrictions have been placed on the guarantee in shares and debentures of the organized institutions for the authorized organization.
7. If the guaranteed shares of the licensed institutions is not sold and have to be kept by oneself, it should be sold with in a year after the guarantee of the share. If the sale does not take place art the stipulated time, the excess investment fund will be maintained after deducting it from primary capital.
8. The authorized institutions shall review its investment every six month of half yearly.

## **2.5 Research Gap**

Although some previous MBS student have conducted their thesis in the similar topic the researcher has selected, there is fundamental difference between those and this present one. The previous researcher foused on Loan and Advance of selected commercial banks. This research has foused only on Investment like Shares and Debenture, NRB Bond ,Government Securities and Other Investment of selected commerical banks.

The number of sample banks taken by previous researcher is two or more but the research has been conducted with reference to five sample banks which give the clear vision to invest in different sector. The research work is based on both primary and secondary data ,result are more accurare and reliable.

## **CHAPTER -THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Research methodology refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view. Research methodology describes the methods and process applied in the entire subject of the study. This chapter attempts to have an insight into the Investment policy adopted by HBL, NIBL, EBL, BOK and Nepal SBI bank.

##### **3.1.1 Research Design**

A research design is the arrangement of conditions for collection and analysis of data that aims to combine relevance to the research purpose. Research design is the plan, structure and strategy of investigations conceived so as to obtain answers to research questions and to control variances. (Kerlinker, F.N. (1996), Foundation of Behavioral Research)

According to Wolff and Pant (2003) by research design we mean an overall framework or plan for the collection and analysis of data.

(Wolff and Pant: 2003: 74, Social Science Research and Thesis Writing)

To achieve the objectives of this study, descriptive and analytical research design has and descriptive techniques have been adopted to evaluate Investment performance of HBL, NIBL, EBL, BOK and Nepal SBI bank.

##### **3.1.2 Sources of Data**

Mainly, the study is conducted on the basis of the secondary data. The data required for the analysis are directly obtained from the balance sheet and the P/L account of the concerned bank's annual reports. Supplementary data and information are

collected from the number of institutions and regulating authorities like NRB, Economic Survey and national planning commission etc. All the secondary data are compiled, processed and tabulated in the time series as per the need and objectives. Formal and informal talks with the concerned authorities of the banks were also helpful to obtain the additional information of the related problem.

Likewise, various data and information are collected from the economic journals, periodicals, bulletins, magazines and other published and unpublished reports and documents from various sources.

### **3.1.3 Population and Sample**

The limitation of time and unavailability of the relevant data has forced me to make research on the HBL, NIBL, EBL, BOK and Nepal SBI only even though there are 19 commercial banks established in Nepal which is selected from the population. The population as follows:

- i. Nepal Bank Ltd.
- ii. Rastriya Banijya Bank.
- iii. Agricultural Development Bank.
- iv. Nabil Bank Ltd.
- v. Nepal Investment Bank Ltd.
- vi. Standard Charter Bank Ltd.
- vii. Himalayan Bank Ltd.
- viii. Nepal SBI Bank Ltd.
- ix. Nepal Bangladesh Bank Ltd.
- x. Everest Bank Ltd.
- xi. Bank of Kathmandu Ltd.
- xii. Nepal Credit and Commerce Bank Ltd.
- xiii. Nepal Industrial and Commercial Bank Ltd.
- xiv. Lumbini Bank Ltd.
- xv. Machauchhre Bank Ltd.
- xvi. Kumari Bank Ltd.

- xvii. Laxmi Bank Ltd.
- xviii. Siddhartha Bank Ltd.
- xix. Global Bank Ltd.
- xx. Citizen Bank International Ltd.
- xxi. Prime Bank Ltd.
- xxii. Sunrise Bank Ltd.
- xxiii. Bank of Asia Nepal Ltd.
- xxiv. Development Credit Bank Ltd.
- xxv. NMB Bank Ltd.
- xxvi. Kist Bank Ltd.
- xxvii. Prime Commerical Bank ltd.
- xxviii. Sunrise Bank ltd.
- xxix. Bank of Asia Nepal ltd.
- xxx. Development Credit Bank ltd.
- xxxi. NMB Bank ltd.
- xxxii. Kist Bank ltd.

(Source: Banking and Financial Statistics 53, 2009 Mid-July, p50)

From these samples, Nepal Investment Bank, Himalayan Bank, Nepal SBI Bank, Everest Bank and Bank of Kathmandu have been selected and their investment performances are comparatively studied.

### **3.2 Methods of Data Analysis**

In the study, various financial, accounting and statistical tools have been used to achieve the objective of the study. The analysis of data will be done according to the pattern of data available. Due to limited time and resources, simple analytical statistical tools such as percentage graph, Karl Pearson's Coefficient of correlation are used in the study.

Likewise, some financial tools such as ratio analysis and trend analysis have also been used for financial analysis.

The various tools applied in this study, have been briefly presented as under.

### 3.2.1 Ratio of Commercial Banks Investment to Sample Bank Investment.

Total commercial banks Investment to sample banks Investment ratio is used to analysis how much Investment has cover by the sample bank Investment. It is derived by following equation.

Total commercial banks investment to sample banks Investment ratio =

$$\frac{\text{Sample Bank Investment}}{\text{Total Com. Banks}}$$

### 3.2.2. Segregation of Total Investment of Sample Banks.

It is used to analyze how the sample banks have invested its collected funds. Banks generally Investment in government securities, share and debentures of other companies and NRB bond. An attempt is made to analyze how much percentage is invested by the banks in different sectors. The following equation is used for this purpose.

i. Total Investment to govt. sec. Investment =  $\frac{\text{Investment on Gov. Sec}}{\text{Total Investment}}$

ii. Total Investment to share & Debentures =  $\frac{\text{Investment on Share \& Deb.}}{\text{Total Investment}}$

iii. Total Investment to NRB bond =  $\frac{\text{Investment on NRB bond}}{\text{Total Investment}}$

iv. Total Investment to Other =  $\frac{\text{Investment on other sector}}{\text{Total Investment}}$

## 3.3 Financial Tools

Financial tools are used to examine the financial strength and weakness of bank. In this study financial tools like ratio analysis and financial statement analysis have been used.

### **3.3.1. Ratio Analysis**

Ratio analysis is a part of the whole process of analysis of financial statements of any business or industrial concern especially to take output and credit decision. Thus ratio analysis is used to compare a firm's financial performance and status to that of other firm's or to itself. The qualitative financial performance of a firm can be done with help of ratio analysis. Even though, there are many ratios, only those ratios have been covered in this study, which are related to the Investment operation of the bank. This study contains following ratios.

#### **3.3.1.1. Asset Management Ratio**

Asset management ratio measures how efficiently the bank manages the resources at its command. The following ratios are used under this assets management ratio.

##### **a. Investment to Total Deposit Ratio**

Investment is one of the major forms of credit created to earn income. This implies the utilization of firm's deposit on Investment in government securities and shares debentures of other companies and bank. The ratio can be calculated by dividing total Investment by total deposit. It can be expressed as follows

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

Total Investment consists of Investment on government securities, Investment on share and debentures, bond of oOther companies and other Investment.

**b. Total Investment to Total Asset Ratio**

Investment is major component in the total working fund which indicates the ability of bank to channelize its deposits in the form of loan and Investment to earn high return. Investment and loan and advances are the only income generating source of bank. This ratio can be computed by dividing total of Investment, Loan and advances by total Assets. Which can be stated as follows:

$$\text{Total Investment to Total Assets ratio} = \frac{\text{Total Investment}}{\text{Total Assets}}$$

Here, total Investment includes Investment on government securities, share and debentures of other company, other Investment and loan and advances. And total assets includes all assets of balance sheet, in other words, this includes current assets, net fixed assets, loans and development banks and other miscellaneous assets but exclude off balance sheet items like letter of credit, letter of guarantee etc.

**c. Investment on Government Securities to Total Assets Ratio**

Government securities are the safest place to invest the collected fund. Most of the commercial banks invest on securities issued by the government. Some banks do not invest sufficient funds in government securities. Others borrow frequently and thus lower the liquidity ratio.

Investment on government securities to total assets is calculated to find out the percentage of assets invested in government securities. This ratio is calculated by dividing Investment on government securities by Total assets.

Which is presented as,

Investment on government securities to total assets ratio=

$$\frac{\text{Investment on Gov. Securities}}{\text{Total Assets}}$$

**d. Investment on Shares and Debentures to Total Assets Ratio**

Commercial banks hold shares of the other companies also. This ratio shows the banks Investment in shares and debentures of the subsidiary and other companies. This ratio can be derived by dividing Investment on shares debentures by total Assets. It can expressed as,

Investment on shares and debentures to Total Assets ratio =

$$\frac{\text{Investment on Sh. \& Deb}}{\text{Total Assets}}$$

**3.4 Statistical Tools**

Some important tools are used to achieve the objectives of his study. In this study statistical tools such as coefficient of correlation between different variable, trends analyses of important variables have been used which are as follows,

**3.4.1 Multiple regression analysis:**

Multiple Regression equation is the algebraic relationship between one dependent variable and two or more independent variables. This relationship is used to estimate the value of dependent variable for the given values of independent variables. In this regression one dependent variable y and two independent variables x and x<sub>1</sub> so that the multiple regression equation for the observed data is given by

$$y = a + bx + b_1x_1.....i$$

Where a = Point of intercept on Y-axis + the value of y when x = x<sub>1</sub> = 0

b = Slope of y with variable x holding variable x<sub>1</sub> constant = Corresponding change in y for each unit change in x while x<sub>1</sub> is held constant = the partial regression coefficient of x on x<sub>1</sub>constant.

$b_1$  = Slope of y with variable  $x_1$  holding variable x constant = Corresponding change in y for each unit change in  $x_1$  while x is held constant = the partial regression coefficient of y on  $x_1$  keeping x constant.

Where a, b, and  $b_1$  are regression parameters whose values are to be determined. To find the values of a, b, and  $b_1$  we have to solve the following normal equations.

$$y = na + b \sum x + b_1 \sum x_1 \dots \dots \dots \text{ii}$$

$$\sum xy = a \sum x + b \sum x^2 + b_1 \sum xx_1 \dots \dots \dots \text{iii}$$

$$\sum x_1 y = a \sum x_1 + b \sum xx_1 + b_1 \sum x_1^2 \dots \dots \dots \text{iv}$$

### 3.4.2. Co-efficient of Correlation Analysis

The correlation coefficient determines the relationship between two properties. This analysis identifies and interprets the relationship between the two or more variables. In the case of highly correlated variables, the effect on one variable may have effect on other correlated variable. When two elements have zero correlation with other they are unrelated in anyway and have zero variance. Positive correlation implies positive covariance.

Symbolically,

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

Where, n= number of Observation in series X and Y.

$\sum X$  = sum of observation in series X.

$\sum Y$  = sum of observation in series Y.

$\sum X^2$  = sum of square observation in series X.

$\sum Y^2$  = sum of square observation in series Y.

$\sum XY$  = sum of the product of observation in series X and Y.

The value of correlation of coefficient (r) lies between -1 to +1, i.e.  $-1 \leq r \leq 1$ .

Karl-Pearson's co-efficient of correlation has been used to find out the relationship between the deposit and loan and advances plus Investment made by the banks.

### **3.4.3. Coefficient of Determination (R<sup>2</sup>):**

The coefficient of determination is a measure of the degree of linear association or correlation between two variables one of which happens to be independent and other being dependent variable. In other words coefficient of determination measures the percentage total variation independent variables explained by independent variables. Zero to one is the ranging measurement of this coefficient of multiple determinations. If R<sup>2</sup> is equal to 0.75, which indicates that the independent variables used in, regression model explained 75% of the total variation in the dependent variable. If the regression line is a perfect estimator R<sup>2</sup> will be equal to +1, when there is no correlation the value of R<sup>2</sup> is zero.

### **3.4.4. Probable Error of Coeff. of Correlation:**

The probable error is a measure of as certainty the reliability of the value of a Person's coeff. of correlation. If the probable error is added to and subtract from the coeff. of correlation, it would gives two such limits within which we can reasonably accept the value of coeff. of correlation to vary. The formulae for finding out the probable error of the Karl Pearson's coeff. of correlation is:

$$P.E(r) = 0.6745 \times 1-r^2 / n$$

Where,

P.E( r)= probable error of coeff. of correlation.

r = Coefficient of correlation.

n = No. of pairs observation.

If  $r < 6 P.E(r)$ , the value of 'r' is not significant no matter how high r value.

i.e. there is no evidence of correlation between the variables.

If  $r > 6 P.E(r)$ , the value of r is significant, i.e. correlation is significant.

### 3.4.5. Trend Analysis (The Least-Square Method)

Trend analysis describes the average relationship between two series where the one series relates to time and other series to the value of a variable. It generally shows that the line of best-fit or straight line is obtained or not. The line of the best fit describes the change in a given series accompanying a unit change in time. In other words, it gives that best possible mean value of dependent variable for a given value of independent variable.

For the calculation of the “line of best fit” following equations should be kept in mind.

$$Y_c = a + bx$$

Where,  $Y_c$  = The estimated value of ‘Y’ for given value of x obtained from the line of regression of Y on x.

a = “Y-intercept” or mean of ‘Y’ value.

b = Slope of trend line or rate of change.

x = The variable in times series analysis represents time.

There are two normal equations estimating for ‘a’ and ‘b’ are;

$$Y = na + b \sum x \dots\dots\dots(i)$$

$$\sum XY = a \sum x + b \sum x^2 \dots\dots\dots(ii)$$

Since,  $\sum x = 0$

Then the above equation becomes,

$$a = Y / n$$

$$\text{and } b = \frac{\sum XY}{\sum X^2}$$

The term best fit interpreted in accordance with the principle of least square which consist in minimizing the sum of the square residual or errors of estimate i.e. the

deviations between the given observed value of the variables and their corresponding estimated values as given by the line of best fit.

The trend value of investment of NIBL, HBL, NSBIBL, EBL and BoKL from FY 2060 to 2064 and makes the forecast for the next five years till FY 2069.

### **3.4.6. Arithmetic Mean**

Arithmetic mean is the sum of all observations divided by the number of observations. The arithmetic mean is denoted by ( $\bar{X}$ ). It is computed as:

$$\text{Arithmetic Mean } (\bar{X}) = \frac{\sum f}{n}$$

Arithmetic Mean is calculated to find the mean of the financial ratio.

### **3.4.7. Standard Deviation**

Standard Deviation is calculated to measure dispersion. It is computed as:

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

### **3.4.8. Co-Variance (C.V.)**

Co-Variance is calculated to find variance from the mean. It is computed as:

$$\text{C.V.} = \frac{\sigma}{\bar{X}}$$

## **CHAPTER - FOUR**

### **DATA PRESENTATION AND ANALYSIS**

This chapter is concerned with financial analysis and statistical analysis that is concerned about comparative analysis and interpretation of available data. Various financial and statistic tools have been used in this part. Necessary figures and tables are also presented in this part to describe about the Investment mechanism of the banks.

#### **4.1. Presentation and Analysis of Secondary Data:**

This section provides interpretation and analysis of secondary data. The main purpose of this chapter is to study, evaluate and analyze those major financial performances, which are mainly related to the Investment management and fund mobilization. It is notable that all types of financial ratios are not studied under this chapter.

#### **4.1.1 Ratio of Commercial Banks Investment to Sample Banks Investment**

##### **4.1.1.1 Ratio of NIBL Investment to Total Commercial Banks Investment**

This ratio indicates the portion of Investment made by Nepal Investment Bank to total Investment made by commercial banks of Nepal. It shows how much Investment bank is directly involved in Investment. And the ratio is derived by dividing Investment made by NIBL by Total Investment made by commercial banks.

**Table No.2 .a Total Commercial Banks Investment to NIBL Investment Ratio**

(Rs. in million)

<b>Year</b>	<b>Total Investment of commercial banks</b>	<b>NIBL Investment</b>	<b>Ratio (%)</b>
2062	60181	4074	6.77
2063	82174	5673	6.90
2064	93531	6868	7.34
2065	108955	6874	6.30
2066	130857	7400	5.65
<b>Mean</b>			<b>6.59</b>
<b>S.D</b>			<b>0.57</b>
<b>C.V.</b>			<b>0.09</b>

(Source: Banking and Financial Statistics, NRB)

The above table shows the Investment made by all commercial banks and by NIBL bank alone. From the above table it shows that portion of Investment made by NIBL is increasing every year. In the FY 2064 the ratio is almost 7.34%, which is optimum. The mean ratio is 6.59 during the study period.

#### **4.1.1.2. Ratio of HBL Investment to Total Commercial Banks Investment**

This ratio indicates the portion of Investment made by Himalayan bank to total Investment made by commercial banks of Nepal. It shows how much Himalayan bank is directly involved in Investment. And the ratio is derived by dividing Investment made by HBL by Total Investment made by commercial banks.

**Table No.2.b Total Commercial Banks Investment to HBL Investment Ratio**

(Rs in million)

<b>Year</b>	<b>Total Investment of commercial banks</b>	<b>HBL Investment</b>	<b>Ratio (%)</b>
2062	60181	5510	9.16
2063	82174	10891	13.25
2064	93531	11822	12.64
2065	108955	13340	12.24
2066	130857	8710	6.66
<b>Mean</b>			<b>10.79</b>
<b>S.D</b>			<b>2.50</b>
<b>C.V.</b>			<b>0.23</b>

(Source: Banking and Financial Statistics, NRB)

The above table shows the Investment made by all commercial banks and by HBL bank alone. From the above table it shows that portion of Investment made by HBL is

increasing every year but 2066 it decreasing. In the FY 2063 the ratio is almost 13.25%, which is optimum in comparison with total 26 commercial banks of the country. The mean ratio is 10.79 during the study period.

#### **4.1.1.3. Ratio of NSBI Investment to Total Commercial Banks Investment**

This ratio indicates the portion of Investment made by Nepal SBI bank to total Investment made by commercial banks of Nepal. It shows how much Nepal SBI bank has invested. The ratio is derived by dividing Investment made by Nepal SBI bank by Total Investment made by commercial banks.

**Table No.2.c Total Commercial Banks Investment to NSBIBL Investment Ratio**  
(Rs in million)

<b>Year</b>	<b>Total Investment of commercial banks</b>	<b>NSBIBL Investment</b>	<b>Ratio (%)</b>
2062	60181	2608	4.33
2063	82174	3611	4.39
2064	93531	2659	2.84
2065	108955	3089	2.83
2066	130857	13286	1.02
<b>Mean</b>			<b>3.08</b>
<b>S.D</b>			<b>1.24</b>
<b>C.V.</b>			<b>0.40</b>

(Source: Banking and Financial Statistics, NRB)

The above table shows the total Investment of Commercial banks and Nepal SBI bank alone. From the above table it shows that only few portion of Investment is cover by Nepal SBI bank in comparison to total Investment of commercial bank. In the FY 2066 only 1.02% is covers by Investment of Nepal SBI bank in total Investment made by commercial banks. The mean ratio is 3.08 during the study period.

#### **4.1.1.4. Ratio of EBL Investment to Total Commercial Banks Investment**

This ratio indicates the portion of Investment made by EBL to total Investment made by commercial banks of Nepal. It shows how much EBL has invested. The ratio is derived by dividing Investment made by EBL by Total Investment made by commercial banks.

**Table No.2.d Total Commercial Banks Investment to EBL Investment Ratio**  
(Rs in million)

<b>Year</b>	<b>Total Investment of commercial banks</b>	<b>EBL Investment</b>	<b>Ratio (%)</b>
2062	60181	2120	3.52
2063	82174	4201	5.11
2064	93531	4985	5.33
2065	108955	5059	4.64
2066	130857	5948	4.54
<b>Mean</b>			<b>4.63</b>
<b>S.D</b>			<b>0.63</b>
<b>C.V.</b>			<b>0.14</b>

(Source: Banking and Financial Statistics, NRB)

The above table shows the Investment made by all commercial banks and by EBL alone. From the above table it shows that portion of Investment made by EBL is increasing every year. The mean ratio is 4.63 during the study period.

#### **4.1.1.5. Ratio of BoKL Investment to Total Commercial Banks Investment**

This ratio indicates the portion of Investment made by BoKL to total Investment made by commercial banks of Nepal. It shows how much BoKL has invested. The ratio is derived by dividing Investment made by BoKL by Total Investment made by commercial banks.

**Table No.2.e Total Commercial Banks Investment to BoKL Investment Ratio**  
(Rs in million)

<b>Year</b>	<b>Total Investment of commercial banks</b>	<b>BoKL Investment</b>	<b>Ratio (%)</b>
2062	60181	2236	3.72
2063	82174	2748	3.34
2064	93531	2995	3.20
2065	108955	2784	2.56
2066	130857	3204	2.45
<b>Mean</b>			<b>3.05</b>
<b>S.D</b>			<b>0.48</b>
<b>C.V.</b>			<b>0.16</b>

(Source: Banking and Financial Statistics,

NRB)

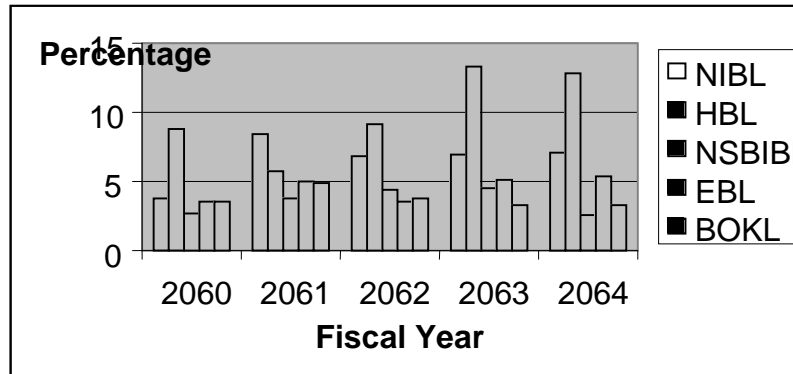
The above table shows the Investment made by all commercial banks and by BoKL alone. From the above table it shows that portion of Investment made by BoKL is increasing every year except in 2065. The mean ratio is 3.05 during the study period.

The above Table No. 2.a to 2.e shows that HBL covers more percentage than other 4 banks and BOKL bank covers less percentage than other banks on investment made by total commercial banks. Mean of the ratios of HBL Investment is also higher than that of other banks. Similarly the standard deviation and coefficient of variation

between the ratio of HBL Investment to total commercial bank Investment is comparatively higher than that of other banks. It means there is more variability in Investment in HBL than others. It is due to higher rate of increment of Investment pattern in HBL.

**Figure No. 1: Total Commercial Banks Investment to Total Investment Ratio**

(in million)



#### 4.1.2 Segregation of Investment

##### 4.1.2.1. Segregation of Investment of NIBL Bank

NIBL invest its collected funds in different sectors. Mostly commercial banks are found to invest in government securities, share and debentures of other companies and NRB bonds. Here an attempt is made to segregate the Investment made by NIBL.

**Table No.3.a Segregation of Investment of NIBL**

(Rs in million)

Year	Investment	Gov. sec	%	Shares and Deben.	%	NRB Bond	%	Others	%
2062	4074	1948	47.81	204	5.01			1922	47.18
2063	5673	2522	44.46	108	1.9			3043	53.64
2064	6815	3256	49.95	55	0.84			3207	49.20
2065	6874	3155	45.90	55	0.80			3664	53.3
2066	7400	2531	34.20	62	0.84			4807	64.60

(Source: Banking and Financial Statistics, NRB)

The above table show the Investment made by NIBL in different sectors. NIBL is found to invest its fund in Government securities, shares and debenture of other

industries. From the FY 2062 to 2066 Investment in Government Securities increases from 2062 to 2064 and decrease from 2065 and investment in share and debentures of other companies decreasing but from the FY 2062 investment in other sector increasing.

#### 4.1.2.2. Segregation of Investment of HBL Bank

HBL invest its collected funds in different sectors. Mostly commercial banks are found to invest in government securities, share and debentures of other companies, NRB bonds and other sector. Here an attempt is made to segregate the Investment made by HBL.

**Table No.3.b Segregation of Investment of HBL**

(Rs in million)

Year	Investment	Gov. sec	%	Shares and Deben.	%	NRB Bond	%	Others	%
2062	5510	5470	99.27	40	0.73				
2063	10891	5145	47.24	40	0.37			5706	52.39
2064	11822	6455	54.60	72	0.61			5295	44.79
2065	13340	7166	53.72	90	0.67	305	2.29	5779	43.32
2066	8710	3907	44.87	94	1.08	305	3.50	4404	50.56

(Source: Banking and Financial Statistics, NRB)

The above table show the Investment made by HBL in different sectors. HBL is found to invest its fund in Government securities, shares and debenture of other industries, NRB bond and others. From the FY 2062 the most of investment in Government Securities and least of investment in share and debentures of other companies but from the FY 2063 its investment in other sector. From the FY 2065 its investment in NRB bond.

#### 4.1.2.3. Segregation of Investment of NSBIBL

NSBI bank invests its collected funds in different sectors. Mostly commercial banks are found to invest in government securities, share and debentures of other

companies, NRB bonds and other sector. Here an attempt is made to segregate the Investment made by NSBI bank.

**Table No.3.c Segregation of Investment of NSBIBL**

(Rs in million)

Year	Investment	Gov. sec	%	Shares and Deben.	%	NRB Bond	%	Others	%
2062	2608	2588	99.23	20	0.77				
2063	3700	3680	99.46	20	0.54				
2064	2378	2346	98.65	20	1.35				
2065	3089	3035	98.25	33	1.07			21	0.68
2066	13286	3307	24.89	33	0.25			9946	74.86

(Source: Banking and Financial Statistics, NRB)

The above table show the Investment made by NSBIBL in different sectors. NSBIBL is found to invest its fund in Government securities, shares and debenture of other industries. The most of its fund investment in government securities from 2062 to 2065 and less in share debenture but from 2066 its invest in other sector.

#### **4.1.2.4. Segregation of Investment of EBL Bank**

EBL invests its collected funds in different sectors. Mostly commercial banks are found to invest in government securities, share and debentures of other companies, NRB bonds and other sector. Here an attempt is made to segregate the Investment made by EBL.

**Table No.3.d Segregation of Investment of EBL**

(Rs in million)

Year	Investment	Gov.	%	Shares	%	NRB	%	Others	%
------	------------	------	---	--------	---	-----	---	--------	---

		sec		and Deben.		Bond			
2062	2120	2100	99.06	20	0.94				
2063	4201	3549	84.48	20	0.47			632	15.05
2064	4985	4705	94.38	20	0.40			260	5.22
2065	5059	4820	95.28	16	0.32	85	1.68	138	2.73
2066	5948	5144	86.48	17	0.29	85	1.43	702	11.80

(Source: Banking and Financial Statistics, NRB)

The above table show the Investment made by EBL in different sectors. EBL is found to invest its fund in Government securities, shares and debenture, NRB Bond and other industries. The most of its fund investment in government securities and less in share debenture , NRB Bond of other industries. From the FY 2063 it's invest in other sector and FY 2065 it's invest in NRB Bond .

#### 4.1.2.5. Segregation of Investment of BoKL

BokL invests its collected funds in different sectors. Mostly commercial banks are found to invest in government securities, share and debentures of other companies, NRB bonds and other sector. Here an attempt is made to segregate the Investment made by BokL.

**Table No.3.e Segregation of Investment of BoKL**

(Rs in million)

Year	Investment	Gov. sec	%	Shares and Deben.	%	NRB Bond	%	Others	%
2062	2236	2147	96.02	19	3.98				
2063	2748	2654	96.58	94	3.42				
2064	2995	2332	77.86	663	22.14				
2065	3204	2112	65.92	28	0.87	85	2.65	979	30.56
2066	2784	1753	62.97	29	1.04	94	3.76	908	32.61

(Source: Banking and Financial Statistics, NRB)

The above table show the Investment made by BokL in different sectors. BokL is found to invest its fund in Government securities, shares and debenture of other industries and NRB Bond. The most of its fund investment in government securities

and less in share debenture of other industries. From FY 2065 its invest I other sector and NRB Bond

#### **4.1.3 Asset Management Ratio**

A commercial bank must be able to manage its assets very well to earn high profit, to satisfy its customers and for its own existence. Asset management ratio measures how efficiently, the bank manages the resources at its commands.

##### **4.1.3.1 Ratio of Total Investment to Total Deposit**

A commercial bank may finance its deposit fund to small industries building up of bank credit depends upon mutual connections and relationship between the banks and the customers. Banks needs to satisfy themselves regarding the technical knowledge and capacity for hard and sustained work on the part of borrows and the quality and marketability of the goods produced by them. Therefore commercial banks may mobilize its bank deposit by investing its fund in different securities issued by government and other financial or non-financial companies. Now effort has been made to measure the extent to which the banks are successful in mobilizing the total deposits on Investment.

In the process of portfolio management of bank assets, various factors such as availability of fund, liquidity requirement, central bank's norms etc. are to be considered in general. A high ratio is the indicator of high success to mobilize the banking fund as Investment and vise versa. This ratio is calculated by dividing total Investment by total deposit.

**Table No.4.a Total investment to Total Deposit Ratio of NIBL**

(Rs in million)

<b>Year</b>	<b>Investment</b>	<b>Deposit</b>	<b>Ratio (%)</b>
2062	4074	14255	28.58
2063	5673	18927	29.97

2064	6518	24489	26.62
2065	6874	34452	19.95
2066	7400	46698	15.85
<b>Mean</b>			<b>24.19</b>
<b>S.D.</b>			<b>5.4</b>
<b>C.V.</b>			<b>0.22</b>

(Source: Banking and Financial Statistics, NRB)

The table shows the investment and deposit ratio of NIBL. From the FY 2062 to 2066 the investment and deposit goes on increasing trend. The average ratio of total investment to total deposit is 24.19, standard deviation is 5.4 and co-efficient variation is 0.22 percent.

**Table No.4.b Total Investment to Total Deposit Ratio of HBL**

(Rs in million)			
<b>Year</b>	<b>Investment</b>	<b>Deposit</b>	<b>Ratio (%)</b>
2062	5510	24831	22.19
2063	10891	26456	41.71
2064	11822	29906	39.53
2065	13340	31842	41.89
2066	8710	34681	25.11
<b>Mean</b>			<b>34.09</b>
<b>S.D.</b>			<b>8.61</b>
<b>C.V.</b>			<b>0.25</b>

(Source: Banking and Financial Statistics, NRB)

The table shows the investment and deposit ratio of HBL. From the FY 2062 to 2066 the investment and deposit goes on increasing trend except in FY 2066 the investment decrease. The average ratio of total investment to total deposit is 34.09, standard deviation is 8.61 and co-efficient variation is 0.25 percent.

**Table No.4.c Total Investment to Total Deposit Ratio of NSBIBL**

(Rs in million)

<b>Year</b>	<b>Investment</b>	<b>Deposit</b>	<b>Ratio (%)</b>
2062	2608	8646	30.16
2063	3700	10853	34.09
2064	2378	11445	20.78
2065	3089	13715	22.52
2066	13286	27957	47.52
<b>Mean</b>			<b>31.01</b>
<b>S.D.</b>			<b>9.59</b>
<b>C.V.</b>			<b>0.31</b>

(Source: Banking and Financial Statistics, NRB)

The table shows the investment and deposit ratio of NSBIBL. From the FY 2062 to 2066 the investment and deposit goes on increasing trend except in FY 2064 the investment decrease. The average ratio of total investment to total deposit is 31.01, standard deviation is 9.59 and co-efficient variation is 0.31 percent.

**Table No.4.d Total Investment to Total Deposit Ratio of EBL**

(Rs in million)

<b>Year</b>	<b>Investment</b>	<b>Deposit</b>	<b>Ratio (%)</b>
2062	2120	10098	20.99
2063	4201	13802	30.44
2064	4985	19098	26.10
2065	5059	23976	21.10
2066	5948	33322	17.85
<b>Mean</b>			<b>23.30</b>
<b>S.D.</b>			<b>4.44</b>
<b>C.V.</b>			<b>0.19</b>

(Source: Banking and Financial Statistics, NRB)

The table shows the investment and deposit ratio of EBL. From the FY 2062 to 2066 the investment and deposit goes on increasing trend except. The average ratio of total investment to total deposit is 23.3, standard deviation is 4.44 and co-efficient variation is 0.19 percent.

**Table No.4.e Total Investment to Total Deposit Ratio of BoKL**

(Rs in million)

Year	Investment	Deposit	Ratio (%)
2062	2236	8943	25.00
2063	2748	10429	26.35
2064	2995	12359	24.23
2065	3204	15833	20.24
2066	2784	18083	15.40
<b>Mean</b>			<b>22.24</b>
<b>S.D.</b>			<b>3.98</b>
<b>C.V.</b>			<b>0.18</b>

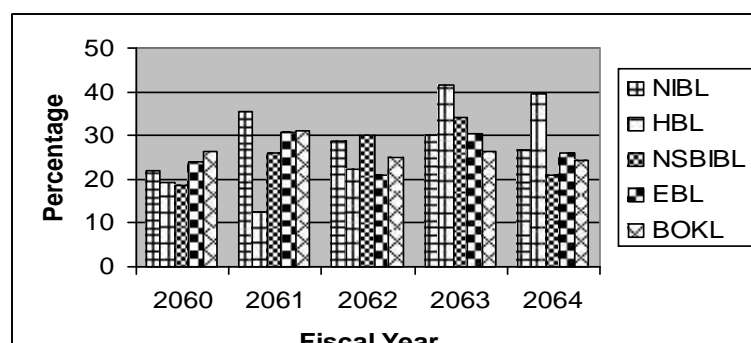
(Source: Banking and Financial Statistics, NRB)

The table shows the investment and deposit ratio of BoKL. From the FY 2062 to 2066 the investment and deposit goes on increasing trend except in FY 2066 the investment decrease. The average ratio of total investment to total deposit is 22.24, standard deviation is 3.98 and co-efficient variation is 0.18 percent.

The above tables 4a. to 4e. reveal that BoKL has lower Investment to deposit ratio and HBL has higher Investment to deposit ratio .

Mean ratio of HBL is higher than that of BoKL . Therefore, it is clear that HBL's capacity to mobilize its deposits on Investment is better than that of BoKL. On the other hand, observing the C.V. of ratios, we can further conclude that ratio of HBL less consistent then that of BoKL because of its higher C.V. i.e.  $0.25 > 0.18$ . But in conclusion it can be said that HBL is successful in utilizing its resources on Investment than that of BoKL.

**Figure No. 2: Total Investment to Total Deposit Ratio (in million)**



#### 4.1.3.2 Ratio of Investment and Total Assets

A commercial bank's working fund should play very active role in profit generation through fund mobilization. This ratio reflects the extent to which the banks are successful in mobilizing their total assets on Investment for the purpose of income generation. A high ratio indicates a better mobilization of fund as Investment and vice-versa. This ratio is calculated by dividing total Investment by total assets i.e. total working fund. The following table exhibits the ratio of Investment to total assets of NIBL, HBL, NSBIBL, EBL and BoKL.

**Table No.5a. Total Investment to Total Assets Ratio of NIBL**

(Rs in million)

<b>Year</b>	<b>Investment</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2062	4074	16638	24.49
2063	5673	22007	25.78
2064	6518	28573	22.81
2065	6874	38873	17.68
2066	7400	53010	13.96
<b>Mean</b>			<b>20.94</b>
<b>S.D.</b>			<b>4.45</b>
<b>C.V.</b>			<b>0.21</b>

(Source: Banking and Financial Statistics, NRB)

**Table No.5.b. Total Investment to Total Assets Ratio of HBL**

(Rs in million)

<b>Year</b>	<b>Investment</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2062	5510	29103	18.93
2063	10091	31065	35.06
2064	11022	34646	34.12
2065	13340	36175	36.88
2066	8710	39320	22.15
<b>Mean</b>			<b>29.43</b>
<b>S.D.</b>			<b>7.38</b>
<b>C.V.</b>			<b>0.25</b>

(Source: Banking and Financial Statistics, NRB)

**Table No.5.c. Total Investment to Total Assets Ratio of NSBIBL**

(Rs in million)

<b>Year</b>	<b>Investment</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2062	2608	10617	24.56
2063	3700	13736	26.94
2064	2378	15397	15.44
2065	3089	17187	17.97
2066	13286	30916	42.97
<b>Mean</b>			<b>25.58</b>
<b>S.D.</b>			<b>9.65</b>
<b>C.V.</b>			<b>0.38</b>

(Source: Banking and Financial Statistics, NRB)

**Table No.5.d. Total Investment to Total Assets Ratio of EBL**

(Rs in million)

<b>Year</b>	<b>Investment</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2060	2120	15069	14.07
2061	4201	16715	25.13
2062	4985	23335	21.36
2063	5059	27149	18.36
2064	5948	36917	16.11
<b>Mean</b>			<b>20.99</b>
<b>S.D.</b>			<b>4.08</b>
<b>C.V.</b>			<b>0.19</b>

(Source: Banking and Financial Statistics, NRB)

**Table No.5.e. Total Investment to Total Assets Ratio of BoKL**

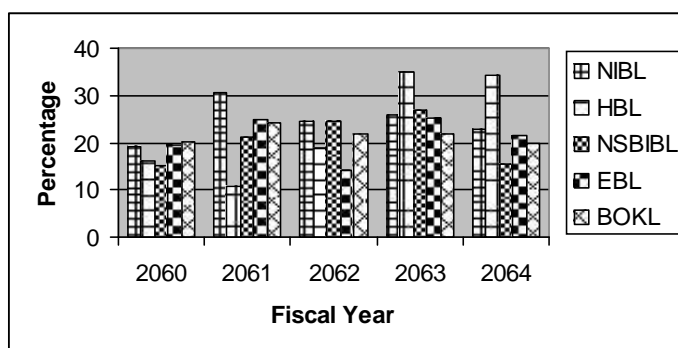
(Rs in million)

Year	Investment	Total Assets	Ratio (%)
2062	2236	10256	21.80
2063	2743	12661	21.70
2064	2995	14998	19.97
2065	3204	17721	18.08
2066	2784	20496	13.58
<b>Mean</b>			<b>19.03</b>
<b>S.D.</b>			<b>3.04</b>
<b>C.V.</b>			<b>0.16</b>

(Source: Banking and Financial Statistics, NRB)

The above tables 5a. to 5e. shows that the ratio of Total Investment to total asset. The average ratio of HBL is higher than other banks likewise NIBL, EBL, NSBIBL and BoKL. The average ratio of HBL is 29.43, NSBIBL is 25.58, EBL is 20.99, NIBL is 20.94 and BoKL is 19.03 percentages. It means HBL has used more assets for investment and BoKL has used fewer assets for investment than other banks. C.V of NSBIBL ratio is higher and BoKL is lower than other banks which means that ratio of NSBIBL is more variable than other banks. Similarly S.D of NSBIBL's ratio is also greater than other banks which show that NSBIBL is operating in higher risk than other banks.

**Figure No. 3: Total Investment to Total Assets Ratio (in million)**



#### 4.1.3.3. Investment on Government Securities to Total Assets Ratio

The commercial banks mostly invest its funds collected in various government securities issued by government because they consider them most liquid, that is, they can realize cash at short notice and without much loss in capital invested. And also such securities would serve as the basis for loan from the central bank at the bank rate. The government securities are the safest place to invest the funds. They can be easily sold in the market or they can be converted into the cash in other ways. But they are not so much liquid as cash and bank balance.

Here an effort is made to examine the position of a bank's total assets that is invested on different government securities. This ratio is very important to know the extent of which the banks are successful in mobilizing their total working fund on different types of government securities to maximize the income. All the deposits of the bank should not be utilized in loan and advances and other credit from security and liquidity point of view. Therefore, to some extent, commercial banks seem to be interested to utilize their deposits by purchasing government securities. A high ratio indicates better mobilization of fund as Investment on government securities and vice-versa.

This ratio is calculated by dividing Investment on government securities by total assets. The following table shows the ratios of Investment on government securities to total working fund of NIBL, HBL, NSBIBL, EBL and BoKL.

**Table No.6.a. Investment on Government Securities to Total Assets Ratio of NIBL**

(Rs in million)

<b>Year</b>	<b>Investment on government securities</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2062	1949	16638	11.75
2063	2522	22007	11.46
2064	3256	28573	11.39
2065	3155	38873	8.12
2066	2531	53010	4.77

<b>Mean</b>			<b>9.50</b>
<b>S.D.</b>			<b>2.71</b>
<b>C.V.</b>			<b>0.28</b>

(Source: Banking and Financial Statistics, NRB)

**Table No.6.b. Investment on Government Securities to Total Assets Ratio of HBL**

(Rs in million)

<b>Year</b>	<b>Investment on government securities</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2062	5470	29103	18.79
2063	5144	31065	16.59
2064	6455	34646	18.63
2065	7166	36175	19.81
2066	3907	39320	9.94
<b>Mean</b>			<b>16.75</b>
<b>S.D.</b>			<b>3.56</b>
<b>C.V.</b>			<b>0.21</b>

(Source: Banking and Financial Statistics, NRB)

**Table No.6.c. Investment on Government Securities to Total Assets Ratio of NSBIBL**

(Rs in million)

<b>Year</b>	<b>Investment on government securities</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2062	2588	10617	24.38
2063	3680	13736	26.79
2064	2346	15397	15.24
2065	3035	17187	17.66
2066	3307	30916	10.70
<b>Mean</b>			<b>18.94</b>
<b>S.D.</b>			<b>5.91</b>
<b>C.V.</b>			<b>0.31</b>

(Source: Banking and Financial Statistics, NRB)

**Table No.6.d. Investment on Government Securities to Total Assets Ratio of EBL**

(Rs in million)

<b>Year</b>	<b>Investment on government securities</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2062	2100	15069	13.93
2063	3549	16715	21.23
2064	4705	23335	20.16

2065	4820	27149	17.75
2066	5144	36917	13.93
<b>Mean</b>			<b>17.40</b>
<b>S.D.</b>			<b>3.05</b>
<b>C.V.</b>			<b>0.17</b>

(Source: Banking and Financial Statistics, NRB)

**Table No.6.e. Investment on Government Securities to Total Assets Ratio of BoKL**

(Rs in million)

Year	Investment on government securities	Total Assets	Ratio (%)
2062	2147	10256	20.93
2063	2655	12661	20.97
2064	2332	14998	15.55
2065	2112	17721	11.12
2066	1753	20496	8.55
<b>Mean</b>			<b>15.42</b>
<b>S.D.</b>			<b>5.04</b>
<b>C.V.</b>			<b>0.33</b>

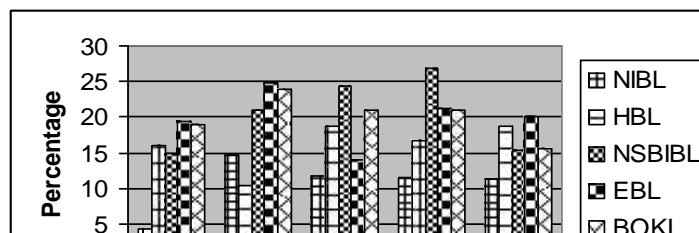
(Source: Banking and Financial Statistics, NRB)

The above table 6a. to 6e. Shows that the ratio of Investment on government securities to total assets. The average ratio of NSBIBL is higher than other banks. Likewise EBL, HBL BoKL and NIBL, it means NSBIBL has mobilized their assets as investment in government securities more than other banks. C.V of BoKL is higher than other banks. Likewise NSBIBL, NIBL, HBL and EBL, it shows that BoKL ratio is more variable than other banks. EBL ratio is less variable than other banks.

Therefore it can be said that, NSBIBL has been able to mobilize its more assets by investing on government securities whereas NIBL has mobilized less assets on investing on government securities.

**Figure No.4: Investment on government Securities to Total Assets Ratio**

(in million)



#### **4.1.3.4 Investment on Shares and Debentures to Total Assets Ratio**

To study the Investment management of NIBL, HBL, NSBIBL, EBL and BoKL total Investment has been separated into two parts i.e. Investment on government securities and Investment on shares and debentures. Nowadays, a commercial bank is interested to invest its fund not only on government securities but also in shares and debenture of other different types of companies. During the study period, most of the commercial banks of Nepal have found to purchase the share of other companies too.

Investment on shares and debentures to total assets ratio reflects the extent to which the banks are successful to mobilize their assets on purchase of shares and debentures of other companies to generate incomes and utilize their excess fund. A high ratio indicates more portion of Investment on shares and debentures out to total assets and vice-versa. This ratio is calculated by dividing Investment on share and debentures by total assets.

The following table shows the ratios of Investment on shares and debentures to total assets ratio of NIBL, HBL, NSBIBL, EBL and BoKL.

**Table No.7.a. Investment on Share and Debentures to Total Assets Ratio of  
NIBL**

(Rs in million)

<b>Year</b>	<b>Investment on Share and Debentures</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2062	204	16638	1.23
2063	108	22007	0.49
2064	55	28573	0.19
2065	55	38873	0.14
2066	62	53010	0.17
<b>Mean</b>			<b>0.44</b>
<b>S.D.</b>			<b>0.41</b>
<b>C.V.</b>			<b>0.93</b>

(Source: Banking and Financial Statistics, NRB)

**Table No.7.b. Investment on Share and Debentures to Total Assets Ratio of HBL**

(Rs in million)

<b>Year</b>	<b>Investment on Share and Debentures</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2062	40	29103	0.14
2063	40	31065	0.13
2064	72	34646	0.21
2065	90	36175	0.25
2066	94	39320	0.24
<b>Mean</b>			<b>0.19</b>
<b>S.D.</b>			<b>0.05</b>
<b>C.V.</b>			<b>0.26</b>

(Source: Banking and Financial Statistics, NRB)

**Table No. 7.c. Investment on Share and Debentures to Total Assets Ratio of NSBIBL**

(Rs in million)

<b>Year</b>	<b>Investment on Share and Debentures</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2062	20	10617	0.19
2063	20	13736	0.14
2064	20	15397	0.21
2065	33	17187	0.19
2066	33	30916	0.11
<b>Mean</b>			<b>0.17</b>
<b>S.D.</b>			<b>0.04</b>
<b>C.V.</b>			<b>0.23</b>

(Source: Banking and Financial Statistics, NRB)

**Table No. 7. d. Investment on Share and Debentures to Total Assets Ratio of EBL**

(Rs in million)

<b>Year</b>	<b>Investment on Share and Debentures</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2062	20	15069	0.13
2063	20	16715	0.12
2064	20	23335	0.08
2065	16	27149	0.06
2066	17	36917	0.05
<b>Mean</b>			<b>0.09</b>
<b>S.D.</b>			<b>0.03</b>
<b>C.V.</b>			<b>0.34</b>

(Source: Banking and Financial Statistics, NRB)

**Table No. 7. e. Investment on Share and Debentures to Total Assets Ratio of BoKL**

(Rs in million)

<b>Year</b>	<b>Investment on Share and Debentures</b>	<b>Total Assets</b>	<b>Ratio (%)</b>
2062	19	10256	0.18
2063	94	12661	0.74
2064	663	14998	4.42
2065	28	17721	0.16
2066	29	20496	0.14
<b>Mean</b>			<b>1.13</b>
<b>S.D.</b>			<b>1.66</b>
<b>C.V.</b>			<b>1.47</b>

(Source: Banking and Financial Statistics, NRB)

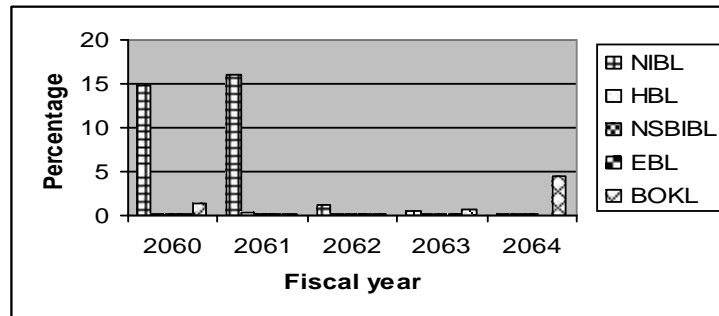
The above table 7a. to 7e. Shows that the ratio of investment on share debenture to total assets. The average ratio of BoKL is higher than other banks likewise NIBL, HBL, NSBIBL and EBL. On the basis of mean ratios, it can be stated that BoKL has invested higher amount in shares and debentures in comparison to other banks. But it shows that all banks invest fewer funds in share and debentures of other companies. Similarly C.V. of BoKL is also higher than that of other banks likewise NIBL, EBL, HBL, and NSBIBL. It means that ratio of BoKL is more variable than other banks.

BoKL is increasing its investment on share and debentures than other banks are decreasing its investment on share and debenture.

From the above it can be concluded that all the banks doesn't invest much on share and debenture of other company. It may be because of higher risk involved with it. But commercial bank should invest in other company's shares also to develop the industry and to develop the country.

**Figure No. 5: Investment on Shares and Debentures to Total Assets Ratio**

(in million)



#### 4.1.4 Growth Ratios

Growth Ratios represent how well the Commercial banks are maintaining their economic and financial position. Here those growth ratios are analyzed and interpreted which are directly related to the fund mobilization and Investment management of a commercial bank. The high ratio generally indicated better performance of a bank and vice-versa.

##### 4.1.4.1 Growth Ratio of Total Investment

This ratio shows whether the sample bank had increased the Total Investment or decreased the Investment. The following table shows the growth ratio of HBL and Nepal SBI banks.

**Table No.8 Growth Ratio of Investment**

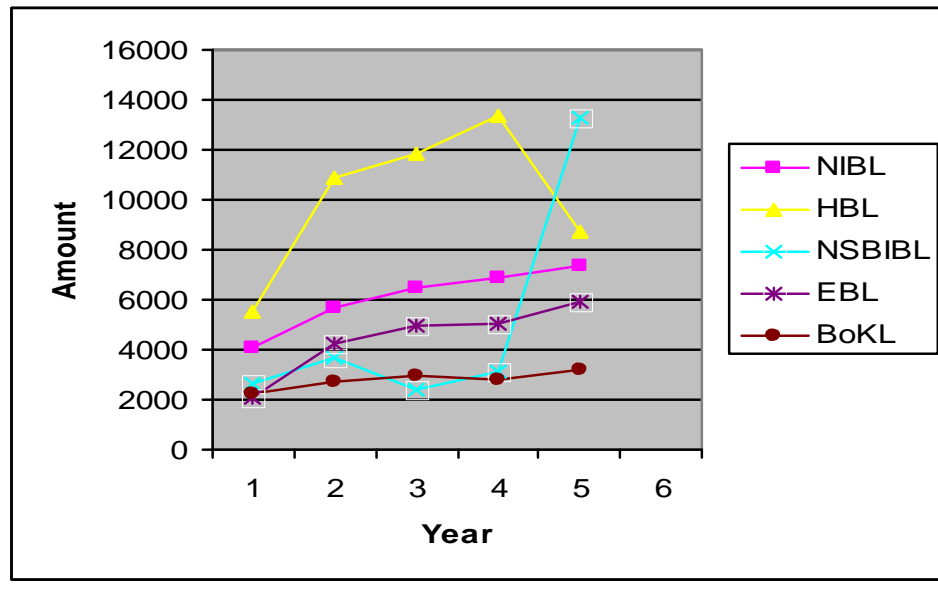
(Rs in million)

Year	NIBL	HBL	NSBIBL	EBL	BoKL
2062	4072	5510	2608	2120	2236

2063	5673	10891	3700	4201	2748
2064	6518	11822	2378	4985	2995
2065	6874	13340	3089	5059	2784
2066	7400	8710	13286	5948	3204
<b>Growth Ratio %</b>	<b>16.15</b>	<b>12.15</b>	<b>50.20</b>	<b>29.47</b>	<b>9.35</b>

(Source: Banking and Financial Statistics, NRB)

**Figure 6. Growth Ratio of Investment (in million)**



The above table and graph shows that the growth rate of investment of sample bank. All banks increasing their investment in different sectors. NIBL has higher growth rate of investment than other banks. Likewise EBL, HBL, NSBIBL and BoKL. HBL has higher investment than other banks likewise NIBL, EBL, BoKL and NSBIBL. The calculation method of growth ratios is shown in appendix no.1.

#### **4.1.4.2 Growth Ratios of Deposits**

The bank collects its deposit from public. The growth ratio of deposits represent whether the banks had been able to increase its deposit collection or not. The following table represents the growth ratios of deposits of NIBL, HBL, NSBIBL, EBL and BoKL.

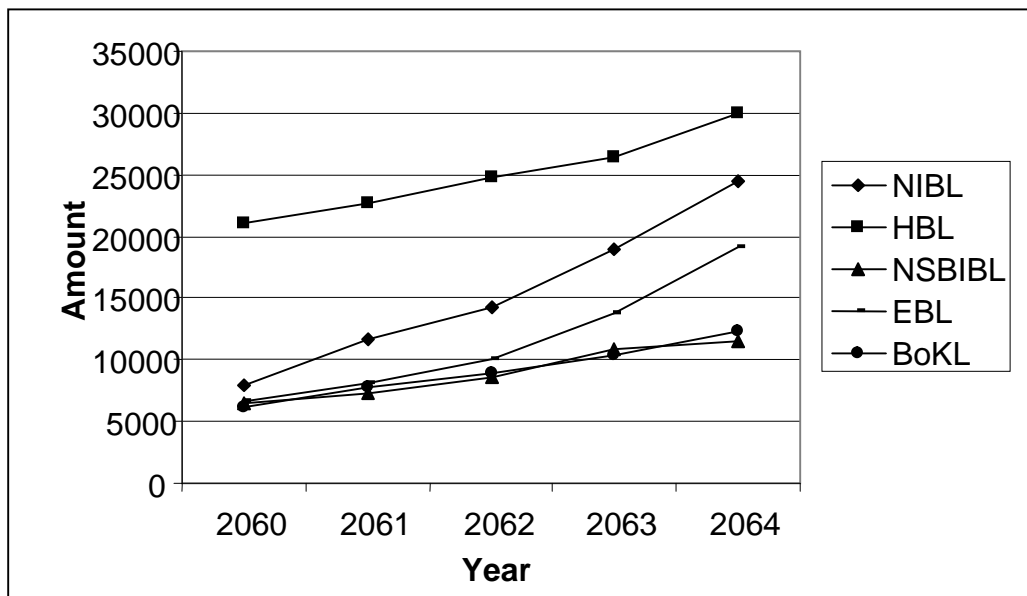
**Table No.9. Growth Ratio of Deposit**

(Rs in million)

Year	NIBL	HBL	NSBIBL	EBL	BoKL
2062	14255	24831	8646	10098	8943
2063	18927	26456	10853	13802	10429
2064	24489	29906	11445	19098	12359
2065	34452	31842	13715	23976	17721
2066	46698	34681	27957	33322	20496
<b>Growth Ratio %</b>	<b>34.53</b>	<b>8.71</b>	<b>34.16</b>	<b>34.79</b>	<b>23.04</b>

(Source: Banking and Financial Statistics, NRB)

Figure 8. Growth Ratios of Deposits (in million)



The above table and graph shows that the deposit collection of banks. All the banks are increasing their deposits. NIBL has higher growth ratio of deposit than other bank. Likewise EBL, BoKL, NSBIBL and HBL. HBL has collected higher deposit than other banks likewise NIBL, EBL, BoKL and NSBIBL. The calculation method of growth ratios is shown in appendix no.2.

#### 4.1.5 Statistical Analysis

Here, statistical tools such as co-efficient of correlation analysis between different variables, trend analysis of Investment are used to achieve the objectives of the study.

#### 4.1.5.1 Multiple regression analysis:

Multiple regression is defined as the statistical device which is used to estimate (or predict) the value of one dependent variable when the values of two or more independent variable are known or given. In multiple regression analysis, two or more independent variables are used to predict the value of a dependent variable. It is a statistical technique for investigating the relationship between one dependent variable and a set of two or more independent variables. Thus this multiple regression analysis is used to predict (or control) relationship between profit (dependent variable) with two independent variable (Investment plus loan and advance and deposit. In this analysis  $y$ ,  $x$ , and  $x_1$  denote profit, investment plus and advance and deposit respectively. Clearly profit depends on investment plus loan and advance and deposit. So, the multiple regression equation  $y$  on  $x$  and  $x_1$  i.e.

$$y = a + bx + b_1x_1 \dots \dots \dots i$$

Where  $a$ ,  $b$ , and  $b_1$  are regression parameters whose values are to be determined. To find the values of  $a$ ,  $b$ , and  $b_1$  we have to solve the following normal equations.

$$y = na + b \sum x + b_1 \sum x_1 \dots \dots \dots ii$$

$$\sum xy = a \sum x + b \sum x^2 + b_1 \sum xx_1 \dots \dots \dots iii$$

$$\sum x_1y = a \sum x_1 + b \sum xx_1 + b_1 \sum x_1^2 \dots \dots \dots iv$$

The calculation method of required value of HBL, NIBL, EBL, NSBIBL and BoKL are shown in appendix no. 4.

#### 4.1.5.2. Co-efficient of Correlation Analysis between Investment and Deposits

Under this topic, Karl Person's coefficient of correlation has been used to find out the relationship between Investment plus loan and advances and deposit. It is already mentioned that Investment is dependent upon saving i.e. deposit. Longer the duration of deposit, higher the banker's ability to acquire long term asset. In the other words banker can't invest more on long asset if duration of deposit is short. In this sense it can be said that Investment is the function of deposit. Theoretically it is assumed that long-term asset yield higher return. It means longer the duration of deposit, higher

would be the profitability of the bank. But Investment may not be the function of deposit only. Sometimes Investment is made from the funds raised from the sources. In such situation Investment is not dependent upon deposit only co-efficient of correlation between deposit and loan and advances measures the degree of relationship between these two variables. In this analysis deposits is independent variable (Y) and Investment plus Loan and Advances is dependent variable (X).

The detail calculations in this regard are done in Appendix- 1(a) and 1(b) and the following table show the value of  $r_{xy}$ ,  $r^2$  and P.Er and 6 P.E between those variables of HBL and Nepal SBI during the study period.

**Table No.12 Correlation between Investment and Deposits**

S. No	Banks	r	$r^2$	P.E.	6 P.E.
1.	NIBL	0.8835	0.7806	0.0660	0.0396
2.	HBL	0.4151	0.1723	0.2492	1.49
3.	NSBIBL	0.6173	0.3810	0.1863	1.12
4.	EBL	0.8535	0.7285	0.0817	0.4905
5.	BoKL	0.6172	0.3809	0.1864	1.12

From the above table, NIBL has higher co-efficient of relation than other banks. Similarly EBL, NSBIBL, BoKL and HBL. It shows positive relationship between these two variables. And the value of co-efficient of determination ( $r^2$ ) is also higher of NIBL, which means 78.06% of Investment decision is dependent upon deposit and only 21.94% Investment is depend upon other variables. Similarly Probable Error (P.E.) is 0.0660 and 6P.E. is 0.0396 which shows that 'r' is highly greater than 6P.E. Therefore it reveals that relationship between deposit and Investment is significant.

Likewise in the case of HBL, coefficient of correlation between Investment and deposit is 0.4151 which shows that there is a positive correlation between deposit and Investment and the value of co-efficient of determination ( $r^2$ ) is 0.1723 Which means 17.23% Investment is depend on deposit and 82.77% Investment decision depends on other variables. And its Probable Error (P.E.) is 0.2492 and similarly 6P.E. is 0.0396

which is less than coefficient of correlation (r). It means correlation of coefficient between deposit and Investment of HBL is not significant. Calculation of co-relation between investment and deposit is shown in appendix No. 5.

#### **4.1.5.4. Trend Analysis and Projection for Next 5 Years**

The objective of this topic is to analysis trend of Investment of NIBL, HBL, NSBIBL, EBL and BoKL. To utilize investment of a commercial bank may grant loan and advances and invest in government securities and shares and debentures of other companies. Under this topic an attempt is made to analyze trend of Investment of NIBL, HBL, NSBIBL, EBL and BoKL and also forecast their trend for next five years. The projections are based on the following assumptions:

- a. The main assumption is that other things will remain unchanged.
- b. The bank will run in present position.
- c. The economy will remain in the present stage.
- d. Nepal Rastra Bank will not change its guidelines to commercial banks.

#### **4.1.5.2.1 Trend Analysis of Total Investment**

Under this topic an attempt is made to analyze the trend of Investment of NIBL, HBL, NSBIBL, EBL and BoKL and forecast the trend for next 5 years. Here, Investment includes Investment on government securities and investment in share and debenture of other companies plus loan and advances. Since loan and advances are also the investment of the bank, it is also included with total Investment. The following table shows the trend values of 10 years from 2060B.S. to 2069B.S. of NIBL, HBL, NSBIBL, EBL and BoKL.

**Table No.12Trend values of Investment**

(Rs in million)

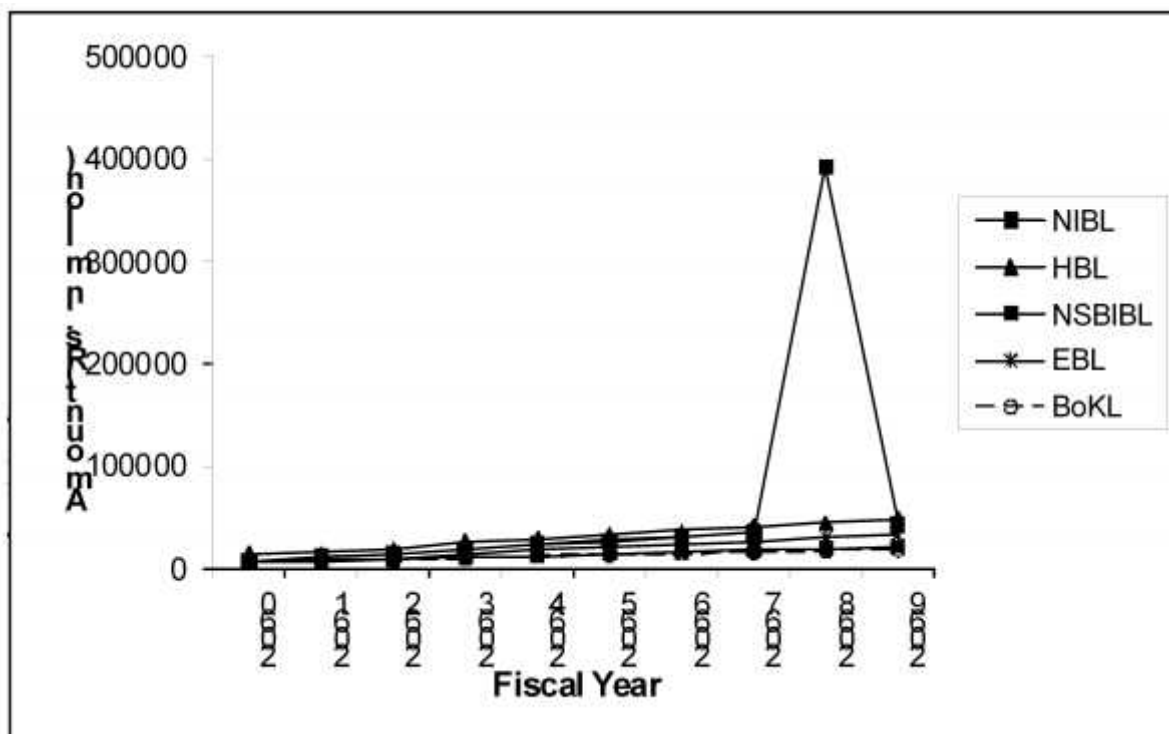
<b>Year</b>	<b>NIBL</b>	<b>HBL</b>	<b>NSBIBL</b>	<b>EBL</b>	<b>BoKL</b>
2062	4074	5510	2608	2120	2236
2063	5673	10891	3700	4201	2743
2064	6518	11822	2378	4985	2995

2065	6874	13340	3089	5059	3204
2066	7400	8710	13286	5948	2784
2067	8464	12709	11211	7017	3260
2068	9249	13594	13280	7868	3425
2069	10034	14479	15350	8720	3571
2070	10819	15364	17419	9571	3721
2071	11605	16249	19489	10422	3882

From the above table it is found that Investment trend of commercial banks is in increasing trend. Other things remaining the same, the Investment of NSBIBL will be higher than the other banks. Similarly HBL, NIBL, EBL and BoKL. From the above Investment trend it is clear that NSBIBL run far ahead than other banks.

In conclusion, we can say that all the commercial banks have followed the policy of maximizing the Investment. Calculation of trend of Investment is shown in appendix No. 6.

**Figure No. 9: Trend value of investment (in million)**



Mean ratio of HBL Investment to total commercial banks investment is 10.79% which is extremely higher than that of other banks to total commercial banks. The portion of HBL Investment is increasing from FY 2062 to 2065 but FY 2066 its decreasing in the

#### **4.1.6 Major Finding of the Study**

From the analysis of financial data, the main findings are as follows:

##### **4.1.6.1 Findings from ratio of Sample banks to Total Commercial banks:**

Mean ratio of HBL Investment to total commercial banks investment is 10.79% which is extremely higher than that of other banks to total commercial banks. The portion of HBL Investment is increasing from FY 2062 to 2065 but FY 2066 its decreasing in the Total Investment of Commercial banks. The ratio of BoKL is 3.05% which is less than other banks.

##### **4.1.6.2. Findings from the Investment pattern of Sample banks:**

NSBIBL had invested most of there fund in government securities than other banks. Likewise EBL, HBL BoKL, and NIBL. HBL, EBL and NIBL had started to invest in other sector from FY 2062. All the banks had invested fewer funds to share and capital of other company. The commercial banks mostly invest on government securities, NRB bond and share and debentures of other company.

##### **4.1.6.3. Findings from Assets Management Ratios:**

The mean ratio of Investment of Total deposit of HBL is 34.09% which is higher than other banks. Likewise NSBIL, NIBL, EBL and BoKL. The ratio of BoKL is 22.40 which is less than other banks. The mean ratio of total investment to total assets ratio of HBL is 29.43% which is greater than other banks. Similarly BoKL has fewer ratios than other banks. The mean ratio of investment on government securities to total assets ratio of NSBIBL is 18.94% which is higher than other banks and NIBL has 9.5% which is less ratio than other banks. The

mean ratio of investment on share and debenture to total asset ratio of BoKL is 1.13% which is higher than other banks. BoKL has used its more fund on share and debenture of other companies than other banks. EBL has 0.09% which is less ratio of investment on share and debenture of other companies than other banks. It means EBL less invest its fund on share and debenture

#### **4.1.6.4. Findings from Growth Ratios:**

Growth ratio of Investment of NSBIBL is 50.20% which is higher than other banks. Likewise EBL, NIBL, HBL and BoKL. All the banks increasing their investment. BoKL has 9.35 which is less growth ratio than other banks.

Growth ratio of deposits of EBL is 34.79% which is higher than that other banks and HBL has 8.71% which is lower growth ratio of deposit. All the banks are increasing their deposit.

#### **4.1.6.5. Findings from Statistical Analysis**

##### **1. Multiple regression analysis**

- ) In HBL, profit is lowest when Investment is changed, deposit is constant. On the other hand the profit is highest when Investment is constant, deposit is changed.
- ) In NIBL, profit is lowest when Investment is changed, deposit is constant. On the other hand the profit is highest when Investment is constant, deposit is changed.
- ) In EBL, profit is highest when Investment is changed, deposit is constant. On the other hand the profit is lowest when Investment is constant, deposit is changed.
- ) In BoKL, profit is lowest when Investment is changed, deposit is constant. On the other hand the profit is highest when Investment plus is constant, deposit is changed

) In NSBIBL, profit is equal when Investment is constant, deposit is changed. On the other hand the profit is equal when deposit is constant , Investment is changed

## **2. Correlation Coefficient Analysis**

Total Investment and Total deposit of NIBL and EBL has positive relation. And co relation of co- efficient between deposit and investment of NIBL and EBL are significant and the value of co-efficient of determination ( $r^2$ ) of NIBL is 0.7806 which is higher than other banks it means 78.06% of Investment decision is dependent upon deposit and only 21.94% Investment is depend upon other variables. Similarly Probable Error (P.E.) is 0.0660 and 6P.E. is 0.03966 which shows that ( $r$ ) is highly greater than 6P.E. Therefore it reveals that relationship between deposit and Investment is significant. In the case of HBL, coefficient of correlation between Investment and deposit is 0.4151 which is less than other banks it shows that there is a positive correlation between deposit and Investment and the value of co-efficient of determination ( $r^2$ ) is 0.1723 Which mean only 17.23% Investment is depend on deposit and 82.77% Investment decision depends on other variables. And its Probable Error (P.E.) is 0.2492 and similarly 6P.E.is 1.49 which shows that ( $r$ ) is lower than (6P.E). It means correlation of coefficient between deposit and Investment of HBL is not significant though there is positive relation between them.

Total Investment of five banks is also in increasing trend. The estimated Investment of NSIBL will be Rs. 16249 million which is higher than that of other banks and BoKL will be Rs. 3882 in the FY 2071B.S. which is less than that of other bank

## **CHAPTER - FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATION**

The last chapter of this study is summary, conclusion and recommendation developed from the analysis of various aspects of the investment of commercial banks by using some financial as well as statistical tools. After completing the basic analysis required for the study the final and the most important task of the researcher is to be summarized the study and recommendation for the future importance.

## **5.1 Summary**

Industrial development is very important for economic development of any country. And there must be Investment made on productive activities for Industrial development. Investment is one of the financial activities which involve the decision of capital to establish commercial or industrial venture. It involves uses of funds to long term assets that would yield benefits in the future.

The beginning and establishment of financial institution depends upon the level of economic activities and monetary transaction in the country. In Nepal history of modern financial institution begins with the establishment of NIBL in 1937A .D. Since then several financial institutions have come into existence. But Nepalese Industries have been facing challenges especially due to inadequacy of financial resources. Although numerous financial institutions have emerged both in regional as well as in international financial centers to extend credit facilities to the financially viable enterprise. But there still a big gap between demand for and supply of financial resources and gap seems ever widening over the years. Globalization and freeing up of the economy, decentralization, restructuring and downswing of large firms, worldwide communication networks and transfer and acquisition of state of the art, technology and other application, all have brought the challenges and opportunities to entrepreneur. Those who can respond to these challenges and mobilize necessary financial resources become successful and those who do not, fall victim in their rapidly changing economic environment. Banks plays a crucial role in this matter. Commercial banks not only collect the scattered saving from individual by accepting deposits but also provides various types of loan. And it itself invest in various share and debentures ,NRB Bond,of other companies. A healthy development of any band

depends heavily upon its Investment policy. A sound and variable Investment policy can be effective one for the economy to attain the economic objectives directed towards the acceleration of the pace of development. A good Investment policy attracts both borrowers and lenders, which helps to increase the volume and quality of deposits, loan and Investment.

Establishment of commercial banks has continued in response to economic liberalization policies of the government. So, now in Nepal there are many commercial banks competing with each other in their business. These banks are mainly concentrated themselves on financing foreign trade commerce and industry.

The main objective of the study is to evaluate the Investment Analysis of Commercial Banks in Nepal. And to suggest measures to improve the investment policy of the banks. The study is based on secondary data from fiscal year 2062 to 2066. The data which were employed in this research are secondary in nature. They are obtained from annual report and financial statement, official records, periodicals, journals and bulletins, various published reports and relevant unpublished master degree thesis. Beside this personal contact with the banks personnel have also been made.

Financial as well as statistical tools have been developed in order to analyze and interpret the data information, Under financial analysis, various financial ratios related to investment function of commercial banks i.e. liquidity ratio, assets management ratio and growth ratio have been analyzed and interpreted. Under statistical tools like percentage, mean, standard deviation, coefficient of variation, coefficient of correlation, trend analysis, test of hypothesis and multiple regression have been used for the analysis and interpretation of the data. This analysis gives clear picture of the performance of the bank with regard to investment operation.

## **5.2 Conclusion**

After study and analysis of given data we conclude that banking is one of sector business. All the banks are running in profit. They invest different sector. NIBL

is oldest bank of given bank. It is running successfully and the growth rate of deposit is higher than that of other banks. The growth rate of Investment o NIBL is higher than HBL and BOKL. It means NIBL collected more deposit and invested in different sector. From the analysis of data HBL is also running successfully. It has collected more deposit and investment than that of other banks, but its growth rate of deposit is less than that of other banks. EBL is also running successfully, its growth rate of deposit and investment is increasing. NSBIBL and BoKL are also increasing their deposit and investment.

From above data we can say that NIBL has collected more deposit than after EBL, NSIBIBL, BOKL and HBL. NSIBIBL invest more fund than after EBL, NIBL, HBL and BoKL.

### **5.3 Recommendation**

On the basis of analysis of finding of study, the following recommendation and suggestion are forwarded;

- ) The average ratio of investment to total deposit ratio of HBL is higher than that of other banks, it means it has invested more than deposit so that its liquidity position is not good. So, it decreases its investment.
- ) NSBIBL has invested its more funds only in government securities so it is recommended that it should invest in other different sector.
- ) Growth ratio of deposit of HBL is too less than that of other banks so it is recommended that it should increased its deposit collection.
- ) All that of banks invested fewer funds in share and debenture of other companies except BOKL, so it is recommended that they should increase their investment in share and debenture.

- J The commercial banks have been established gradually after the commercial banks act 2031 B.S. With the passage of time so many commercial banks, as a joint venture, have been established gradually because of the liberal and market friendly economic policy of government of Nepal. But banks should provide some social response by expanding their operation in rural areas rather than urban areas. And banks can give response to poor and disadvantage groups. By establishing the branches in rural areas, minimum amount for opening accounts and interest rate should be reduced for creditors.
  
- J In the light of growth competition in the banking sectors, the business of the banks should be customer oriented. It should focus not only towards big clients but also towards small clients.
  
- J Majority of commercial banks have been found to be profit oriented ignoring their social responsibility, which is not a proper strategy to sustain in long run. So all the banks are suggested to render their serves even in the rural areas providing special loans to the deprived and priority sectors, which might further intensify the goodwill of the banks in future.
  
- J The Economic Liberalization policy adopted by Nepal government has created and environment of strict competition even in the banking sectors. In the context, all the banks are suggested to formulate and implement some sound and attractive financial; and non-financial strategies to meet required level of profitability as well as the social responsibility.

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## APPENDIX - 1

### Sample Calculation of Growth Rate of Total Investment

Growth rate is calculated from

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

$D_n$  = Total Investment of nth year

$D_o$  = Total Investment of Initial year

G = Growth Rate

N = Number of Year

#### NIBL

Here,

$$D_{66} = 7400$$

$$D_{62} = 4072$$

$$N = 5\text{yr}$$

$$D_{66} = D_{62} (1+g)^{nZ}$$

$$\text{Or, } 7400 = 4072 (1+g)^{5Z}$$

$$\text{Or, } 1.82 = (1+g)^4$$

$$\text{Or, } (1.82)^{\frac{1}{4}} = 1+g$$

$$\text{Or, } 1+g = 1.1615$$

$$\text{Or, } g = 1.1615-1$$

$$\text{Or, } g = 0.1615$$

$$\dots g = 16.15\%$$

#### HBL

Here,

$$D_{66} = 8710$$

$$D_{62} = 5510$$

$$N = 5\text{yr}$$

$$D_{66} = D_{62} (1+g)^{nZ}$$

$$\text{Or, } 8710 = 5510 (1+g)^{5Z}$$

$$\text{Or, } 1.58 = (1+g)^4$$

$$\text{Or, } (1.58)^{\frac{1}{4}} = 1+g$$

$$\text{Or, } 1+g = 1.1215$$

$$\text{Or, } g = 1.1215-1$$

$$\text{Or, } g = 0.1215$$

$$\dots g = 12.15\%$$

**NSBIBL**

Here,

$$D_{66} = 13286$$

$$D_{62} = 2608$$

$$N = 5\text{yr}$$

$$D_{66} = D_{62} (1+g)^{nZl}$$

$$\text{Or, } 13286 = 2608 (1+g)^{5Zl}$$

$$\text{Or, } 5.09 = (1+g)^4$$

$$\text{Or, } (5.09)^{\frac{1}{4}} = 1+g$$

$$\text{Or, } 1+g = \text{or, } g = 1.5020 - 1$$

$$\text{Or, } g = 0.5020$$

$$\dots g = 50.20\%$$

**EBL**

Here,

$$D_{66} = 5948$$

$$D_{62} = 2120$$

$$N = 5\text{yr}$$

$$D_{66} = D_{62} (1+g)^{nZl}$$

$$\text{Or, } 5948 = 2120 (1+g)^{5Zl}$$

$$\text{Or, } 2.81 = (1+g)^4$$

$$\text{Or, } (2.81)^{\frac{1}{4}} = 1+g$$

$$\text{Or, } 1+g = 1.2947$$

$$\text{Or, } g = 1.2947 - 1$$

$$\text{Or, } g = 0.2947$$

$$\dots g = 29.47\%$$

**BoKL**

Here,

$$D_{66} = 3204$$

$$D_{62} = 2236$$

$$N = 5\text{yr}$$

$$D_{66} = D_{62} (1+g)^{nZl}$$

$$\text{Or, } 3204 = 2236(1+g)^{5Zl}$$

$$\text{Or, } 1.8499 = (1+g)^4$$

$$\text{Or, } (1.43)^{\frac{1}{4}} = 1+g$$

$$\text{Or, } 1+g = 1.1662$$

$$\text{Or, } g = 1.0935 - 1$$

$$\text{Or, } g = 0.0936$$

$$\dots g = 9.35\%$$

## APPENDIX – 2

### Sample Calculation of Growth Rate of Deposit

#### NIBL

Here,

$$D_{66} = 46698$$

$$D_{62} = 14255$$

$$N = 5\text{yr}$$

$$D_{66} = D_{62} (1+g)^{nZ}$$

$$\text{Or, } 46698 = 14255 (1+g)^{5Z}$$

$$\text{Or, } 3.2759 = (1+g)^4$$

$$\text{Or, } (3.2759)^{\frac{1}{4}} = 1+g$$

$$\text{Or, } 1+g = 1.3453$$

$$\text{Or, } g = 1.3453 - 1$$

$$\text{Or, } g = 0.3453$$

$$\dots g = 34.53\%$$

#### HBL

Here,

$$D_{66} = 34681$$

$$D_{62} = 24831$$

$$N = 5\text{yr}$$

$$D_{66} = D_{62} (1+g)^{nZ}$$

$$\text{Or, } 34681 = 24831 (1+g)^{5Z}$$

$$\text{Or, } 1.3967 = (1+g)^4$$

$$\text{Or, } (1.3967)^{\frac{1}{4}} = 1+g$$

$$\text{Or, } 1+g = 1.0871$$

$$\text{Or, } g = 1.0871 - 1$$

$$\text{Or, } g = 0.0871$$

$$\dots g = 8.71\%$$

**NSBIBL**

Here,

$$D_{66} = 27957$$

$$D_{62} = 8646$$

$$N = 5 \text{ yr}$$

$$D_{66} = D_{62} (1+g)^{nZ1}$$

$$\text{Or, } 27957 = 8646(1+g)^{5Z1}$$

$$\text{Or, } 3.2335 = (1+g)^4$$

$$\text{Or, } (3.2335)^{\frac{1}{4}} = 1+g$$

$$\text{Or, } 1+g = 1.3410$$

$$\text{Or, } g = 1.3410 - 1$$

$$\text{Or, } g = 0.3410$$

$$\dots g = 34.10\%$$

**EBL**

Here,

$$D_{66} = 33322$$

$$D_{62} = 10098$$

$$N = 5 \text{ yr}$$

$$D_{66} = D_{62} (1+g)^{nZ1}$$

$$\text{Or, } 33322 = 10098(1+g)^{5Z1}$$

$$\text{Or, } 3.3007 = (1+g)^4$$

$$\text{Or, } (3.3007)^{\frac{1}{4}} = 1+g$$

$$\text{Or, } 1+g = 1.3479$$

$$\text{Or, } g = 1.3479 - 1$$

$$\text{Or, } g = 0.3479$$

$$\dots g = 34.79\%$$

**BoKL**

Here,

$$D_{66} = 20496$$

$$D_{62} = 8943$$

$$N = 5\text{yr}$$

$$D_{66} = D_{62} (1+g)^{nZl}$$

$$\text{Or, } 20496 = 8943(1+g)^{5Zl}$$

$$\text{Or, } 2.2918 = (1+g)^4$$

$$\text{Or, } (2.2918)^{\frac{1}{4}} = 1+g$$

$$\text{Or, } 1+g = 1.2304$$

$$\text{Or, } g = 1.2304 - 1$$

$$\text{Or, } g = 0.2304$$

$$\dots g = 23.04\%$$

### APPENDIX - 3

#### Calculation the required values of HBL

HBL								Rs in100 Million
Year	Profit(Y)	Investment (X)	Deposit (X <sub>1</sub> )	XY	X <sup>2</sup>	XX <sub>1</sub>	X <sub>1</sub> Y	X <sub>1</sub> <sup>2</sup>
2062	3	55	248	165	3025	13640	744	61504
2063	4	109	264	436	11881	28776	1056	69696
2064	4	118	299	472	13924	35282	1196	89401
2065	6	133	318	798	17689	42294	1908	101124
2066	7	87	346	609	7569	30102	2422	119716
	<b>24</b>	<b>502</b>	<b>1475</b>	<b>2480</b>	<b>54088</b>	<b>150094</b>	<b>7326</b>	<b>441441</b>

Substituting the sum values in the above equations.

$$24 = 5a + 502b + 1475b_1 \dots\dots\dots v$$

$$2480 = 502a + 54088b + 150094b_1 \dots\dots\dots vi$$

$$7326 = 1475a + 150094b + 441441b_1 \dots\dots\dots vii$$

Multiplying equation v by 502 and equation vi by 5 and subtracting equation vi from v.

$$12048 = 2510a + 252004b + 740450b_1 \dots\dots\dots \times 502$$

$$12400 = 2510a + 270440b + 750470b_1 \dots\dots\dots \times 5$$

$$\begin{array}{r} - \\ - \\ - \\ - \\ \hline -352 = -18436b - 10020b_1 \\ -(352 = 18436 + 10020b_1) \dots\dots\dots viii \end{array}$$

Multiplying equation v by 1475 and equation vii by 5 and subtracting equation vii from v.

$$35400 = 7375a + 740450b + 2175625b_1 \dots\dots\dots \times 1475$$

$$36630 = 7375a + 750470b + 2207205b_1 \dots\dots\dots \times 5$$

$$\begin{array}{r} - \\ - \\ - \\ - \\ \hline -1230 = -10020b - 31580b_1 \\ -(1230 = 10020b + 31580b_1) \dots\dots\dots ix \end{array}$$

Again Multiplying equation viii by 31580 and equation ix by 10020 and subtracting equation ix from viii.

$$11116160 = 58220880b + 316431600b_1 \dots\dots\dots \times 31580$$

$$12324600 = 100400400b + 316431600b_1 \dots\dots\dots \times 10020$$

$$\begin{array}{r} - \\ - \\ - \\ - \\ \hline -1208440 = 481808480b \end{array}$$

$$b = -0.0025$$

Substituting the value of b in equation viii we get

$$352 = 18436b + 10020b_1$$

$$352 = 18436 \times -0.0025 + 10020b_1$$

$$b_1 = 0.0397$$

Again the substituting the value of b and b<sub>1</sub> in equation v

$$24 = 5a + 502b + 1475b_1$$

$$24 = 5a + 502 \times -0.0025 + 1475 \times 0.0397$$

$$24 = 5a + 57.3025$$

$$5a = -33.3025$$

$$a = -6.66$$

Substituting the value of a, b, and b<sub>1</sub>

$$y = -6.66 - 0.0025x + 0.0397x_1$$

To find out the profit in future, let's assume x and x<sub>1</sub> as Rs. 300 Then,

$$y = a + bx + b_1x_1$$

$$= -6.66 - 0.0025 \times 300 + 0.0397 \times 300$$

$$= 4.5$$

The profit is 4.5 × Rs. 100000000 = Rs. 450000000

Keeping the value of x as constant and changing the value of x<sub>1</sub> as Rs. 350.

$$y = a + bx + b_1x_1$$

$$= -6.66 - 0.0025 \times 300 + 0.0397 \times 350$$

$$= 6.48$$

The profit is 6.48 × Rs 100000000 = Rs 648000000

Again Keeping the value of x<sub>1</sub> is as constant and changing the value of x as Rs. 350.

$$y = a + bx + b_1x_1$$

$$= -6.66 - 0.0025 \times 350 + 0.0397 \times 300$$

$$= 4.37$$

The profit is 4.37 × Rs. 100000000 = Rs. 437000000.

### Interpretation:

When we assume the investment and deposit is Rs 300 each, the profit is Rs 450000000.

In next step investment is constant and deposit is changed by Rs. 50, the profit is Rs.

648000000. Similarly investment is changed and deposit is constant, that time profit is

Rs. 437000000 Which is less profit than other.

### Calculation of required value of NIBL

NIBL								Rs in 100Million
Year	Profit(Y)	Investment (X)	Deposit (X <sub>1</sub> )	XY	X <sup>2</sup>	XX <sub>1</sub>	X <sub>1</sub> Y	X <sub>1</sub> <sup>2</sup>
2062	3	40	142	120	1600	5680	426	20164
2063	4	56	189	224	3136	10584	756	35721
2064	5	65	244	325	4225	15860	1220	59536
2065	7	68	344	476	4624	23392	2408	118336

2066	9	74	466	666	5476	34484	4194	217156
	<b>28</b>	<b>303</b>	<b>1385</b>	<b>1811</b>	<b>19061</b>	<b>90000</b>	<b>9004</b>	<b>450913</b>

Substituting the sum values in the above equations

$$28 = 5a + 303b + 1385b_1 \dots\dots\dots v$$

$$1811 = 303a + 19061b + 90000b_1 \dots\dots\dots vi$$

$$9004 = 1385a + 90000b + 450913b_1 \dots\dots\dots vii$$

Multiplying equation v by 303 and equation vi by 5 and subtracting equation vi from v.

$$8484 = 1515a + 91809b + 419655b_1 \dots\dots\dots \times 303$$

$$9055 = 1515a + 95305b + 450000b_1 \dots\dots\dots \times 5$$

$$\begin{array}{r} - \\ - \\ - \\ - \\ \hline -571 = -3496b - 30345b_1 \\ -(571 = 3496b + 30345b_1) \dots\dots\dots viii \end{array}$$

Multiplying equation v by 1385 and equation vii by 5 and subtracting equation vii from v.

$$38780 = 6925a + 419655b + 1918225b_1 \dots\dots\dots \times 1385$$

$$45020 = 6925a + 450000b + 2254565b_1 \dots\dots\dots \times 5$$

$$\begin{array}{r} - \\ - \\ - \\ - \\ \hline -6240 = -30345b - 336340b_1 \\ -(6240 = 30345 + 336340b_1) \dots\dots\dots ix \end{array}$$

Again Multiplying equation viii by 336340 and equation ix by 30345 and subtracting equation ix from viii.

$$192050140 = 1175844640b + 10206237300b_1 \dots\dots\dots \times 336340$$

$$189352800 = 920819025b + 10206237300b_1 \dots\dots\dots \times 30345$$

$$\begin{array}{r} - \\ - \\ - \\ - \\ \hline 26973340 = 255025615b \end{array}$$

$$b = - 0.0106$$

Substituting the value of b in equation viii we get

$$571 = 3496b + 30345b_1$$

$$571 = 3496 \times 0.0106 + 42661b_1$$

$$b_1 = 0.0176$$

Again the substituting the value of b and b<sub>1</sub> in equation v

$$28 = 5a + 303b + 1385b_1$$

$$28 = 5a + 303 \times 0.0106 + 1385 \times 0.0176$$

$$28 = 5a + 27.5878$$

$$a = 0.0824$$

Substituting the value of a, b and b<sub>1</sub>

$$y = 0.0824 + 0.0106x + 0.0176x_1$$

To find out the profit in future, let's assume x and x<sub>1</sub> as Rs. 300. Then,

$$y = a + bx + b_1x_1$$

$$= 0.0824 + 0.0106 \times 300 + 0.0176 \times 300$$

$$= 8.54$$

The profit is  $8.54 \times \text{Rs. } 100000000 = \text{Rs. } 854000000$

Keeping the value of x as constant and changing the value of  $x_1$  as Rs. 350

$$y = a + bx + b_1x_1$$

$$= 0.0824 + 0.0106 \times 300 + 0.0176 \times 350$$

$$= 9.42$$

The profit is  $9.42 \times \text{Rs. } 100000000 = \text{Rs. } 942000000$

Again keeping the value of  $x_1$  as constant and changing the value of x as Rs. 350

$$y = a + bx + b_1x_1$$

$$= 0.0824 + 0.0106 \times 350 + 0.0176 \times 300$$

$$= 9.07$$

The profit is  $9.07 \times \text{Rs. } 100000000 = \text{Rs. } 907000000$ .

**Interpretation:**

When we assume the investment and deposit is Rs. 300 each, the profit is Rs 854000000. In next step investment is constant and deposit is changed by Rs. 50, the profit is Rs. 942000000. Similarly investment is changed and deposit is constant, that time profit is Rs. 907000000 Which is less profit than other.

**Calculation of required value of EBL**

EBL								Rs in100 Million
Year	Profit(Y)	Investment (X)	Deposit ( $X_1$ )	XY	$X^2$	$XX_1$	$X_1Y$	$X_1^2$
2062	2	21	100	42	441	2100	200	10000
2063	3	42	138	126	1764	5796	414	19044
2064	4	49	190	196	2401	9310	760	36100
2065	5	50	239	250	2500	11950	1195	57121
2066	6	59	333	354	3481	19647	1998	110889
	<b>20</b>	<b>221</b>	<b>1000</b>	<b>968</b>	<b>10587</b>	<b>48803</b>	<b>4567</b>	<b>233154</b>

Substituting the sum values in the above equations

$$20 = 5a + 221b + 1000b_1 \dots \dots \dots \text{v}$$

$$968 = 221a + 10587b + 48803b_1 \dots \dots \dots \text{vi}$$

$$4567 = 1000a + 48803b + 233154b_1 \dots \dots \dots \text{vii}$$

Multiplying equation v by 221 and equation vi by 5 and subtracting equation vi from v.

$$4420 = 1105a + 48841b + 221000b_1 \dots \dots \dots \times 221$$

$$4840 = 1105a + 52935b + 244015b_1 \dots \dots \dots \times 5$$

$$\begin{array}{r} - \\ - \\ - \\ - \\ \hline -420 = -4094b - 23015b_1 \\ -(420 = 4094b + 23015b_1) \dots \dots \dots \text{viii} \end{array}$$

Multiplying equation v by 1000 and equation vii by 5 and subtracting equation vii from v.

$$20000 = 5000a + 221000b + 1000000b_1 \dots \times 1000$$

$$22835 = 5000a + 244015b + 1165770b_1 \dots \times 5$$

---


$$-2835 = -23015b - 165770b_1$$

$$.(2835 = 23015b + 165770b_1) \dots \dots \dots \text{ix}$$

Again Multiplying equation viii by 165770 and equation ix by 23015 and subtracting equation ix from viii.

$$69623400 = 678662380b + 3815196550b_1 \dots \dots \dots \times 165770$$

$$65247525 = 529690225b + 3815196550b_1 \dots \dots \dots \times 23015$$


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$$4375875 = 148972155b$$

$$b = 0.0294$$

Substituting the value of b in equation viii we get

$$420 = 4094b + 23015b_1$$

$$420 = 4094 \times 0.0294 + 23015 b_1$$

$$b_1 = 0.0130$$

Again the substituting the value of b and b<sub>1</sub> in equation v

$$20 = 5a + 221b + 1000b_1$$

$$20 = 5a + 221 \times 0.0294 + 1000 \times 0.0130$$

$$a = 0.1005$$

Substituting the value of a, b, and b<sub>1</sub>

$$Y = 0.1005 + 0.0294x + 0.0130x_1$$

To find out the profit in future, let's assume x and x<sub>1</sub> as Rs. 200. Then

$$y = a + bx + b_1x_1$$

$$= 0.1005 + 200 \times 0.0294 + (200 \times 0.0130)$$

$$= 8.54$$

The profit is 8.54 × Rs. 100000000 = Rs. 854000000

Keeping the value of x as constant and changing the value of x<sub>1</sub> as Rs. 250

$$y = a + bx + b_1x_1$$

$$= 0.1005 + 200 \times 0.0294 + (250 \times 0.0130)$$

$$= 9.23$$

The profit is 9.23 × Rs. 100000000 = Rs. 923000000

Again keeping the value of x<sub>1</sub> as constant and changing the value of x as Rs. 250

$$y = a + bx + b_1x_1$$

$$= 0.1005 + 250 \times 0.0294 + (200 \times 0.0130)$$

$$= 10.05$$

The profit is  $10.05 \times \text{Rs. } 100000000 = \text{Rs. } 1005000000$ .

**Interpretation:**

When we assume the investment and deposit is Rs. 200 each, the profit is Rs 854000000. In next step investment is constant and deposit is changed by Rs. 50, the profit is Rs. 923000000. Similarly investment is changed and deposit is constant, that time profit is Rs. 1050000000, which is more profit than other.

**Calculation of required value of BoKL**

BOKL								Rs 100Million
Year	Profit(Y)	Investment (X)	Deposit (X <sub>1</sub> )	XY	X <sup>2</sup>	XX <sub>1</sub>	X <sub>1</sub> Y	X <sub>1</sub> <sup>2</sup>
2062	1	22	89	22	484	1985	89	7921
2063	2	27	104	54	729	2808	208	10816
2064	2	30	123	60	900	3690	246	15129
2065	4	32	158	128	1024	5056	632	24964
2066	5	28	181	140	784	5068	905	32761
	<b>14</b>	<b>139</b>	<b>655</b>	<b>404</b>	<b>3921</b>	<b>18580</b>	<b>2080</b>	<b>91591</b>

Substituting the sum values in the above equations

$$14 = 5a + 139b + 655b_1 \dots\dots\dots v$$

$$404 = 139a + 3921b + 18580b_1 \dots\dots\dots vi$$

$$2080 = 655a + 18580b + 91591b_1 \dots\dots\dots vii$$

Multiplying equation v by 139 and equation vi by 5 and subtracting equation vi from v.

$$\begin{array}{r}
 1946 = 695a + 19321b + 91045b_1 \dots\dots\dots \times 139 \\
 2020 = 695a + 19605b + 92900b_1 \dots\dots\dots \times 5 \\
 \hline
 -74 = -284b - 1855b_1 \\
 -(74 = 284b + 1855b_1) \dots\dots\dots viii
 \end{array}$$

Multiplying equation v by 655 and equation vii by 5 and subtracting equation vii from v.

$$\begin{array}{r}
 9170 = 3275a + 91045b + 429025b_1 \dots\dots\dots \times 655 \\
 10400 = 3275a + 92900b + 429025b_1 \dots\dots\dots \times 5 \\
 \hline
 -1230 = -1855b - 28930b_1 \\
 -(1230 = 1855b + 28930b_1) \dots\dots\dots ix
 \end{array}$$

Again Multiplying equation viii by 28930 and equation ix by 1855 and subtracting equation ix from viii.

$$\begin{array}{r}
2140820 = 8216120b + 53655150b_1 \dots \times 28930 \\
2281650 = 3441025b + 53655150b_1 \dots \times 1855 \\
\hline
-140830 = 4775095b \\
b = -0.0295
\end{array}$$

Substituting the value of b in equation viii we get

$$\begin{aligned}
74 &= 284 \times -0.0295 + 1855b_1 \\
82.378 &= 1855b_1 \\
b_1 &= 0.0444
\end{aligned}$$

Again substituting the value of b and b<sub>1</sub> in equation v

$$\begin{aligned}
14 &= 5a + 139b + 655b_1 \\
14 &= 5a + 139 \times -0.0295 + 655 \times 0.0444 \\
a &= -2.1963
\end{aligned}$$

Substituting the value of a, b, and b<sub>1</sub>

$$Y = -2.1963 + 0.0295x + 0.0444x_1$$

To find out the profit in future, let's assume x and x<sub>1</sub> as Rs. 250. Then,

$$\begin{aligned}
y &= a + bx + b_1x_1 \\
&= -2.1963 - 0.0295 \times 250 + (0.0444 \times 250) \\
&= 1.53
\end{aligned}$$

The profit is 1.53 × Rs. 100000000 = Rs. 153000000

Keeping the value of x as constant and changing the value of x<sub>1</sub> as Rs. 300

$$\begin{aligned}
y &= a + bx + b_1x_1 \\
&= -2.1963 - 0.0295 \times 250 + (0.0444 \times 300) \\
&= 3.75
\end{aligned}$$

The profit is 3.75 × Rs 100000000 = Rs 375000000

Again keeping the value of x<sub>1</sub> as constant and changing the value of x as Rs 300

$$\begin{aligned}
y &= a + bx + b_1x_1 \\
&= -2.1963 - 0.0295 \times 300 + (0.0444 \times 250) \\
&= 0.05
\end{aligned}$$

The profit is 0.05 × Rs 100000000 = Rs 5000000.

Interpretation:

When we assume the investment and deposit is Rs 250 each, the profit is Rs 153000000. In next step investment is constant and deposit is changed by Rs 50, the profit is Rs 375000000. Similarly investment is changed and deposit is constant, that time profit is Rs 5000000, Which is less profit than other.

### Calculation of required value of NSIBL

NSIBL								Rs in100 Million
Year	Profit(Y)	Investment (X)	Deposit (X <sub>1</sub> )	XY	X <sup>2</sup>	XX <sub>1</sub>	X <sub>1</sub> Y	X <sub>1</sub> <sup>2</sup>
2062	1	26	86	26	676	2236	2236	7396
2063	1	37	108	74	1369	3996	3996	11664
2064	2	24	114	48	576	2736	2736	12996
2065	2	31	137	93	961	4247	4247	18769
2066	3	132	179	528	17424	36828	36828	77841
	<b>9</b>	<b>250</b>	<b>624</b>	<b>596</b>	<b>21006</b>	<b>36843</b>	<b>1233</b>	<b>82866</b>

Substituting the sum values in the above equations

$$9 = 5a + 250b + 624b_1 \dots\dots\dots v$$

$$596 = 250a + 21006b + 36843b_1 \dots\dots\dots vi$$

$$1233 = 624a + 36843b + 82866b_1 \dots\dots\dots vii$$

Multiplying equation v by 250 and equation vi by 5 and subtracting equation vi from v.

$$\begin{array}{r}
 2250 = 1250a + 62500b + 156000b_1 \dots\dots\dots \times 250 \\
 2980 = 1250a + 105030b + 184215b_1 \dots\dots\dots \times 5 \\
 \hline
 -730 = -42530b - 28215b_1 \\
 -(730 = 42530b + 28215b_1) \dots\dots\dots viii
 \end{array}$$

Multiplying equation v by 624 and equation vii by 5 and subtracting equation vii from v.

$$\begin{array}{r}
 5616 = 3120a + 156000b + 389376b_1 \dots\dots\dots \times 624 \\
 6165 = 3120a + 184215b + 414330b_1 \dots\dots\dots \times 5 \\
 \hline
 -549 = -28215b - 24954b_1 \\
 -(549 = 28215b + 24954b_1) \dots\dots\dots ix
 \end{array}$$

Again Multiplying equation viii by 24954 and equation ix by 28215 and subtracting equation ix from viii.

$$\begin{array}{r}
 18216420 = 1061293620b + 704077110b_1 \dots\dots\dots \times 24954 \\
 15490035 = 796086225b + 704077110b_1 \dots\dots\dots \times 28215 \\
 \hline
 2726385 = 265207395b \\
 b = 0.0103
 \end{array}$$

Substituting the value of b in equation viii we get

$$730 = 42530 \times 0.0103 + 28215b_1$$

$$b_1 = 0.0103$$

Again substituting the value of b and  $b_1$  in equation v

$$9 = 5a + 250b + 624b_1$$

$$9 = 5a + 250 \times 0.0103 + 624 \times 0.0103$$

$$a = -0.0004$$

Substituting the value of a, b,  $b_1$

$$y = -0.004 + 0.0103x + 0.0103x_1$$

To find out the profit in future, let's assume x and  $x_1$  as Rs 200 then

$$y = a + bx + b_1x_1$$

$$= -0.004 + 0.0103 \times 200 + 0.0103 \times 200$$

$$= 4.12$$

The profit is  $4.12 \times \text{Rs } 100000000 = \text{Rs } 412000000$

Keeping the value of x as constant and changing the value of  $x_1$  as Rs 250

$$y = a + bx + b_1x_1$$

$$= -0.004 + 0.0103 \times 200 + 0.0103 \times 250$$

$$= 4.63$$

The profit is  $4.63 \times \text{Rs } 100000000 = \text{Rs } 463000000$

Again keeping the value of  $x_1$  as constant and changing the value of x as Rs 250

$$y = a + bx + b_1x_1$$

$$= -0.004 + 0.0103 \times 250 + 0.0103 \times 200$$

$$= 4.63$$

The profit is  $4.63 \times \text{Rs } 100000000 = \text{Rs } 463000000$

### **Interpretation:**

When we assume the investment and deposit is Rs 200 each, the profit is Rs 412000000. In next step investment is constant and deposit is changed by Rs 50, the profit is Rs 463000000. Similarly investment is changed and deposit is constant, that time profit is Rs 463000000.

## APPENDIX – 4

### Calculation of co-relation between investment and deposit

#### HBL

(Rs. in million)

Year	Investment (X)	Deposit (Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2062	551	2481	1367031	303601	6155361
2063	1089	2645	2880405	1185921	6996025
2064	1182	2990	3534180	1397124	8940100
2065	1334	3182	4247456	1779556	10137856
2066	871	3468	3020628	758641	12027024
	X= 5027	Y= 14770	XY= 15049700	X <sup>2</sup> = 5424843	Y <sup>2</sup> = 44256366

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

$$r = \frac{5 \times 15049700 - 5027 \times 14770}{\sqrt{(5 \times 5424843 - (5027)^2) (5 \times 44256366 - (14770)^2)}}$$

$$r = \frac{999710}{\sqrt{1853486 \times 3128930}}$$

$$r = \frac{999710}{2408202.631}$$

$$r = 0.4151$$

$$\text{Coeff. Of Determination } (r^2) = r \times r = 0.4151 \times 0.4151 = 0.1723$$

$$\begin{aligned} \text{Probable Error (P.E)} &= 0.6745 \times \frac{1 - r^2}{\sqrt{n}} \\ &= 0.6745 \times \frac{1 - 0.4151^2}{\sqrt{5}} \\ &= 0.6745 \times 0.3695 \\ &= 0.2492 \end{aligned}$$

$$6 \times \text{P.E} = 6 \times 0.2492$$

$$= 1.49$$

6P.E  $\Psi r$  Therefore Correlation is not significant.

**NIBL**

(Rs. in million)

Year	Investment (X)	Deposit (Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2062	407	1425	579975	165649	2030625
2063	567	1892	1072764	321489	3579664
2064	651	2448	1593648	423801	5992704
2065	687	3445	2366715	471969	11868025
2066	740	4669	3455060	547600	21799561
	X= 3052	Y= 13879	XY=9 068162	X <sup>2</sup> = 1930508	Y <sup>2</sup> =4 5270579

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

$$r = \frac{5 \cdot 9068162 - \frac{3052 \cdot 13879}{5}}{\sqrt{5 \cdot 1930508 - \frac{(3052)^2}{5} \cdot 5 \cdot 45270579 - \frac{(13879)^2}{5}}}$$

$$r = \frac{2982102}{\sqrt{337836 \cdot 33726254}}$$

$$r = \frac{2982102}{3375491.48}$$

$$r = 0.8835$$

$$\text{Coeff. of Determination } (r^2) = r \cdot r = 0.8835 \cdot 0.8835 = 0.7806$$

$$\begin{aligned} \text{Probable Error (P.E)} &= 0.6745 \cdot \frac{1 - r^2}{\sqrt{n}} \\ &= 0.6745 \cdot \frac{1 - 0.8835^2}{\sqrt{5}} \\ &= 0.6745 \cdot 0.0979 \\ &= 0.0660 \end{aligned}$$

$$6 \times P.E = 6 \times 0.0660 \\ = 0.396$$

$r > 6P.E$  Therefore Correlation is significant

### NSBIBL

(Rs. in million)

Year	Investment (X)	Deposit (Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2062	223	894	199362	49729	799236
2063	274	1042	285508	75076	1085764
2064	299	1235	369265	89401	152525
2065	320	1583	506550	102400	2505889
2066	278	1808	502624	77284	3268864
	X= 1394	Y= 6562	XY= 1863319	X <sup>2</sup> = 393890	Y <sup>2</sup> = 9184978

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

$$r_{XY} = \frac{5 | 1863319 - \frac{1394 \cdot 6562}{5} |}{\sqrt{5 | 393890 - \frac{(1394)^2}{5} \cdot 5 | 9184978 - \frac{(6562)^2}{5}}}$$

$$r_{XY} = \frac{169167}{\sqrt{26214 \cdot 2865046}}$$

$$r_{XY} = \frac{169167}{274051.67}$$

$$r_{XY} = 0.6173$$

$$\text{Coeff. of Determination } (r^2) = r \cdot r = 0.6173 \cdot 0.6173 = 0.3810$$

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

$$= 0.6745 \left| \frac{120.6173^2}{\sqrt{5}} \right|$$

$$= 0.6745 \left| 0.2763 \right|$$

$$= 0.1863$$

$$6 \times P.E = 6 \times 0.1863$$

$$= 1.12$$

6 P.E r Therefore Correlation is not significant

### EBL

(Rs. in million)

Year	Investment (X)	Deposit (Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
206	212	1506	319272	44944	2268036
2063	420	1671	701820	176400	2792241
2064	498	2333	1161834	248004	5442889
2065	505	2714	1370570	255025	7365796
2066	594	3691	2192454	352836	13623481
	X= 2229	Y= 11915	XY= 5745950	X <sup>2</sup> = 1077209	Y <sup>2</sup> = 31492443

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

$$r_{XY} = \frac{5 \left| 5745950 - \frac{2229 \cdot 11915}{5} \right|}{\sqrt{5 \left| 1077209 - \frac{(2229)^2}{5} \right| \cdot 5 \left| 31492443 - \frac{(11915)^2}{5} \right|}}$$

$$r_{XY} = \frac{2171215}{\sqrt{417604 \cdot 15494990}}$$

$$r_{XY} = \frac{2171215}{2543770.784}$$

$$r_{XY} = 0.8535$$

Coeff. Of Determination ( $r^2$ ) =  $r \mid r = 0.8535 \mid 0.8535 = 0.7285$

$$\begin{aligned} \text{Probable Error (P.E)} &= 0.6745 \mid \frac{1Zr^2}{\sqrt{n}} \\ &= 0.6745 \mid \frac{1Z0.8535^2}{\sqrt{5}} \\ &= 0.6745 \mid 0.1212 \\ &= 0.0817 \end{aligned}$$

$$\begin{aligned} 6 \times \text{P.E} &= 6 \times 0.0817 \\ &= 0.4905 \end{aligned}$$

$r > 6P.E$  Therefore Correlation is significant

**BoKL**  
(Rs. in million)

Year	Investment (X)	Deposit (Y)	XY	X <sup>2</sup>	Y <sup>2</sup>
2062	223	894	199362	49729	799236
2063	274	1042	285508	75076	1085764
2064	299	1235	369265	89401	1525225
2065	324	1583	512892	104976	2505889
2066	278	1808	502624	77284	3268864
	X= 1398	Y= 6562	XY= 1869651	X <sup>2</sup> = 396466	Y <sup>2</sup> = 9184978

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

$$r = \frac{5 \mid 1869651 - 1398 \mid 6262}{\sqrt{5 \mid 396466 - (1398)^2 \cdot 5 \mid 9184978 - (6562)^2}}$$

$$r = \frac{174579}{\sqrt{27926} \cdot 2865046}$$

$$r = \frac{174579}{282859.1073}$$

$$r = 0.6172$$

$$\text{Coeff. Of Determination } (r^2) = r \times r = 0.6172 \times 0.6172 = 0.3809$$

$$\begin{aligned} \text{Probable Error (P.E)} &= 0.6745 \times \frac{1 \times Z \times r^2}{\sqrt{n}} \\ &= 0.6745 \times \frac{1 \times 2 \times 0.6172^2}{\sqrt{5}} \\ &= 0.6745 \times 0.2764 \\ &= 0.1864 \end{aligned}$$

$$\begin{aligned} 6 \times \text{P.E} &= 6 \times 0.1864 \\ &= 1.12 \end{aligned}$$

$6 \times \text{P.E} > r$  Therefore Correlation is not significant

## APPENDIX – 5

### Calculation of Investment Trend for Next Five Year

#### NIBL

(Rs. in million)

Year (X)	Investment (Y)	$x(X - \bar{X})$	$y(Y - \bar{Y})$	xy	x
2062	4074	-2	-2444	4888	4
2063	5673	-1	-845	845	1
2064	6518	0	0	0	0
2065	6874	1	356	356	1
2066	7400	2	882	1764	4
		$\Sigma x = 0$	$\Sigma y = 22051$	$\Sigma xy = 7853$	$\Sigma x^2 = 10$

We have,

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

$$\Sigma y = na + b \Sigma x \dots \dots \dots (ii)$$

$$\Sigma xy = a \Sigma x + b \Sigma x^2 \dots \dots \dots (iii)$$

From equation (ii) we get

$$\Sigma y = na + b \Sigma x$$

$$\text{Or, } 22051 = 5a + b \cdot 0$$

$$\begin{aligned} \text{Or, } a &= \frac{22051}{5} \\ &= 4410.2 \end{aligned}$$

From equation (iii) we get

$$\Sigma xy = a \Sigma x + b \Sigma x^2$$

$$\text{Or, } 7853 = a \cdot 0 + b \cdot 10$$

$$\begin{aligned} \text{Or, } b &= \frac{7853}{10} \\ &= 785.3 \end{aligned}$$

From equation (i) we get

$$Y = a + bx$$

$$\text{Or, } Y - \bar{Y} = a + b(X - \bar{X})$$

$$\text{Or, } Y = \bar{Y} + a + b(X - \bar{X})$$

Now,

$$Y_{67} = 6518 - 410.2 + 785.3 (2067 - 2064)$$

$$= 8463.7$$

$$= 8464$$

$$Y_{68} = 6518 - 410.2 + 785.3 (2068-2064)$$

$$= 9249$$

$$Y_{69} = 6518 - 410.2 + 785.3 (2069-2064)$$

$$= 10034.3$$

$$= 10034$$

$$Y_{70} = 6518 - 410.2 + 785.3 (2070-2064)$$

$$= 10819.6$$

$$= 10819$$

$$Y_{71} = 6518 - 410.2 + 785.3 (2071-2064)$$

$$= 11604.9$$

$$= 11605$$

### HBL

(Rs. in million)

Year (X)	Investment (Y)	$x(X - \bar{X})$	$y(Y - \bar{Y})$	xy	x
2062	5510	-2	-6312	12624	4
2063	10891	-1	-931	931	1
2064	11822	0	0	0	0
2065	13340	1	1518	1518	1
2066	8710	2	-3112	-6224	4
		$\Sigma x = 0$	$\Sigma y = -8837$	$\Sigma xy = -8849$	$\Sigma x^2 = 10$

We have,

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

$$\Sigma y = na + b \Sigma x \dots \dots \dots (ii)$$

$$\Sigma xy = a \Sigma x + b \Sigma x^2 \dots \dots \dots (iii)$$

From equation (ii) we get

$$\Sigma y = na + b \Sigma x$$

$$\text{Or, } -8837 = 5a + b.0$$

$$\text{Or, } a = \frac{-8837}{5}$$

$$= -1767.4$$

From equation (iii) we get

$$\Sigma xy = a \Sigma x + b \Sigma x^2$$

$$\text{Or, } 8849 = a \cdot 0 + b \cdot 10$$

$$\begin{aligned} \text{Or, } b &= \frac{8849}{10} \\ &= 884.9 \end{aligned}$$

From equation (i) we get

$$Y = a + bx$$

$$\text{Or, } Y - \bar{Y} = a + b(X - \bar{X})$$

$$\text{Or, } Y = \bar{Y} + a + b(X - \bar{X})$$

Now,

$$\begin{aligned} Y_{67} &= 11822 - 1767.4 + 884.9(2067 - 2064) \\ &= 12709.3 \\ &= 12709 \end{aligned}$$

$$\begin{aligned} Y_{68} &= 11822 - 1767.4 + 884.9(2068 - 2064) \\ &= 13594.2 \\ &= 13594 \end{aligned}$$

$$\begin{aligned} Y_{69} &= 11822 - 1767.4 + 884.9(2069 - 2064) \\ &= 14479.1 \\ &= 14479 \end{aligned}$$

$$\begin{aligned} Y_{70} &= 11822 - 1767.4 + 884.9(2070 - 2064) \\ &= 15364 \end{aligned}$$

$$\begin{aligned} Y_{71} &= 11822 - 1767.4 + 884.9(2071 - 2064) \\ &= 16248.9 \\ &= 16249 \end{aligned}$$

### NSBIBL

(Rs. in million)

Year (X)	Investment (Y)	$x(X - \bar{X})$	$y(Y - \bar{Y})$	xy	x
2062	2608	-2	230	-460	4
2063	3700	-1	1322	-1322	1
2064	2378	0	0	0	0
2065	3089	1	661	661	1
2066	13286	2	10908	21816	4
		$\Sigma x = 0$	$\Sigma y = 13121$	$\Sigma xy = 20695$	$\Sigma x^2 = 10$

We have,

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

$$y - \bar{y} = a + b(x - \bar{x}) \dots\dots\dots(ii)$$

$$xy - \bar{x}\bar{y} = a\sum x + b\sum x^2 \dots\dots\dots (iii)$$

From equation (ii) we get

$$y - \bar{y} = a + b(x - \bar{x})$$

$$\text{Or, } 13121 = 5a + b \cdot 0$$

$$\text{Or, } a = \frac{13121}{5}$$

$$= 2624.2$$

From equation (iii) we get

$$xy - \bar{x}\bar{y} = a\sum x + b\sum x^2$$

$$\text{Or, } 16892 = a \cdot 0 + b \cdot 10$$

$$\text{Or, } b = \frac{20695}{10}$$

$$= 2069.5$$

From equation (i) we get

$$Y = a + bx$$

$$\text{Or, } Y - \bar{Y} = a + b(X - \bar{X})$$

$$\text{Or, } Y = \bar{Y} + a + b(X - \bar{X})$$

Now,

$$Y_{67} = 2378 + 2624.2 + 2069.5(2067 - 2064)$$

$$= 11210.7$$

$$= 11211$$

$$Y_{68} = 2378 + 2624.2 + 2069.5(2068 - 2064)$$

$$= 13280.2$$

$$= 13280$$

$$Y_{69} = 2378 + 2624.2 + 2069.5(2069 - 2064)$$

$$= 15349.7$$

$$= 15350$$

$$Y_{70} = 2378 + 2624.2 + 2069.5(2070 - 2064)$$

$$= 17419.2$$

$$= 17419$$

$$Y_{71} = 2378 + 2624.2 + 2069.5(2071 - 2064)$$

$$= 19488.7$$

$$= 19489$$

**EBL**

(Rs. in million)

Year (X)	Investment (Y)	$x(X - \bar{X})$	$y(Y - \bar{Y})$	xy	x
2062	2120	-2	-2865	5730	4
2063	4201	-1	-784	784	1
2064	4985	0	0	0	0
2065	5059	1	74	74	1
2066	5948	2	963	1926	4
		$\sum x = 0$	$\sum y = 22612$	$\sum xy = 8514$	$\sum x^2 = 10$

We have,

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

$$\sum y = n a + b \sum x \dots \dots \dots (ii)$$

$$\sum xy = a \sum x + b \sum x^2 \dots \dots \dots (iii)$$

From equation (ii) we get

$$\sum y = n a + b \sum x$$

$$\text{Or, } 22612 = 5a + b \cdot 0$$

$$\begin{aligned} \text{Or, } a &= \frac{22612}{5} \\ &= 4522.4 \end{aligned}$$

From equation (iii) we get

$$\sum xy = a \sum x + b \sum x^2$$

$$\text{Or, } 8514 = a \cdot 0 + b \cdot 10$$

$$\begin{aligned} \text{Or, } b &= \frac{8514}{10} \\ &= 851.4 \end{aligned}$$

From equation (i) we get

$$Y = a + bx$$

$$\text{Or, } Y - \bar{Y} = a + b(X - \bar{X})$$

$$\text{Or, } Y = \bar{Y} + a + b(X - \bar{X})$$

Now,

$$Y_{67} = 4985 - 522.4 + 851.4 (2067 - 2064)$$

$$= 7016.8$$

$$= 7017$$

$$Y_{68} = 4985 - 522.4 + 851.4 (2068 - 2064)$$

$$= 7868.2$$

$$= 7868$$

$$Y_{69} = 4985 - 522.4 + 851.4 (2069 - 2064)$$

$$= 8719.6$$

$$= 8720$$

$$Y_{70} = 4985 - 522.4 + 851.4 (2070 - 2064)$$

$$= 9571$$

$$Y_{71} = 4985 - 522.4 + 851.4 (2071 - 2064)$$

$$= 10422.4$$

$$= 10422$$

**BoKL**

(Rs. in million)

Year (X)	Investment (Y)	$x(X - \bar{X})$	$y(Y - \bar{Y})$	xy	x
2062	2236	-2	-759	1518	4
2063	2743	-1	-252	252	1
2064	2995	0	0	0	0
2065	3204	1	209	209	1
2066	2784	2	-211	-422	4
		$\Sigma x = 0$	$\Sigma y = -1013$	$\Sigma xy = -1557$	$\Sigma x^2 = 10$

We have,

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

$$\Sigma y = na + b \Sigma x \dots \dots \dots (ii)$$

$$\Sigma xy = a \Sigma x + b \Sigma x^2 \dots \dots \dots (iii)$$

From equation (ii) we get

$$\Sigma y = na + b \Sigma x$$

Or,  $-1013 = 5a + b.0$

$$\text{Or, } a = \frac{-1013}{5}$$

$$= -202.6$$

From equation (iii) we get

$$\Sigma xy = a \Sigma x + b \Sigma x^2$$

$$\text{Or, } 1557 = a \cdot 0 + b \cdot 10$$

$$\begin{aligned}\text{Or, } b &= \frac{1557}{10} \\ &= 155.7\end{aligned}$$

From equation (i) we get

$$Y = a + bx$$

$$\text{Or, } Y - \bar{Y} = a + b(X - \bar{X})$$

$$\text{Or, } Y = \bar{Y} + a + b(X - \bar{X})$$

Now,

$$\begin{aligned}Y_{67} &= 2995 - 202.6 + 155.7(2067 - 2064) \\ &= 3259.5 \\ &= 3260\end{aligned}$$

$$\begin{aligned}Y_{68} &= 2995 - 202.6 + 155.7(2068 - 2064) \\ &= 3415.2 \\ &= 3415\end{aligned}$$

$$\begin{aligned}Y_{69} &= 2995 - 202.6 + 155.7(2069 - 2064) \\ &= 3570.9 \\ &= 3571\end{aligned}$$

$$\begin{aligned}Y_{70} &= 2995 - 202.6 + 155.7(2070 - 2064) \\ &= 3726.6 \\ &= 3727\end{aligned}$$

$$\begin{aligned}Y_{71} &= 2995 - 202.6 + 155.7(2071 - 2064) \\ &= 3882.3 \\ &= 3882\end{aligned}$$