AN ANALYSIS ON INVESTMENT PORTFOLIO OF COMMERCIAL BANKS IN NEPAL

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RECOMMENDATION

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

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VIVA VOCE SHEET

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

Rajesh Ramtel

entitled

An Analysis on Investment Portfolio of Commercial Banks in Nepal

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

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

Viva Voce Committee

Chairperson, Research Committee :

Member (Thesis Supervisor) :

Member (External Expert) :

Date :

DECLARATION

I hereby declare that the outcome of this thesis entitled " An Analysis on Investment Portfolio of Commercial Banks in Nepal" submitted to Post graduate campus, Biratnagar, Faculty of Management, T.U. Kathmandu, is my original work done in the form of partial fulfillment of the requirement for the Master of Business Studies (MBS) under the supervision of Mr. Ram Prakash Upadhyay.

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TABLE OF CONTENTS

List of Tables

List of Figures

Figure No.
Page

List of Abbreviations

A.D.	:	Anno Domini
B.S.	:	Bikram Sambat
S.N.	:	Serial Number
FY	:	Fiscal Year
CBs	:	Commercial banks
NRB	:	Nepal Rastra Bank
NBL	:	Nepal Bank Limited
NABIL	:	Nabil Bank Limited
NIBL	:	Nepal Investment Bank Limited
KBL	:	Kumari Bank Limited
EBL	:	Everest Bank Limited
HBL	:	Himalayan Bank Limited
NEPSE	:	Nepal Stock Exchange
NYSE	:	New York Stock Exchange
S.D.	:	Standard Deviation
CV	:	Coefficient of Variance
P.E.	:	Probable Error
NPAT	:	Net Profit After Tax
TOI	:	Total Outside Investment
ROA	:	Return on Assets
SEBO	:	Security Board
T.U	:	Tribhuvan University
MBS	:	Master in Business Studies
i.e.	:	That is
Ltd.	:	Limited
Pg.no.	:	Page Number
&	:	And

Chapter – 1

INTRODUCTION

1.1 Background of Study

The economy of nation depends on the uses of available resources in efficient way. The proper utilization of assets appreciates in wealth position of individual and country as well. To mobilize available resource, there should be proper planning, efficient management, far sighting strategy, good financial management and up-to-date information. Integrated and speedily development of the country is possible only when competitive banking and financial service reaches nook and corners of the country. To grow financial activities, it requires the banking habit of the community as well as potentially strong lending opportunities. Simply, bank is an institution whose main function is to accept deposit and invest it. Bank collects money from public by providing attractive sound interest and can earn profit by lending it on mainly in business organization, industrial, agricultural sectors etc. So, we can say the main task of commercial bank is to mobilize idle resources in productive areas by collecting it from scattered sources and generating profit. Banking plays significant role in the economic development of country. Banks role as intermediaries channeling between saving and investment and fulfill the credit needs of customer as well as investment requirement of savers. It is clear the efficient and stable banking systems are crucial for any orderly economic growth. The pace development of country largely depends on the level of financial development.

Successfully formulation of investment policy and its proper utilization or implementation is the prime requite for the development of performance of banks and other financial institution. Good investment policy has positive impact on economic development of the country and vice-versa. A healthy development of any banks depends heavily upon its investment policy. A sound and viable investment policy is on e of the major effective of t the economy to attain the economic objective directed towards the acceleration of the pace of development. Bank should attract to its customer by implementing best or competitive investment policy. It helps to increase the quality of banking services as well as volume of quality deposits, loans and investment. Investment management of bank is operating as per investment policy adopted by bank. The best investment policy helps to minimize risk to make profit and to increase efficiency of investment operation.

Economic development is the important factor for development of any country. Nepal is least developed country. Capital formation and its proper utilization play a paramount role for rapid economic development. A key factor in the development f the country is the mobilization of domestic resources and their investment for productive use to various sectors. Investment portfolio is one such toll that helps for proper utilization of resources. A portfolio is usually defines as a combination of assets. It is a collection of securities. Portfolio means the lists of holding in securities owned by an investor or institution.[1]

[1] Oxford Dictionary of Finance & Banking, New Edition, 1997

Portfolio theory deals with the selection of optimal portfolios i.e. portfolio provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified return. Portfolio theory has been developed for the financial assets. This making investment from the selected optimal portfolio i.e. the portfolio that provides the highest rate of return with least possible amount of risk is the real investment portfolio.

Investment portfolio is one which the income or profit of the bank depend upon directly. Commercial banks formulate sound investment policies which help maximize quality and quantity of investment and eventually to the economic growth of a country. Commercial banks must follow the rules and regulation as well as directions issued by central bank. The loan provided by commercial bank is guided by several principles such as length of time, their purpose, profitability, safety etc. These fundamental principles of commercial bank's investment are fully considered while making investment portfolio. Investment decision is one of the major decision functions of financial management.

Finally, commercial banks and financial institution are the backbone of the Nepalese economy at present. It plays vital role in capital formulation, proper utilization of collected fund, providing various type of banking services. Mobilization of saving is most essential for the economic growth of the country. Commercial banks are the mediator of mobilizing such savings. Their sound performance makes them able to mobilize such fund in a proper way. Development of the country directly related to the volume of investment in productive sectors.

1.1.1 Concept of Commercial bank

In simple meaning commercial banks are those banks, which pool together the savings 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 banking history difference. The innovation 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. Likewise section 2 (a) of the Commercial Bank Act 2031 has defined that "Commercial Banks means a bank which operated currently exchanges transactions. Accept deposits, provides loan, performs, dealings, relating to commerce expect the banks which have been specified for the co-operative, agricultural, industry of similar other specific objective.[2]

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 term commercial banks. But it is different than central bank. Central bank cannot be interchangeable with other banks. In this way, a commercial banks is different 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

[2] Bhandari Dilli Raj, " Principle & Practice of Banking & Insurance", January, 2003 Edition, Aayush

bank comes out if any, ordinary banking business for the general public, incomplete it confines itself mainly to controlling the operations of the banking system in a country.

1.1.2 Development of Commercial banks in Nepal

The commercial banks are those banks that encourage the community to save the money and deposit in the bank and arrange them for the productive realization. Commercial bank transfers monetary sources from the savers to users. In fact, they mobilize the savers money in productive field. The provided loans and advances to the user they receive generally through deposits.

The history of modern banking system is not so long in Nepal. In depth, evidence of money lending function was also found in practice before 8th century. In those days people use to borrow money from money lenders and pay some interest. In 14th century, Mall King Jayashtiti Malla divided people in 64 categories as per working occupation. One of them was "Tankan Dari", hey practiced monetary transaction or money lending business. It shows that lending process was prevailing during the Malla rule in Nepal.

During the period of Rana rule, Prime Minister Ranodip established a financial institution "Tejarath Adda". Prior to establishment of Nepal Bank Ltd., certain extent of banking needs of people was fulfilled by the institution. Which was to supply credit to government officials at 5 percent rate of interest, thereafter, they began to provide loan to general people against security of gold, silver & ornament. By the process Tejarath expanded the credit facilities by opening some braches.

Tejarath could not fulfill the credit needs of the whole society. It was a government institution that benefited only to government officials. So, the general people had to depend upon moneylenders. To make free the rural people from the grips of lenders and develop the trade and industry in the country, the need of a commercial bank was realized in the country.

Nepal's banking history had begun by the establishment of Nepal Bank Ltd. In 1937 AD with 10 million rupees of authorized capital and 842 thousand of paid up capital. It is the first commercial banks in Nepal with semi government equities i.e. 51 % of government ownership. After establishment of NBL, it replaced Tejarath Adda by taking over its operation and limitations. It has done pioneering function in spreading the banking habits among people.

To manage and control banking system development, monetary policy development, to regulate issue of currency and mobilize capital for economic development. "Nepal Rastra Bank" came into existence as ventral bank of Nepal in 1956 under Nepal Rostra Bank Act, 2012 B.S. After this, NRB diverted its attention towards development of banking system by formulating g relevant policies & procedures. Prior to this, there was no such formal organization to control and regulate the monetary system, in the country. It is an autonomous body and fully owned by the government of Nepal, who works for the development banking system in the country. NRB started issuing currency in 1959. And after some years later, the commercial bank named "Rastriya Banijya Bank" was established to fulfill the credit requirements of the country in 1966 under RBB Act, 1964 with fully government equity that of authorized capital of Rs. 10 million and paid up capital of Rs. 2.5 million.

In 1980, the government introduces "Financial Sector Reforms". And Government allowed the foreign banks to enter in Nepal as a joint venture bank for acceleration the economic development of nation and to provide high banking services and system. The first joint venture bank is Nabil Bank ltd. (Former Name-Nepal-Arab Bank Ltd.) it was established in 1984. Then the financial scenario has been changed with the introduction of joint venture bank in 1984. The number of commercial banks has been started to increase day by day. Various types of financial institutions like joint ventures bank, domestic commercial banks, development banks, finance companies, co-operative society have come in to existence to cater the financial needs of the country as well as assist the financial development of the country. at present , some banks are name changed lik4e Nepal Arab bank Ltd. Has been changed to Nabil bank Ltd., similarly , Nepal Grindlays Bank, Nepal Indosuez bank ltd., and Nepal bank of Ceylon ltd. are known as Standard Chartered bank Nepal ltd., Nepal Investment bank ltd. And Nepal credit ands commerce bank ltd. respectively. According to Banking and financial Static's, no 47, July, 2006" there are 18 commercial banks , 29 development banks, 70 finance companies, 11 micro-credit development banks and 19 savings and credit co-operatives providing services in Nepal , licensed by NRB as of July 2006.[3]

Further more; the list of commercial banks and their branches in Nepal by July, 2004 will be presented in the following table:

Table No. 1.1
List of Licensed Commercial Banks and Their Branches in Nepal

S. N	Commercial Banks	Established Date (B.S)	Operation Date (B.S.)	Head Office	No. of Branches
1	Nepal Bank Ltd.	1994/7/30	1994/7/30	Kathmandu	116
2	Rastra Banijya Bank	2022/10/10	2022/10/10	Kathmandu	117
3	NABIL Bank Ltd.	2041/03/29	2041/03/29	Kathmandu	16
4	Nepal Investment Bank Ltd.	2042/11/16	2042/11/16	Kathmandu	12
5	Standard Chartered Bank Nepal Ltd.	2043/10/16	2043/10/16	Kathmandu	7
6	Himalayan Bank Ltd.	2049/10/05	2049/10/05	Kathmandu	14
7	Nepal SBI Bank Ltd.	2050/03/23	2050/03/23	Kathmandu	11
8	Nepal Bangladesh Bank Ltd.	2050/02/23	2050/02/23	Kathmandu	16
9	Everest Bank Ltd.	2051/07/01	2051/07/01	Kathmandu	14
10	Bank of Kathmandu	2051/11/28	2051/11/28	Kathmandu	8
11	NCC Bank Ltd.	2053/06/28	2053/06/28	Siddharthanagar	16
12	Lumbini Bank Ltd.	2055/04/01	2055/04/01	Narayangad	4
13	NIC Bank Ltd.	2055/04/05	2055/04/05	Biratnagar	6
14	Kumari Bank Ltd.	2056/08/24	2057/12/21	Kathmandu	3

[3] Banking & Financial Statistics No. 47, July 2006, NRB

15	Machhapuchhre Bank Ltd.	2056/06/17	2056/06/17	Pokhara	5
16	Laxmi Bank Ltd.	2058/06/11	2058/12/21	Birgunj	3
17	Siddhartha Bank Ltd.	2058/06/12	2059/09/09	Kathmandu	7
18	Agriculture Development Bank Ltd.				

Source: Banking and Financial Statistics, No. 47, July 2006.

1.1.3 Functions of Commercial Banks

Banks generally collect unused money from public by providing attractive interest and earn profit by lending it. They are generally investing in business organization, industries, agricultural sectors and government bonds. So, the main function of commercial banks is to mobilize idle resources in productive areas by collecting it from scattered sources and generating profit. There are many functions performed by commercial banks, which may be defined as follows.

(i) Accepting Deposits

Commercial banks accept all kinds of deposits, especially under three main headings named: current, saving & fixed deposits.

a) Current Deposit

This is also known as demand deposits whereby the banker incurs the obligations of paying legal tender on demand. Thus the bank does not pay any interest for the deposits.

b) Saving Deposit

According to the commercial Act 2031 saving account means "An account of amount deposited in a bank for savings purpose." This saving deposit bears the features of both of the current and fixed period deposits. Generally, most accounts are opened saving deposit in bank. And give some interest on it. Usually, the interest is given every six month in this deposit. The bank fix the minimum and maximum amount withdrawal through a cheque in this deposit.

c) Fixed Deposit

Fixed deposit is one of those in which the customer money is deposited for a fixed period of time, generally by those who do not need money for a stipulated time period. Thus bank pays higher rate of interest to the depositor.

(ii) Advancing Loans

Commercial banks collect funds from depositors then they are mobilized as loans and advances to people. Direct loans and advances are given to all types of persons against the personal security of the borrowers or against the security of movable and immovable assets.

1.1.4 Commercial Bank's Investment Portfolio

Commercial banks are the heart of the financial system. It plays vital role in capital formulation and proper utilization of collected fund, providing services in domestic and international trade. Without these the operation of economy can't be succeeded. The commercial banks consequently have a specific role to play in the long process of economic growth. A commercial bank must mobilize its deposits and other funds to profitable, secured, stable and marketable sector. Investment policy provides the bank several inputs through which they can handle their investment operation efficiently ensuring that maximum return with minimum risk which ultimately leads the bank to the path of success. Thus, investment is the most important function of commercial banks. The success of a commercial bank heavily depends upon the proper management of investment. So, a bank has to be very caution while investing their funds in various sectors.

A commercial bank can maximize its volume of wealth through maximization of return on their investments and lending. So, they should invest their funds in those sectors from where they can gain maximum profit. The profit of CBs mainly depends on the interest rate, volume, period of loan and nature of investment in different securities. A bank should not lay all its eggs on the same basket i.e. to minimize risk; a bank must diversify its investment on different sectors. The loan provided by commercial bank is guided by several principles such as length of time their purpose, profitability, safety etc. These fundamental principles of commercial banks investment are fully considered while making investment portfolio. The investment portfolio should be carefully analyzed so that the investment should ensure minimum risk and maximum profit. So, CBs should incorporate several elements such as regulatory environment, the availability of funds, the selection of risk, investment portfolio balance term structure of the liabilities etc. while making investment decision.

1.2 Statement of Problem

The major problem in almost all the under developed countries is the formulation of capital and its proper utilization, this directly affects the economic development of the country. To avoid this problem and contribute to welfare of national economy, various commercial banks have established. The main role of these commercial banks is to act as the bridge between the savers and users. They collect scattered deposits and give various types of loans to maximize their wealth. Banks are established to develop the economic development of the country.

After the liberalization policy of the government several joint venture banks, financial institutions are established rapidly but due to poor investment policy lack of investment strategy, most of the joint venture banks might be collapsed in future. Duo to high competition between the financial institution the collected huge amount from the public and the investment in practice of the collected funds is comparatively low and also the most important factor, the lack of appropriate investment policy and strategy. There are problems of investment and proper utilization of collected funds. Strong investment policy plays a significant role in utilization of collected funds and overall development of the economy. Nepalese commercial banks have not formulated their investment policy in an organized manner. They only depend upon the direct guidelines of Nepal Rastra bank. They don't have clear view towards investment policy; furthermore the implementation

of policy is not in an effective way. Commercial banks are report to be criticized by customer due to implementation of wrong investment policies. They are said to be investing in less risky and liquid sector, they keep high liquid position and flow less funds in productive sectors, so these types of function prove less investment opportunity of the funs,

Now day's commercial banks don't seem to be capable to invest their funds in more profitable sector. There are found to more interest in investment in less risk and highly liquid sector i.e., treasury bills, development bonds and other securities. They keep high liquid position and to 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 main reason for crisis in the commercial banks and in the whole national economy as well. Investment policy may differ in different commercial banks but there is no optimum utilization of shareholders fund to have greater return in any financial institution. Under such situation, the present study will try to analyze investment, portfolio management of CBs, return on various types of investment, portfolio risk and return and performance towards investment. Thus this study will deal with the following issues;

- What is the relationship of investment and loan and advance with total deposits?
- Does the investment decision affect to the total earnings of the banks?
- How is the investment portfolio managed by the commercial banks?
- How far CBs have been able to mobilize and utilize resources?
- Are CBs effectively utilized portfolio concept in their investment directed towards objectives of maximization return?
- What is the trend of investment in different assets?

1.3 Objectives of the Study

The general objective of this research is to identify the current situation of investment portfolio of commercial banks in Nepal. The main objectives are as follows:

- To analyze the risk and return of selected commercial banks on investment using portfolio concept.
- To analyze the investment portfolio of commercial banks.
- To forecasting and examine the trend of investment and to provide complimentary measures based on analysis.

1.4 Need, Scope & Significance of the Study

At present, commercial banks are going a wide popularity through the efficient management and professional service and playing eminent role in the economy. Regarding the economic structure of the country, banks do not have sufficient investment opportunities. Rapidly, increasing financial institutions are creating threats to the commercial banks. The main objective of commercial banks is to earn more profit by proper mobilization of funds. They provide different banking facilities to the banking customers. Commercial banks have pivotal role in collection of dispersed small saving and transforming them into meaningful capital investment. Success and prosperity of the bank relies heavily upon the successful investment of collected resources to the

productive sector of economy. Hence, successful formulation and effective implementation of investment policy is the prime requisite for the successful performance of banks and other financial institution. Therefore, the study is to analyze the existing investment portfolio of commercial banks of Nepal and point out the various weakness of defect inherent in it and provide package of suggestion for its improvement. The result of the research will be helpful for CBs for especially for sample banks to formulate strategies to face the increasing competitions. There is no doubt that the study will also have multi dimensional importance for various areas, which are mentioned below in brief.

- Importance to policy formulators and also be useful for teacher, students of the subject, particularly those in commerce, chartered accountancy and institutional finance.
- Importance to Shareholders
- Importance to management body of these banks for the evaluation of the performance of their banks and in comparison to other banks
- Importance to government bodies and policymakers such as central banks
- Interested outside parties such as investors, customers (Depositors, loan takers as well as others types of clients), competitors and personnel of the banks, stockbrokers, dealers and market makers.

1.5 Limitation of the Study

This study is not a comprehensive study. This study is conducted for the partial fulfillment of degree of MBS. So, there are many deficiencies in this study due to various limitations. Some of the limitations are as follows.

1. The study has covered only five banks i.e. NABI, NIBL, HBL, KBL, and EBL.
2. This study is based on secondary data, the calculation and conclusion of the study is fully depends on the accuracy of data available from various sources and concerns organization.
3. The analysis period of research covers only five years i.e. the fiscal years from 2003/04 to 2006/07 AD. There are many factors that affect investment decision and valuation of the firm. However, only those factors which are related with investment portfolio analysis will be considered in this study.
4. Due to the wide range of data deficiencies only simple techniques have been used in analysis and certain ratios with investment are selected.
5. The limitation of this study is time constraints, limited budget, lack of experience, up-to-date information.
6. It focuses on investment performance and doesn't cover other aspects and in this study only selected financial and statistical tools and techniques are used.

1.6 Organization of the Study

The research will be divided into 5 chapters.

Chapter 1 Introduction: It introduces background of study, statement of problem, objective of the study, significance, scope of the study and limitation of the study.

Chapter 2 Review of Literature: It includes pilot studies and textual concepts with regard to conceptual framework on investment and funs mobilization.

Chapter 3 Research Methodology: This chapter includes research design, population & sample, sources and types of data, data processing and method of analysis.

Chapter 4 Data Presentation and Analysis: This chapter deals with the presentation and analysis of data. It analyses the data and interprets the results using different financial and statistical tools.

Chapter 5 Summary, Conclusion and Recommendation: This is the last chapter of the study. It summarizes the result of analysis and suggestive framework.

Besides these, bibliography and annexure will be presented at the end of the thesis. Similarly acknowledgements, table of contents, list of tables, list of figures, abbreviations are included in the front part of the thesis report.

Chapter – 2

REVIEW OF LITERATURE

Review of literature consist two parts where first part deal with the advancement of knowledge regarding portfolio investment and portfolio management. In second part, researcher presents comment and resolution on the study initially made in concern component related to the study

- Conceptual Framework
- Review of Related Studies

2.1 Conceptual Framework

In conceptual framework, the concepts related to investment portfolio are reviewed in light of research perspectives, various books, articles etc.

2.1.1 Concept of Investment

The simplest meaning of the investment is to employ available finds to generate additional fund in future. An investment involves sacrifice of current rupees for future rupees. The sacrifice takes place in the present and certain. The reward comes later and is uncertain. Investment generally involves real assets or financial assets. Real assets re tangible, material things such as building, automobiles, machinery, factories and textbooks, real assets are generally less liquid than financial assets. Financial assets are pieces of paper representing an indirect claim to real assets held by someone else. Investment is the employment of funds with the aim of achieving additional income or growth in values. It involves the commitment of resources that have been saver or put away from current consumption in the hope that same benefits will accrue in future. Investment involves long term commitment and waiting for reward.

"An Investment is a commitment funds made in the expectation of some positive rate of return. If the investment is properly undertaken, the return will be commensurate with the risk the investor assumes."[4]

"An investment may be defined as the current commitment of funds for a period of time to derive a future flow of fund that will compensate the investing and also for the time funds are committed, for the expected rate of inflation and also for the uncertainty involved in the future flow of the funds."[5]

From the definition given above, it is clear that an investment means to trade a known rupee amount today for some expected future stream of payments or benefits.

[4] Fisher, Donald E. and Ronald J. Johnson, "Security Analysis and Portfolio Management", Prentice Hall of India Private Limited, New Delhi, India.
[5] Frank and Reilly (1972). "Investments" The Dryden Press, CBS Publishing Japan Ltd.

A commercial bank must always mobilize its funds and other deposits to profitable, secured and marketable sector so that it earns a handsome amount of profit as well as it should be secured and can be converted into cash as per the requirement.

The investment process describes how an investor should go about making decisions with regard to what marketable securities to invest in, how extensive the investment should be, and when the investment should be made. A five-step procedure for making these decisions forms the basis of the investment process.[6]

1. Set investment policy
2. Perform security analysis
3. Construct a portfolio
4. Revise the portfolio
5. Evaluate the performance

2.1.2 Portfolio Management

Portfolio management is basically concerned with efficient management of portfolio investment in financial assets, including shares and debentures of companies. Portfolio management assumes periodic supervision of the security in the portfolio.

Buy and hold philosophy, in present competitive society and in view of the fluctuations of the stock marker is not a very prudent, conservative or rational plan of action for sound portfolio management. The management may be b professionals by other or by individuals themselves. Portfolio of an individual or a corporate unit is the holding of securities and investment financial assets. These holding are the result of individual's preferences and decision regarding risk and return. The process of portfolio management is closely and directly linked with the process of decision making the correctness which cannot be ensured in all cases.

The basic problem of portfolio management is to establish an investment objective or goal and then decide the best to reach the goal with the securities available. This has been stated and an attempt by the investor to obtain the maximum return with minimum risk.

The process of portfolio management involves a logical set of steps common to any decision plan, implement and monitor.

"Portfolio management is the art of handing a pool of funds so that it only preserves its original worth but also overtime appreciates in value and yields an adequate return consistent with the level of risk assumed."[7]

2.1.3 Investment Portfolio

A portfolio is usually defined as a combination of assets. It is a collection of securities. Portfolio means the lists of holding in securities owned by an investor or

[6] Francis, Jack Clark (2003), "Investments: Analysis & Management", Eleventh Enlarged Edition, McGraw Hill Inc., New York, USA, Pp 10.
[7] Cohen, Jeorge B., Edward D. Zinbarg, Arthur Zeikel (1977), "Investment Analysis and Portfolio Management", 3rd Edition, London.

institution. A portfolio is a collection of investment securities. E.g. if you hold some of Nepal Investment Bank Ltd. Stocks, some of Bottlers Nepal Co., some of Radissons Hotel and some of Standard Chartered Bank Ltd. Stocks you are holding four stock portfolios. Portfolios analysis considers the determination of future risk and return is a weighted average of the expected return of the individual securities.

Portfolio theory deals with the selection of optimal portfolio that is portfolios that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. Portfolio theory has been developed for the financial assets. Thus making investment from the selected optimal portfolio i.e. the portfolio that provides the highest rate of return with least possible amount of risk is the real investment portfolio.

"A portfolio simply represents the practice among the investors of having their funds in more that one assets. The combination of investment assets is called a portfolio."[8]

An investor who has been paying someone or actively manages his or her portfolio has every right to insist on knowing what sort of performance was obtained. Such information can be used to alter either the constraint placed on the manager, the investment objective given to the manager, to the amount of many allocated to manager. Perhaps more importantly, by evaluating performance in specified ways a client can forcefully communicate his of\r her interest to the investment manger and in all likelihood, affect the way in which his or her portfolio is managed in the future. Moreover, an investment manager, by evaluating his or her own performance, can identify sources of strengths or weakness.

2.1.4 Investment Alternatives

There are various alternatives for investors:

<table>
<tr><td>1. Equity Securities</td><td colspan="2">a. Common Stock
b. preferred Stock</td></tr>
<tr><td>2. Short term debt securities</td><td colspan="2">a. Negotiable certificates of deposit
b. commercial paper
c. Banker's acceptances
d. Treasury Bills</td></tr>
<tr><td rowspan="4">3. Intermediate and Long Term Debt Securities</td><td>a. Government securities</td><td>i. Treasury Notes
ii. Treasury Bonds
iii. Saving Bonds</td></tr>
<tr><td colspan="2">b. Agency securities</td></tr>
<tr><td>c. Municipal Securities</td><td>i. Revenue bonds
ii. General obligation bonds</td></tr>
<tr><td colspan="2">d. Corporate bonds</td></tr>
<tr><td>4. Hybrid Securities</td><td colspan="2">a. Convertible preferred stock
b. convertible bonds</td></tr>
<tr><td>5. Derivative securities</td><td colspan="2">a. Options
b. community futures</td></tr>
</table>

[8] J.F.Weston & E.F.Brigham, "Managerial Finance" 8th edition, Chicago, The Dryden Press, 1982, Pp.245

	c. financial futures d. options n futures e. Rights f. Warrants
6. Real Assets	a. precious metal b. Real estate c. Collectibles
7. International Investment	a. Multinational corporations b. Foreign stocks traded on al local exchange c. American Depository Receipts (ADRs)
8. Other Investment Alternatives	a. Pensions funds b. Mutual funds c. Closed-end companies

2.1.5 Sources of Investment Uncertainty (Risk)

Every investment involves uncertainties that make future investment returns risky. Some of the sources of uncertainty that contribute to investment risk are as follows:

(i) Interest Rate Risk

It is defined as the potential variability of return caused by changes in the market interest rates. In more general terms, if market interest rates rise, then investment values and market prices will fall, and vice versa. The variability of return that results in interest rate risk. This interest rate risk affects the prices of bonds, stocks, real estate, gold, puts, calls, future contracts and other investment as well.

(ii) Purchasing power Risk

It is the variability of return an investor suffers because of inflation. The rate of inflation is measured by using a consumer price indeed (CPI). The percentage change in the CPU is a widely followed measure of the rate of inflation.

$$\text{Rate of Inflation in the CPI in period } t = \frac{CPI_t - \text{CPI}_{t-1}}{\text{CPI}_{t-1}}$$

(iii) Bull-Bear Market Risk

Bull-Bear market risk arises from the variability in market return resulting from alternating bull and bear market forces. When a security index rises fairly consistently form a low point, called a trough, for a period of time, this upward trend is called a bull market. The bull market ends when the market index reaches a peak and starts a downward trend. The period during which the market declines to the next trough is called bear market.

(iv) Default Risk

It is the portion of an investment's total risk that results from changes in the financial integrity of the investment. Default risk is the variability of return that investors experience as a result of changes in the creditworthiness of a firm in which they invest. Investor losses from default risk usually result from security prices falling as the financial integrity of a firm weakness. By the time an actual bankruptcy occurs, the market prices of the troubled firm's securities will already have declined to near zero.

(v) Liquidity Risk

It is that portion of an asset's total variability which results from price discounts given or sales commissions paid in order to sell the asset without delay. Perfectly liquid are highly marketable and suffer no liquidation costs. Liquid assets are not readily marketable – either price discounts must be given or sales commissions must be paid, or both of these costs must be incurred by the seller. Hence, the more liquid an asset is, the larger the price discounts and/or commissions which must be given up by the seller in order to affect a quick sale.

(vi) Callability Risk

Some bonds and preferred stocks are issued with a provision that allows the issuer to call them in for repurchase. The portion of a security's total variability of return that derives from the possibility that the issue may be called is the callability risk. Callability risk command a risk premium that comes in the form of a slightly higher average rate of return. This additional return should increase as the risk that the issue will be called increases.

(vii) Convertibility Risk

Convertibility risk is that portion of the total variability of return from a convertible bond or a convertible preferred stock that reflects the possibility that the investment may be converted into the issuer's common stock.

(viii) Political Risk

The portion of an asset's total variability of return cased by changes in the political environment that affect the asset's market value. Whether the changes that cause political risk are sought by political or by economic interests, the resulting variability of return is called political risk.

(ix) Industry Risk

An industry may be viewed as a group of companies that complete with each other t market homogenous product. Industry risk is that portion of an investment's total variability of return caused by events that affect the products and firms that make up an industry. The stage of the industry's life cycle, international tariffs and/or quotas on the products produces by an industry, product or industry related taxes; industry wide labour union problems, environmental restrictions, raw material availability, and similar factors interact and affect all the firms in an industry simultaneously. As a result of these commonalities, the process of the securities issued by competing firms tends to rise and fall together.

2.1.6 Diversification and Portfolio Analysis

Investment positions are undertaken with the goal of earning so expected rate of return. Investors seek to minimize inefficient deviations from this expected rate of return. Diversification is essential to the creation of an efficient investment because it can reduce the variability of returns around the expected return.

Diversification is the one important means that control portfolio risk. Investments are made in a wide variety of assets so that exposure to the risk of any particular security is

limited. By placing one's egg in many baskets, overall portfolio risk actually may be less than the risk of any component security considered in isolation.[9]

The objective of portfolio analysis is to reduce risk. By combining securities of low risks with securities of high risks, success can be achieved by an investor in making a choice of investment outlets.

Investment positions are undertaken with the goal of earning some expected rate of return. Diversification is essential to the creation of an efficient investment because it can reduce the variability of returns around the expected return. The objective of portfolio analysis is to develop a portfolio that has the maximum return at whatever level of risk the investor deems appropriate.[10]

Some different diversification techniques for reducing portfolio's risk are follows:

(i) Simple Diversification

Simple diversification can be defined as "not putting all the eggs in one basket", or "spreading the risks". The simple diversification would be able o reduce unsystematic or diversifiable risk. It is the random selection of securities that are to be added to a portfolio. Simple diversification reduces a portfolio's total diversifiable risk to zero and only the undiversifiable risk remains.

(ii) Diversification across Industries

Some investment counselors advocate selecting securities from different industries to achieve better diversification. It is certainly better to follow this advice than to select all the securities in a portfolio from one industry. But, empirical research has shown that diversifying across industries is not much better than simply selecting securities randomly. Studies of the rates of return from, securities in many industries have shown that nearly all industries are highly correlated with one another. The indiversifiable variability cannot be diversified away simply by selecting securittes from different industries.

(iii) Superfluous Diversification

Large no. of assets spreading of the portfolio's asst is superfluous diversification. It refers to the investors' spreading himself in so many investments ion his portfolio. Superfluous diversification will usually result in the following portfolio management problems:

(a) Impossibility of good portfolio management: If the portfolio contains dozens of different assets, the portfolio's management cannot consider the status of all of them simultaneously.
(b) Purchase of lackluster performers: The search for numerous different assts t buys will ultimately lead to the ill-informed purchase of investment that will not yield an adequate rate of return for the risk they bear.
(c) High search costs: As the number of candidate securities for a portfolio increases, it will be more costly to do the necessary security analysis.
(d) High transactions costs: Frequent purchases of small quantities of shares will result in lager broker's commission.

[9] Bodie, Kane and Marcus, "Investment", Richard D, Irwin, USA, Pp 162, 208
[10] Francis, Jack Clark (2003), "Investments: Analysis & Management", Eleventh Enlarged Edition, McGraw Hill Inc., New York, USA, Pp 228.

More money is spent to manage a superfluously diversified portfolio, there will most likely to be no concurrent improvement in the portfolio performance. This, superfluous diversification may lower the net return to portfolio's owner after the portfolio's management expenses are deducted.

(iv) Simple Diversification across Quality Rating Categories

Simple diversification reduces risk within categories of stocks that all have the same quality ratings. The standard deviations of portfolios of different homogenous quality rating attained different levels of risk. The highest quality portfolio randomly diversified stocks was able to achieve lower levels of risk than the simply diversified portfolios of lower quality stocks. This result reflects the fact that default risk is part of total risk. The higher quality portfolios contain assets with less default risk. Portfolio managers can reduce portfolio risk to levels lower than those attainable with simple diversification by not diversifying across lower quality assets.

(v) Markowitz Diversification

Markowitz Diversification is the combination of assets, which are less than perfectly correlated in order to reduce portfolio risk without sacrificing portfolio returns. It can sometimes reduce risk below the undiversifiable level. Markowitz diversification is more analytical than simple diversification and considers assets' correlations. The lower the correlation between assets, the more that Markowitz diversification will be able to reduce the portfolio's risk.

Markowitz diversification can lower risk below the in diversifiable level if the securities analyst can find securities whose rats of return have low enough correlations. Unfortunately, there are only a precious few securities that have low correlations. Therefore, using Markowitz diversification requires a data bank of financial statistics for many securities, a computer and some econometric analysis.

Applying Markowitz diversification to collection of potential investment assets with a computer is called Markowitz portfolio analysis. It is a scientific way to mange a portfolio, and its results are quite interesting. Since, Markowitz Portfolio analysis considers both the risk and return of dozens or hundred or thousands of different securities simultaneously, it is a more powerful method of analyzing portfolio than using intuition or selecting investments by committee.

According to the Markowitz "The portfolio theory establishes a relationship between a portfolios expected return and its level of risk as the criterion for selecting the optimum portfolio". Thus, Markowitz suggested following two measures for evaluating the merits of a portfolio:

(i) The expected return from the portfolio
(ii) Level of risk exposure associated with the portfolio

So as to find to efficient set of portfolio & select the most efficient one, the portfolio manager will need to know the expected returns and the risk of these returns for the individual's securities.

The portfolio model developed by Markowitz is based on the following reasonable assumption:

(i) The expected return from an asset is the mean value of a probability distribution of future returns over some holding period.
(ii) The risk of an individual asset of portfolio is based on the variability of returns (i.e. standard deviation or variance)
(iii) Investors depend solely on their estimates of return and risk in making their investment decision. This means that investors' utility (indifference) curves are only a function of expected return and risk.
(iv) Investors adhere to the dominance principle. That is, for any given level of risk, investors prefer assets with a higher expected return to assets with a lower expected return for assets with the same expected return investors prefer lower to higher risk.

According to the Markowitz, the expected return of the portfolio is the weighted average of the expected return of the individual assets in the portfolio. The weights are defined as the portion of the investor's wealth invested in particular asset.

The portfolios expected return is defined in equation as follows:

$Rp = \sum RjXj$
Or, $Rp = R_1X_1 + R_2X_2 + \ldots\ldots\ldots\ldots\ldots\ldots + R_nX_n$

Where,
Rp = Expected return of Portfolio
Rj = Expected return to security j
Xj = the proportion of total for security 1 and 2 respectively
R_1 and R_2 = Expected return for security 1 and 2 respectively.
X_1 and X_2 = weight for security 1 and 2 resectively

Alongside the expected return to the portfolio manager must also consider the risk associated with the portfolio.

According to the Markowitz, the risk of the portfolio consists of the riskiness of the individual securities and the covariance between the returns of the securities among all possible combinations of them. Thus, the portfolio risk can be calculated as follow:

The Portfolio risk (σ_p) = $X_{12}\ \sigma_{12} + X_{22}\ \sigma_{22} + 2X_1X_2\ \sigma_1\sigma_2\rho_{12}$

Where,
X_1 and X_2 = proportion of funds invested in security 1 and 2.
σ_{12} and σ_{22} = Variance of the returns on security 1 and 2
ρ_{12} = Correlation between the returns of security 1 and 2

2.1.7 Capital Asset Pricing Model (CAPM)

CAPM is a model based on the presentation that any stock required rate of return is equal to the risk free rate of return plus its risk premium, where risk is measured by the beta coefficient.

The CAPM is a relationship in which the expected rate of return of the asset is a linear function of that assets systematic risk.

The CAPM represents the trade-off systematic risk for the returns that investors expect and are fettled to receive. The CAPM explains the behaviour of security prices. Its further explains how the prices and interest rated on risky financial assets are determined in the capital market. CAPM combines the principles of portfolio theory with certain assumption regarding investors' expectations and market characteristics.

Assumptions:

(i) Individual are risk averse.
(ii) Individual can borrow and lend free at risk free rate of interest.
(iii) Individuals have homogenous expectations regarding risk and returns of securities.
(iv) The market is perfect and competitive.
(v) There are no transaction costs and taxes.
(vi) Securities are divisible.

The CAPM equation is written as follows:

$\sum(Rj) = Rf + (Rm - Rf)\beta j$

where,

$\sum(Rj)$ = Expected return on assets
Rf = Risk free rate of return
Rm = Market return
Bj = Coefficient of Beta

Total Risk

The total variation of the rate of return for an individual security is measured by the standard deviation or variance of the rate of return. There are two kinds of risk which are as follows:

(i) Market risk or Undiversifiable risk or Systematic risk measured by its beta and
(ii) Company risk or Diversifiable risk of Unsystematic risk

According to CAPM total risk divided into two parts. They are unsystematic and systematic risk.

Total Risk = Systematic Risk + Unsystematic Risk

2.1.8 Portfolio Risk and return

Each asset's expected return and risk along with the expected return and risk for other asset's and their interrelationships are important inputs in portfolio selection.

In order to construct efficient portfolios, the investor must be able to quantify the portfolios expected return and risk.[11]

From an investor's standpoint the fact that a particular stock goes up or down is nor very important. What is important is the return on his of\r her portfolio, and the portfolio's risk. Logically, then the risk and return characteristics of an investment should not be evaluated in isolation: rather, the risk and return of an individual security should be analyzed in terms of how the security affects the risk and return of the portfolio in which it is held.[12]

(i) Portfolio Return

The expected return of a portfolio is the weighted average of the expected returns of the individual assets in the portfolio. The weights are the proportions of the investor's wealth invested in each asset and the sum of the weight must equal to one.[13]

The expected return on portfolio depends upon the amount of funds invested in each security, given expected return on the individual securities.[14]

The portfolio expected return is defined in equation as follows:

$$\overline{K}_p = \sum_{j=1}^{n} W_j \times \overline{K}_j$$

$$\overline{K}_p = W_1\overline{K}_1 + W_2\overline{K}_2 + ... + W_n\overline{K}_n$$

Where,

$\overline{K}_p$ = portfolio expected return

W_j = Weight of the funds invested in a security j

$\overline{K}_j$ = Expected return on the individual stocks

n = No. of securities in the portfolio

(ii) Portfolio Risk

The calculation of a portfolio risk is not as straight forward as the calculation of a portfolio's expected return. In order to calculate the risk of a portfolio, consideration must be given not only to the risk of the individual assets in the portfolio and their relative weights but also to the extent to which the assets returns move together. We measure the

[11] Cheney, John M. & Mosses, Edward, A (1992) "Fundamental of Investments", New York West Publishing House, New York, USA, Pp 651.
[12] Weston, J. Fred and Eugune F. Brigham, "Essentials of Managerial Finance", Eleventh Edition, The Dryden Press, Pp 194.
[13] Cheney, John M. & Mosses, Edward, A (1992) "Fundamental of Investments" Pp 652.
[14] Weston, J. Fred and Thomas E. Copeland "Managerial Finance", Ninth Edition, Pp 367.

risk of an individual asset by the variance of returns or its square root, the standard deviation. The degree to which the asset's return move together is measured by the covariance or correlation coefficient. By combining the measures of individual asset risk (variance or standard deviation), relative asset weights, and the co-movement of asset's return (covariance or correlation), the risk of the portfolio can be estimated.[15]

Total risk is measured by either the variance or its square root, the standard deviation of returns. The variance of returns from a portfolio made up of n assets is defined by following equation.[16]

$$\text{Var } (r_p) = \sigma_p^{\,2} = \sum_{i=1}^{n} \sum_{j=1}^{n} x_i x_j \sigma_{ij}$$

$$\sigma_p = \sqrt{\sum_{i=1}^{n} \sum_{j=1}^{n} x_i x_j \sigma_{ij}}$$

Where,

σ_p = Standard deviation of portfolio's rates of return

σ_{ij} or cov (r_i, r_j) = equivalent representation for correlation of returns between assets *i* and *j*.

cov (r_i, r_j) = $\sigma_i \sigma_j \rho_{ij}$

ρ_{ij} = correlation coefficient between security *i* and *j*.

x_i = weight of security i.

x_j = weight of security *j*.

For 2 assets,

$$\sigma_p = \sqrt{X_A^{\,2}\sigma_A^{\,2} + X_B^{\,2}\sigma_B^{\,2} + 2X_A X_B \operatorname{cov}(r_A r_B)}$$

For 3 assets,

$$\sigma_p = \sqrt{X_A^{\,2}\sigma_A^{\,2} + X_B^{\,2}\sigma_B^{\,2} + X_C^{\,2}\sigma_C^{\,2} + 2X_A X_B \operatorname{cov}(r_A r_B) + 2X_A X_C \operatorname{cov}(r_A r_C) + 2X_B X_C \operatorname{cov}(r_B r_C)}$$

Where,

X_A, X_B and X_C = weights of securities A, B and C.

σ_A, σ_B and σ_C = Standard deviation of A,B and C.

Cov($r_A r_B$) = Covariance between security A and B and so on.

[15] Cheney, John M. & Mosses, Edward, A (1992) "Fundamental of Investments" Pp 653

[16] Francis, Jack Clark (2003), "Investment: Analysis and Management", 11th enlarged edition, Pp 236.

2.1.9 Covariance, Correlation Coefficient and Portfolio Risk

(i) Covariance and Correlation

The covariance is related to the correlation coefficient as shown in following equation:

Cov (r_i, r_j) = $\sigma_i \sigma_j \sigma_{ij}$

The covariance measures how two variables co-vary. According to portfolio theory, consideration must be given not only to the risk of the individual assets in the portfolio but also to the degree to which the returns of the assets co-vary or move together. If two assets are positively correlated, their covariance will also be positive. If two variables are independent, their covariance is zero. And if two variables vary inversely, their covariance is negative. In other words, if the returns on two assets are simultaneously above or below their respective mean, the covariance will be positive. Conversely, when the return on one asset is above its mean and return on another asset is simultaneously below its mean, the covariance will be negative.

The relationship between two variables is called correlation, and the correlation coefficient. The correlation coefficient is a relative number that measures the degree to which returns on two assets move together, The correlation coefficient can take range of values between +1.0 and -1.0. perfectly positive correlation, +1.0 indicates that the returns on two assets move together. If the returns on two assets are perfectly negatively correlated i.e. -1.0, then as one asset return move above(below) its mean, the returns of the second assert move below (above) its mean in the same proportion. A correlation statistic of 0.0 indicates that there is no consistent relationship between the movements of the two assets return.

(iii) Correlation Coefficient and Portfolio Risk[17]

(a) The expected return of a portfolio is a function of the expected returns of the assets in the portfolio and the proportion of the portfolio represented by each asset. The correlation between the assets in the portfolio does not affect the expected return of the portfolio.

(b) When a portfolio contains only one asset, the risk of the portfolio is the standard deviation of the return of the asset.

(c) When more than one asset is held in a portfolio, the lower the correlation between the assets, the lower risk of the portfolio for any given set of asset weight.

(d) When the correlation between assets is perfectly positive (i.e. ρ_{ij} = +1.0), the portfolio risk is the weighted average of risk of the assets in the portfolio.

(e) When the correlation between assets is perfectly negative (i.e. ρ_{ij} = -1.0), it is possible to create a portfolio with zero risk.

[17] Cheney, John M. & Mosses, Edward, A (1992) "Fundamental of Investments" Pp 666

2.1.10 Market Portfolio

The market portfolio contains every asset in proportion to their market value, it is by definition, a perfectly diversified portfolio. The market portfolio is, therefore, subject only to systematic or non-diversifiable risk. The volatility of the market portfolio is due to macroeconomic factors that affect all risky assets and not to company or industry specific factors. Volatility in returns created by unsystematic risk, this can be diversified away by adding risky assets to a portfolio. A portfolio's total risk is equal to the sum of its systematic risk and unsystematic risk. In the case of the market portfolio, there is no unsystematic or diversifiable risk, and total risk is equals systematic risk. Since, it is possible to eliminate all unsystematic risk through perfect diversification: the capital markers do not reward investors for facing unsystematic risk.[18]

The market portfolio is the unanimously desirable portfolio containing all securities in exactly the proportions in which they are supplied.,. The return on the market portfolio is the weighted average return on all capital on assets. In reality it is possible to obtain only estimates of the market portfolio. However, the market portfolio is a useful theoretical construct since the return of market portfolio is the return estimated by the Dow Jones Averages, Standard & poor's indexes, The NYSE Index and similar indexes.[19]

2.1.11 Features of Sound lending and Investment Policy

The income and profit of the bank depends upon its lending procedures, lending policy and investment of its funds in different securities. A sound lending and investment policy is not only the prerequisite for bank's profitability, but must consider explained as follows.

(i) Safety and Security

The bank should never invest its funds in those securities which are subject to too much depreciation and fluctuation because a little difference causes a great loss. It must not invest its fund into speculative businessman who may be bankrupt. Thus the banks should accept such types of securities which are commercial, durable , marketable and high market prices.

(ii) Profitability

A commercial bank can only maximize its volume of wealth if it maximizes the return on investment and lending. So the banks must invest their funds where they gain maximum profits.

(iii) Liquidity

Liquidity is the ability of a firm to repay the money when needed. People deposit money in the bank in different accounts with the confidence that the bank will repay the money where needed. To maintain such confidence of the depositors, the bank must keep this point in mind while investing its excess funds in different securities if at the time of lending so that it can meet current or short-term obligation when they become due for payment.

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[18] Cheney, John M. & Mosses, Edward, A (1992) "Fundamental of Investments" Pp 690

[19] Francis, Jack Clark (2003), "Investment: Analysis and Management", Pp 254

(iv) Diversification

A bank should not lay all eggs on the same basket. This saying is very much important to the bank and it should always careful not to grant loan in only one sector. To minimize risk, a bank must diversify its investment on different sectors.

(v). Legality

Illegal securities will bring out many problems for the investor. A commercial bank must follow the rules and regulations as well as different directions issued by the NRB, ministry of finance and other while mobilizing its funds.

2.2 Review of Related Studies

2.2.1 Review of Previous Studies

Before this thesis, some students have conducted several thesis works . some of them, as are supposed to be relevant for this study, are presented below.

A research entitled, "Portfolio Analysis of CBs in Nepal".(Kisi, 1999), has made an effort to examine the concept of investment ands loans and advances portfolio of commercial banks. Study analyzed financial performance and portfolio of commercial banks with ratio analysis, investment portfolio analysis, loan and advance portfolios, risk and return analysis and trend analysis. Conclusions are as follows:

1. Commercial banks are investing considerably higher amount of their fund in govt. Securities.
2. commercial banks are investing very low amount of their fund in shares of their companies i.e. less then 1% on average.
3. commercial banks are providing a very high amount of their funds on private sector i.e. more then 82% on average.
4. the commercial banks have given the second priority to the foreign bills purchase and discount.
5. the beta coefficient of commercial b banks have higher then one, the commercial banks have some risky assets.
6. the return of CBs lies above the security market line which indicates that commercial banks are increasing, the percentage change in each year is decreasing.
7. though the trend of loans and investment and total deposits of commercial banks are increasing, the percentage change in each year is decreasing.
8. the financial performance of CBs , the commercial banks are found to be performing better than the domestic Nepalese banks operating under the same environment.

Thesis subjected to investment Portfolio Analysis of Joint Venture banks, (Banjade, 2003) had drawn following conclusion.

1. Most of the joint venture bank's investment is concentrated in to government securities.
2. Increased portfolio weigh on loans and advance portfolio to government enterprises and foreign bills purchase and discount decrease the risk.
3. While comparing the investment portfolio weight set up by the commercial banks with directives given by the central bank, the banks have not followed the

directives. Directives direct not to invest more than 50% in one sector but most of the banks have invested more or equal to 90% of their funds into one sector.

(Shrestha, 2003) A study entitled "portfolio Analysis on Investment Nepalese Commercial Banks" has presented conclusions:

1. The total investment to total deposits ratio of selected CBs shown that SCBNL is the most successful in utilizing its resources on investment than other CBs.
2. On the basis of return on total assets, SCBNL utilized its overall resources efficiently than other banks.
3. Most of the CBs give first priority to invest their resources on loan and advances, second priority to government securities and third priority to shares and debentures.
4. All commercial banks seem to be interested in using their deposits in purchasing government securities.
5. Almost CBs want to invest in short term basis which return is not fixed, they make hesitation to invest on long term government securities that provide regular constant return.
6. CBs do not use well scientific approach towards diversification of funds among various assets like shares and debentures, loan and advances, government securities etc.

"A study of Commercial Banks Deposits and Its Utilization" has made an attempt to highlight the discrepancy between resources collection and resources utilization (Pant,2003). The study concluded that commercial banks failure in resource utilization is due to their commercial banks should give emphasis also on long term lending for better utilization of the deposits.

A study entitled " Lending policy of Commercial Banks In Nepal" has tried to examine the lending policy of the commercial banks (Bhattrai, 1978). The study concluded that efficient utilization of resources is more important that collection of the same. Lower investment means lower capital formation that hampers economic development of the people and the country. Therefore, recommendation is that bank should give emphasis on efficient utilization of resources.

(Pradhan, 1980) A study entitled, "A study on Investment Policy of Nepal Bank Ltd." Has emphasized that there is a greater relationship between deposits and loans and advances. The study concluded that through loan and advances as well and deposits are in increasing trend, their increase is not in a proportionate manner. Immense increase in the deposits had leaded to little increase in loans to grant the loans and advances due to the increase in the interest rate. Recommendation was to grant the loans and advances without its lengthy process. The study suggested enhancing banking transactions up to rural sector of the kingdom.

(Dhungana, 1993) A study entitled, " A Study of the Joint Venture Banks Profitability", has presented major findings.

1. Interest income of NIBL has highest.
2. NABIL's commission and discount earning and foreign exchange income were higher than both NGBL and NIBL.
3. NABIL's other operating income was appeared higher than other banks.
4. NGBL had highest 'EPS' and 'Cash Dividend per Share' in average.

(Jha, 1998) A study entitled, "Comparative Analysis of Financial performance of the Selected Joint Venture banks" has conclude the following points:

1. General loan loss provision to total loans in case of NABIL has the highest among NABIL, NIBL, NGBL and HBL.
2. Credit deposits ratio NIBL stood the highest at the end of FY 1996/97 among the selected banks.

NGBL has been investing most of its deposits in foreign investments.

2.2.2 Review of Related Articles

Till now, there are not many articles available in the published form related to investment portfolio management in Nepal.

The author Shrestha(2055) entitled to Portfolio Management in Commercial Bank, Theory and Practice mentioned that the portfolio management becomes very important for both individuals as well as institutional investors, investors would like to select a best mix of investment assets subject to the following aspects:

a. Higher return which is comparable with alternative opportunities available according to the risk class of investors.
b. Good liquidity with adequate safety of investment.
c. Certain capital gains.
d. Maximum tax concession
e. Flexible investment
f. Economic, efficient and effective investment mix.

In view of above aspects, following strategies are adopted.

a. Do not hold any single security i.e. try to have a portfolio of different securities.
b. Do not put all the eggs in one basket i.e. to have diversified investment. (Making investment in different sectors)
c. Choose such portfolio of securities, which ensures maximum return with minimum risk or lower of return but with added objective of wealth maximization.

However, Author has also attempted the following approaches to be adopted for designing a good portfolio and its management.

a. To find out the invisible assets (generally securities) having scope for better returns depending upon individual characteristics like age, health, need, disposition, liquidity, tax liability etc.
b. To find out the risk of securities depending upon the attitude of investor towards risk.
c. To develop alternative investment strategies for selecting a better portfolio that will ensure a trade off between risk and return to attach the primary objective of wealth maximization at lowest risk.
d. To identify securities for investment to refuse volatility of return and risk.

Regarding the commercial banks, they are very eager to provide such services but because of above mentioned problems , very limited opportunity are available to the

banks for exercising the portfolio management. Even considering the attraction of deposits commercial banks are facing problems since investors have not developed full confidence of putting money in fixed time deposit certificated of various maturing and sizes.

The author has drawn following conclusion for smooth running and operation of banks and fanancial institutions:

1. The survival of the banks depends upon its own financial health and various activities.
2. In order to develop and expand the portfolios management activated successfully the investment management methodology of a portfolio manager should reflect high standards and give their clients the benefits of global strengths, local insights and products philosophy.
3. With the discipline and systematic approval with the selection of appropriate countries, financial assets and the management of various risks, the portfolio manager could enhance the opportunity for each investor (client) to earn superior returns overtimes.
4. The Nepalese banks having greater network and access to national and international capital markets have to go for portfolio management activities for the increment of their fee based income as well as to enrich the client base ant to contribute in national economy.

In this context, the author has presented two types of investment analysis techniques and fundamental analysis and technical analysis to consider any securities such as equity, debentures or bond and other money and capital market instruments. The author has also pointed out the required skilled manpower research and analysis and proper manage Information system(MIS) in any type of commercial banks to get success in portfolio management and customer's confidence.

Study on portfolio Behavior of commercial Banks in Nepal (Shrestha, 1995) has made remarkable efforts to examine various portfolio behavior of commercial bank in Nepal such as investment portfolio, liability portfolio, assets portfolio etc. In the study, investment of commercial banks when analyzed individually, were observed in Nepalese domestic banks invest in government securities, national saving bond, debentures and company's shares. On the basis of this study the author found that the supply of bank credit was expected to depend on total deposit, lending rate, bank rate, lagged variables and the dummy variables, similarly demand of bank credit was assure to be affected by national income, lending rate, treasury bill rate and other variables. The resources of commercial banks were expected to be related with variables like total deposits, cash reserve requirement, bank rate and lending rate. On the basis of finding's conclusion.

1. The relationship of banks portfolio variables as found to be best explained by log linear equations.
2. Demand of deposit for commercial banks in Nepal is positively affected by the GDP from non agriculture and the deposit rate and lending rate of interest.
3. The investment of commercial banks on govt. securities has been observed to be affected by total deposit, cash reserve requirement, and treasury bills rates and lending rates.

4. The investment of commercial banks in shares and securities is normal and nor found to have strategic decisions towards investment in shares and securities.
5. The loan loss ratio has been found to increase with low recovery of loan.

On article, Monetary Policy & Deposit Mobilization in Nepal, (Bajracharya, 2047), has concluded that mobilization of the domestic saving is one of the prime objectives of the monetary policy in Nepal. Commercial banks are the most active financial intermediary for generating resources in the form of deposit of private sector & providing credit to the investor in different sectors of the economy.

An article on." A study on Deposits & Credit of Commercial Banks in Nepal", (Shrestha, 2045), concluded that the credit deposits ration would be 51.3%, other things remaining the same, in 2004 AD, which has the lowest under the period of review. So the author had strongly recommended that the commercial banks should try to give more credit entering new field as far as possible, otherwise, they might not be able to absorb even its total expenses.

Similarly, Author, (Sharma, 1998), in article, Joint Venture Banks in Nepal: Co-existing or Growing Out, would be definitely unwise for Nepal not to let the CBs operate in the country and not to take advantage of them as additional means of resources mobilization as well as harbinger of new era in banking. But it will certainly be unfortunate for the country to develop CBs and the cost of domestic banks. So far one should admit frankly no different treatment has been extended to the domestic and CBs at least from the government side, which is commendable. If Nepal Government keeps on the stance of treating the domestic and CBs equally deposit lather's bargaining strengths and if the CBs also show their alacrity to come forward to share the trails and tribulations of this poor country, both types of banks will coalesce and co-exist complementing each other and contributing to the nation's accelerated development. On the contrary, if the CBs use their strength against trading into the number, some path of development along with domestic banks and the government, they will eventually grow out the domestic banks from the more profitable urban areas and lucrative urban sectors unless remedying by the determination of the government.

2.2.3 Review of Rules & Regulations

In this section, some rules which are related to the operation of commercial banks are reviewed. Rules and regulations have significant impact on the commercial bank's establishment, their mobilization and utilization of resources. All the commercial banks have to confirm to legislative provisions formulated to facilities the smooth running of commercial banks.

2.2.3.1 Rules for fund Mobilization

To mobilize bank's deposit in different sectors of the different parts of the nation, central bank i.e. Nepal Rastra Bank (NRB) may establish a legal framework by formulating various necessary rules and regulations which are formulated by NRB in terms of investment and credit to deprives sector, priority sector etc.

(i) Provision for Investment in the Deprived Sector

Some rules are being affected in the areas of credit and investment extension in the deprived sector by the commercial banks. According to the provision, the commercial

banks were required to extend the following proportion of their total outstanding loans to deprived sector is presented here.

Table No. 2.1
Deprived Sector Credit Ceiling

S.N.	Commercial Banks	Required deprived Sector lending (as % of total outstanding loan)
1	Nepal Bank Ltd.	7.50 %
2	Rastra Banijya Bank	8.50 %
3	NABIL Bank Ltd.	6 – 9 %
4	Nepal Investment Bank Ltd.	4 – 9 %
5	Standard Chartered Bank Nepal Ltd.	7.50 %
6	Himalayan Bank Ltd.	4.50 - 8.25 %
7	Nepal SBI Bank Ltd.	7 – 9 %
8	Nepal Bangladesh Bank Ltd.	9.50 %
9	Everest Bank Ltd.	4.5 – 10 %
10	Bank of Kathmandu	6.5 – 11%
11	NCC Bank Ltd.	7 – 11%
12	Lumbini Bank Ltd.	7 – 10 %
13	NIC Bank Ltd.	7.5 – 9.5 %
14	Kumari Bank Ltd.	7.5 – 10 %
15	Machhapuchhre Bank Ltd.	6 – 7 %
16	Laxmi Bank Ltd.	5 – 9 %
17	Siddhartha Bank Ltd.	7.5 – 11%
18	Agriculture Development Bank Ltd.	-

Source: Banking & Financial Statistics No. 47, July 2006, NRB

(ii) Provision for Credit to the Priority Sector

NRB requires commercial banks to extend loans and advances amounting at least 12 percent of their total outstanding credit to the priority sector including deprived sector. Under the priority sector, credit to agriculture, credit to cottage and small industries and credit to service are counted.

Chapter – 3

RESEARCH METHODOLOGY

Research methodology consists of research design, data collection procedure, tools and techniques for analysis, method of analysis and presentation and assumption of the study. The basic objective of the study is to analyze the investment portfolio of selected commercial banks.

3.1 Research design

The research is acquainted to examine and find out the problem and possibility of generating the portfolio investment for the commercial banks with special reference of selected banks. Regarding he nature of this research, this research s historical, descriptive as well as analytical research because this research is based on historic database on generalized n term of banks theorem of financial management and investment analysis evaluating the data of references organization. Finally, research design is the plan, structure and strategy of investigations conceived to obtain answers to the statement of the problems.

3.2 Population & Sample Data

The term population of data denotes for the data of each organization which is within the boundary of specific organization where as sample data are the data of those organization which has been selected from that whole population in a few numbers. Random selected method is to be used while selecting sample organizations for this study. The population data for this study comprises all commercial banks, which are currently operating in Nepal. The sample consists of five selected banks. The selected sample banks for the analysis are as follows:

1. NABIL bank Ltd.
2. Nepal Investment Bank Ltd.
3. Himalayan bank Ltd.
4. Kumari Bank Ltd.
5. Everest Bank Ltd.

3.3 Nature and Sources of Data

mainly this study bases on secondary data . sources of secondary data are published data like annual reports of banks, financial statement, review and reports, journals, article from various magazine, statistical reports, and previous thesis, and dissertation, homepages and so on.

3.4 Method of Data Analysis

According to the nature of statement of data, suitable or appropriate tools make the analysis more effective and significant for achieving objective. So financial and statistical tools , use in this study.

3.4.1 Financial Tools

Financial tools use for the analysis and interpretation of data . these tools use to get the precise knowledge of financial analysis that in turn, are fruitful in preparing strengths and weakness of the investment policies and strategies. For the price of analysis ,following tools are used to meet the objectives.

1. Risk and return on individual investment assets and investment portfolio
2. financial ratios

3.4.1.1 Risk and return on individual Investment Assets and investment Portfolio

i. Return On Share And Debenture

The return on shares and debenture considers dividend yield and capital gain yield i.e. change in market price. Symbolically:

$$\text{Return on Share Debenture (Rs)} = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$$

Where

Pt = closing price per share at period t

Pt-1 = Closing price per share at period t-1

Dt = Dividend per share at period t

ii. Return on Government Securities

The return on government securities is calculated by dividing interest earned from government securities by total investment on government securities . this is illustrated as:

$$\text{Return on Government Securities} = \frac{\text{Interest earned from Government Securities}}{\text{Total Investment on Government Securities.}}$$

iii. Return on Loan and advances

The return on loan and advances is calculated by dividing interest earned fro m loan and advances by total amount of loan and advances. This is calculated as:

$$\text{Return on Loan and advances} = \frac{\text{Interest earned from loan and advances}}{\text{Total Amount of loan and advances}}$$

iv. Average Rate Of Return

When historical returns are used , following formula is used to calculate an average rate of return:

Average Rate of return ($\bar{R}$) = $\frac{\sum_{t=1}^{n} R_t}{n}$

Or , R = $\frac{R_1+R_2+R_3+\ldots\ldots\ldots\ldots\ldots+R_n}{n}$

where,

R_1, R_2,R_3= rate of return in different period

n = number of period

v. Risk on individual Assets

Risk is defined as the variability of the return of a period. The one- period rate of return is the basic random variable used in measuring an investment's risk. One such nature of risk is the standard deviation. Standard deviation is defined as the positive square root to the mean of the square of the deviation taken from arithmetic mean.

Risk on individual assets or standard deviation for assets can be calculated using historical returns with this equation:

Standard Deviation (σ) = $\sqrt{\frac{(R-\bar{R})^2}{n}}$

Where,

R = Rate of return on individual assets

$\bar{R}$ = Average rate of return on individual assets

n = number of observations

vi. Return on Portfolio

The return on portfolio is simply the weighted average of the expected returns on the individual assets in the portfolio with the weights being the fraction of the total portfolio investment in each asset.

Return on Portfolio (R_p) = $\sum_{i=1}^{n} X_i \times R_i$

Or, $R_p = R_1X_1 + R_2X_2 + R_3X_3 + \ldots\ldots\ldots.. + R_nX_n$

Where,

R_p = Expected return to portfolio

R_i = Expected return to asset i

X_i = the proportion of total portfolio invested in asset i.

R_1 and R_2 = expected return for assets 1 and 2.

X_1 and X_2 = weight for assets 1 and 2.

vii. Risk on Portfolio

Expected risk on a portfolio is a function of the proportions invested in the components, the riskyness of the components and correlation of returns on the component securities. It is measured by standard deviation and calculated by using following formula:

$$\sigma_p = \sqrt{X_A{}^2\sigma_A{}^2 + X_B{}^2\sigma_B{}^2 + X_C{}^2\sigma_C{}^2 + 2X_AX_Br_{AB}\sigma_A\sigma_B + 2X_AX_Cr_{AC}\sigma_A\sigma_C + 2X_BX_Cr_{BC}\sigma_B\sigma_C}$$

Where,
XA, XB and XC = Weights of securities A, B and C respectively
$\sigma_A, \sigma_B and \sigma_C$ = Standard deviation of A, B and C respectively
r_{AB} = Correlation between assets A and B
r_{AC} = Correlation between assets A and C
r_{BC} = Correlation between assets B and C

3.4.1.2 Financial Ratios

An arithmetic relationship between two figures is ratio. In other words , the relationship between two according figures expressed in mathematical term is known as financial ratio. "Ratio analysis is used to compare a firm's financial performance and status to that of other firms or to itself on time."[20] Ratio is always computed by dividing one item of relationship with the other.

Ratio analysis is technique of analysis and interpretation of financial statement through mathematical expression. To evaluate the performance of an organization by creating the ratios from the figures of different accounts is known as ratio analysis. It is very helpful for decision making. Ratio analysis serves as a stepping stone for an inter-firm comparision to take remedial measure. It helps management in evolving future 'market Strategy'. Ratio analysis is an important technique of financial analysis. In this study, only ratios which are related to investment portfolio of commercial banks are taken here. Hence, in this study, following ratios are calculated and analyzed.

(i) Return on Total Assets Ratio
This ratio is calculated by dividing net profit after tax by total assets i.e.

$$\text{Return on Total Assets Ratio} = \frac{\text{Net Profit after Taxes}}{\text{Total Assets}}$$

This ratio measures the probability with respect to total assets.

(ii) Total investment to Total Deposit Ratio
This ratio can be calculated by dividing total investment by total deposit. It can mention as:

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

[20] Gitman, Lawrence J. (1988), Principles of Managerial Finance), Fifth Edition, San Diego State University, Harper Collins, Pp 275.

(iii) Government Securities to Total Deposit Ratio

This ratio can be calculated by dividing investment on government securities by total deposits. This ratio can be stated as:

$$\text{Government Securities to Total Deposit Ratio} = \frac{\text{investment on govt. securities}}{\text{Total Deposits}}$$

(iv) Loans and Advances to Total Deposit Ratio

This ratio can be calculated by dividing loan and advances by total deposits. This ratio can be stated as:

$$\text{Loans and Advances to Total Deposit Ratio} = \frac{\text{Loans and Advances}}{\text{Total Deposits}}$$

(v) Share and Debenture to Total Deposit Ratio

This ratio can be calculated by dividing investment on share and debenture by total deposits. This ratio can be stated as:

$$\text{Share and Debenture to Total Deposit Ratio} = \frac{\text{Investment on share and Debenture}}{\text{Total Deposits}}$$

(vi) Investment on Government Securities to Total Outside Investment

This ratio shows that the banks' investment on government securities in comparision to the total outside investment. It can be calculated by dividing investment on government securities by total outside investment.

$$\text{Investment on Government Securities to TOI} = \frac{\text{Investment on Government Securities}}{\text{Total outside Investment}}$$

(vii) Loan and Advances to total outside Investment

This ratio shows that the banks investment on loan and advances out of total outside investment. It can be calculated by dividing loan and advances by total outside investment i.e.

$$\text{Loan and advances to TOI Ratio} = \frac{\text{Loan and Advances}}{\text{Total outside Investment}}$$

(viii) Investment on Share and Debenture to total Outside Investment

This ratio shows that the banks investment on shares and debentures to other companies. It ca be calculated by dividing investment on share and debenture by total outside investment. i.e.

$$\text{Investment on share and debenture to TOI} = \frac{\text{Investment on share and debenture}}{\text{Total outside Investment}}$$

3.4.2 Statistical Tools

Various statistical tools can be used to analyze the data available to the researcher. These tools are used in research in order to draw the reliable conclusion through the analysis of financial data. Following statistical tools are used in this study.

1. Arithmetic mean
2. Standard Deviation(S.D)
3. Coefficient of variation (C.V)
4. Linear Trend Analysis
5. Karl Pearson's Coefficient of correlation
6. Multiple Regression Analysis (*including least square method)

(1) Arithmetic mean:

Arithmetic mean is the ration of the sum of all the observations to the number of observation. Let X1, X2, X3, ……., Xn denotes 'n' variate values of the random variable X, then the arithmetic mean denoted by $\overline{X}$ is defined by the following formula

$$\overline{X} = \frac{X_1 + X_2 + X_3 + ... + X_n}{n} = \frac{\sum X}{n}$$

Where,

$\overline{X}$ = Arithmetic mean

$\sum X$ = Sum of observations

n = Number of observations

The arithmetic mean is a single value of selected series which represents them in average. Out of the various central tendencies, a mean is one of the useful tools to find out the average value of the given data.

(2) Standard Deviation (S.D.)

The measurement of the scatterness of the mass of figures in a series about an average is known as the dispersion. The standard deviation measures the absolute dispersion. Greater the amount of dispersion greater is the standard deviation. A small standard deviation means a high degree of uniformity of the observation as well as homogeneity of a series; a large standard deviation means just the opposite. This is calculated as following equation.

$$\text{Standard Deviation (S.D)} = \sqrt{\frac{\Sigma(R - \overline{R})^2}{n}}$$

Where,

R = Rate of return on individual assets

$\overline{R}$ = Average rate of return on individual assets

N = number of observations

(3) Coefficient of Variation (C.V)

The coefficient of variance is the relative measure of dispersion, comparable across distribution which is defined as the ration of the standard to the mean expressed in percent. It is calculated by following equation.

Coefficient of Variation (C.V.) = $\frac{S.D}{Mean} \times 100 = \frac{\sigma_i}{\overline{R_i}} \times 100$

Where,

σ_i = Standard deviation of asset i

$\overline{R_i}$ = Average return

Coefficient of variance is also useful in comparing the amount of variation in data groups with different mean. It is the relative measure of dispersion. A distribution with smaller coefficient of variance is said to be more homogenous of uniform than the other. On the hand, a series with greater coefficient of variance is said to be more variable of heterogeneous than the other.

(4) Linear Trend Analysis

The general tendency of the time series data to increase of decrease or stagnate during a long period of time is called trend. This method is the most popular and widely used in practice. It provides basis for obtaining the line of best fit in the series. As per this method, the trend line between dependent variable Y and the independent variable x be represented by,

$Y = a + bx$

Where,

Y= Dependent variable
x= Independent variable i.e. time
a= Y-intercept
b= Slope of the trend line

the two parameters a and b in the equation is obtained by solving two normal equations as follows:

$\sum y = na + b \sum x$
$\sum xy = a\sum x + b\sum x^2$

where

n = numbers of years

to make calculation easier the mid-point in time is taken as origin from which the negative values (-1,-2,-3……)in the first half of the series balance out the positive values(1,2,3……) in the second half so that $\sum x = 0$. in other words time variable is measured as a deviation from its mean so that $\sum x = 0$.

Since $\sum x = 0$, then the values of a and b can be calculated by,

$a = \frac{\Sigma y}{n}$ and $b = \frac{\Sigma xy}{\Sigma x^2}$

(5) Karl Pearson's Coefficient of Correlation

Karl person's method, popularly known as Pearsonian coefficient of correlation , is most widely used in practice . the correlation coefficient between two variables X and Y ,

usually denoted by r(X,Y), r_{xy} is a numerical measure of linear relationship between them and is defined by

$$r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{N\sum X^2 - (\sum X)^2}\sqrt{N\sum Y^2 - (\sum Y)^2}}$$

Where,
r_{xy} = Correlation coefficient between variable X and Y
N = Number of observations
$\sum X$ = Sum of observations in series X
$\sum Y$ = Sum of observations in series Y
$\sum XY$ = Sum of the product of observations in series X and Y
$\sum X^2$ = Sum of squared observations in series X
$\sum Y^2$ = Sum of squared observations in series Y

Interpretation of Correlation Coefficient

(i) When r = +1, implies that two variables are positively perfectly correlated.
(ii) When r = -1, implies that two variables are negatively perfectly correlated.
(iii) When r = 0, there is no correlation.
(iv) When r lies between 0.7 to 0.999 (-0.7 to -0.999), there is high degree of positive (negative) correlation.
(v) When r lies between 0.54 to 0.699, there is moderate degree of correlation.
(vi) When r is less than 0.5, there is low degree of correlation.

Personian correlation coefficient lies always between -1 and +1. When r = +1, there is perfect positive correlation. Similarly, if r = -1, there is perfect negative correlation between the variables. And it has a zero value i.e. r = 0, there are no correlation between the variables.

Probable Error

Probable error of correlation is an measure testing the reliably of an observed value of correlation coefficient. It is calculated to find the extend to which correlation coefficient is dependable as it depends upon the condition of random sampling probable error of correlation coefficient denoted by P.E. (r) is obtained as:

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

Where,
r = calculated correlation coefficient
n = number of observations

1. If r < P.E. (r), then the value of r is not at all significant.
2. If r > P.E. (r), then r is definitely significant.
3. In other situations nothing can be calculated with certainty.

(6) Multiple Regression Analysis

The relationship between a known variable and an unknown variable to estimate the unknown one is termed as regression analysis. Thus, correlation measures the degree of relationship between the variables while regression analysis shoes how the variables are related. Regression and correlation analysis thus determines the nature and the strength of relationship between two variables. Thus, regression is the estimation of unknown values or prediction of one variable from known values of other variables.

Multiple regression analysis is a logical extension of the simple linear regression analysis. In multiple regression instead of an single independent variable, two or more independent variable is used to estimate the unknown values of a dependent variable. The following are the main objectives of multiple regression analysis.

a. To establish a regression equation which provides estimation of the dependent variable from the values of two or more independent variables?
b. To obtain measures of error involved in using this as a basis for estimation of the dependent variable.
c. To measure the coefficient of multiple determination or the proportion of variation in the variable which is explained b the independent variable

The multiple regression equation desco9rbes the average relationship between one dependent and two or more independent variables and this relationship is very much useful for estimating (or predicting) the dependent variable. thus , a multiple regression equation of X_1 on X_2 and X_3 is an equation for estimating a dependent variable X_1 fro m two independent variable X_2 and X_3.

The multiple regression equation of dependent variable X_1 on two independent variables $X_2$and X_3 is given by

$$X_1 = a_1 + b_1X_2 + b_2X_3$$

The values of the constants a_1,b_1 and b_2 can be obtained by solving following three normal equation simultaneously obtained by the of least squares

$$\sum X_1 = a_1 + b_1 \sum X_2 + b_2 \sum X_3$$
$$\sum X_1X_2 = a_1\sum X2 + b1\sum X_2^2 + b_2\sum X_2X_3$$
$$\sum X_1X_3 = a_1\sum X_3 + b_1\sum X_2X_3 + b_2\sum X_3^2$$

3.5 Limitation of the Methodology

In this study the following assumptions and limitations are made:

i. The return from investment on shares and debentures of commercial banks are equal to the market return on shares and debentures.
ii. Only five banks have been included among 18 banks.
iii. Most of the commercial banks are joint venture on the study.
iv. Analysis is based on theoretical knowledge of subject matter rather experience.
v. Market price per share (MPS) is considered at closing (Mid July) of each year.

Chapter -4

DATA PRESENTATION AND ANALYSIS

In this chapter , the data have been analyzed and interpreted suing financial tools following the research methodology deals in the third chapter. In the course of analysis, data gathered from the various sources have been inserted in the tabular form according to their homogeneous nature. The various tables prepared for the analysis purpose have been shown in annexure. The result of the analysis has been compared with conventional standard with respect to ratio analysis, directives of NRB and other factors while using the tools. Furthermore m, many suitable graphs, lines abs diagrams have also been used to clarify the actual position of the banks . In this section , the investment portfolio of commercial banks is analyzed with the help of following tools:-

(i) Risk & return on individual investment assets and investment portfolio
(ii) Analysis of ratios
(iii) Linear Trend Analysis
(iv) Correlation analysis
(v) Multiple regression analysis

4.1 Risk and Return on Individual Investment Assets and Investment portfolio

Risk is an important element since investment with greater risk requires a higher return than investment with lower risk. The relationship between risk and return is described by individual perception about risk and their demand for compensation. In this section, standard deviation and coefficient of variation are taken as the measuring tools of risk and mean return is taken as to measure expected return.

4.1.1 Risk and Return on Government Securities

Government securities are the fixed income securities issued by the government. These securities are among the safest of all investments as the government is unlikely to default on interest or on principle repayments. The risk and return on government securities such as treasury bills, development bond, national saving bond etc. can be calculated as follows:

The reaction on government securities is computed by dividing interest income on government by total investment on government securities i.e.

$$\text{Return on Government Securities } (R_g) = \frac{\text{Interest Imcome from Government Securities}}{\text{Total Investment on Government Securities}}$$

Average Rate of Return on Government Securities $(\overline{R}_g) = \frac{\sum_{t=1}^{n} R_g}{n}$

Now, Risk on government securities is denoted by σ_g and can be calculated by using following formula.

$$\sigma_g = \sqrt{\frac{\sum_{t=1}^{n} (R_g - \overline{R}_g)^2}{n}}$$

Coefficient of Variation (CV_g) = $\frac{\sigma_g}{\overline{R}_g}$

Where,
n = no. of historical years (Period)

Table No. 4.1
Calculation of Risk and Return on Government Securities
(In Percentage)

FY	NABIL	EBL	KBL	HBL	NIBL
2002/03	4.87	3.05	3.33	3.04	2.56
2003/04	5.25	3.75	2.77	4.96	1.79
2004/05	7.21	3.71	2.33	2.73	2.90
2005/06	6.31	2.74	4.32	3.35	3.27
2006/07	3.16	2.73	3.46	2.97	2.41
Mean	5.36	3.20	3.24	3.41	2.59
S.D.	1.37	0.45	0.67	0.80	0.50
C.V.	0.26	0.14	0.21	0.24	0.19

Source: Annexure 'A'

Table No. 4.2
Calculation of Risk and Return on Govt. Securities of CBs
(Rs. in Millions)

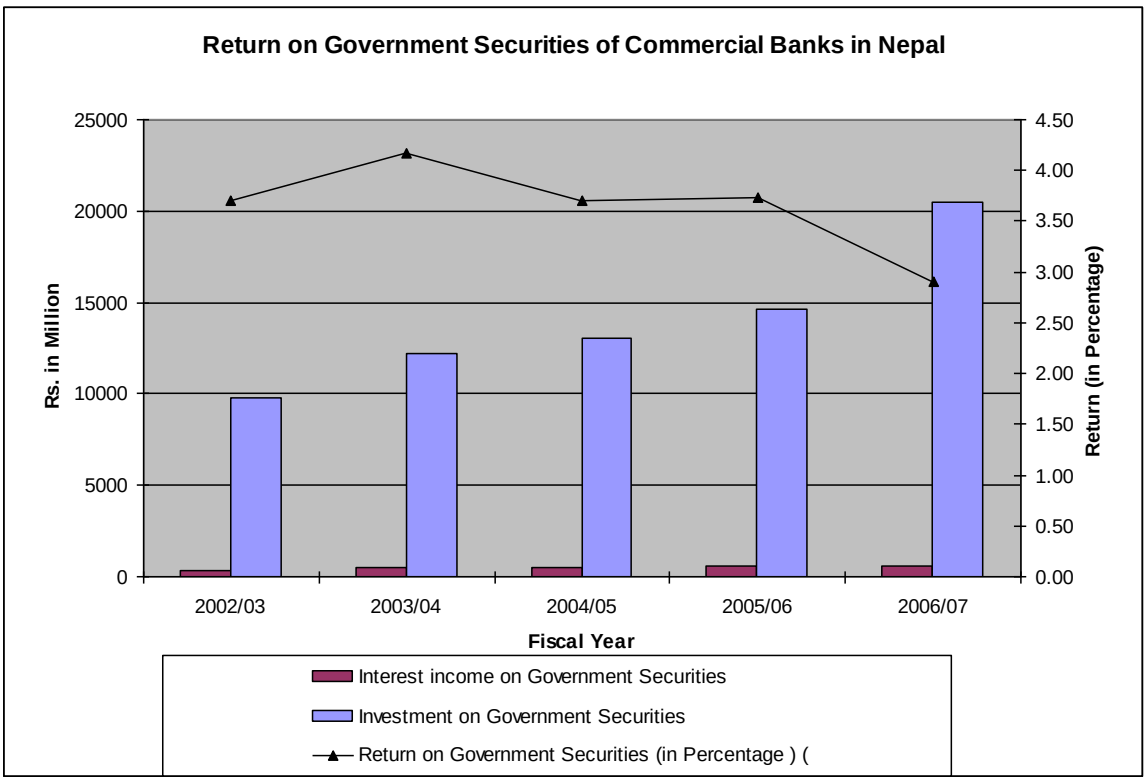
FY	Interest income on Government Securities	Investment on Government Securities	Return on Government Securities (in Percentage) (R_g)	$R_g - \overline{R}_g$	$(R_g - \overline{R}_g)^2$
2002/03	363.22	9822.62	3.70	0.056	0.003
2003/04	508.15	12173.49	4.17	0.533	0.284
2004/05	483.79	13052.44	3.71	0.065	0.004
2005/06	545.17	14631.02	3.73	0.085	0.007

2006/07	595.52	20519.12	2.90	0.739	0.546
Total			**18.21**		**0.845**

Source: Annexure 'A'

It can also be presented in figure below.

Figure No. 4.1



Here,

$ER_g = 20.89, n = 5$

$$\overline{R}_g = \frac{\sum R_g}{n} = \frac{18.21}{5} = 3.64$$

We get,

$$\text{S.D } (\sigma_g) = \sqrt{\frac{\sum (R_g - \overline{R}_g)^2}{n}} = \sqrt{\frac{0.845}{5}} = 0.46$$

Similarly,

$$\text{Coefficient of Variation } (CV_g) = \frac{\sigma_g}{\overline{R}_g} = \frac{0.46}{3.64} = 0.126$$

Hence, we get from above calculation

Average return on government securities $(\overline{R}_g)$ =3.64%

Standard deviation on return government securities (σ_g) = 0.46

Coefficient of variation (CV) = 0.126

The table no.4.2 shows that the return on investment on government securities has no fixed trend. Similarly, there is no fixed trend on investment on government securities and interest income from government securities. During the study period, the highest return is 4.17 % in 2003/04 and lowest return is 2.90 % in 2006/07. The return trend of the study period i.e. from FY 2002/03 to FY 2006/07 is ups and down. In an average the return is 3.64% which shows that in an average the commercial banks generate 3.64% return on government securities. Similarly, the standard deviation 0.46 and CV is 0.126 shows the riskyness of return of government securities. The lower variability on return on government securities is due to proper investment on various securities i.e. balance allocation of funds on various government securities such as treasury bills, national saving bonds, development bonds etc. and fixed income percentage rate. It can also be shown on above figure no 4.1.

4.1.2 Risk and Return on Loan and Advances

The major portion of short term investment of commercial banks is the loan and advances provided to various sector of the market. It is the main sources of income for commercial banks. Commercial banks provide loans and advances from the money i.e. the money it reserves by the way of the persons against the personal security of the borrowers or against the security of the movable and immovable properties. Mainly the commercial banks are providing their funds to the various sectors like agriculture, industry, commercial sectors etc.

The risk and return on investment in the form of loan and advances can be calculated as follows:

Return on Loan and Advances (R_l) = $\frac{Interest Income from Loans and Advances}{Total Investment on Loan and Advances}$

Average Rate of Return on Loan and Advances ($\overline{R}_1$) = $\frac{\sum_{t=1}^{n} R_1}{n}$

Now, Risk on loan and advances are denoted by σ_1 and can be calculated by using following formula.

$$\sigma_l = \sqrt{\frac{\sum_{t=1}^{n} (R_l - \overline{R}_l)^2}{n}}$$

Coefficient of Variation (CV_1) = $\frac{\sigma_l}{\overline{R}_l}$

Where,
n = no. of historical years (period)

Table No. 4.3
Calculation of Risk and Return on Loan and Advances

(In Percentage)

FY	NABIL	EBL	KBL	HBL	NIBL
2002/03	10.41	9.52	8.08	9.32	7.47
2003/04	9.58	9.61	7.77	8.34	9.58
2004/05	7.95	8.35	8.34	9.28	7.70
2005/06	7.79	7.89	7.85	7.92	7.65
2006/07	7.63	7.10	7.78	7.38	7.65
Mean	8.67	8.49	7.96	8.45	8.01
S.D.	1.12	0.96	0.22	0.76	0.79
C.V.	0.13	0.11	0.03	0.09	0.10

Source: Annexure 'B'

Table No. 4.4
Calculation of Risk and Return on Loan and Advances of CBs

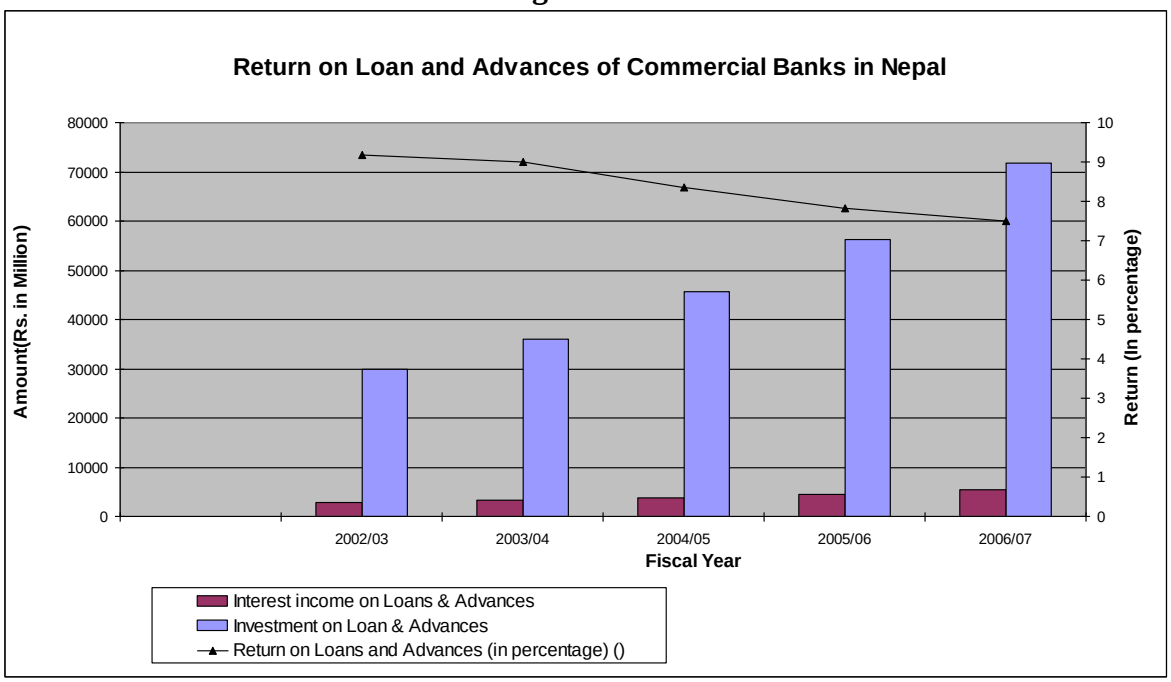
(Rs. in Millions)

FY	Interest income on Loans & Advances	Investment on Loan & Advances	Return on Loans and Advances (in percentage) (R_g)	$R_g - \overline{R}_g$	$\left(R_g - \overline{R}_g\right)^2$
2002/03	2735.885	29778.48	9.187	0.815	0.664
2003/04	3238.64	35980.98	9.001	0.628	0.395
2004/05	3819.768	45676.64	8.363	-0.010	0.000
2005/06	4398.302	56262.99	7.817	-0.555	0.308
2006/07	5370.543	71649.95	7.496	-0.877	0.770
Total			**41.864**		**2.136**

Source: Annexure 'B'

It can also be presented in figure below.

Figure No. 4.2



Here,

$\sum R_l = 41.864, n = 5$

$$\overline{R_l} = \frac{\sum R_l}{n} = \frac{41.864}{5} = 8.37$$

We get,

$$\text{S.D}(\sigma_l) = \sqrt{\frac{\sum (R_l - \overline{R_l})^2}{n}} = \sqrt{\frac{2.136}{5}} = 0.731\%$$

Similarly,

Coefficient of Variation (CV_l) = $\frac{\sigma_l}{\overline{R_l}} = \frac{0.731}{8.37} = 0.087$

Hence, we get from above calculation

Average return on loan and advances ($\overline{R}_1$) = 8.37%

Standard deviation on return on loan and advances (σ_1) = 0.731%

Coefficient of variation (CV_l) = 0.087

From the above listed table no. 4.4 shows the risk and return on investment on loan and advances of commercial bank in Nepal. It can be concluded that return on investment on loan and advances made by CBs is 9.18% in 2002/03, 9.001% in 2003/04, 8.36% in 2004/05, 7.82% in 2005/06 and 7.49% in 2006/07. The table shows that the investment made on loans and advances is increasing. Similarly income received from loan and advances is increasing. But the ratio of increase is less than the increasing ratio of investment on loan and advances. So return on loan and advances is in decreasing trend. In an average the return on loan and advances is 8.37%. Similarly, standard deviation is

0.73% and coefficient of variation is 0.087 i.e. 8.7% shows the riskyness of return on loan and advances. It is more cleared in figure no. 4.2.

4.1.3 Risk and Return on Shares and Debentures

The return on shares and debentures considers dividend yield and capital gain yield (change in market price) or return is the combination of capital gain yield and dividend yield. Capital gain (loss) yield can be calculated by difference between this year price & last year price with respect to the last year price. Dividend yield can be calculated by dividend per share divided by market per share. Market return is the mean return of the selected companies which is represented by the market return of the study. Standard deviation (S.D.) measures the risk that is very essential to study. Standard deviation helps the investor to take the decision on the investment. Market return and standard deviation are the most important factors to analyze the risk and return. For that purpose, 15 different companies are taken into consideration from listed companies in NEPSE. These selected companies are taken from different sectors like banking sectors, finance companies, manufacturing companies, trading companies, service sector and hotels etc.

The risk and return on investment in share and debenture of the commercial banks can be calculated as follows:

Return on Share and debenture (R_s) = capital gain yield + dividend yield

$$= \frac{P_t - P_{t-1}}{P_{t+1}} + \frac{D_t}{P_t}$$

Risk on Share and Debenture (S.D) $(\sigma_l) = \sqrt{\frac{\sum (R_l - \overline{R}_l)^2}{n}}$

Average return on share and debenture $(\overline{R}_s) = \frac{\sum R_s}{n}$

Coefficient of Variation (CV_s) = $\frac{\sigma_s}{\overline{R}_s}$

Where,
P_t = Average closing price of year t
P_{t-1} = Average closing price of t-1 or previous year

$$\overline{R}_s = \frac{\sum R_s}{n} = \frac{184.59}{5} = 36.918$$

Again,

$$(\text{S.D})\,(\sigma_s) = \sqrt{\frac{\sum (R_s - \overline{R}_s)^2}{n}} = \sqrt{\frac{4171.08}{5}} = 32.292$$

Similarly,

Coefficient of Variation (CV_s) = $\frac{\sigma_S}{\overline{R}_S} = \frac{32.29}{36.918} = 0.8746$

Hence, we get from above calculation

Average return on share and debenture ($\overline{R}_S$) = 36.918

Standard deviation of return on share and debenture (σ_S) = 32.292

Coefficient of Variation (CV) = 0.8746

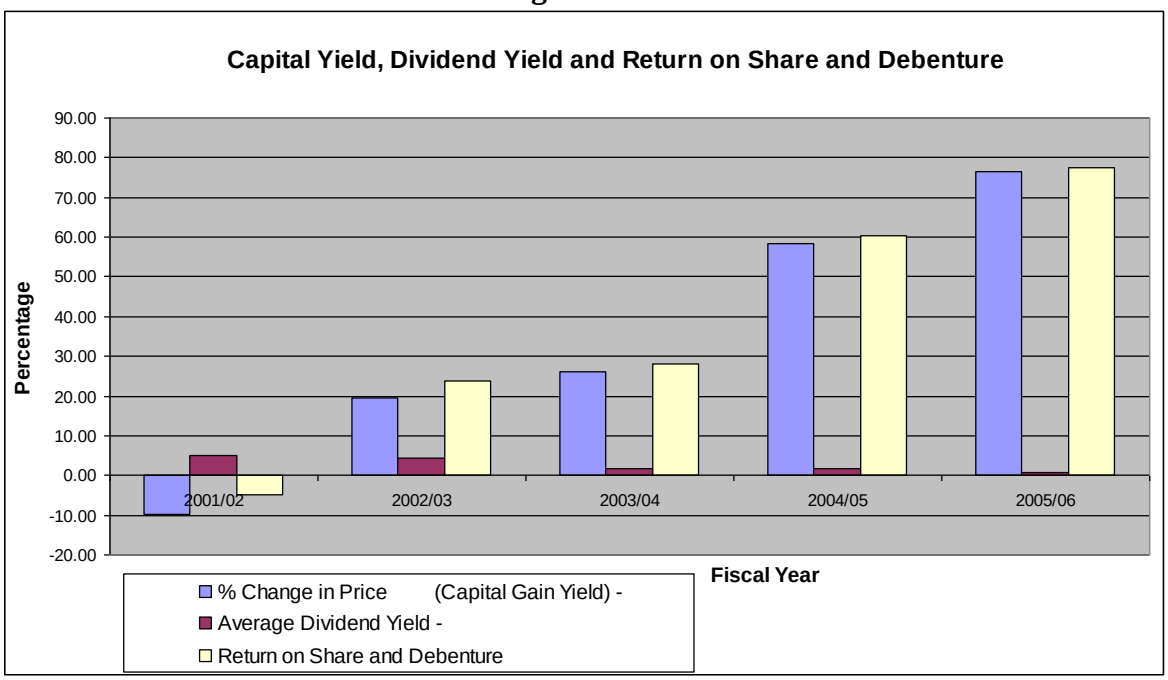
Table No. 4.5
Calculation of Risk and Return on Share and Debenture of CBs in Nepal

(Rs. in Millions)

FY	Average Closing Price	% Change in Price (Capital Gain Yield)	Average Dividend Yield	Return on share and Debenture (R_g)	$R_g - \overline{R}_g$	$(R_g - \overline{R}_g)^2$
2001/02	602.47	-	-		-	-
2002/03	543.69	-9.76	5.02	-4.74	-41.65	1735.08
2003/04	649.4	19.44	4.25	23.69	-13.22	174.89
2004/05	820	26.27	1.73	28.00	-8.92	79.52
2005/06	1299	58.41	1.84	60.25	23.34	544.61
2006/07	2294	76.60	0.78	77.38	40.46	1636.98
Total				184.59		4171.08

Source: Annexure 'C'

Figure No. 4.3



The table no. 4.5 listed above reveals that return on share and debenture of commercial banks show wide fluctuation i.e. 41.65% in 2002/03 and 40.46% in 2006/07 respectively. These fluctuations in returns are caused mainly by the volatility of the shares

prices in the market. The changes in dividends also contributed to the variability of the shares return in some extent.

The average rate of return on investment on share and debenture of commercial banks is 36.19% during review period. It is higher than rate of return of other assets like government securities and loan and advances i.e. 36.91% > 3.64% and 8.37%. Standard deviation is 32.29% and coefficient of variation is 0.875. it shows high degree of risk and variability of return on share and debenture. It is greater than that of government securities and loan and advances. So it is clear that investment on share and debenture is highly risky. It can also be presented in figure no. 4.3.

4.1.4 Risk and Return on Investment Portfolio

4.1.4.1 Investment Portfolio Return

The expected return on a portfolio (R_p) is simply the weighted average of the expected returns on the individual assets in the portfolio with the weight being the fraction of the total portfolio in each asset. In this study, investment portfolio is calculated by investment on government securities, loan and advances and share and debentures. The weight of the investment on various assets is calculated and average rate of return are presented as follows:

Table No. 4.6
Calculation of Weight of the Investment on Various Assets

(Rs. in Millions)

S.N.	Assets	Investment Amount (Rs. in Millions)	Proportion Weight (X)	Average Rate if Return
1	Government Securities	70198.69	0.226	3.64
2	Loan and Advances	239349.04	0.770	8.37%
3	Share and Debenture	1398.73	0.004	36.92%

Here, for three assets

Portfolio return ($\bar{R}_p$) = $X_g \times \bar{R}_g + X_l \times \bar{R}_l + X_s \times \bar{R}_s$

= 7.43 %

$\therefore$ Portfolio return on Investment of commercial banks ($\bar{R}_p$) = 7.43%

Table No. 4.7
Calculation of Portfolio Return of Commercial Banks
(Investment on various assets is in Rs. in Millions and return is in percentage)

FY	Investment on Government Securities	Proportion Weight (X_g)	Investment on loan and Advances	Proportion Weight (X_l)	Investment on Share and Debenture	Proportion Weight (X_s)	Return on Govt. Securities(R_g)	Return on Loan and Advances(R_l)	Return on Share and Debenture(R_s)	Portfolio Return (R_p)
2002/03	9822.62	0.247	29778.48	0.750	87.48	0.002	3.697740521	9.187456848	-4.736502398	7.798
2003/04	12173.49	0.252	35980.98	0.744	198.61	0.004	4.17423434	9.000977739	23.69306498	7.846
2004/05	13052.44	0.220	45676.64	0.771	517.66	0.009	3.706479402	8.362629125	28.00040345	7.508
2005/06	14631.02	0.206	56262.99	0.792	179.93	0.003	3.726110688	7.817398258	60.25463415	7.108
2006/07	20519.12	0.222	71649.95	0.774	415.05	0.004	2.902273587	7.495529306	77.3773826	6.791
Total	**70198.69**		**239349.04**		**1398.73**		**18.20683854**	**41.86399128**	**184.5889828**	**37.051**

Here,
Portfolio return ($\overline{R}_p$) = $X_g \times \overline{R}_g + X_l \times \overline{R}_l + X_s \times \overline{R}_s$

4.1.4.2 Investment Portfolio Risk

Expected risk on a portfolio is a function of the proportions invested in the components, the riskyness of the components and correlation of returns on the components securities. It is measured by standard deviation. The standard deviation of portfolio is not simply the weighted average of standard deviation of individual securities. The portfolio risk is affected by the association of movement of returns of two securities. The degree to which the assets return move together is measured by the covariance. Hence, by combining the measures of individual asset risk, relative asset weights and co-movement of assets returns (covariance) the risk of the portfolio can be estimated. Here, firstly covariance between two assets can be calculated and then portfolio risk can be calculated.

Table No. 4.8
Calculation of Correlation Coefficient between Investment Securities of CBs
(Rs. in Millions)

FY	Return on Govt. Securities(R_g)	Return on Loan and Advances(R_l)	Return on Share and Debenture(R_s)	R_gR_l	R_gR_s	R_lR_s	R_g^2	R_l^2	R_s^2
2002/03	3.698	9.187	-4.737	33.973	-17.514	-43.516	13.673	84.409	22.434
2003/04	4.174	9.001	23.693	37.572	98.900	213.261	17.424	81.018	561.361
2004/05	3.706	8.363	28.000	30.996	103.783	234.157	13.738	69.934	784.023
2005/06	3.726	7.817	60.255	29.128	224.515	471.034	13.884	61.112	3630.621
2006/07	2.902	7.496	77.377	21.754	224.570	579.984	8.423	56.183	5987.259
Total	**18.207**	**41.864**	**184.589**	**153.424**	**634.255**	**1454.920**	**67.143**	**352.655**	**10985.699**

Now,
Calculation between return on two securities will be:

$$r_{ij} = \frac{n\sum R_i R_j - \sum R_i R_j}{\sqrt{n\sum R_i^2 - (\sum R_i)^2}\sqrt{n\sum R_j^2 - (\sum R_j)^2}}$$

Here,

Correlation between R_g and R_l be

$$r_{gl} = \frac{5\times 153.424 - 18.207\times 41.864}{\sqrt{5\times 67.143 - (18.207)^2}\sqrt{5\times 352.655 - (41.864)^2}} = \frac{4.902}{2.054\times 3.268} = 0.7303$$

Here,

Correlation between R_g and R_s be,

$$r_{gs} = \frac{5\times 634.255 - 18.207\times 184.589}{\sqrt{5\times 67.143 - (18.207)^2}\sqrt{5\times 10985.699 - (184.584)^2}} = \frac{-184.536}{2.0543\times 144.42} = -0.622$$

Again Correlation between R_l and R_s be

$$r_{gs} = \frac{5\times 1454.920 - 41.864\times 184.589}{\sqrt{5\times 352.655 - (41.864)^2}\sqrt{5\times 10985.699 - (184.584)^2}} = \frac{-453.0339}{3.2681\times 144.42} = -0.9599$$

Here we get,

σ_g = 0.46	X_g = 0.226	r_{gl} = 0.7303
σ_l = 0.731	X_l = 0.77	r_{gl} = -0.622
σ_s = 32.292	X_s = 0.004	r_{gs} = -0.9599

Now,

The standard deviation of portfolio investment (σ_p) for three assets can be calculated as follows:

$$\sigma_p = \sqrt{X_g^2\sigma_g^2 + X_l^2\sigma_l^2 + X_s^2\sigma_s^2 + 2X_gX_lr_{gl}\sigma_g\sigma_l + 2X_gX_sr_{gs}\sigma_g\sigma_s + 2X_lX_sr_{ls}\sigma_l\sigma_s}$$
$$= 0.5249$$

Coefficient of Variation (CV_p) = $\frac{\sigma_p}{\overline{R}_p} = \frac{0.5249}{7.43} = 0.0706$.

Hence, we get from above calculation

Portfolio return on investment of commercial banks ($\overline{R}_p$) = 7.43 %

Standard deviation of portfolio on investment of commercial banks (σ_p) = 0.5249

Coefficient of variation (CV) = 0.0706

From the above calculation, portfolio return on investment of CBs is found as 7.43% and expected risk of the portfolio i.e. standard deviation is found as 0.5249 which is considerably less than the expected risk of investment on loan and advances i.e. 0.5249% < 0.731% and share & debenture i.e. 0.5249% < 32.29% and more than the expected risk of investment on government securities i.e. 0.5249 % < 0.0382 %. There is moderate negative correlation between investment on government securities and share & debenture i.e. 0.622. Return of investment on government securities and loan & advances is positively correlated i.e. 0.7303 and return of investment on loan and advances and share & debenture is highly negatively correlated i.e. 0.9599.

The expected return on portfolio 7.43% is less than average rate of return on investmenta on loan & advances and investment on share & debenture i.e. 7.43% < 8.37% & 36.91%. But, it is more than average rate of return on investment on government securities i.e. 7.43% > 3.64%. From the calculation, it is clear that investing the total fund in loan & advances and share & debenture is more risky than that of investment on government securities. But average return on investment on loan & advances and share & debenture is more than average return on investment on government securities.

4.2 Analysis of Ratios

A ratio is calculated by dividing one item of the relationship with other. As tool of financial analysis, ratio can be expressed in terms of percentage. Ratio analysis is a very important tool of financial analysis. From the help of ratio analysis, the qualitative judgement can be done very easily and timely regarding financial performance of the firm. The purpose of this chapter is to evaluate and analyze the financial position and performance of the different commercial banks. In this section, only those major ratios which are mainly related to the investment mechanism of commercial banks are calculated and analyzed.

4.2.1 Return on Total Assets Ratio

This ratio is calculated by dividing net profit after tax by total assets of the firm. Thus, it measures the profitability of the banks with respect to the total assets. It seems to be vital for measuring financial performance of the firm or shows the efficiency of bank using its resources. The higher ratio indicates the effective utilization of resources and yields a higher return for the banks. It is calculated as:

Table No. 4.9
Return on Total Assets Ratio

(In Percentage)

FY	NABIL	EBL	KBL	HBL	NIBL	CBs
2002/03	2.51	1.17	0.42	0.91	1.30	1.42
2003/04	2.72	1.49	0.89	1.06	1.15	1.52
2004/05	3.02	1.43	1.13	1.11	1.43	1.63
2005/06	2.84	1.49	1.15	1.55	1.64	1.82
2006/07	2.47	1.38	1.43	1.47	1.82	1.75
Mean	**2.71**	**1.39**	**1.00**	**1.22**	**1.47**	**1.63**
S.D.	**0.20**	**0.12**	**0.34**	**0.25**	**0.24**	**0.15**
C.V.	**0.08**	**0.09**	**0.34**	**0.20**	**0.16**	**0.09**

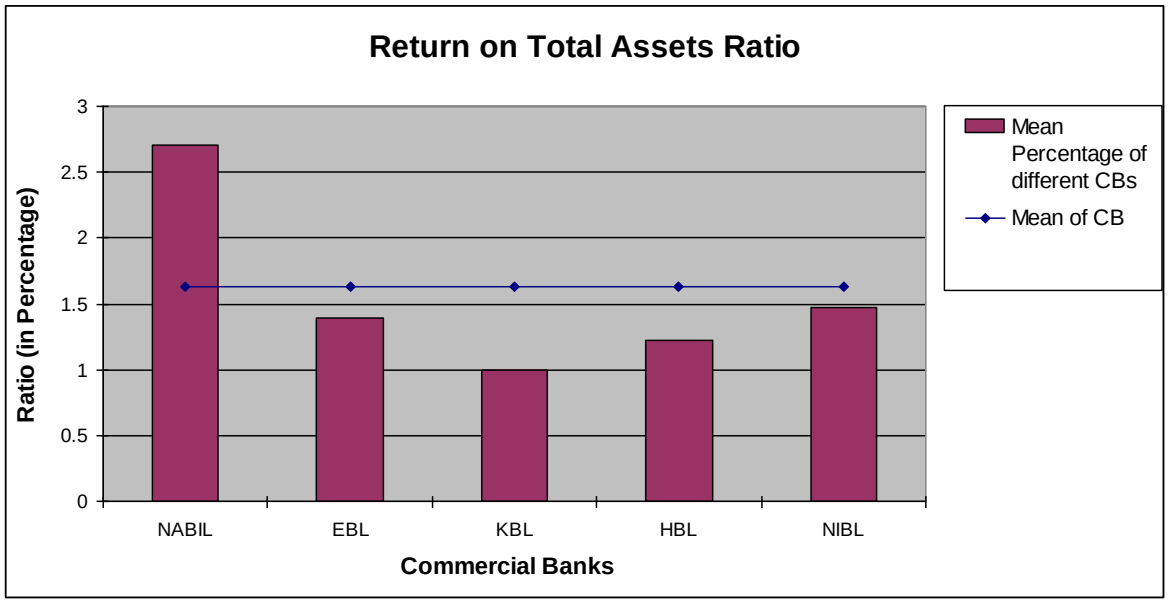
Source: Annexure 'D'

The table no. 4.9 shows that the commercial banks has mixed trend on their return on total assets ratio. During the study period, FY 2002/03 to 2006/07 Nabil bank earn highest ratio compared to other commercial banks, while examining the mean ratio Nabil has highest ratio of 2.71% and KBL has the lowest among the five commercial banks.

The lowest CV of Nabil 0.08 shows that the return on total assets of NABIL is the most consistent among the five commercial banks. Similarly, the highest CV 0.34 of KBL shows the return on total assets is low and variable among the commercial banks. The high CV is also due to the low return during the selective five fiscal years.

Lastly, it can be said that NABIL utilities the overall resources efficiently than other four commercial banks. Similarly, the ratio of NIBL also reflects that they are also success in utilization of overall resources. The profitability position of KBL is the weakest in relation to return on total assets during study period among five CBs.

Figure No. 4.4



4.2.2 Total Investment to Total Deposit Ratio

The calculated result of this ratio measures the magnitude to which the banks are successful in mobilizing the total deposits on investment or not. Total investment to total deposits ratio is calculated by dividing investment by total deposits. In general, high ratio indicates high success to mobilize the funds of banks as investment and vice-versa. It is computed as;

Table No. 4.10
Total Investment to Total Deposit Ratio

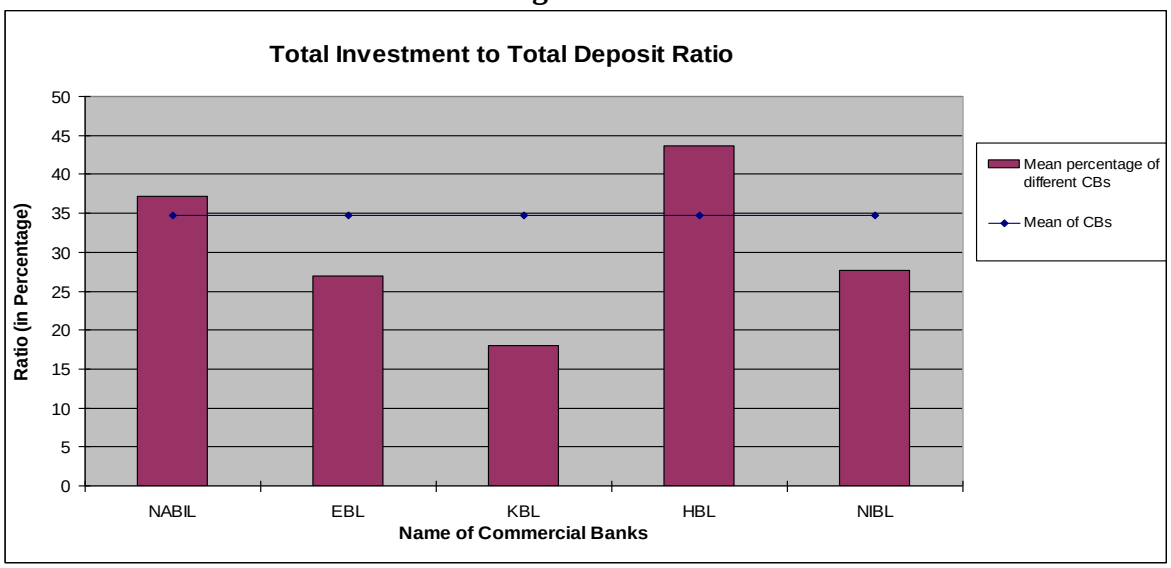
(In Percentage)

FY	NABIL	EBL	KBL	HBL	NIBL	CBs
2002/03	44.85	24.70	16.84	48.44	21.52	38.75
2003/04	41.33	31.44	20.46	42.22	33.51	37.19
2004/05	29.25	21.08	18.99	47.12	27.09	33.02
2005/06	31.93	30.43	17.96	41.10	29.60	32.74
2006/07	38.32	27.41	15.90	39.35	26.57	31.83
Mean	**37.14**	**27.01**	**18.03**	**43.65**	**27.66**	**34.71**
S.D.	**5.79**	**3.79**	**1.60**	**3.52**	**3.93**	**2.74**
C.V.	**0.16**	**0.14**	**0.09**	**0.08**	**0.14**	**0.08**

Source: Annexure 'E'

The comparative table no. 4.10 reveals that the ratios of investment to total deposits of commercial banks are in fluctuating trend throughout the study period i.e. from 2002/03 to 2006/07. At the beginning of the study period, the ratio of HBL is higher at 48.44% which is fluctuating over the years and is 39.35% in the FY 2006/07. While in the case of EBL its 24.70% in 2002/03 and increases to 27.41% in 2006/07. The mean investment to total deposit of HBL is highest at 43.65% and at 37.14% NABIL is second. The average ratio of CBs is 34.71%. In this case EBL, KBL and NIBL have lower than average ratio of CBs i.e. 27.01%, 18.03% and 27.66% respectively. On the basis of average ratio it can be said that the HBL and NABIL is capacity to mobilize its deposit on investment in better than others as their mean ratios are higher than average ratio of CBs. On the other hand, EBL, KBL and NIBL are unable to utilize its deposit on investment as compared to NABIL and HBL. It can also be presented in Fig No. 4.5.

Figure No. 4.5



4.2.3 Government Securities to Total Deposit Ratio

Government securities to total deposit ratio explains as to what extent the banks are able to invest their depositor's fund on government securities. This ratio is calculated by dividing total investment on government securities by total deposits. The high ratio represents the efficiency of the firm in utilizing collected deposits to government securities and vice-versa. It is computed as;

Table No. 4.11
Government Securities to Total Deposit Ratio

(In Percentage)

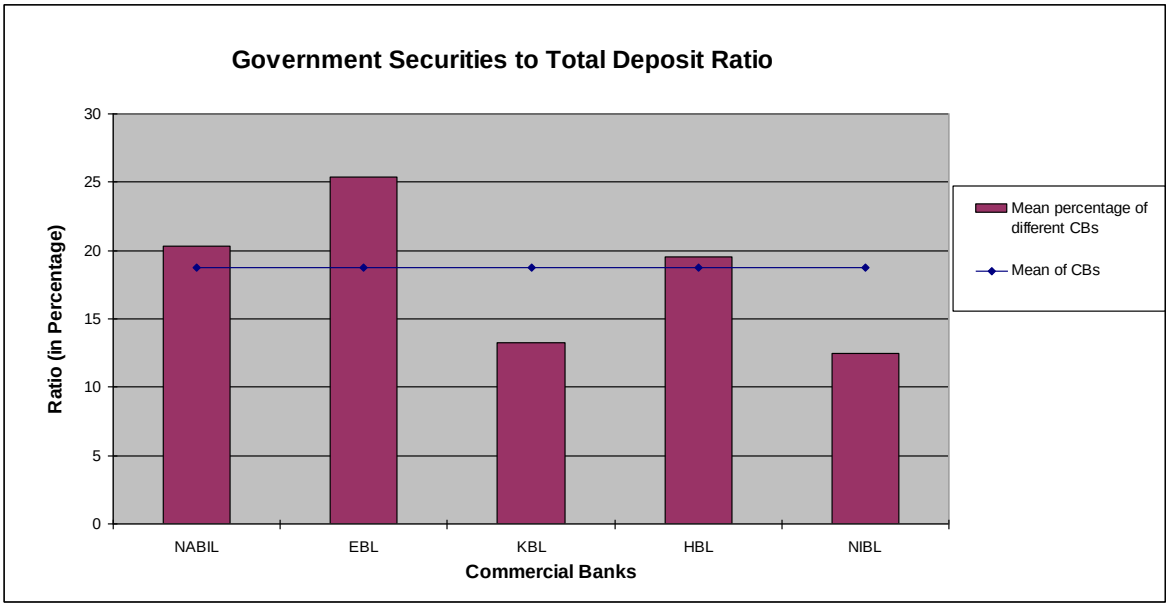
FY	NABIL	EBL	KBL	HBL	NIBL	CBs
2002/03	26.69	23.89	9.38	19.04	5.05	19.04
2003/04	26.01	30.59	12.51	15.59	17.36	20.11
2004/05	16.55	20.80	17.87	22.04	13.42	18.57
2005/06	11.90	25.71	14.34	19.42	13.33	16.95
2006/07	20.60	25.85	12.29	21.48	13.30	19.24
Mean	**20.35**	**25.37**	**13.28**	**19.51**	**12.49**	**18.78**
S.D.	**5.62**	**3.18**	**2.79**	**2.28**	**4.03**	**1.05**
C.V.	**0.28**	**0.13**	**0.21**	**0.12**	**0.32**	**0.06**

Source: Annexure 'F'

The table no. 4.11 depicts the ratio of investment on government securities to total deposits. Here, it is found that EBL has the highest mean of government securities to total deposit ratio i.e. 25.37% and NIBL has lower investment on the securities i.e. 12.49% among five CBs over the study period. As compared to average mean ratio of commercial banks i.e. 18.78%, average mean of KBL and NIBL are lower but average mean of

NABIL, EBL and HBL are higher. The lowest CV of HBL i.e. 0.12 shows that the ratio is more consistent than ratio of CBs. In other words, the investment on government securities by the bank is more uniform. Similarly, highest CV of NIBL i.e. 0.32 indicates that the investment on government securities by NIBL is more fluctuating or the ratio of NIBL is less uniform. It is more cleared on figure no. 4.6.

Figure No. 4.6



4.2.4 Loan and Advances to Total Deposit Ratio

Loan and advances to total deposit ratio explains as to what extent the banks are able to mobilize their depositor's fund to earn profit by providing the funds to outsiders in the form of loans and advances. This ratio is calculated by dividing loan and advances by total deposits. The high ratio represents the efficiency of the firm in utilizing collected deposits to loan and advances and vice versa. It is computed as:

Table No. 4.12
Loan and Advances to Total Deposit Ratio

(In Percentage)

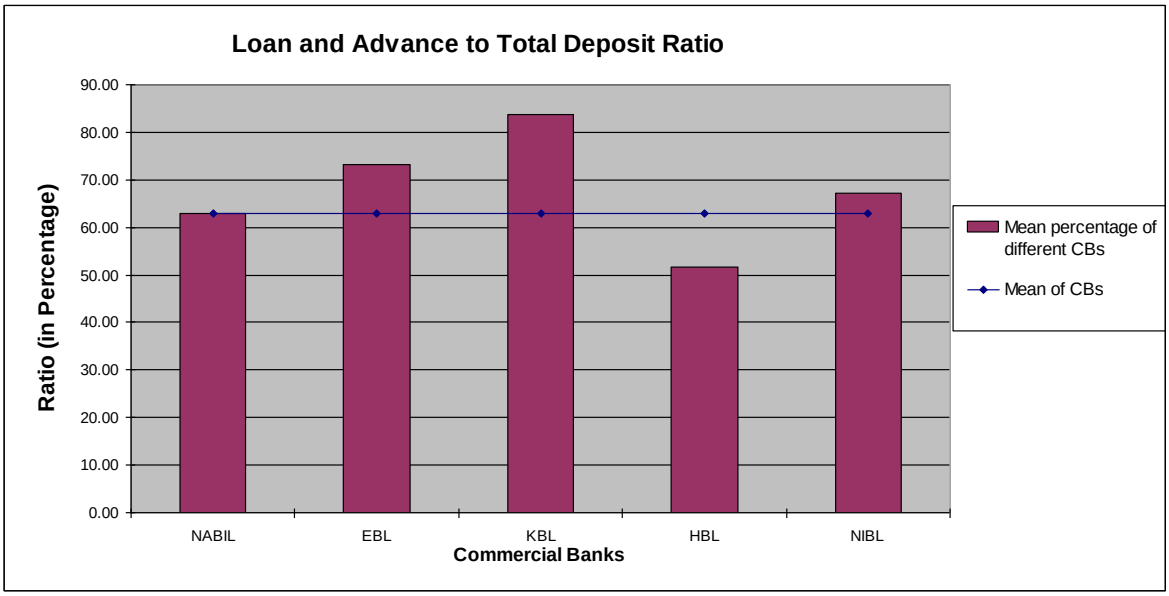
FY	NABIL	EBL	KBL	HBL	NIBL	CBs
2002/03	55.43	72.93	83.28	46.18	71.29	57.73
2003/04	56.33	72.68	75.16	52.86	60.03	59.45
2004/05	71.75	75.19	88.49	48.72	68.73	64.98
2005/06	65.55	70.79	87.54	54.34	66.64	65.17
2006/07	65.57	74.91	84.09	56.02	69.46	67.20
Mean	**62.93**	**73.30**	**83.71**	**51.62**	**67.23**	**62.90**
S.D.	**6.19**	**1.61**	**4.71**	**3.64**	**3.90**	**3.65**
C.V.	**0.10**	**0.02**	**0.06**	**0.07**	**0.06**	**0.06**

Source: Annexure 'G'

From the above table no. 4.12 it is found that KBL has highest mean loan and advances to total deposits ratio i.e. 83.17% over the review period. The table also reveals that HBL in investing low amount of deposits on loan and advances which is lower than average ratio of commercial banks. According to CV, EBL has the lowest CV which indicates that the investment on loan and advances has been uniform. Also the highest CV of NABIL i.e. 0.10 indicates that investment on loan and advances is more fluctuating. It can also be shown in fig. no. 4.7.

From the above analysis it can be said that KBL has mobilized its total deposit more effectively on loan and advances than other 4 commercial banks. EBL has also mobilized in a effective way. Among five banks, HBL is the least effective to mobilize the deposits on loan and advances.

Figure No. 4.7



4.2.5 Share and Debenture to Total Deposit Ratio

Investment on share and debenture to total deposit ratio shows that the portion of invest on share and debenture from total deposit fund. It explains as to utilize the depositor's fund to earn profit by investment of share and debenture. This ratio is calculated by dividing investment on share and debenture by total deposits. The high ratio represents the efficiency the efficiency of the firm in utilizing collected deposits to share and debenture and vice-versa. It is computed as;

Table No. 4.13
Share and Debenture to Total Deposit Ratio

(In Percentage)

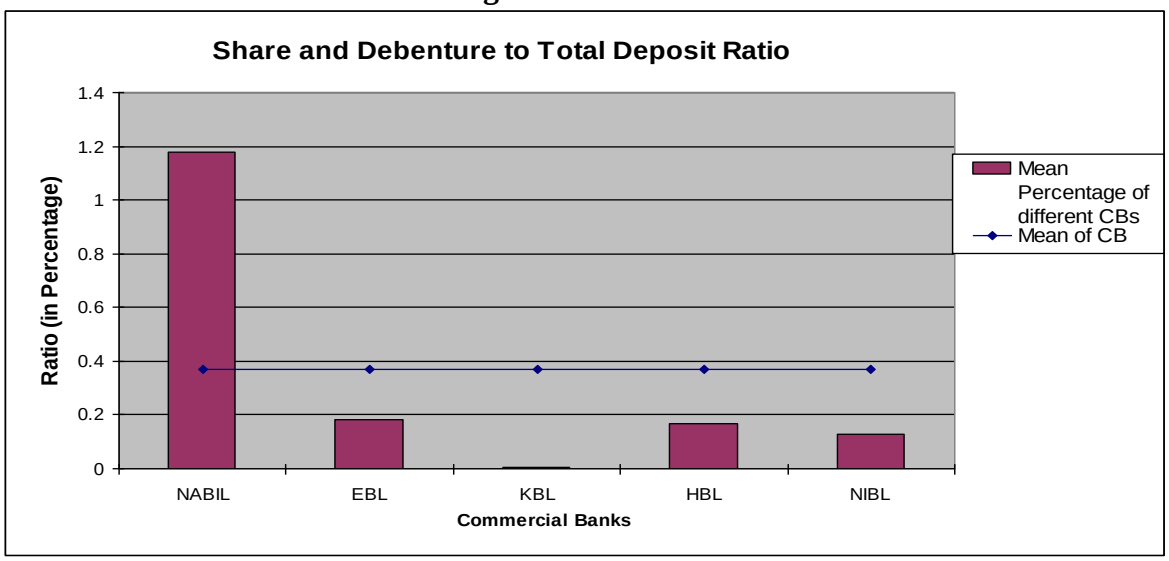
FY	NABIL	EBL	KBL	HBL	NIBL	CBs
2002/03	0.165	0.256	0.000	0.163	0.175	0.170
2003/04	0.945	0.212	0.000	0.155	0.121	0.328
2004/05	3.018	0.192	0.006	0.161	0.122	0.736
2005/06	0.539	0.138	0.005	0.146	0.094	0.208
2006/07	1.229	0.105	0.003	0.244	0.144	0.389
Mean	**1.18**	**0.18**	**0.003**	**0.17**	**0.13**	**0.37**
S.D.	**0.99**	**0.05**	**0.00**	**0.04**	**0.03**	**0.20**
C.V.	**0.84**	**0.30**	**0.86**	**0.21**	**0.21**	**0.55**

Source: Annexure 'H'

The comparative table above shows the share and debenture to total deposit ratio of CBs does not have fixed trend. Among the five CBs, NABIL has the highest mean ratio of share and debenture to total deposits i.e. 1.18% over the study period. All the remaining CBs have lower ratio than average ratio of CBs. On which KBL have lowest ratio i.e. 0.003%. Similarly, HBL and NIBL have the lowest CV i.e. 0.21.

From the above analysis, it can be concluded that NABIL mobilizes its total deposit more effectively on share and debenture among five commercial banks. It can also be shown in Fig. no. 4.8.

Figure No. 4.8



4.2.6 Investment on Government Securities to Total Outside Investment Ratio

This ratio is more useful to know the extent on which the banks are successful in mobilizing their total outside investment on different types of government securities. Basically, commercial banks are interested to investment on government securities such as treasury bills, development bonds, national saving bonds, special bonds etc., its are high liquid. This ratio is calculated by dividing investment on government securities by total outside investment. Thus, the high ratio indicates better mobilization of funds on government securities and vice-versa. It is computed as;

Table No. 4.14
Investment on Government Securities to Total Outside Investment Ratio
(In Percentage)

FY	NABIL	EBL	KBL	HBL	NIBL	CBs
2002/03	26.03	24.37	9.32	19.82	5.35	19.44
2003/04	26.18	29.29	12.99	16.15	18.20	20.52
2004/05	16.25	21.55	16.53	22.68	12.32	18.30
2005/06	12.05	25.34	13.45	20.15	13.72	17.15
2006/07	19.62	25.22	12.24	22.40	13.69	19.29
Mean	**20.03**	**25.15**	**12.90**	**20.24**	**12.66**	**18.94**
S.D.	**5.51**	**2.48**	**2.31**	**2.34**	**4.16**	**1.14**
C.V.	**0.28**	**0.10**	**0.18**	**0.12**	**0.33**	**0.06**

Source: Annexure 'I'

The above listed table reveals that the investment on government securities to total outside investment of CBs have fluctuating trend. Among five CBs, EBL has invested higher amount i.e. 25.15% on government securities such as treasury bills, development bonds, national saving bonds, treasury bonds etc. Similarly, NIBL has invested least amount on government securities i.e. 12.66% of total outside investment.

Likewise, the CV of EBL is lowest i.e. 0.10. This shows that the ratio is uniform. The highest CV of NIBL i.e. 0.33 shows that it has more variability in investment on government securities to total outside investment.

Lastly, it is cleared that EBL invest higher part of total outside investment on government securities whose ratios is also most consistent. Similarly, NIBL has the weakest position for mobilization of total outside investment into government securities.

4.2.7 Loan & Advances to Total Investment Ratio

This ratio is very useful to know the extent on which the banks are successful in mobilizing their total outside investment on loan and advances. Basically, commercial banks are invested more portion of total outside of investment on loan and advances. The main source of profit of commercial bank is a return of loan and advances. This ratio is calculated by dividing investment on loan and advances by total outside investment.

Thus, the high ratio indicates better mobilization of depositor's funds on loan and advances and vice-versa. It is computed as;

Table No. 4.15
Loans and Advances to Total Outside Investment Ratio

(In Percentage)

FY	NABIL	EBL	KBL	HBL	NIBL	CBs
2002/03	54.07	74.40	82.76	48.08	75.53	58.93
2003/04	56.71	69.60	78.00	54.77	62.93	60.66
2004/05	70.46	77.89	81.88	50.13	63.12	64.05
2005/06	66.39	69.78	82.07	56.38	68.63	65.96
2006/07	62.47	73.07	83.70	58.40	71.50	67.36
Mean	**62.02**	**72.95**	**81.68**	**53.55**	**68.34**	**63.39**
S.D.	**6.03**	**3.09**	**1.95**	**3.87**	**4.86**	**3.17**
C.V.	**0.10**	**0.04**	**0.02**	**0.07**	**0.07**	**0.05**

Source: Annexure 'J'

The above table 4.15 reveals that KBL has the highest mean loan and advances to total outside investment ratio i.e. 81.68% that means among five CBs, KBL utilizes highest percentage of total outside investment on loan and advances. Similarly, HBL invest lowest part of total outside investment to loan and advances because it has lowest ratio i.e. 53.55%.

The CV of KBL i.e. 0.02 shows that the ratio of KBL is more stable or less variable in comparision to other CBs. While CV of NABIL i.e. 0.10 shows that the ratio is more fluctuating.

4.2.8 Investment on Share and Debenture to Total Outside Investment Ratio

The ratio is measured that the extent on which the banks are successful to mobilize their total outside investment on purchase of share and debentures of other companies. Thus, the high ratio indicates more portion of investment on shares and debentures out of total outside investment and vice-versa. Total outside investment consists of loans and advances, bills purchased and discounted and investment.

Table No. 4.16
Investment on Share and Debenture to Total Outside Investment Ratio

(In Percentage)

FY	NABIL	EBL	KBL	HBL	NIBL	CBs
2002/03	0.16	0.26	0.000	0.17	0.19	0.17
2003/04	0.95	0.20	0.000	0.16	0.13	0.33
2004/05	2.96	0.20	0.005	0.17	0.11	0.73
2005/06	0.55	0.14	0.004	0.15	0.10	0.21
2006/07	1.17	0.10	0.003	0.25	0.15	0.39
Mean	**1.16**	**0.18**	**0.00**	**0.18**	**0.13**	**0.37**
S.D.	**0.97**	**0.06**	**0.00**	**0.04**	**0.03**	**0.20**
C.V.	**0.83**	**0.31**	**0.85**	**0.21**	**0.23**	**0.53**

Source: Annexure 'K'

The above table reveals the portion of investment on shares and debentures to total outside investment ratio of commercial banks. We can see that commercial banks invest very low portion of its total outside investment on share and debenture of other companies . Among all NABIL has highest ratio on share and debenture to total outside investment ratio i.e. 1.16 which means NABIL utilizes highest percentage of total outside investment into share and debentures. Similarly, KBL has the lowest ratio which means KBL invest lowest parts of total outside investment to share and debenture.

As per CV, HBL with 0.21 has the lowest which shows the bank has invested in consistent manner on share and debentures. Similarly, highest CV of KBL i.e. 0.85 indicates that the bank is less consistent in investment on share and debentures.

4.2.9 Total Outside Investment of Commercial Banks

In this section, the ratio between various investment assets to total outside investment is calculated after the total outside investment of joint venture bank is partitioned into different types of investment assets. In other words, in this section, it is found that how many percentages of total outside investment are invested in which investment assets. Ratios made by total outside investment of commercial banks with individual investment assets are tabulated below.

Table No. 4.17
Individual Investment Assets to Total Outside Investment Ratio of Commercial Banks

(In Percentage)

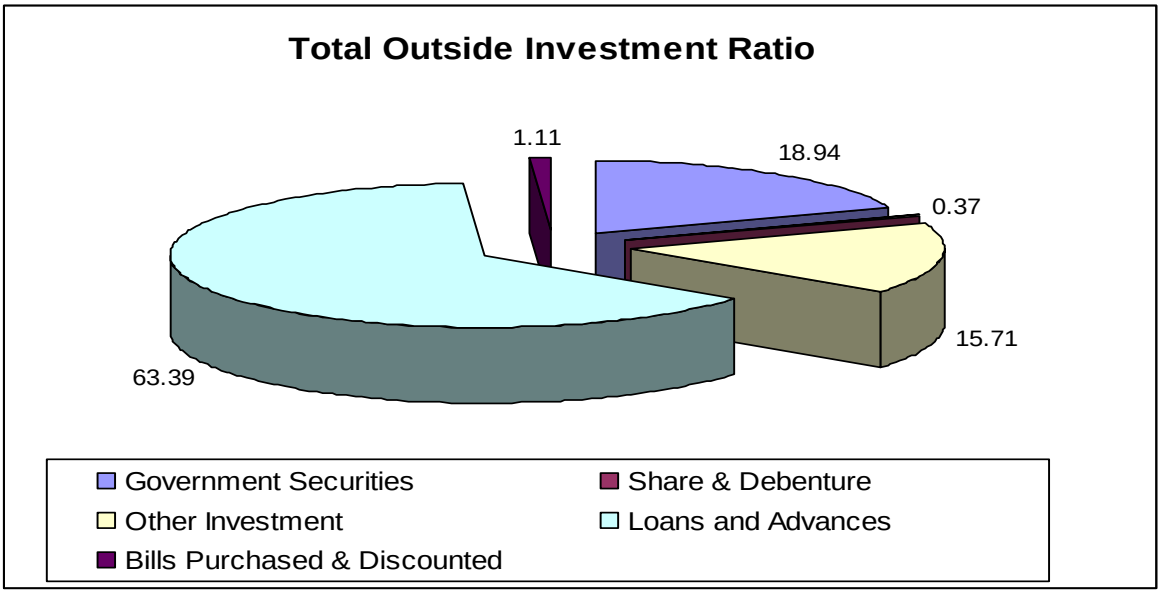
FY	Government Securities	Shares & Debentures	Other Investment	Loans and Advances	Bills Purchased & Discounted
2002/03	19.44	0.17	19.95	58.93	1.52
2003/04	20.52	0.33	17.09	60.66	1.39
2004/05	18.30	0.73	13.52	64.05	1.00
2005/06	17.15	0.21	15.77	65.96	0.90
2006/07	19.29	0.39	12.23	67.36	0.73
Mean	**18.94**	**0.37**	**15.71**	**63.39**	**1.11**
S.D.	**1.14**	**0.20**	**2.71**	**3.17**	**0.30**
C.V.	**0.06**	**0.53**	**0.17**	**0.05**	**0.27**

Source: Annexure 'I', 'J', 'K', 'L'

From the above table no. 4.17, it shows that commercial banks have invested larger portion of funds on loans and advances and small portion on share and debentures. As per figure no.4.9 commercial banks have invested 63.39% on loan and advances, 18.94% on government securities, 15.71% on other investment, 1.11% on bills purchased and discounted and 0.37% on share and debenture out of total outside investment. The lowest CV of loan and advances i.e. 0.05 shows that the investment on those securities is more consistent than investment on other securities. CV of investment on government i.e.0.06 also shows consistent than other investment. This can be further cleared on Fig no. 4.9.

Lastly, it can be concluded that commercial banks are mainly interested to invest on loan and advances which gives high return. They are less interested to invest on share and debentures which also gives high return but have high risk. Commercial banks have also invested on government securities more consistently which are less risk and low return.

Figure No. 4.9



4.3 Linear Trend Analysis

Future value for coming five years (up to 2012) have been analyzed and forecasted with the help of trend analysis. There are;

- Total Deposits
- Total Investment
- Loan and Advances
- Share and Debentures
- Government Securities

4.3.1 Linear Trend Analysis of Total Deposits

Under this topic, effort has been made to analyze trend of total deposit of the commercial banks for five years (up to 2007) and forecast of the same for next five years. The following table shows the trend values of total deposits of commercial banks.

Table No. 4.18
Linear Trend Analysis of Total Deposits

(In Percentage)

End of FY (t)	x = t – 2005	Actual Value	Trend Value y_c = 75072.76 + 13588.575x
2003	-2	51585.910	47895.610
2004	-1	60525.870	61484.185
2005	0	70291.830	75072.760
2006	1	86336.960	88661.335
2007	2	106623.240	102249.910
2008	3	-	115838.485
2009	4	-	129427.060
2010	5	-	143015.635
2011	6	-	156604.210
2012	7	-	170192.785

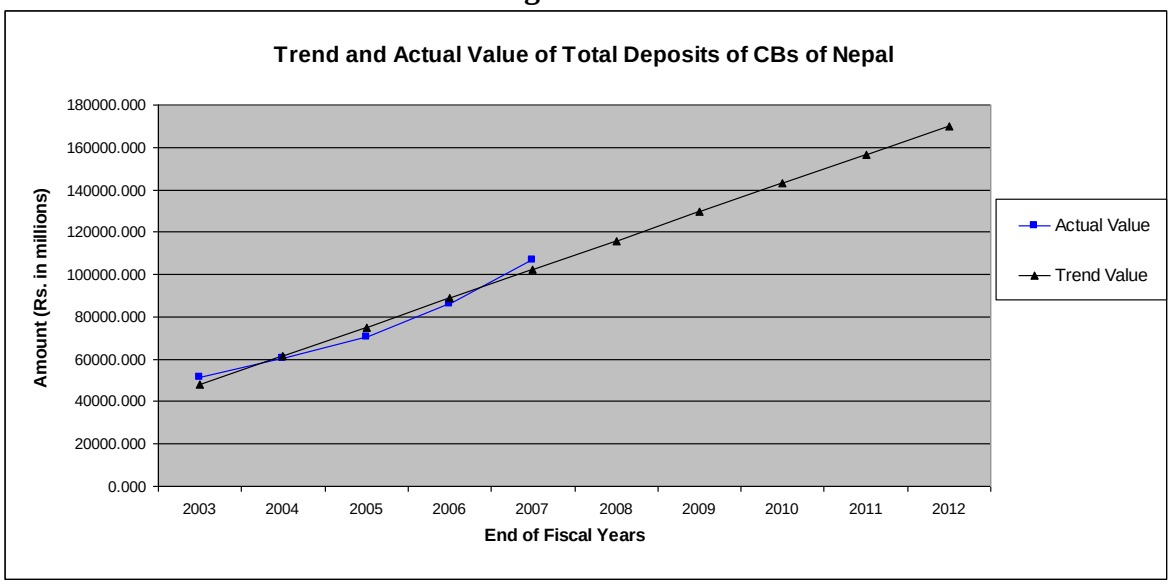
Source: Annexure 'M.1'

From above table no 4.18 ‘a’ i.e. y intercept and ‘b’ i.e. slope of the trend line of total deposits of commercial banks are Rs. 75072.70 and Rs. 13588.57 million respectively. It indicates that the deposit of commercial banks is increasing by Rs. 13588.57 million per year. So trend equation of the total deposits is

$Y_c = 75072.76 + 13588.57x$

From the above equation, forecasted total deposit for coming five years would be Rs. 115838.48, 129427.06, 143015.63, 156604.21 and 170192.78 is in increasing trend. Fig. no. 4.10 shows the trend and actual value of total deposit of commercial banks.

Figure No. 4.10



4.3.2 Linear Trend Analysis of Total Investment

In this section, trend of total investment of the commercial banks has been analyzed for five years (2007) and forecast of the same for next five years. The following table shows the trend values of total investment of commercial banks.

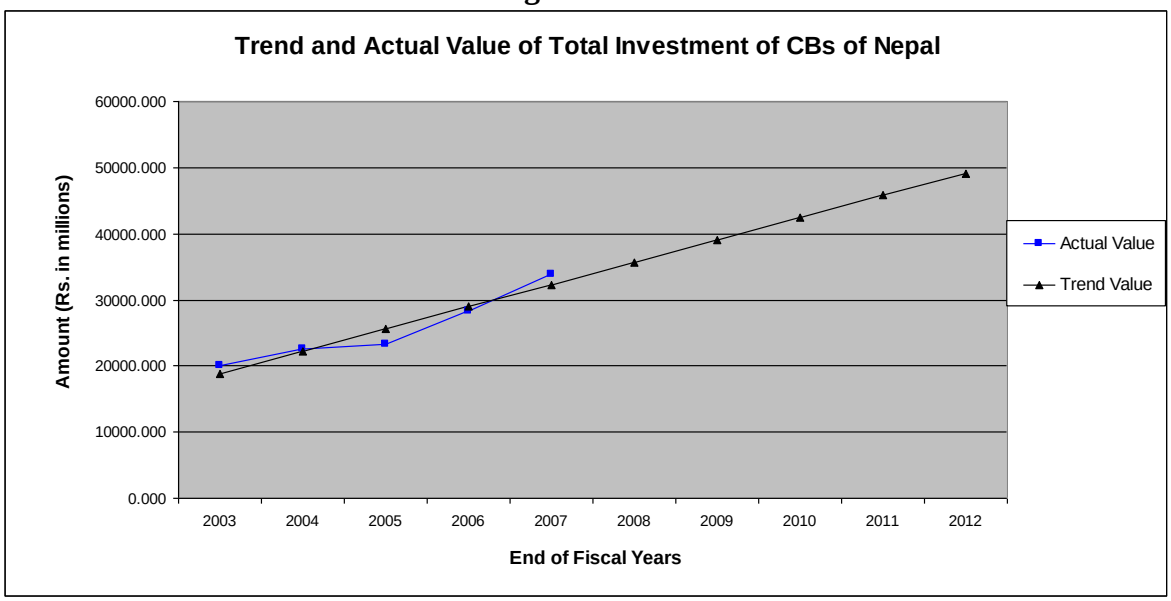
Table No. 4.19
Linear Trend Analysis of Total Investment

(In Percentage)

End of FY (t)	x = t – 2005	Actual Value	Trend Value y_c = 25582.84 + 3365.168x
2003	-2	19988.970	18852.504
2004	-1	22509.680	22217.672
2005	0	23212.960	25582.84
2006	1	28265.900	28948.008
2007	2	33936.700	32313.176
2008	3	-	35678.344
2009	4	-	39043.512
2010	5	-	42408.68
2011	6	-	45773.848
2012	7	-	49139.016

Source: Annexure 'M.2'

Figure No. 4.11



Above table no.4.19 and Fig. no. 4.11 shows 'a' i.e. y-intercept and 'b' i.e. slope of the trend line of total investment of commercial banks are Rs. 2582.84 and 3365.16 millions respectively. From this it is clear that total investment of commercial banks is increasing by Rs. 3365.16 million per year.

So, trend equation of the total investment is

$Y_c = 25582.84 + 3365.16x$

Thus, the forecasted total investment for coming years would be Rs. 35678.34, Rs. 39043.51, 45773.84, 49169.02 million respectively. During the study period, the amount of investment shows gradually increasing.

4.3.3 Linear Trend Analysis of Individual Investment

In this section, an attempt is made to calculate the trend values of investment of the commercial banks on various assets. Here, three assets like government securities, share and debenture and loan and advances are taken for analysis. The effort has been analyzed individual investment for five years from 2002 to 2007 and forecast of the same for next five years. The trend values of 10 years (2002 – 2012) of different assets of commercial banks are calculated individually.

Table No. 4.20
Linear Trend Analysis of Investment on Government Securities of CBs
(In Percentage)

End of FY (t)	x = t – 2005	Actual Value	Trend Value y_c = 14039.738 + 2385.053x
2003	-2	9822.62	9269.632
2004	-1	12173.49	11654.685
2005	0	13052.44	14039.738
2006	1	14631.02	16424.791
2007	2	20519.12	18809.844
2008	3	-	21194.897
2009	4	-	23579.95
2010	5	-	25965.003
2011	6	-	28350.056
2012	7	-	30735.109

Source: Annexure 'M.3'

The above table 4.20 shows the investment on government securities of commercial banks. The 'a' y-intercept and 'b' i.e. slope of trend line of government securities are 14039.738 and 2385.053 respectively.

So, trend equation of government securities is
$Y_c = 14039.738 + 2385.053x$

From the above equation, forecasted government securities for coming five years i.e. 2008-2012 would be Rs. 21194.897, 23579.95, 25965.003, 28350.056 and 30735.109 million respectively. It can also be seen in fig no. 4.12.

Figure No. 4.12

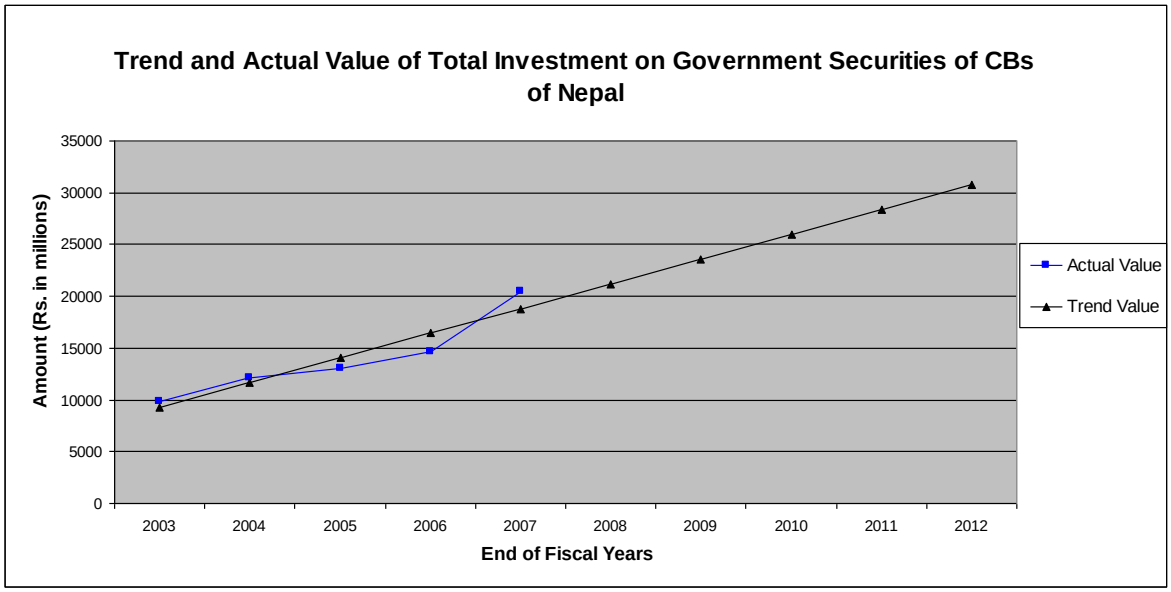


Table No. 4.21
Linear Trend Analysis of Investment on Share and Debentures of CBs
(In Percentage)

End of FY (t)	x = t – 2005	Actual Value	Trend Value y_c = 279.746 + 63.646x
2003	-2	87.480	152.454
2004	-1	198.610	216.100
2005	0	517.660	279.746
2006	1	179.930	343.392
2007	2	415.050	407.038
2008	3	-	470.684
2009	4	-	534.330
2010	5	-	597.976
2011	6	-	661.622
2012	7	-	725.268

Source: Annexure 'M.4'

The above table 4.21 shows the investment on share and debenture of CBs is in increasing trend. It shows that 'a' y-intercept and 'b' slope of trend line of share and debentures of commercial banks are 279.746 and 63.646 million respectively.

So, trend equation of share and debenture is
$Y_c = 279.746 + 63.646x$

With this equation, the forecasted investment on share and debenture for coming five years up to 2012 would be 21194.897, 23579.95, 25965.003, 28350.056 and 30735.109 respectively. It is more cleared in fig. no. 4.13.

Figure No. 4.13

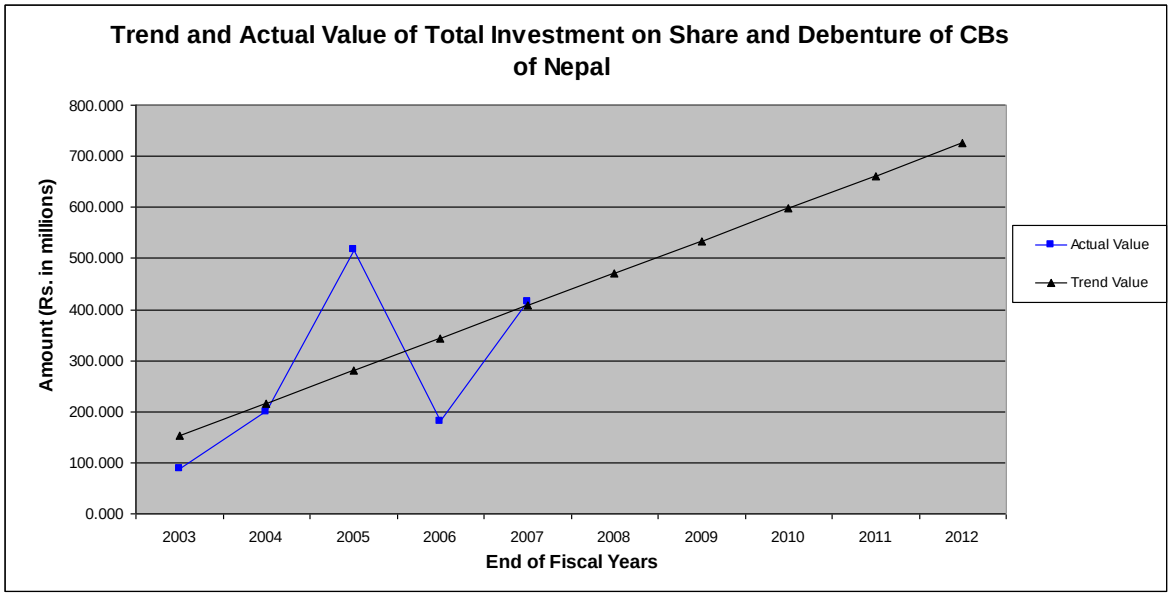


Table No. 4.22
Linear Trend Analysis of Investment on Loan and Advances of CBs

(In Percentage)

End of FY (t)	x = t – 200	Actual Value	Trend Value y_c = 478869.808 + 10402.495x
2003	-2	29778.480	27064.818
2004	-1	35980.980	37467.313
2005	0	45676.640	47869.808
2006	1	56262.990	58272.303
2007	2	71649.950	68674.798
2008	3	-	79077.293
2009	4	-	89479.788
2010	5	-	99882.283
2011	6	-	110284.778
2012	7	-	120687.273

Source: Annexure 'M.5'

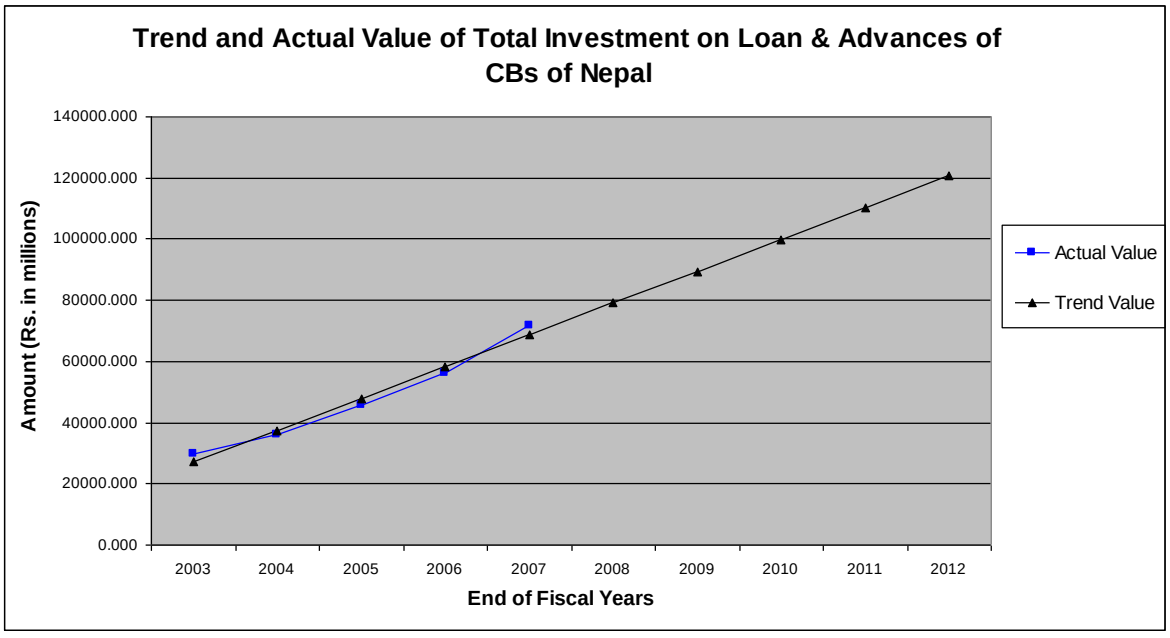
The above table 4.22 shows the investment on loan and advances of CBs is also in increasing trend. It is increasing by Rs. 10402.415 million per year. Here 'a' i.e. y-intercept and 'b' slope of trend line of loans and advances of CBs are 47869.808 and 10402.495 million respectively.

So trend equation of loans and advances is,

$Y_c = 47869.808 + 10402.495x$

Thus, the forecasted investment on loan and advances for coming 5 years up to 2012 would be Rs. 79075.293, 89479.788, 99882.283, 1110284.778 and 120687.273 respectively. It is also shown in above Fig. no. 4.14.

Figure No. 4.14



4.4 Correlation Analysis

Under the correlation analysis, the intensity of linear relation between the following variable have been measured.

- Total deposit and total investment
- Total deposit and loan and advances
- Total deposit and government securities
- Total deposit and share and debentures

4.4.1 Correlation Analysis between Total Deposit and Total Investment

Total deposit and total investment variables of commercial banks for the different sampled period have been presented in table no. 4.23.

Table No. 4.23
Correlation Analysis between Total Deposit and Total Investment

(In Percentage)

FY	Total Deposits (X)	Total Investment (Y)	XY	X^2	Y^2
2002/03	51585.91	19988.97	1031149207.413	2661106110.528	399558921.661
2003/04	60525.87	22509.68	1362417965.422	3663380939.257	506685693.702
2004/05	70291.83	23212.96	1631681438.117	4940941364.749	538841511.962
2005/06	86336.96	28265.9	2440391877.664	7454070662.042	798961102.810
2006/07	106623.24	33936.7	3618440908.908	11368515308.098	1151699606.890
Total	**375363.810**	**127914.210**	**10084081397.523**	**30088014384.673**	**3395746837.025**

$$r = \frac{(5\times 10084081397.523)-(375363.810\times 127914.210)}{\sqrt{5\times 30088014384.673-(375363.810)^2}\sqrt{5\times 3395746837.025-(127914.210)^2}}$$

$$= 0.99$$

$$P.E. = 0.6745\times\frac{\left[1-(0.99)^2\right]}{\sqrt{5}}$$

$$= 0.006$$

Hence,

r = 0.99

P.E. = 0.006

Above calculation reveals that the correlation coefficient and probable error of coefficient between total deposit and total investment of commercial banks i.e. 0.99 and 0.006 respectively. Here, correlation coefficient is greater than six times the probable error i.e. $0.99>6\times 0.006$. It indicates the positive correlation between total deposit and total investment and the correlation is significant.

4.4.2 Correlation Analysis between Total Deposit and Total Loan and Advances

Total deposit and total investment on loan and advances variables of commercial banks for the different sampled period have been presented in following table no. 4.24.

Table No. 4.24
Correlation Analysis between Total Deposit and Total Loan and Advances

(Rs. In Millions)

FY	Total Deposits (X)	Total Loan and Advances (Y)	XY	X^2	Y^2
2002/03	51585.91	29778.48	1536149989.217	2661106110.528	886757871.110
2003/04	60525.87	35980.98	2177780117.953	3663380939.257	1294630921.760
2004/05	70291.83	45676.64	3210694613.851	4940941364.749	2086355441.690
2005/06	86336.96	56262.99	4857575517.110	7454070662.042	3165524043.740
2006/07	106623.24	71649.95	7639549814.838	11368515308.098	5133715335.003
Total	**375363.81**	**239349.04**	**19421750053**	**30088014385**	**12566983613**

We get,

$$r = \frac{(5\times 19421750053) - (375363.81\times 239349.04)}{\sqrt{5\times 30088014384.673 - (375363.810)^2}\sqrt{5\times 12566983613 - (239349.04)^2}}$$

$= 1.00$

$$\text{P.E.} = 0.6745\times\frac{\left[1-(1.00)^2\right]}{\sqrt{5}}$$

$= 0$

Above calculation shows that the correlation coefficient and probable error of coefficient between total deposit and total investment on loan and advances are 1 and 0 respectively. Here, correlation coefficient is perfectively positive. Thus, the correlation between total deposit and loan and advances is perfectly positive. Therefore, commercial banks increase (decrease) their portion of investment on loan and advances with increase(decrease) of portfolio of total deposits over the study period.

4.4.3 Correlation Analysis between Total Deposit and Total Investment on Government Securities

Table No. 4.25
Correlation Analysis between Total Deposit and Total Govt. Securities
(In Percentage)

FY	Total Deposits (X)	Government Securities (Y)	XY	X^2	Y^2
2002/03	51585.910	9822.620	506708791.284	2661106110.528	96483863.664
2003/04	60525.870	12173.490	736811073.186	3663380939.257	148193858.780
2004/05	70291.830	13052.440	917479893.565	4940941364.749	170366189.954
2005/06	86336.960	14631.020	1263197788.499	7454070662.042	214066746.240
2006/07	106623.240	20519.120	2187815056.349	11368515308.098	421034285.574
Total	**375363.810**	**70198.690**	**5612012602.884**	**30088014384.673**	**1050144944.213**

$$r = \frac{(5 \times 5612012602.884) - (375363.81 \times 70198.69)}{\sqrt{5 \times 30088014384.673 - (375363.810)^2}\sqrt{5 \times 1050144944.213 - (70198.69)^2}}$$

$$= 0.97$$

$$\text{P.E.} = 0.6745 \times \frac{\left[1 - (0.97)^2\right]}{\sqrt{5}}$$

$$= 0.02$$

Above calculation reveals that the correlation coefficient and probable error of coefficient between total deposit and total investment on government securities are 0.97 and 0.02 respectively. Here, correlation coefficient is more than six times greater than probable error i.e. 0.97> 6 X 0.02. It indicates that the correlation between total deposit and government securities are positively related and correlation is much significant.

According to above analysis, it is cleared that there is high degree correlation between total deposit and government securities. Therefore, commercial banks are able to raise the volume of investment on government securities with rise in the volume of total deposit over the study period.

Table No. 4.26

Correlation Analysis between Total Deposit and Total Investment on Share and Debenture

(In Percentage)

FY	Total Deposits (X)	Share and Debenture (Y)	XY	X^2	Y^2
2002/03	51585.910	87.480	4512735.407	2661106110.528	7652.750
2003/04	60525.870	198.610	12021043.041	3663380939.257	39445.932
2004/05	70291.830	517.660	36387268.718	4940941364.749	267971.876
2005/06	86336.960	179.930	15534609.213	7454070662.042	32374.805
2006/07	106623.240	415.050	44253975.762	11368515308.098	172266.503
Total	**375363.810**	**1398.730**	**112709632.140**	**30088014384.673**	**519711.866**

$$r = \frac{(5\times 112709632.14)-(375363.81\times 1398.73)}{\sqrt{5\times 30088014384.673-(375363.810)^2}\sqrt{5\times 519711.866-(1398.73)^2}}$$

$$= 0.49$$

$$\text{P.E.} = 0.6745\times\frac{\left[1-(0.49)^2\right]}{\sqrt{5}}$$

$$= 0.23$$

Above calculation shows that the correlation coefficient and probable error of coefficient between total deposit and total investment on share and debenture are 0.49 and 0.23 respectively. . It indicates that the correlation between total deposit and total investment on share and debenture is not significant. However, the correlation is positive. Therefore,, the volume of investment on share and debentures fluctuates with rise in the volume of total deposits over the study period.

4.5 Multiple Regression Analysis

Regression is the estimation of unknown values or prediction of one variable from known values of other variables. Multiple regression analysis is a logical extension of the simple linear regression analysis. In multiple regression analysis, instead of a single independent variable, two or more independent variables are used to estimate the unknown values of a dependent variable.

The multiple regression equation of dependent variable X_1 on two independent variables $X_2$and X_3 is given by

$X_1 = a_1 + b_1X_2 + b_2X_3$ ……. (1)

The values of the constants a_1,b_1 and b_2 can be obtained by solving following three normal equation simultaneously obtained by the of least squares

$$\left.\begin{aligned} \sum X_1 &= a_1 + b_1 \sum X_2 + b_2 \sum X_3 \\ \sum X_1X_2 &= a_1 \sum X2 + b1 \sum X_2^2 + b_2 \sum X_2X_3 \\ \sum X_1X_3 &= a_1 \sum X_3 + b_1 \sum X_2X_3 + b_2 \sum X_3^2 \end{aligned}\right| \quad \text{…….. (2)}$$

X_1 = Portfolio return (Dependent Variable)
X_2 = Total Deposit (Independent Variable)
X_3 = Total Investment (Independent Variable)

Table No. 4.27

Calculation of Regression Equation of X_1 on X_2 and X_3

(Portfolio Return is in percentage and Total Deposit and Total Investment are in Rs. '000,000,000))

FY	Portfolio Return (X1)	Total Deposit (X2)	Total Investment (X_3)	X_1X_2	X_1X_3	X_2X_3	X_1^2	X_2^2	X_3^2
2002/03	7.798	29.778	51.586	232.212	402.273	1536.128	60.810	886.729	2661.115
2003/04	7.846	35.981	60.526	282.312	474.895	2177.786	61.562	1294.632	3663.397
2004/05	7.508	45.677	70.292	342.963	527.783	3210.728	56.377	2086.388	4940.965
2005/06	7.108	56.263	86.337	399.913	613.677	4857.579	50.523	3165.525	7454.078
2006/07	6.791	71.65	106.623	486.562	724.057	7639.538	46.115	5133.723	11368.464
Total	**37.051**	**239.349**	**375.364**	**1743.962**	**2742.685**	**19421.758**	**275.387**	**12566.998**	**30088.019**

Here we get,

$\sum X_1 = 37.051$ $\quad \sum X_1X_2 = 1743.962$ $\quad \sum X_1^2 = 275.387$

$\sum X_2 = 239.349$ $\quad \sum X_1X_3 = 2742.685$ $\quad \sum X_2^2 = 12566.998$

$\sum X_3 = 375.364$ $\quad \sum X_2X_3 = 19421.758$ $\quad \sum X_3^2 = 30088.019$

Substituting the values in above three normal equations we get,

$5a_1 + 239.349b_1 + 375.364b_2 = 37.051$ …….. (3)
$239.349a_1 + 12566.998b_1 + 19421.758b_2 = 1743.962$ …….. (4)
$375.364a_1 + 19421.758b_1 + 30088.019b_2 = 2742.685$ …….. (5)

Solving the equations we get,
$a_1 = 8.64841$
$b_1 = -0.03112$
$b_2 = 0.00335$

Now, substituting these values in equation (1) we get estimated regression equation of X_1 on X_2 and X_3.

$X_1 = 8.64841 – 0.03112X_2 + 0.00335X_3$

4.6 Major Findings of the study

The major findings of the study are as follows:

Risk and return Analysis

Major findings from the risk and return on various investment assets in which the commercial banks invest their funds and make portfolio from such investments assets are as follows.

1. The average return on government securities is 3.64% and its standard deviation and CV is 0.46 & 0.126 respectively. Similarly, the average return, S.D. and CV of loan and advances are 8.37%, 0.73 and 0.087 respectively.

Average return, S.D., and CV of share and debenture of CBs are 36.91%, 32.29% & 0.875 respectively. Finally, average return on investment portfolio is found 7.43%, 0.5249 % and 0.0706 respectively.

Analysis of Ratios

1. The return on total assets shows that NABIL has the better position among the selected CBs. NABIL has greater mean return than CBs mean return i.e. 2.71%>1.63%, But, KBL has the lowest return in the industry i.e. 1.00. However, return on total assets ratio of EBL, NIBL & HBL are 1.39%, 1.47% and 1.22% respectively. NABIL has lowest and KBL has highest CV than industry i.e. 0.08<0.09<0.31 respectively.

2. Similarly, looking at the ratio of investment to total deposit of CBs the ratio is in decreasing trend over the study period. In the study, HBL has the highest ration and lowest CV i.e. 43.65% and 0.08 respectively. On the other hand, KBL has the lowest ration of 18.09% and NABIL has highest CV of 34.45. However, total investment to total deposit ratio of NABIL, EBL and NIBL are 37.14%, 27.01% and 27.66% respectively.

3. In case of investment on government securities to total deposit ratio, EBL has the highest ratio i.e. 25.37% and NIBL has the lowest ratio of 12.49%. Also NIBL has lowest CV of 13.30 and EBL has highest CV of 24.68. However, average ratio of CBs is 18.78%.

4. In the study of loan and advances to total deposit ratio, KBL has the highest ratio of 83.71% and NIBL has lowest ratio i.e. 51.62%. Also EBL has lowest CV i.e. 0.02 and NABIL has highest CV i.e. 0.10. As compared to industry average ratio, NABIL, EBL, KBL & NIBL have higher ratio i.e. 62.93%, 73.30%, 83.71% and 67.23% respectively and HBL has lower i.e. 51.62%.

5. In case of ratio of investment on share and debenture to total deposit NABIL has highest ratio i.e. 1.18% and KBL has lowest i.e. 0.003%. Similarly, HBL and NIBL has lowest CV of 0.21 and KBL has highest CV i.e. 0.86. EBL and HBL has higher ratio and NIBL has lower ratio then industry average i.e. 25.15, 20.14>18.945>12.66% respectively.

6. In the study, the investment on government securities to total outside investment ratio, EBL has highest ratio and lowest CV i.e. 25.15% and 0.10 respectively. NIBL has lowest ratio and highest CV i.e. 12.66% and 0.33 respectively. Besides, KBL and BINL all other CBs have higher ratio than industry average ratio. Similarly, looking at the result of loan and advances to total outside investment ratio KBL has highest ratio and lowest CV i.e. 81.68% and 0.02 respectively. Also, HBL has lowest ratio i.e. 53.55% and NABIL has highest CV i.e. 0.10. EBL and NIBL have also higher ratio than industry average ratio i.e. 72.95%, 68.34%>63.34%. Also, in the study, the ratio of investment on share and debenture to total outside investment ration is highest of NABIL i.e. 1.16% and lowest of KBL i.e 0.003. Similarly, HBL has lowest CV i.e. 0.21 and KBL has highest CV i.e. 0.85. Only NABIL has higher ratio than industry average ratio i.e. 1.16>0.37.

Linear Trend Analysis

1. Total deposits of CBs are in increasing trend by Rs. 13588.575 million. Trend value of total deposits is Rs. 47895.610 million in 2003 and Rs. 170192.785 million in 2012 which is 3.55 times greater.

2. Total investment of CBs is also in increasing trend by Rs. 3365.168 millions. Trend value of total investment is Rs. 18852.504 millions in 2003 and Rs. 49139.016 millions in 2012 which is 2.61 times higher.

3. Investment on various assets like government securities, loan and advances and Share & debenture are also increasing per year by Rs. 2385.053 million, 10402.495 million & 63.646 million respectively. Investment of commercial banks on share and debentures is increasing in greater rate than investment on government securities and loan & advances during the period of 2003 to 2012.

Correlation Analysis

1. The correlation coefficient between total deposit and total investment is greater than six times the probable error i.e. 0.99>6 X 0.006. It indicates that the high degree positive correlation between total deposit and total investment at definitely significant level. Therefore, CBs can earn more profit by investing in profitable area.
2. The correlation coefficient between total deposit and total loan & advances is 1. It indicates that e correlation is perfectively positive and correlation is much significant. Therefore, CBs are able to raise the volume of investment on loan and advances with rise in the volume of total deposit over the study period.
3. The correlation between total deposit and total investment on government securities is highly positively related and correlation is much significant because the correlation coefficient is greater than six times the probable error i.e. 0.97> 6X0.02. So, commercial banks are able to raise the volume of investment on government securities with rise in the volume of total deposit over the study period.
4. The correlation coefficient is not greater than the six times of probable error i.e. 0.49<6X0.23. It indicated that the correlation between total deposit and total investment on share and debenture is not significant. However, the correlation is positive. Therefore,, the volume of investment on share and debentures fluctuates with rise in the volume of total deposits.

Regression Analysis

From regression analysis, required estimated regression equation of dependent variable portfolio return(X_1) on two independent variable total deposit (X_2) and total investment (X_3) is as follows:

$X_1 = 8.64841 – 0.03112\ X_2 + 0.00335\ X_3$

Chapter – 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter is a summary of the study. It contains summary, conclusion and recommendations. Summary is a brief introductions of whole study. Conclusions are made on the basis of the analysis relevant data by using various tools.

5.1 Summary

The development of country largely depends on the level of economic development. The economy of nation depends on the use of available resources in efficient way. The proper utilization of capital appreciates in wealth position of country. Banks and other financial institutions play important role in successful formulation and effective implementation of capital. Hence, the proper mobilization and utilization of available resources are important factors for economic development.

Commercial banks and financial institutions are the backbone of the Nepalese economy at present. It plays vital role in capital formulation, proper utilization of collected fund, providing various type of banking services. Commercial banks are the banks formed by joining two or more enterprise. Commercial banks collect money from public by providing attractive sound interest and can earn profit by lending it on mainly in business organization, industrial, agricultural sectors etc. So, we can say the main task of commercial bank is to mobilize idle resources in productive areas by collecting it from scattered sources and generating profit. Banks play the role of intermediaries channeling between saving and investment and fulfill the credit needs of customer as well as investment requirement of savers. It is clear that efficient and stable banking systems are crucial for an orderly economic growth.

For last few years, many commercial activities have been significantly growing up specially in the financial sector in Nepal. Basically, in the banking world, Nepal is still in its infant stage although the numbers of financial institutions have been increasing. Furthermore, many financial institutions like commercial banks, development banks, insurance companies, co-operative societies and others have been set up within the short period. Nepal's banking history had begun with the establishment of Nepal Bank Ltd. in 1937 A.D. Since the year 1990s, Nepal has been adopting liberal policy, invite private sector (both domestic and foreign) in order to bring healthy competition in the financial sector. The number of commercial banks has been increasing since then various financial institutions like CBs, domestic commercial banks, development banks, finance companies, co-operative banks etc. come into existence to cater the financial needs of the country. At present, there are 18 commercial banks operating in Nepal.

Successfully formulation of investment policy and its proper utilization or implementation is the prime requisite for the development of performance of banks and other financial institution. Good investment policy has positive impact on economic development of the country and vice-versa. Bank should attract to its customer by implementing best or competitive investment policy. It helps to increase the quality of banking services as well as volume of quality deposits, loan and investment. Economic

development is the important factor for development of any country. Nepal is a least developed country. Economic growth and economic development of the country is the mobilization of domestic resources and their investment for productive use to various sectors.

Investment portfolio is one such tool that helps for proper utilization of resources. Portfolio theory deals with the selection of optimal portfolios that is portfolio provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified return. Investment decision is one of the major decision functions of financial management. Banks should accept that type of securities which are commercial, durable, marketable, stable, transferable and high market prices. A bank must diversify its investment on different sectors and in different securities. At present, commercial banks and financial institutions are the backbone of the Nepalese economy. It plays vital role in capital formulation, proper utilization of collected fund, providing various type of banking services. Mobilization of saving is most essential for the economic growth of the country. Commercial banks are the mediator of mobilizing such savings. Their sound performance makes them able to mobilize such fund in a proper way.

Six commercial banks are taken as reference to analyze the risk, return and investment portfolio analysis. During the research work, a brief review of literature has been conducted. As this research is related to the investment portfolio, financial strength and weakness of commercial banks have been measured on the basis of balance sheet and profit and loss account. In that course, different tools have been used. Moreover, the various textbooks and the financial tools like ratio analysis, risk and return analysis and statistical tools like arithmetic mean, coefficient of variance, Karl Pearson's coefficient of correlation and probable error and regression analysis have been extensively used. Tables, graphs and diagrams are used to present the data and results, secondary data are collected from the NEPSE, NRB and other related data.

As per risk and return analysis, return on government securities is low but it has also lower risk, Similarly, loan and advances give more return than government securities but it has also higher risk than government securities. In the same way, share and debenture is also high risk securities. With respect to ratio analysis, different ratios related to investment portfolio have been used. NABIL utilized the most of the resources efficiently than other five CBs. NABIL has highest return to total assets ratio compared to other five CBs. Also, HBL has highest total investment to total deposit ratio. The CBs are not successful in mobilizing their resources in the field of shares and debenture, They invested very nominal percentage of total outside investment on share and debenture of other companies.

As per trend analysis, total deposit of commercial banks is in increasing trend. Similarly, total investment is also increasing but the ratio of increase is lower than increasing ratio of deposit. Commercial banks give first priority to invest on loan and advances, government securities and then share and debenture as the increasing ratio of investment on loan and advances is greater than increasing ratio of investment on government securities and share and debentures.

As per correlation analysis, correlation between total deposit and total investment, total deposit and individual asset is positive. CBs showed successful performance in profit earning with respect to their income generating assets.

5.2 Conclusions

The major findings of the study are as follows

- Proper investment on various securities i.e. balance allocation of funds on various government securities such as Treasure bills, National saving bonds, Development bonds etc. and fixed income percentage rate that help to reduce the variability of return. In the analysis of risk and return comparatively NABIL have more return from investment on government securities. Similarly, NABIL has better position on investment on loan & advances.

- The return on share and debenture of commercial banks shows wide fluctuation. These fluctuations in returns are caused mainly by the volatility of the shares prices in the market and by the changes in dividends in some extent. Comparatively to other assets, share and debenture has higher return and higher risk., Hence, it is cleared from analysis that investment on share and debenture is high risky assets.

- Among the selected three assets, the correlation between government securities and share and debenture is negative. Such assets are very useful to make portfolio combination so that the combining stocks into portfolio reduce risk.

- The portfolio return is lower than average return from loan & advances and share & debenture. The portfolio risk on investment is less than the risk on loan & advances and share & debenture. The risk on government is lower than portfolio risk. It shows there is vital role of government securities to reduce the risk.

- The study shows that the portfolio return is decreasing trend every year. It show the investment portfolio concept is not using properly by the selected banks.

- CBs are mainly interested to invest on loan and advances which gives high return. They are not interested to invest on share and debentures even though that gives high return but level of risk. CBs are also interested on government securities more consistently which is less risky.

- According to return on total assets ratio of selected CBs, NABIL has utilized its resources efficiently among six CBs. While the profitability portion of EB, HBL, NIBL are moderate but KBL is the weakest in profitability position during the study period.

- Total investment to total deposit ratio revealed decreasing trend throughout the study period. Out of the selected CBs, HBL is the most successful in utilizing its deposits on investment. NABIL has also utilized its deposits on investment successfully.

- EBL has mobilized its deposits more effectively on government securities. NABIL is also successful in mobilizing its deposits on government securities. KBL & NIBL are not so successful in utilizing its depositor's fund on government securities.

- Loans & advances to total deposit ratio is higher than the ratio of government securities to total deposits and Share & debenture to total deposits. It shows that CBs

mobilize its total deposit more effectively on loan & advances compared to government securities and very nominal part in share and debenture.

- In comparision to other assets, most of the CBs give first priority to invest their resources on loan and advances out of total outside investment. Similarly, the CBs give second priority to government securities and least priority to share and debenture. It shows resources are mobilizing in loan and advances effectively.

- As per the linear trend analysis the total investment and total deposit of CBs are increasing per year. The investment of CBs on loan and securities and share and debentures.

- As per the linear trend analysis the total investment and total deposit of CBs are increasing per year. The investment of CBs on loan and advances is increasing more rapidly than government securities and share and debenture.

- The correlation coefficient between total deposit and total investment is greater than six times the probable error. It indicates the high degree positive correlation at significant level.
- The correlation coefficient between total deposit and total loan & advances is perfectly positive. Therefore, CBs are able to raise the volume of investment on loan & advances with the rise in the volume of deposit over the study period.

- The correlation coefficient between total deposit and total government securities is high degree positive correlation at significant level. So, CBs are able to raise the volume of investment on government securities with rise in the volume of total deposit over the study period,

- The correlation between total deposit and total investment in share and debenture is positive but is less than six times of P.E. Thus, it is not significant. Therefore, the volume of investment on share and debentures fluctuates with rise in the volume of total deposits over the study period.

The successful formulation and effective implementation of investment policy is the prime requisite for the good performance of the CBS so appropriate investment policy should be developed by utilizing portfolio concept and security analysis. CBs most mobilize their resources on secured, profitable, marketable and liquid securities which cannot be possible without portfolio concept.

Investment portfolio helps to reduce risk and to increase return. As per findings CBs are not sufficiently succeeding in investing their funds in profitable sectors. Mostly CBs are not interested to take risk they are more interested to invest on less risky assets. Banks should not lay all its eggs on same basket. CBs should diversify their funds in various assets with appropriate weight. But as per findings CBs have failed in balancing investment in various types of assets.

According to risk and return analysis, the investment in loan and advances is better but there is slightly high risk than government securities. Government securities are also better alternate due to low risk. The risk and return on share and debenture is higher than

other securities but not more uniform. So, CBs are investing lower to share and debenture of other companies, So, it shows that CBs are not most successful to diversify investment on various assets as per portfolio concept. There are better opportunities for the CBs to reduce total risk at minimum level and increase profit at higher level by utilizing the negative correlation coefficient between investment assets.

5.3 Recommendations

On the basis of the analysis, findings and conclusions, the following recommendations can be forwarded to overcome weakness, inefficiency and to improve the present fund mobilization and investment of Nepalese commercial banks.

- Commercial banks of Nepal are not success to formulate the appropriate investment policy and to implement it effectively. They are not considering about portfolio optimization. They are running by the instructions and direction of NRB and government. So, commercial banks must analyze the investment areas and develop efficient and effective investment strategy and then take the investment decision.

- Due to the lack of investment portfolio concept, mostly banks are interested to invest their funds in securable, less risky and liquids assets. Generally, high risky assets give more profit and less risky assets give less profit. Even though, there is higher return as well as lower risk, banks should not lay all its eggs on the same basket. CBs should diversify their funds in various assets with suitable weight. Hence, CBs can generate handsome profit with lower risk by portfolio diversification.

- From the study, CBs are more interested to invest on loan and advances and then government securities. CBs invest very low portion of its total outside investment and total deposit on share and debenture of other companies. They invested very nominal percentage on share and debenture so it is suggested to all CBs to give some excess priority to investment on share and debenture.

- From the analysis, it is cleared that CBs are not effectively utilize portfolio management concept. Risk minimization is not possible by holding only one asset or by investing funds in only one area. The research shows that commercials banks are not successful to invest funds on various assets. The negative correlation between government securities and share and debentures and loan & advances and share and debenture help to reduce the portfolio risk. So, it is recommended that CBs must diversify suitable proportion of their funds in the field of loan & advances, government securities and shares & debentures.

- Total investment to total deposit ratio shows that EBL, KBL & NIBL are not covering the average ratio of CBs. So, it is recommended to these banks by considering portfolio concept. However, NABIL & HBL in this case found to have better performance.

- Portfolio condition of banks should be regularly revised from time to time or it should be upgrading as per environment. It should always try to maintain the equilibrium in the portfolio condition of the bank. Basically, portfolio management refers to the allocation of funds into different small components of its assets having different degrees of risk, different rates of return in such a way that the conflicting goal of

maximum yield (return) minimum risk can be properly achieve. The bank should always try to make continuous efforts to explore competitive and highly yielding investment opportunities to optimize investment portfolio.

- KBL seems to be weakest among the five CBs on the basis of risk and return analysis and ratio analysis. So, it shows that the bank is not able to utilize the resources efficiently. Hence, it is recommended to KBL to invest on assets as per portfolio concept.
- KBL is not succeeding to gain reasonable return because of its total investment to total deposit ratio is not satisfactory and also seems that more variability of investment on various assets. Hence, it is suggested that increase the investment on government securities and also apply the investment portfolio policy to get best return.

- The highest return on total assets of NABIL among five CBs should be maintained in future also. From the analysis, NABIL is the best bank among the selected bank. The lowest investment on loan & advances shows that the bank is reducing risk. So, it is recommended to NABIL to increase the investment on loan & advances of other companies.

- KBL is weakest on profitability position in relation to return in total assets. So, the bank should utilize its resources efficiently to gain the handsome profit. Moreover, it should mainly increase the investment on government securities and try to keep more uniform the investment.

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Annex 'A'

Calculation of Return on Government Securities

(Rs. in Million)

FY	Interest Income on Govt. Securities	Investment on Govt. Securities	Ratio (%)	FY	Interest Income on Govt. Securities	Investment on Govt. Securities	Ratio (%)
	Nabil Bank Ltd.				**Everest Bank Ltd.**		
2002/03	174.861	3588.77	4.87	**2002/03**	48.744	1599.35	3.05
2003/04	192.761	3672.62	5.25	**2003/04**	92.509	2466.43	3.75
2004/05	173.985	2413.93	7.21	**2004/05**	77.993	2100.29	3.71
2005/06	145.112	2301.46	6.31	**2005/06**	97.272	3548.62	2.74
2006/07	152.005	4808.34	3.16	**2006/07**	128.565	4701.64	2.73
FY	**Kumari Bank Ltd.**			**FY**	**Himalayan Bank Ltd.**		
2002/03	7.84	235.63	3.33	**2002/03**	121.543	3998.87	3.04
2003/04	16.68	601.61	2.77	**2003/04**	170.332	3431.73	4.96
2004/05	26.127	1119.99	2.33	**2004/05**	149.131	5469.73	2.73
2005/06	48.122	1114.32	4.32	**2005/06**	172.242	5144.32	3.35
2006/07	44.9	1297.87	3.46	**2006/07**	191.558	6454.87	2.97
FY	**Nepal Investment Bank Ltd.**			**FY**	**Commercial Banks**		
2002/03	10.227	400.00	2.56	**2002/03**	363.215	9822.62	3.70
2003/04	35.868	2001.10	1.79	**2003/04**	508.15	12173.49	4.17
2004/05	56.55	1948.50	2.90	**2004/05**	483.786	13052.44	3.71
2005/06	82.42	2522.30	3.27	**2005/06**	545.168	14631.02	3.73
2006/07	78.493	3256.40	2.41	**2006/07**	595.521	20519.12	2.90

Annex 'B'

Calculation of Return on Loan and Advances

(Rs. in Million)

FY	Interest Income on Loan and Advances	Investment on Loan and Advances	Ratio (%)	FY	Interest Income on Loan and Advances	Investment on Loan and Advances	Ratio (%)
	Nabil Bank Ltd.				**Everest Bank Ltd.**		
2002/03	776.301	7454.260	10.41	**2002/03**	464.763	4882.500	9.52
2003/04	761.616	7953.750	9.58	**2003/04**	563.137	5860.540	9.61
2004/05	831.829	10465.270	7.95	**2004/05**	633.624	7592.240	8.35
2005/06	988.413	12681.670	7.79	**2005/06**	770.826	9770.910	7.89
2006/07	1167.255	15305.910	7.63	**2006/07**	967.177	13623.690	7.10
FY	**Kumari Bank Ltd.**			**FY**	**Himalayan Bank Ltd.**		
2002/03	169.136	2092.990	8.08	**2002/03**	903.838	9700.700	9.32
2003/04	280.705	3613.580	7.77	**2003/04**	970.166	11635.310	8.34
2004/05	462.728	5547.340	8.34	**2004/05**	1122.392	12088.710	9.28
2005/06	533.688	6801.000	7.85	**2005/06**	1140.686	14395.850	7.92
2006/07	691.14	8878.010	7.78	**2006/07**	1242.85	16831.880	7.38
FY	**Nepal Investment Bank Ltd.**			**FY**	**Commercial Banks**		
2002/03	421.847	5648.030	7.47	**2002/03**	2735.885	29778.480	9.19
2003/04	663.016	6917.800	9.58	**2003/04**	3238.64	35980.980	9.00
2004/05	769.195	9983.080	7.70	**2004/05**	3819.768	45676.640	8.36
2005/06	964.689	12613.560	7.65	**2005/06**	4398.302	56262.990	7.82
2006/07	1302.121	17010.460	7.65	**2006/07**	5370.543	71649.950	7.50

Annex 'C'

Estimated Market Parameter

Name of Organization	2002/03			2003/04			2004/05			2005/06			2006/07		
	P_t	D_t	D_t / P_t	P_t	D_t	D_t / P_t	Pt	Dt	Dt / Pt	Pt	Dt	Dt / Pt	Pt	Dt	Dt / Pt
Nabil Bank Ltd.	735	50	6.80	1000	65	6.50	1505	70	4.65	2240	85	3.79	5050	100	1.98
Nepal Investment Bank	795	20	2.52	940	20	2.13	800	12.5	1.56	1260	20	1.59	1729	5	0.29
Standard Chartered Bank Ltd.	1645	110	6.69	1745	110	6.30	2345	120	5.12	3775	120	3.18	5900	80	1.36
Himalayan Bank Ltd.	859	21.32	2.48	840	20	2.38	920	11.58	1.26	1100	30	2.73	1740	15	0.86
Nepal SBI Bank Ltd.	255	8	3.14	307	0	0.00	335	0	0.00	612	5	0.82	1176	12.59	1.07
Nepal Bangladesh Bank Ltd.	361	0	0.00	354	0	0.00	265		0.00	199		0.00	550		0.00
Bank of Kathmandu	198	5	2.53	295	10	3.39	430	15	3.49	850	18	2.12	1375	20	1.45
Everest Bank Ltd.	445	20	4.49	680	20	2.94	870	0	0.00	1379	25	1.81	2430	0	0.00
Neco Insurance Ltd.	130	10	7.69	112	10	8.93			0.00			0.00			0.00
United Finance Ltd.	0	0	0.00	115	0	0.00	125		0.00	154		0.00	416		0.00
Ace Finance Co.Ltd.	140	20	14.29	173	20	11.56			0.00			0.00			0.00
Unilever Ltd.	1130	90	7.96	1400	100	7.14			0.00			0.00			0.00
Bishal Bazar Co. Ltd.	0	0	0.00	1400	85	6.07	1930	90	4.66	2400	100	4.17	2575	20	0.78
Salt Trading Corporation Ltd.	300	20	6.67	315	20	6.35	315		0.00	316		0.00			
Soaltee Hotel Ltd.	75	0	0.00	65	0	0.00			0.00			0.00			0.00
Total	7068	374.32	65.25	9741	480	63.70	9840	319.1	20.7412	14285	403	20.2022	22941	252.6	7.78921
No. of Observation (n)	13		13	15		15	12		12	11		11	10		10
Average (Total / n)	543.692		5.02	649.40		4.25	820		1.73	1298.6		1.84	2294.1		0.78

Annex 'D'

Calculation of Return on Total Assets Ratio

(Rs. in Million)

FY	Net Profit After Tax (NPAT)	Total Assets	Ratio (%)	FY	Net Profit After Tax (NPAT)	Total Assets	Ratio (%)
	Nabil Bank Ltd.				**Everest Bank Ltd.**		
2002/03	416.235	16562.620	2.51	**2002/03**	94.18	8052.200	1.17
2003/04	455.311	16745.480	2.72	**2003/04**	143.567	9608.570	1.49
2004/05	518.635	17186.320	3.02	**2004/05**	168.214	11732.510	1.43
2005/06	635.262	22329.970	2.84	**2005/06**	237.29	15959.280	1.49
2006/07	673.959	27253.390	2.47	**2006/07**	296.409	21432.570	1.38
FY	**Kumari Bank Ltd.**			**FY**	**Himalayan Bank Ltd.**		
2002/03	12.474	2986.170	0.42	**2002/03**	212.128	23355.220	0.91
2003/04	48.685	5494.170	0.89	**2003/04**	263.053	24762.300	1.06
2004/05	84.201	7431.590	1.13	**2004/05**	308.275	27844.690	1.11
2005/06	103.666	9010.270	1.15	**2005/06**	457.457	29460.380	1.55
2006/07	170.262	11918.310	1.43	**2006/07**	491.822	33519.140	1.47
FY	**Nepal Investment Bank Ltd.**			**FY**	**Commercial Banks**		
2002/03	116.817	9014.250	1.30	**2002/03**	851.834	59970.460	1.42
2003/04	152.971	13255.500	1.15	**2003/04**	1063.587	69866.020	1.52
2004/05	232.147	16274.060	1.43	**2004/05**	1311.472	80469.170	1.63
2005/06	350.536	21330.130	1.64	**2005/06**	1784.211	98090.030	1.82
2006/07	501.398	27590.850	1.82	**2006/07**	2133.85	121714.260	1.75

Annex 'E'

Calculation of Total Investment to Total Deposit Ratio

(Rs. in Million)

FY	Total Investment	Total Deposit	Ratio (%)	FY	Total Investment	Total Deposit	Ratio (%)
	Nabil Bank Ltd.				**Everest Bank Ltd.**		
2002/03	6031.18	13447.66	44.85	**2002/03**	1653.97	6694.96	24.705
2003/04	5835.95	14119.03	41.33	**2003/04**	2535.65	8063.9	31.444
2004/05	4267.23	14586.61	29.25	**2004/05**	2128.93	10097.69	21.083
2005/06	6178.53	19347.4	31.93	**2005/06**	4200.52	13802.44	30.433
2006/07	8945.31	23342.29	38.32	**2006/07**	4984.31	18186.25	27.407
FY	**Kumari Bank Ltd.**			**FY**	**Himalayan Bank Ltd.**		
2002/03	423.15	2513.14	16.84	**2002/03**	10175.43	21007.38	48.437
2003/04	983.5	4807.92	20.46	**2003/04**	9292.1	22010.33	42.217
2004/05	1190.27	6268.95	18.99	**2004/05**	11692.34	24814.01	47.12
2005/06	1394.95	7768.96	17.96	**2005/06**	10889.03	26490.85	41.105
2006/07	1678.42	10557.42	15.9	**2006/07**	11822.98	30048.42	39.346
FY	**Nepal Investment Bank Ltd.**			**FY**	**Commercial Banks**		
2002/03	1705.24	7922.77	21.52	**2002/03**	19988.97	51585.91	38.749
2003/04	3862.48	11524.69	33.51	**2003/04**	22509.68	60525.87	37.19
2004/05	3934.19	14524.57	27.09	**2004/05**	23212.96	70291.83	33.024
2005/06	5602.87	18927.31	29.6	**2005/06**	28265.90	86336.96	32.739
2006/07	6505.68	24488.86	26.57	**2006/07**	33936.70	106623.24	31.829

Annex 'F'

Calculation of Government Securities to Total Deposit Ratio

(Rs. in Million)

FY	Investment on Govt. Securities	Total Deposit	Ratio (%)	FY	Investment on Govt. Securities	Total Deposit	Ratio (%)
	Nabil Bank Ltd.				**Everest Bank Ltd.**		
2002/03	3588.77	13447.66	26.69	**2002/03**	1599.35	6694.96	23.89
2003/04	3672.62	14119.03	26.01	**2003/04**	2466.43	8063.9	30.59
2004/05	2413.93	14586.61	16.55	**2004/05**	2100.29	10097.69	20.80
2005/06	2301.46	19347.4	11.90	**2005/06**	3548.62	13802.44	25.71
2006/07	4808.34	23342.29	20.60	**2006/07**	4701.64	18186.25	25.85
FY	**Kumari Bank Ltd.**			**FY**	**Himalayan Bank Ltd.**		
2002/03	235.63	2513.14	9.38	**2002/03**	3998.87	21007.38	19.04
2003/04	601.61	4807.92	12.51	**2003/04**	3431.73	22010.33	15.59
2004/05	1119.99	6268.95	17.87	**2004/05**	5469.73	24814.01	22.04
2005/06	1114.32	7768.96	14.34	**2005/06**	5144.32	26490.85	19.42
2006/07	1297.87	10557.42	12.29	**2006/07**	6454.87	30048.42	21.48
FY	**Nepal Investment Bank Ltd.**			**FY**	**Commercial Banks**		
2002/03	400.00	7922.77	5.05	**2002/03**	9822.62	51585.91	19.04
2003/04	2001.10	11524.69	17.36	**2003/04**	12173.49	60525.87	20.11
2004/05	1948.50	14524.57	13.42	**2004/05**	13052.44	70291.83	18.57
2005/06	2522.30	18927.31	13.33	**2005/06**	14631.02	86336.96	16.95
2006/07	3256.40	24488.86	13.30	**2006/07**	20519.12	106623.24	19.24

Annex 'G'

Calculation Loan and Advances to Total Deposit Ratio

(Rs. in Million)

FY	Loan and Advances	Total Deposit	Ratio (%)	FY	Loan and Advances	Total Deposit	Ratio (%)
	Nabil Bank Ltd.				**Everest Bank Ltd.**		
2002/03	7454.260	13447.66	55.43	**2002/03**	4882.500	6694.96	72.93
2003/04	7953.750	14119.03	56.33	**2003/04**	5860.540	8063.9	72.68
2004/05	10465.270	14586.61	71.75	**2004/05**	7592.240	10097.69	75.19
2005/06	12681.670	19347.4	65.55	**2005/06**	9770.910	13802.44	70.79
2006/07	15305.910	23342.29	65.57	**2006/07**	13623.690	18186.25	74.91
FY	**Kumari Bank Ltd.**			**FY**	**Himalayan Bank Ltd.**		
2002/03	2092.990	2513.14	83.28	**2002/03**	9700.700	21007.38	46.18
2003/04	3613.580	4807.92	75.16	**2003/04**	11635.310	22010.33	52.86
2004/05	5547.340	6268.95	88.49	**2004/05**	12088.710	24814.01	48.72
2005/06	6801.000	7768.96	87.54	**2005/06**	14395.850	26490.85	54.34
2006/07	8878.010	10557.42	84.09	**2006/07**	16831.880	30048.42	56.02
FY	**Nepal Investment Bank Ltd.**			**FY**	**Commercial Banks**		
2002/03	5648.030	7922.77	71.29	**2002/03**	29778.48	51585.91	57.73
2003/04	6917.800	11524.69	60.03	**2003/04**	35980.98	60525.87	59.45
2004/05	9983.080	14524.57	68.73	**2004/05**	45676.64	70291.83	64.98
2005/06	12613.560	18927.31	66.64	**2005/06**	56262.99	86336.96	65.17
2006/07	17010.460	24488.86	69.46	**2006/07**	71649.95	106623.24	67.20

Annex 'H'

Calculation of Share and Debenture to Total Deposit Ratio

(Rs. in Million)

FY	Share and Debenture	Total Deposit	Ratio (%)	FY	Share and Debenture	Total Deposit	Ratio (%)
	Nabil Bank Ltd.				**Everest Bank Ltd.**		
2002/03	22.220	13447.66	0.17	**2002/03**	17.110	6694.96	0.26
2003/04	133.450	14119.03	0.95	**2003/04**	17.110	8063.9	0.21
2004/05	440.280	14586.61	3.02	**2004/05**	19.380	10097.69	0.19
2005/06	104.190	19347.40	0.54	**2005/06**	19.080	13802.44	0.14
2006/07	286.950	23342.29	1.23	**2006/07**	19.080	18186.25	0.10
FY	**Kumari Bank Ltd.**			**FY**	**Himalayan Bank Ltd.**		
2002/03	0.000	2513.14	0.000	**2002/03**	34.260	21007.38	0.16
2003/04	0.000	4807.92	0.000	**2003/04**	34.160	22010.33	0.16
2004/05	0.350	6268.95	0.006	**2004/05**	39.910	24814.01	0.16
2005/06	0.350	7768.96	0.005	**2005/06**	38.570	26490.85	0.15
2006/07	0.350	10557.42	0.003	**2006/07**	73.420	30048.42	0.24
FY	**Nepal Investment Bank Ltd.**			**FY**	**Commercial Banks**		
2002/03	13.890	7922.77	0.18	**2002/03**	87.48	51585.91	0.17
2003/04	13.890	11524.69	0.12	**2003/04**	198.61	60525.87	0.33
2004/05	17.740	14524.57	0.12	**2004/05**	517.66	70291.83	0.74
2005/06	17.740	18927.31	0.09	**2005/06**	179.93	86336.96	0.21
2006/07	35.250	24488.86	0.14	**2006/07**	415.05	106623.24	0.39

Annex 'I'

Calculation of Investment on Government Securities to Total Outside Investment Ratio

(Rs. in Million)

FY	Investment on Govt. Securities	Total Outside Investment	Ratio (%)	FY	Investment on Govt. Securities	Total Outside Investment	Ratio (%)
	Nabil Bank Ltd.				**Everest Bank Ltd.**		
2002/03	3588.77	13787.12	26.03	**2002/03**	1599.35	6562.43	24.37
2003/04	3672.62	14025.93	26.18	**2003/04**	2466.43	8419.78	29.29
2004/05	2413.93	14853.40	16.25	**2004/05**	2100.29	9747.58	21.55
2005/06	2301.46	19101.07	12.05	**2005/06**	3548.62	14001.81	25.34
2006/07	4808.34	24502.07	19.62	**2006/07**	4701.64	18645.40	25.22
FY	**Kumari Bank Ltd.**			**FY**	**Himalayan Bank Ltd.**		
2002/03	235.63	2528.90	9.32	**2002/03**	3998.87	20177.28	19.82
2003/04	601.61	4632.50	12.99	**2003/04**	3431.73	21243.87	16.15
2004/05	1119.99	6774.89	16.53	**2004/05**	5469.73	24116.86	22.68
2005/06	1114.32	8286.80	13.45	**2005/06**	5144.32	25531.60	20.15
2006/07	1297.87	10607.41	12.24	**2006/07**	6454.87	28820.97	22.40
FY	**Nepal Investment Bank Ltd.**			**FY**	**Commercial Banks**		
2002/03	400.00	7477.38	5.35	**2002/03**	9822.62	50533.11	19.44
2003/04	2001.10	10992.27	18.20	**2003/04**	12173.49	59314.349	20.52
2004/05	1948.50	15816.50	12.32	**2004/05**	13052.44	71309.23	18.30
2005/06	2522.30	18379.08	13.72	**2005/06**	14631.02	85300.36	17.15
2006/07	3256.40	23792.10	13.69	**2006/07**	20519.12	106367.95	19.29

Annex 'J'

Calculation of Loan and Advances to Total Outside Investment Ratio

(Rs. in Million)

FY	Loan and Advances	Total Outside Investment	Ratio (%)	FY	Loan and Advances	Total Outside Investment	Ratio (%)
	Nabil Bank Ltd.				**Everest Bank Ltd.**		
2002/03	7454.260	13787.12	54.07	**2002/03**	4882.500	6562.43	74.40
2003/04	7953.750	14025.93	56.71	**2003/04**	5860.540	8419.78	69.60
2004/05	10465.270	14853.40	70.46	**2004/05**	7592.240	9747.58	77.89
2005/06	12681.670	19101.07	66.39	**2005/06**	9770.910	14001.81	69.78
2006/07	15305.910	24502.07	62.47	**2006/07**	13623.690	18645.40	73.07
FY	**Kumari Bank Ltd.**			**FY**	**Himalayan Bank Ltd.**		
2002/03	2092.990	2528.90	82.76	**2002/03**	9700.700	20177.28	48.08
2003/04	3613.580	4632.50	78.00	**2003/04**	11635.310	21243.87	54.77
2004/05	5547.340	6774.89	81.88	**2004/05**	12088.710	24116.86	50.13
2005/06	6801.000	8286.80	82.07	**2005/06**	14395.850	25531.60	56.38
2006/07	8878.010	10607.41	83.70	**2006/07**	16831.880	28820.97	58.40
FY	**Nepal Investment Bank Ltd.**			**FY**	**Commercial Banks**		
2002/03	5648.030	7477.38	75.53	**2002/03**	29778.48	50533.11	58.93
2003/04	6917.800	10992.27	62.93	**2003/04**	35980.98	59314.349	60.66
2004/05	9983.080	15816.50	63.12	**2004/05**	45676.64	71309.23	64.05
2005/06	12613.560	18379.08	68.63	**2005/06**	56262.99	85300.36	65.96
2006/07	17010.460	23792.10	71.50	**2006/07**	71649.95	106367.95	67.36

Annex 'K'

Calculation of Investment on Share and Debenture to Total Outside Investment Ratio

(Rs. in Million)

FY	Investment on Share and Debenture	Total Outside Investment	Ratio (%)	FY	Investment on Share and Debenture	Total Outside Investment	Ratio (%)
	Nabil Bank Ltd.				**Everest Bank Ltd.**		
2002/03	22.220	13787.12	0.16	**2002/03**	17.110	6562.43	0.26
2003/04	133.450	14025.93	0.95	**2003/04**	17.110	8419.78	0.20
2004/05	440.280	14853.40	2.96	**2004/05**	19.380	9747.58	0.20
2005/06	104.190	19101.07	0.55	**2005/06**	19.080	14001.81	0.14
2006/07	286.950	24502.07	1.17	**2006/07**	19.080	18645.40	0.10
FY	**Kumari Bank Ltd.**			**FY**	**Himalayan Bank Ltd.**		
2002/03	0.000	2528.90	0.000	**2002/03**	34.260	20177.28	0.17
2003/04	0.000	4632.50	0.000	**2003/04**	34.160	21243.87	0.16
2004/05	0.350	6774.89	0.005	**2004/05**	39.910	24116.86	0.17
2005/06	0.350	8286.80	0.004	**2005/06**	38.570	25531.60	0.15
2006/07	0.350	10607.41	0.003	**2006/07**	73.420	28820.97	0.25
FY	**Nepal Investment Bank Ltd.**			**FY**	**Commercial Banks**		
2002/03	13.890	7477.38	0.19	**2002/03**	87.48	50533.11	0.17
2003/04	13.890	10992.27	0.13	**2003/04**	198.61	59314.35	0.33
2004/05	17.740	15816.50	0.11	**2004/05**	517.66	71309.23	0.73
2005/06	17.740	18379.08	0.10	**2005/06**	179.93	85300.36	0.21
2006/07	35.250	23792.10	0.15	**2006/07**	415.05	106367.95	0.39

Annex ' L'
Calculation of Other Investment to Total Outside Investment Ratio and Bills Purchased & Discounted to Total Investment Ratio

FY	NABIL	EBL	KBL	HBL	NIBL	CBs (Total)	Total Outside Investment	Ratio (%)
	Other Investment							
2002/03	2420.18	37.51	187.53	6142.3	1291.35	10078.87	50533.11	19.95
2003/04	2029.88	52.12	381.89	5826.11	1847.15	10137.15	59314.35	17.09
2004/05	1413.02	9.25	69.92	6182.7	1967.95	9642.84	71309.23	13.52
2005/06	3772.88	632.82	280.28	5706.15	3062.83	13454.96	85300.36	15.77
2006/07	3861	260.6	380.19	5294.69	3214.03	13010.51	106367.95	12.23
FY	**Bills Purchased & Discounted**						**Total Outside Investment**	**Ratio (%)**
2002/03	301.69	25.96	12.75	301.15	124.11	765.66	50533.11	1.52
2003/04	236.23	23.58	35.42	316.56	212.33	824.12	59314.35	1.39
2004/05	120.9	26.42	37.29	335.81	192.97	713.39	71309.23	1.00
2005/06	240.87	30.38	90.85	246.71	162.65	771.46	85300.36	0.90
2006/07	239.87	40.39	50.99	166.11	275.96	773.32	106367.95	0.73

Annex ' M '

M.1. Calculation of Linear Trend Analysis of Total Deposits

(Rs. in Million)

Year (t)	Total Deposits of CBs (y)	x = t - 2005	xy	x^2
2003	51585.91	-2	-103171.82	4
2004	60525.87	-1	-60525.87	1
2005	70291.83	0	0	0
2006	86336.96	1	86336.96	1
2007	106623.24	2	213246.48	4
	$\sum y$ **= 375363.81**	$\sum x$ **= 0**	$\sum xy$ **= 135885.75**	$\sum x^2$ **= 10**

a = $\frac{\sum y}{n} = \frac{375363.81}{5}$ = 75072.76 b = $\frac{\sum xy}{\sum x^2} = \frac{135885.75}{10}$ = 13588.575

The straight line trend for total deposits of commercial banks be
y_c = 75072.76 + 13588.575x

M.2. Calculation of Linear Trend Analysis of Total Investment

(Rs. in Million)

Year (t)	Total Investment of CBs (y)	x = t - 2005	xy	x^2
2003	19988.97	-2	-39977.94	4
2004	22509.68	-1	-22509.68	1
2005	23212.96	0	0.00	0
2006	28265.90	1	28265.90	1
2007	33936.70	2	67873.40	4
	$\sum y$ **= 127914.21**	$\sum x$ **= 0**	$\sum xy$ **= 33651.68**	$\sum x^2$ **= 10**

a = $\frac{\sum y}{n} = \frac{127914.21}{5}$ = 25582.84 b = $\frac{\sum xy}{\sum x^2} = \frac{33651.68}{10}$ = 3365.168

The straight line trend for total investment of commercial banks be
y_c = 25582.84 + 3365.168x

M.3. Calculation of Linear Trend Analysis of Investment on Government Securities

(Rs. in Million)

Year (t)	Investment on Govt. Securities of CBs (y)	x = t - 2005	xy	x^2
2003	9822.62	-2	-19645.24	4
2004	12173.49	-1	-12173.49	1
2005	13052.44	0	0	0
2006	14631.02	1	14631.02	1
2007	20519.12	2	41038.24	4
	$\sum y$ **= 70198.69**	$\sum x$ **= 0**	$\sum xy$ **= 23850.53**	$\sum x^2$ **= 10**

a = $\frac{\sum y}{n} = \frac{70198.69}{5}$ = 14039.738 b = $\frac{\sum xy}{\sum x^2} = \frac{23850.53}{10}$ = 2385.053

The straight line trend for investment on govt. securities of commercial banks be y_c = 14039.738 + 2385.053x

M.4. Calculation of Linear Trend Analysis of Investment on Share and Debenture

(Rs. in Million)

Year (t)	Investment on Share & Debenture of CBs (y)	x = t - 2005	xy	x^2
2003	87.48	-2	-174.96	4
2004	198.61	-1	-198.61	1
2005	517.66	0	0	0
2006	179.93	1	179.93	1
2007	415.05	2	830.1	4
	$\sum y$ **= 1398.73**	$\sum x$ **= 0**	$\sum xy$ **= 636.46**	$\sum x^2$ **= 10**

a = $\frac{\sum y}{n} = \frac{1398.73}{5}$ = 279.746 b = $\frac{\sum xy}{\sum x^2} = \frac{636.46}{10}$ = 63.646

The straight line trend for investment on share & debenture of commercial banks be y_c = 279.746 + 63.646x

M.5. Calculation of Linear Trend Analysis of Investment on Loan and Advances

(Rs. in Million)

Year (t)	Loan and Advances of CBs (y)	x = t - 2005	xy	x^2
2003	29778.48	-2	-59556.96	4
2004	35980.98	-1	-35980.98	1
2005	45676.64	0	0	0
2006	56262.99	1	56262.99	1
2007	71649.95	2	143299.9	4
	$\sum y$ **= 239349.04**	$\sum x$ **= 0**	$\sum xy$ **= 104024.95**	$\sum x^2$ **= 10**

a = $\frac{\sum y}{n} = \frac{239349.04}{5}$ = 47869.808 b = $\frac{\sum xy}{\sum x^2} = \frac{104024.95}{10}$ = 10402.495

The straight line trend for investment on loan and advances of commercial banks be y_c = 47869.808 + 10402.495x

Annexure 'N'

Profiles of the Banks under Study

Himalayan Bank Ltd.

Himalayan Bank Ltd. is a joint venture bank with Habib Bank Ltd. of Pakistan, was established in 1993 under the Company Act, 1964. The operation of the bank started from February, 1993. The main objective of the bank is to provide modern banking facilities like Tele Banking to the businessman, industrialists and other professionals and to provide loans on agriculture, commerce and industrial sector. Authorized capital, issued capital and paid-up capital of HBL are 1000 million, 810.81 million and 810.81 million respectively. Its share subscription is as follows:

Foreign Institutions	20 %
Other Licensed Institution	14 %
General Public Shareholders	15 %
Other Entities	51 %

Everest Bank Ltd.

Everest Bank Ltd was established in 1992 under the Company Act, 1964. United Bank of India Ltd under Technical Services Agreement signed between it and Nepali Promoters was managing the bank from the very beginning till November, 1996. Later on, it handed over the management to the Punjab National Bank Ltd. India which Holds 20% equity on the bank's share capital. The main objective of the bank is to carry out commercial banking activities under the Commercial Bank Act, 1974. Authorized, issued capital and paid-up capital of ABL as on mid July 2003 are Rs. 1000 million, 729.8 million and 518 million respectively. Now, the share capital of the bank is as follows:

Nepalese Promoters	50%
General Public Shareholders	30%
Punjab National Bank Ltd. India	20%

Nepal Investment Bank Ltd.

Nepal Investment Bank Ltd., previously Nepal IndoSuez Bank Ltd. was established in 1986as a joint venture between Nepalese and French partners. The French partner (holding 50 % of the capital) was Credit Agricole Indosuez, a subsidiary of one of the largest banking groups in the world. With the decision of Credit Agricole Indosuez to divest, a group of companies comprising of bankers, professionals, industrialists and businessmen, in April 2002, acquired 50% of the holdings of Credit Agricole Indosuez in Nepal Indosuez Bank. The name of the bank was changed to Nepal Investment Bank Ltd. upon approval of the Bank's Annual General Meeting, Nepal Rastra Bank and Company Registrar's Office. Its shareholder participation is as follows:

- A group of companies holding 50% of the capital
- Rashtriya Banijya Bank holding 15% of the Capital.
- Rashtriya Beema Sansthan holding the same percentage.
- The remaining 20% being held by the General Public (which means that NIBL is a Company listed on the Nepal Stock Exchange).

The main objective of the bank is to provide loans and advances to the agriculture, industries and commerce and to provide modern banking services to the people. The bank has authorized capital of Rs. 1000 million and issued and paid up capital is Rs. 801.352 and 801.352 million respectively

Nabil Bank Ltd.

Nabil Bank Limited, the first foreign joint venture bank of Nepal, started operations in July 1984. Nabil was incorporated with the objective of extending international standard modern banking services to various sectors of the society. Pursuing its objective, Nabil provides a full range of commercial banking services through its 19 points of representation across the kingdom and over 170 reputed correspondent banks across the globe. The current equity structure is given as follows:

NB (International) Ltd.	50 %
Nepal Industrial Development Corporation (NIDC)	10 %
Rastriya Beema Sansthan	9.67 %
Nepal Stock Exchange (NEPSE)	0.33 %
General Public Share	30 %

Nabil, as a pioneer in introducing many innovative products and marketing concepts in the domestic banking sector, represents a milestone in the banking history of Nepal as it started an era of modern banking with customer satisfaction measured as a focal objective while doing business. The bank has authorized capital, issued and paid up capital of Rs. 500 million, Rs. 491.65 millions and 491.65 million respectively

Kumari Bank Ltd.

Kumari Bank Limited, came into existence as the fifteenth commercial bank of Nepal by starting its banking operations from Chaitra 21, 2057 B.S (April 03, 2001) with an objective of providing competitive and modern banking services in the Nepalese financial market. The bank has authorized capital, issued and paid up capital of Rs. 1000 million, Rs. 700 millions and 700million respectively. The current equity structure is given as follows:

Promoters Shares	70 %
Public Shares	30 %

The key focus of the bank is always center on serving unfulfilled needs of all classes of customers located in various parts of the country by offering modern and competitive banking products and services in their door step. The bank always prioritizes the priorities of the valued customers.

Nepal Investment Bank Ltd.
Five Year Financial Summary

(Rs. in million)

S.N.	Particulars	2002/03	2003/04	2004/05	2005/06	2006/07
1	Cash and Bank Balance	926.54	1226.92	1340.48	2336.51	2441.52
2	Money at call	40.00	310.00	140.00	70.00	362.97
3	Investment	**1705.24**	**3862.48**	**3934.19**	**5602.87**	**6505.68**
	- Government securities	400.00	2001.10	1948.50	2522.30	3256.40
	- Share & Debenture	13.89	13.89	1774.00	17.74	35.25
	- Other Investments	1291.35	1847.15	1967.95	3062.83	3214.03
4	Bill Purchased & Discounted	124.11	212.33	192.97	162.65	275.96
5	Loan, Advances & Overdraft	5648.03	6917.80	9933.08	12613.56	17010.46
6	Fixed Assets	191.11	249.79	320.59	343.45	759.46
7	Other Assets	379.22	476.18	412.75	201.09	234.80
	Total Assets	**9014.25**	**13255.50**	**16274.06**	**21330.13**	**27590.85**
	Liabilities					
1	Borrowing from other banks	6.83	361.50	350.00	550.00	800.00
2	Deposits	7922.77	11524.69	14254.57	18927.31	24488.86
3	Bills Payable	31.63	57.84	15.01	18.82	32.40
4	Other Liabilities	414.48	582.43	474.31	418.56	391.47
	Total Liabilities	**8375.71**	**12526.46**	**15093.89**	**19914.69**	**25712.73**
	Shareholders' Equity					
	Share Capital	295.29	295.29	587.74	590.58	801.35
	Reserve Funds	314.85	419.09	567.51	778.91	955.42
	Retained Earnings	28.40	14.66	24.92	45.95	121.35
	Total shareholders' equity	**638.54**	**729.04**	**1180.17**	**1415.44**	**1878.12**
	Total capital + Liabilities	**9014.25**	**13255.50**	**16274.06**	**21330.13**	**27590.85**

Nabil Bank Ltd.
Five Year Financial Summary

(Rs. in million)

S.N.	Particulars	2002/03	2003/04	2004/05	2005/06	2006/07
1	Cash and Bank Balance	1144.76	970.49	559.38	630.24	1399.83
2	Money at call	670.20	918.73	868.43	1734.90	563.53
3	Investment	**6031.18**	**5835.95**	**4267.23**	**6178.53**	**8945.31**
	- Government securities	3588.77	3672.62	2413.93	2301.46	4808.34
	- Share & Debenture	22.22	133.45	440.28	104.19	286.95
	- Other Investments	2420.18	2029.88	1413.02	3772.88	3861.00
4	Bill Purchased & Discounted	301.69	236.23	120.90	240.87	239.87
5	Loan, Advances & Overdraft	7454.26	7953.75	10465.27	12681.67	15305.91
6	Fixed Assets	251.92	338.13	361.24	319.09	286.90
7	Other Assets	708.61	492.20	543.87	544.67	512.04
	Total Assets	**16562.62**	**16745.48**	**17186.32**	**22329.97**	**27253.39**
	Liabilities					
1	Borrowing from other banks	961.46	229.66	17.06	173.20	882.57
2	Deposits	13447.66	14119.03	14586.61	19347.40	23342.29
3	Bills Payable	108.95	173.49	119.75	112.61	83.51
4	Other Liabilities	730.37	741.62	805.27	821.77	887.97
	Total Liabilities	**15248.44**	**15263.80**	**15528.69**	**20454.98**	**25196.34**
	Shareholders' Equity					
	Share Capital	491.65	491.65	491.65	491.65	491.65
	Reserve Funds	792.74	960.24	1136.00	1349.90	1452.02
	Retained Earnings	29.79	29.79	29.98	33.44	113.38
	Total shareholders' equity	**1314.18**	**1481.68**	**1657.63**	**1874.99**	**2057.05**
	Total capital + Liabilities	**16562.62**	**16745.48**	**17186.32**	**22329.97**	**27253.39**

Himalayan Bank Ltd.
Five Year Financial Summary

(Rs. in million)

S.N.	Particulars	2002/03	2003/04	2004/05	2005/06	2006/07
1	Cash and Bank Balance	1979.21	2001.18	2014.47	1717.35	1757.34
2	Money at call	150.1	368.9	441.08	1005.28	1710.03
3	Investment	**10175.43**	**9292.1**	**11692.34**	**10889.03**	**11822.98**
	- Government securities	3998.87	3431.73	5469.73	5144.32	6454.87
	- Share & Debenture	34.26	34.16	39.91	38.57	73.42
	- Other Investments	6142.3	5826.11	6182.7	5706.15	5294.69
4	Bill Purchased & Discounted	301.15	316.56	335.81	246.71	166.11
5	Loan, Advances & Overdraft	9700.7	11635.31	12088.71	14395.85	16831.88
6	Fixed Assets	229.87	299.65	295.82	540.82	574.06
7	Other Assets	818.76	848.33	976.46	665.34	656.74
	Total Assets	**23355.22**	**24762.03**	**27844.69**	**29460.38**	**33519.14**
	Liabilities					
1	Borrowing from other banks	645.84	659	506.05	504.62	595.97
2	Deposits	21007.38	22010.33	24814.01	26490.85	30048.42
3	Bills Payable	46.73	64.38	68.4	73.58	91.3
4	Other Liabilities	592.14	704.14	914.49	625.15	636.95
	Total Liabilities	**22292.09**	**23437.85**	**26302.95**	**27694.2**	**31372.64**
	Shareholders' Equity					
	Share Capital	429	536.25	643.5	772.2	810.81
	Reserve Funds	511.64	617.96	740.07	837.42	1151.3
	Retained Earnings	122.49	169.97	158.17	156.56	184.39
	Total shareholders' equity	**1063.13**	**1324.18**	**1541.74**	**1766.18**	**2146.5**
	Total capital + Liabilities	**23355.22**	**24762.03**	**27844.69**	**29460.38**	**33519.14**

Kumari Bank Ltd.
Five Year Financial Summary

(Rs. in million)

S.N.	Particulars	2002/03	2003/04	2004/05	2005/06	2006/07
1	Cash and Bank Balance	291.71	685.48	443.38	389.63	672.12
2	Money at call	0	0	90	145	372.22
3	Investment	**423.15**	**983.5**	**1190.27**	**1394.95**	**1678.42**
	- Government securities	235.63	601.61	1119.99	1114.32	1297.87
	- Share & Debenture	0	0	0.35	0.35	0.35
	- Other Investments	187.53	381.89	69.92	280.28	380.19
4	Bill Purchased & Discounted	12.75	35.42	37.29	90.85	50.99
5	Loan, Advances & Overdraft	2092.99	3613.58	5547.34	6801	8878.01
6	Fixed Assets	40.42	57.15	82.98	91.93	189.32
7	Other Assets	125.15	119.04	40.33	96.91	77.23
	Total Assets	**2986.17**	**5494.17**	**7431.59**	**9010.27**	**11918.31**
	Liabilities					
1	Borrowing from other banks	0	0	401.76	251.4	212.97
2	Deposits	2513.14	4807.92	6268.95	7768.96	10557.42
3	Bills Payable	4.13	14.62	7.34	11.92	16.55
4	Other Liabilities	107.87	138.16	111.77	114.14	105.74
	Total Liabilities	**2625.14**	**4960.7**	**6789.82**	**8146.42**	**10892.68**
	Shareholders' Equity					
	Share Capital	350	500	500	625	750
	Reserve Funds	4.25	16.3	133.81	218.64	240.6
	Retained Earnings	6.78	17.17	7.96	20.21	35.03
	Total shareholders' equity	**361.03**	**533.47**	**641.77**	**863.85**	**1025.63**
	Total capital + Liabilities	**2986.17**	**5494.17**	**7431.59**	**9010.27**	**11918.31**

Everest Bank Ltd.
Five Year Financial Summary

(Rs. in million)

S.N.	Particulars	2002/03	2003/04	2004/05	2005/06	2006/07
1	Cash and Bank Balance	1139.56	631.81	1049.99	1552.98	2391.43
2	Money at call	0	187.44	570	66.96	0
3	Investment	**1653.97**	**2535.65**	**2128.93**	**4200.52**	**4984.31**
	- Government securities	1599.35	2466.43	2100.29	3548.62	4701.64
	- Share & Debenture	17.11	17.11	19.38	19.08	19.08
	- Other Investments	37.51	52.12	9.25	632.82	260.6
4	Bill Purchased & Discounted	25.96	23.58	26.42	30.38	40.39
5	Loan, Advances & Overdraft	4882.5	5860.54	7592.24	9770.91	13623.69
6	Fixed Assets	109.59	118.37	134.07	152.09	170.09
7	Other Assets	240.62	251.18	230.86	185.44	222.66
	Total Assets	**8052.2**	**9608.57**	**11732.51**	**15959.28**	**21432.57**
	Liabilities					
1	Borrowing from other banks	0	0	0	0	0
2	Deposits	6694.96	8063.9	10097.69	13802.44	18186.25
3	Bills Payable	22.1	22.027	17.77	15.81	26.77
4	Other Liabilities	722.32	842.32	784.43	1178.224	2018.03
	Total Liabilities	**7439.38**	**8928.25**	**10899.89**	**14996.474**	**20231.05**
	Shareholders' Equity					
	Share Capital	455	455	518	518	518
	Reserve Funds	116.97	178.43	244.09	336.17	552.97
	Retained Earnings	40.85	46.89	70.53	108.64	130.55
	Total shareholders' equity	**612.82**	**680.32**	**832.62**	**962.81**	**1201.52**
	Total capital + Liabilities	**8052.2**	**9608.57**	**11732.51**	**15959.28**	**21432.57**