CHAPTER I

INTRODUCTION

1.1 Background

Commercial banks have become the heart of financial system. A key factor in the development of the country is the mobilization of domestic resources and their investment for productive use to the various sectors. To make it more effective, CBs formulate sound investment policies, which help maximize quality of investment and eventually contribute to the economic growth of a country.

A portfolio is usually defined as a combination of assets. It is a collection of securities. Portfolio provides the highest possible return for any specified degree of risk. Portfolio simply represents the practice among the investors of having their funds in more than one asset. Successful formulation and effective implementation of investment policy is the prime requisite for the successful performance of banks. Good investment policy has a positive impact on economic development of the country and vice-versa. A good investment policy attracts both borrower and lenders, which helps the investment operation of the bank to be efficient and profitable by minimizing the inherent risk. A key factor in the development of the country is the mobilization of domestic resources and their investment for productive use to the various sectors by commercial banks. Investment portfolio is one which the income or profit of the bank depend upon directly to minimize risk, a bank must diversity its investment on different sectors which is known as portfolio investment. Investment portfolio means to reduce risk and divided the investment in different sectors by the means of risk. Portfolio analysis considers the determination of future risk and return in holding various blends of individual securities.

1.1.1 Investment Portfolio on Commercial Banks

A banks is a business organization that receive and holds deposit funds other, makes loans and extend credit and transfers funds by written order deposit. According to Nepal Commercial Banks Act 2031 B.S. “A Commercial bank refers to such type of bank other than specified banks related to cooperative, agricultural, industrial and other which deals in money exchange, accepting deposits and advancing loans etc.”*(Commercial Bank Act; 2031:25).* Commercial Banks are those financial institutions deal in accepting deposits to persons and institutions and giving loans against securities. They provide

working capital needs of trade industry and even to agricultural sectors. Moreover commercial banks also provide technical and administrative assistance to industries, trade and business enterprises. CB's poll together the saving of the community and arrange them for the productive use. They transfer monetary source from saver to users. In addition to above, the main purpose is to uplift the backward sector of economy.

Commercial banks are organization on a joint stock company system, primarily for the purpose of earning profit. They can either of the branches banking type , with a large network of branches , or of the unit banking type as we see in the United States, where a bank's operation is confined to single office or to a few branches within a strictly limited area.

"Commercial bank is a corporation which accepts demand deposits subject to check and makes short term loans to business enterprises, regardless of the scope of its other service." *(Ronald; 2000:345-346).*

Commercial banks is a heart of financial system they hold the deposits of many person, Government establishment, business unit, they make fund available through their lending and investing activities to borrower, individuals , business firms and service from the producers to customers and the financial activities of the government. They provide a large portion is affected. These fact shows that the commercial banking system of nation is import to the functioning of the economy.

In this way commercial banks are those banks, which are engaged in commercial banking transaction and exclude from description. From the above definition of commercial bank, it can be defined as a bank is a financial institution, which performs widest range of economic and financial functions of any business firm in the economy. The commercial banks are these financial institutions, which collect scattered saving of people and provide loan against proper technical helps and suggestions, administrative suggestion, safe keeping of valuable collectives of bills, cheques, and overdraft facilities and provide modern banking facilities to industries and commerce. CB's collect fund as a saving from public of country and invest in highly return yielding firm. It develops saving habits in people. CB's plays vital role for development of a developing country. Banks provides internal resources for developing country's economy. It collect diversified capital from different part of country through its own branches.

The word investment sounds very good and attractive that is why every individual in the world is interested in it. In layman's sense, there is always a return if there is investment. This return may be favorable as well as unfavorable to the investor's stand point. Investment brings forth vision of profit, risk, speculation and wealth. For the uninformed, investing may result in disaster. In general sense, investment means to pay out money to get more. But in the broadest sense, investment means the sacrifice of current money for future money.

A portfolio is collection of investment securities. Portfolio theory deals with the selection of optimal portfolio; that is, portfolio that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. A portfolio is usually defined as a combination of asset.

"A portfolio simply represents the practice among the investor of having their funds in more than one asset. The combination of investment assets is called a portfolio." *(Weston and Brigham; 1992:245)*

"Portfolio means a collection or group of assets."*(Gitman; 1990:243)*

Investment portfolio refers to an investment that combines several assets. It is a collection of securities. "Portfolio means the lists of holdings in securities owned by an investor or institution." *(Oxford Dictionary; 1997:173)* Portfolio is a collection of investment securities for example, if you owned some of SCBL stock, some Nepal Insurance co. ltd. stock, some Soaltee Hotel ltd. stock, some Kathmandu finance ltd. stock, some Salt trading ltd. stock, some Nepal liver ltd. stock, some Bottlers Nepal ltd. stock you would be holding seven stock portfolios. Portfolio analysis considers the determination of future risk and return in holding various blends of individual securities. Portfolio expected return is a weighted average of the expected return of the individual securities. Investment portfolio is one which the income or profit of the banks depend upon directly. Hence, the banks should never invest its fund in those securities; difference may cause a great loss. It must not invest its funds into speculative businessman who may be bankrupt at once and who may earn millions in a minute. The bank should accept that type of securities which are commercial, durable, marketable stable, transferable and high market prices. A commercial bank can maximize its volume of wealth through maximization of return on their investments and lending. So they must invest their funds where they gain maximum profit. The profit of CB's mainly depends on the interest rate, volume, period of loan and nature of investment in different securities. While

investing excess funds in different securities or at the lending period, the banks should keep in mind that the people deposit money at the bank in different account with confidence that the bank will repay their money when they need. Similarly 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. Diversification of loan or investment helps to sustain loss according to the law of average because if securities of a company deprived, there may be appreciation in the securities of other companies.

1.1.2 Investment Pattern of Nepalese Commercial Banks

The evolution of the organized financial system in Nepal has a more recent history than in other countries of the world. Banking history of Nepal is not more than six decade. In Nepalese context, the history of development of modern bank started from the establishment of "Nepal Bank ltd." in 1937AD. With put forth effort of government and public, as a commercial bank with 10 million authorized capital. Then the government felt the requirement of a central bank and established "Nepal Rastra Bank" in 1956 AD. As a central bank under NRB act 1956 AD. It played leading role in development of banking in Nepal and also controlled the monetary culture in the country. Likewise, rising of banking function gets popular and more complicated, thus NRB suggested for the establishment of another commercial bank and in 1966 AD. "Rastriya Banijya Bank" was established as a fully government owned commercial bank, now its branches are diversified all over the country. As the country moved towards economic liberalization in 1980 A.D., foreign banks were invited to operate in Nepal. The financial scenario has changed with the introduction of JVB's in 1984. The number of commercial banks has been increasing. Since then, various financial institution like, JVB's, Domestic commercial banks, Development banks, Finance companies, Co-operative banks Credit Guarantee Corporation, Employee Provident Fund, National Insurance Corporation, NEPAL Stock Exchange have come into existence to cater the financial needs of the country thereby assisting financial development of the country.

In 1990 A.D. after reestablished of democracy, the government took the liberal policy in banking sector. As an open policy of GOVT.'s to get permission to invest in banking sector from private and foreign investor under commercial bank act 1975AD, different private banks are getting permission to establish with the joint venture of other countries. The development of CB's in Nepal is categorized in three phases on the basis of financial institutions policies adopted by the country from time to time.

Taking an overview of financial institutions providing banking facility in Nepal, there are 26 commercial banks, 78 finance companies, 38 development banks, 12 micro credit development banks and 17 co-operative societies licensed by NRB *(Banking and Financial Statistics; www.nrb.org.np: March 2009).*

Nowadays, there are 26 commercial banks operating in Nepalese financial market along with 9 joint ventures with foreign investors.

Table: 1.1

List of Licensed Commercial Banks

May, 2009

S. No	Commercial Banks	Operation Date (A.D.)	Head Office
1.	Nepal Bank Ltd.	1937/11/15	Kathmandu
2.	Rastriya Banijya Bank Ltd.	1966/01/23	Kathmandu
3.	NABIL Bank Ltd.	1984/07/16	Kathmandu
4.	Nepal investment Bank Ltd.	1986/02/27	Kathmandu
5.	Standard-Chartered Bank Nepal Ltd.	1987/01/30	Kathmandu
6.	Himalayan Bank Ltd.	1993/01/18	Kathmandu
7.	Nepal SBI Bank Ltd.	1993/07/07	Kathmandu
8.	Nepal Bangladesh Bank Ltd.	1993/06/05	Kathmandu
9.	Everest Bank Ltd.	1994/10/18	Kathmandu
10.	Bank of Kathmandu Ltd.	1995/03/12	Kathmandu
11.	Nepal Credit and Commerce Bank Ltd.	1996/10/14	Siddharthanagar
12.	Lumbani Bank Ltd.	1998/07/17	Narayangadh
13.	Nepal Industry and Commercial Bank Ltd.	1998/07/21	Biratnagar
14.	Machhapuchhre Bank Ltd.	2000/10/03	Pokhara
15.	Kumari Bank Ltd.	2001/04/03	Kathmandu
16.	Laxmi Bank Ltd.	2002/04/03	Birgunj
17.	Siddhartha Bank Ltd.	2002/12/24	Kathmandu
18.	Agricultural Development Bank Ltd.	1968/01/02	Kathmandu
19.	Global Bank Ltd.	2007/01/02	Birgunj, Parsa
20.	Citizen Bank Ltd.	2007/06/21	Kathmandu
21.	Prime Bank Ltd.	2007/09/24	Kathmandu
22.	Sunrise Bank Ltd.	2007/10/12	Kathmandu
23.	Bank of Asia Nepal Ltd.	2007/10/12	Kathmandu
24.	Development Credit Bank Ltd.	2001/01/23	Kathmandu
25.	NMB Bank Ltd.	1996/11/26	Kathmandu
26.	Kist Bank Ltd.	2009/03/12	Kathmandu

(Source: http://bfr.nrb.org.np, 2009)

After the announcement of liberal and free market economic based policy, Nepalese banks and financial sectors are having greater network and access to national and international markets. They have to go with their portfolio management very seriously and superiority. Most of other commercial banks are

providing new schemes like Insurance to depositor, which is an extra bonus to encourage them to deposit their surplus in such banks. Credit card system is other attractive feature of commercial banks i.e. NABIL credit card, visa of NGB, credit card of HBL has launched in market for their clients. EBL introduced cumulative deposit scheme (CDS) and facilities for Nepalese living in gulf countries for transfer of their savings to their home in Nepal by entering into drawing arrangements with exchange houses in UAE, Bahrain and Kuwait. And provided housing, vehicle and education loan to people, that means invest in other areas.

No doubt, if commercial banks and financial institutions has to gain prosperity without delay, they should immediately start to improve customer service quality at high standards to reflect tremendous opportunities in the markets for their customers benefits like managing their risk, giving them the advantage of global strength, insights and philosophy because this can make the customer take full confidence to expands their transaction further more with best approach and feel secured for each investment made to earn superior returns over time. Therefore commercial banks should be aware and at every moment while providing service to their customers and should have better judgment on the quality of service whether they could satisfy their customers up to their expectation and have been able to attract others as many to meet the objectives or not as a result of the quality in service delivered. Actually for commercial banks the customers act as the soul which helps in correcting the problems of service providers with which the providers can identify the defects of the gaps to minimize them in time through strong and intensive analysis of their service market research team.

Nepal being listed among least developed countries, the commercial banks has played a catalytic role in the economic growth. Its investments range from small scale cottage industries to all types of social and commercial loans and large industries. Generally the investment of the commercial banks include the investment on Government securities, like treasury bills, development bonds, national saving bonds, foreign government securities, shares on government owned companies and non-government companies and investment on debentures, similarly the commercial banks used their funds as loan and advances. The guidelines given by NRB play a significant role in the composition of bank portfolio. Since the constraints framework provided by the central bank is for economic enhancement, it can be hypothesized that the composition of bank portfolio has a considerable impact on national economy.

Portfolio management activities of Nepalese banks are in developing stage, however, on the other hand most of the joint venture banks are not doing such activities so far.

1.2 Focus of the Study

Modern banking history of Nepal began from the establishment of Nepal bank Ltd. in 1936. In 1956 Nepal Rastra Bank came in existence as a central bank of our country. The focus of the study is on portfolio analysis on investment of selected commercial bank in Nepal. This study is designed to describe to minimized risk and maximized return by portfolio management and existing situation of portfolio management of commercial bank in Nepal. And to measure the financial performance of selected five listed banks in NEPSE, their risk, return, trend, and portfolio patterns etc. On the other hand, the study would provide information to management of the bank that would help them to take collective action. Further from the study, the shareholders would get information to make decision while making investment on share of various banks. There are following focus of study given below:

- Exiting situation of portfolio management of Nepalese commercial banks
- Investment to total deposit ratio analysis.
- Investment portfolio analysis of commercial banks and compare with each other.
- Loans and advance portfolio analysis of commercial banks.
- Risk and return analysis of commercial banks in Nepal.

1.3 Statement of Problem

Commercial banks are the backbone of the Nepalese economy at present. Nepal being listed among least developed countries, the establishment of the commercial bank in this sector has added more bricks in the construction of Nepalese economy. Its investment range from small-scale cottage industries to large industries in making investment in loans and government securities one may always wonder which investment is better. It can be hypothesized that bank portfolio variables like loans, investment, cash reserve, deposit and borrowing affects the national income. And also how the government policy affects these variables, such as the effect of an interest rate on the banks portfolio variables is of great concern. Therefore, when monitoring money and credit conditions, the

central bank has to keep an eye on bank portfolio behavior. The investments planning of the commercial banks in Nepal heavily depend upon the rules and regulation provided by the central banks. The composition of asset portfolio of the banks is influenced by the policy of the central bank.

Nowadays Nepalese commercial banks do not seem to be capable to invest their funds in more profitable sector where there is risk. They are found to more interest in investment in less risky and liquid sector i.e. treasury bills, development bonds, National savings, Shares and Debenture etc. this is due to sound investment policy of commercial banks and lack of portfolio management. Nepalese commercial banks have not formulated their investment policy in an organized manner. They have no consideration towards portfolio optimization. They just rely upon the instruction and guidelines of NRB. They do not have their own clear vision towards investment portfolio. They don't try to pay due attention towards proper matching of deposit and investment portfolio, which creates financial problem enforcing commercial banks to take wrong decisions.

With the prevailing economic recession in the country, there has been lower investment in the agriculture, manufacturing, industrial and financial sectors. Lower volume of investment is causing lower growth of gross domestic product and hence foreign trade deficit is increasing day by day. Commercial banks are also directly affected by this economic turmoil and are facing difficulties in furnishing their loans and advances towards the profitable sectors. Due to the heavy rules and regulation by government policy, there are most important problems in investment climate prevailing in Nepal.

Nepal is known as a capital scarce country. It is said that Nepal has low saving rate and as a consequence of which investment rate is also low. The low investment rate has also constrained the growth rate of GDP. As a result, there was a slight improvement in the ratio of total investment to GDP in FY2005/06, which rose (30.3%) against that of FY2004/05 (28.9%). Gross domestic savings to GDP ratio increased marginally from 12.4% of FY2004/05 to 11.1% in FY2005/06. Gross national saving to GDP ratio of 14.4% marginally changed to 13.3% in FY2005/06. Gross investment to GDP ratio during review period increased slightly. But, as a little decline in the gross national savings and gross domestic saving to GDP ratio was observed during this period. It may be noted that gross national savings-investment gap is less by 1.1% points than the gross domestic savings-investment gap *(Fiscal Report of NRB; 2005/06: 20).*

There are various problems in resources mobilization by commercial banks in Nepal. The most important problem is poor investment climate prevailing in Nepal due to heavy regulatory procedure uncertain government policy portfolio analysis between various types of investment made by commercial banks are most important subject, which helps to minimize risk by diversifying total risk to different sectors. But portfolio management activities of Nepalese commercial banks are in developing stage. There are various reasons behind not using such activities openly by commercial banks; such as unawareness about portfolio management and its usefulness, hesitation of taking risk, lack of proper techniques to run such activities in the best and successful manner; less developed capital market, very limited opportunity for exercising the portfolio management. NRB has also played important role to make commercial banks as well as financial institutions to invest their funds in good sector, which affect the investment portfolio. NRB has imposed many rules and regulations so commercial banks can have sufficient liquidity and security. Banking competition is increasing day per day but investment opportunity is not comparatively extended. Now, commercial banks have to face competition with each other's and many more financial institutions.

Under such situation, the present study will try to analyze investment of commercial banks, portfolio analysis of commercial banks in their investment, return on various types of investment, portfolio risk and return. Therefore, this study will deal with the following issues.

- What is the relationship of investment with total deposits, loan and advances, net income etc?
- How far have commercial banks been able to transfer monetary resources from savers to users?
- How do commercial banks manage their risk and return using portfolio diversification?
- Whether commercial banks effectively utilize portfolio concept in their investment to minimize risk and maximize return or not?
- Which bank has the largest degree of financial risk measured in terms of portfolio risk?
- How do the banks behave for portfolio variables?

- Is investment portfolio directed towards objectives of profit maximization?

1.4 Objectives of the Study

The general objective of the present study is to identify the current situation of investment portfolio of commercial banks in Nepal. The specific objectives are as follows.

- To highlight the concept of investment, loans, advances portfolio & to highlight the relationship of investment with total deposit, loan and advances, net income.
- To evaluate the financial performance of commercial banks in term of investment strategies.
- To analyze the risk and return ratio of commercial banks & to analyze how commercial banks manage their risk and return on investment using portfolio concept.

1.5 Significance of the Study

Banks are playing vital role in the economic development of the country. Without banking facilities, the growth and the economic development becomes slow. The main objectives of commercial banks is to earn profit by proper mobilization of resources in Nepalese commercial banks, they don't have clear view towards effective investment They are found to be making investment only on short terms basis, only few banks invest on long terms nowadays. There is hesitation to invest on long terms projects because they are much more safety minded. They do not seem to be capable to invest their funds in more profitable sector. They are found to be more interested in investment in less risky and highly liquid sectors. There are various ways to minimize risk, but the bank are not aware of this and do not pay any attention toward such field i.e. they do not think about portfolio investment.

The main significance of this study of portfolio analysis on investment of Nepalese commercial banks is to help how to minimize risk on investment and maximize return through portfolio analysis. The researcher has undertaken this study to analyze the existing portfolio investment of Nepalese commercial banks and point out the various weakness and defects inherent in it and provide package of suggestion for its improvement.

There are following significance of the study

- Existing situation of portfolio analysis on investment of commercial banks in Nepal.
- Profitability situation of commercial banks and comparing with each other.
- Loan and advance portfolio analysis of commercial banks in Nepal.
- Risk and return analysis of commercial bank in Nepal.

1.6 Limitations of Study

This study is simply a partial study for the fulfillment of M.B.S. degree, which has to be finished within limited period. Hence, this study is not far from several limitation of its own kind, which weakens the heart of the study. It has certain limitations.

- This study has employed secondary data published by and collected from selected banks.
- Among the various commercial banks, only five commercial banks are taken under study.
- The study covers a period of 8 fiscal years 2000/01 to 2007/08 which will be tabulated and processed for drawing conclusion.
- The accuracy of the research work will be dependent on data provided by concerned organization.
- Time factor is major limitation of this study.
- This study concentrates only on those factors, which are related with investment portfolio analysis and available in the form required for analyzing the different issues.

1.7 Organization of the Study

This study has been organized over altogether five chapters. Starting from Introduction, Review of Literature, Research methodology, Presentation and Analysis of data and summary, to conclusion and recommendation as get of the entire study. A brief outline of this chapter has been outlined as under.

Chapter – I: Introduction

This chapter describes the basic concept and background of the study. It has served orientation for readers to know about the basic information of the research area, various problems of the study, and objectives of the study. It is oriented for readers for reporting giving them the perspective they need to understand the detailed information about coming chapter.

Chapter – II: Review of Literature

Its concerns with the study of portfolio analysis on investment have been reviews and presented.

Chapter – III: Research Methodology

Research methodology refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view. It describes about the research design, various source of data related with the study and various tools and techniques employed for presenting the data.

Chapter – IV: Presentation and Analysis

This chapter deals with the presentation and analysis of data and scoring the empirical finding out the study through definite course of research methodology.

Chapter – V: Summary, Conclusion and Recommendation

It is followed by the basic conclusion of the study based in the fourth chapter on the basic of these conclusions and recommendation has also been presented for consideration.

CHAPTER- II

REVIEW OF LITERATURE

During the review of this research, in depth study and theoretical investigation regarding portfolio's aspects and their present application and potentialities is made. The focus has been made on the review of literature relevant to the investment portfolio analysis of commercial banks in Nepal. For this study, different Journals, Article, Books, Annual reports, and some research paper related with this topic have been reviewed. Therefore, this chapter is arranged into the following order;

- Conceptual Review
- Review of legislative provisions
- Review of previous studies
- Review unpublished thesis

2.1 Conceptual Review

Conceptual review provides the fundamental theoretical framework and foundation to the present study. For this various books dealing with theoretical aspects of investment and portfolio analysis are taken into consideration.

2.1.1 Definition of Investment

The word investment sounds very good and attractive that is why every individual in the world is interested in it. In Layman's sense, there is always a return if there is investment. This may be favorable as well as unfavorable to the investor's stand point.

"Investment brings forth vision of profit, risk, speculation and wealth. For the uninformed, investing may result in disaster. In general sense; investment means to pay out money to get more. But in the broadest sense, investment means the sacrifice of current money for future money. Two different attributes are generally involved time and risk. The sacrifice takes place in the present and is certain. The reward comes later, if at all, and the magnitude is generally uncertain." *(Sharpe, Alexander and Baily; 2003:1) Shrestha (2002*) write investment as utilization of saving for something that is expected to produce profit or benefits. Investment is employment of funds with the aim of achieving addition income or growth in value. It involves the commitment of resources that have been saved or put away from current consumption, in the hope that some benefits will acquire in the future.

Investment generally involves real assets and financial assets. Real assets investment involves some kinds of tangible assets such as building, land, machinery; factory etc. and financial assets investment are pieces of paper representing an indirect claim to real assets held by someone else. Real assets are generally less liquid than financial assets.

"Investment is the current commitment of funds for a period of time to derive a future flow of funds that will compensate the investing unit for the time funds are committed, for the expected rate of inflation and also for uncertainty involved in the future flow of the funds*."(Frank and Reilly; 2004:298-299)*

"Investment is any vehicle into which funds can be placed with the expectation that will preserve or increase in value and generated positive returns." *(Gitman and Joehnk; 1990:265)*

"Investment may be defined as the purchase by an individual or institutional investor of a financial or real asset that produces a return proportional to the risk assumed over some future investment period."(*Amling; 1994:147)*

2.1.2 Source of Investment Uncertainty

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

i. Interest rate risk

It is the potential variability of return caused by changes in the market interest rates. Present value of investment moves inversely with changes in the market interest rate i.e. if market interest rise then the investment's present value will fall.

PV of investment $\alpha = \frac{1}{InterestRate}$, Where α = Alpha

Thus, the investment rate risk affects the prices of securities like stocks, bonds, real estate, gold, puts, calls, and other investments as well.

ii. Purchasing power risk (Inflation risk)

It is the variability of return an investor suffers because of inflation. The rate of inflation is measured by consumer price index.

Rate of inflation = $\frac{CPI_{t} \; Z \; CPI_{tZ1}}{CPI_{tZ1}}$

Where,

CPI_t = consumer price index in period t.

CPI_{t-1} = consumer price index in period t-1.

When inflation takes place, financial assets such as stocks, bonds, etc. may lose their ability to command the same amount of real goods and services they did in the past.

iii. Market Risk

It is the risk that arises from the variability in market returns resulting from alternating bull and bear market forces. When a security index rises fairly consistently from low point, this upwards trend is called a bull market and when the security index declines from peak point to the next trough is called bear market. During bearish period the price of the stocks falls but in the bullish market that usually rise more than enough to compensate for the bear market lose. So, the alternating bull and bear market forces create a perennial source of investment risk.

iv. Default Risk

Default risk is that portion of investment's total risk that resulting from changes in the financial integrity of the investment. In other words, default risk is the variability of return that investors experience as a result of changes in the credit worthiness of a firm in which they invested. Investors losses from default risk usually result from the securities prices falling as the financial integrity of a firm weaken. So, by the time bankruptcy occurs, the market prices of the firm's securities will already have declined to near zero.

v. Liquidity Risk

It is variability of return which results from price discounts given or sales commission paid in order to sell the asset with out delay. Perfectly liquid assets are highly marketable and suffer no liquidation costs but liquid assets are not readily marketable. Hence, liquid assets required large price discounts and sales commissions in order to affect a quick sell.

vi. Call-ability Risk

The portion of a security's total variability of return that derives from the possibility that the issue may be called is the call-ability risk. Call-ability risk commands a risk premium that comes in the form of a slightly higher average rate of return.

vii. Convertibility Risk

It is that portion of the total risk 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

It is the risk that caused by changing in the political environment that affect the asset's market value. Political risks arise from the exploitation of a politically weak group for the benefit of a politically strong group, with the effects of various to improve their relative position increasing the variability of return from the affected asset. Regardless of whether the change that causes political risk is sought by political or by economic interests, the resulting variability of return is called political risk.

ix. Industry Risk

Industry risk is the 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, quotas, taxes, labor union problems, environmental restrictions, raw materials availability and similar factors interact and affect al the firms in an industry simultaneously. As a result of these commonalities the prices of the securities issued by competing firms tend to rise and fall together.

Total Risk = Interest rate risk + Purchasing power risk +Market risk + Management risk + Default risk + Liquidity risk + Call-ability risk + Convertibility risk + Taxability risk + Political risk + Industry risk + Other risk factors.

2.1.3 Investment Alternatives

"In the market, a wide range of investment alternatives are available to an individual investor."*(Cheney and Moses; 1995:8)* Traditionally, there are various investment alternatives like, common stocks, preferred stock and bank as financial assets. But with the increase in financial market concept and principles, a lot of other financial

alternatives have mesh roomed. Commercial bankers, investment bankers and brokers provide the financial manager with detailed information on each of the forms of investment listed. The financial manager should keep up to date on these characteristics and follow the principle of making investment selections that maturities yields and risks appropriate to the firm. There are various alternatives for investors as well as financial institutions. They are as follows;

1. Equity Securities

a) Common Stock b) Preferred Stock

2. Debt Securities

a) Short term debt securities

i. Negotiable certificate of deposit ii. Commercial paper

iii. Banker's acceptance iv. Treasury bills

b) Intermediate and long term debt securities

i. Treasury notes ii. Treasury bonds

iii. Saving bonds iv. Agency securities

v. Municipal securities vi. Corporate bonds

3. Derivative Securities

a) Options b) Commodity future c) Financial future

d) Options on future e) Rights f) Warrants

4. Hybrid Securities

a) Convertible preferred b) Convertible bonds

5. Real Assets

a) Precious metals b) Real estate c) Collectibles

6. International Investment

a) Multinational corporations

b) Foreign stocks traded on a local exchange

c) American depository Receipts

7. Other Investment alternatives

a) Pension funds b) Mutual funds c) Closed end companies

2.1.4 Feature of a 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. The greater the credit created by the banks, the higher will be the profitability. A sound lending and investment policy is not only prerequisite for banks profitability, but also crucially significant for the promotion of commercial savings of a backward country like Nepal.

Many authors have given some necessities or some of the main characteristics for sound lending and investment policies, which must be considered by the commercial banks;

i. Safety and Security

The bank should never invest its funds in those securities, which are too volatile i.e. which are subject to too much depreciation and fluctuations because a little difference may cause a great loss. It must not invest its funds into speculative businessman who may be bankrupt at once and who may earn millions in a minute also. Security means adequate collateral having good value. This can be easily sold off if required at any point of time. The bank should accept that type of securities, which are commercial, durable and marketable having fair market value. For this purpose 'MAST' should be applied while reaching an investment decision, where MAST stands for,

M = Marketability

A = Ascertain ability

S = Stability

T = Transferability

ii. Profitability

A commercial bank can maximize its volume of wealth through maximization of return on their investments and lending. So, they must invest their funds where they can gain maximum profit. The profit of commercial banks depends on the interest rate, volume of loan, its time period and nature of investment in different securities.

iii. Liquidity

Liquidity is the ability of the firm to satisfy its short-term obligations as they come due. Generally, people used to deposit their earnings in the different accounts of the banks, having confidence that the bank will repay their money whenever it is needed. In order to maintain the confidence to the depositors, the bank must always be ready to meet current or short-term obligations when they become due for repayment.

iv. Purpose of Loan

In the viewpoint of security, a banker should always know that why a customer is in need have loan. If a borrower misuses the loan granted by the bank, he can never repay therefore in order to avoid this situation each and every bank should demand all the essential detailed information about the scheme of project or activities.

v. Diversification

"A bank should not lay all its eggs on the same basket." This quotation is very important to the bank and it should always be careful not to grant loan in only one sector. To minimize risk, a bank must diversify its investment on different sectors. Diversification of loan helps to sustain loss according to the law of average because if securities of a company deprived, there may be appreciation in the securities of other companies. In this way the loss can be minimized or recovered.

vi. Tangibility

A commercial bank should prefer tangible security to an intangible one. Though it may be considered that tangible property doesn't yield an income apart from intangible securities, which have lost their value due to price level inflation.

vii. Legality

Illegal issued securities may cause problems to the investors. Therefore, all commercial banks should follow the directives of NRB, Ministry of Finance and other relevant organization at the time of mobilizing funds.

viii. National Interest

In additional to its own profitability the bank should also consider the national interest. Even though the bank cannot get maximum return from such investment, it should carry out its obligation towards the society and the country. The bank is required to invest on such sectors as per the government and Nepal Rastra Bank's instruction. Investment on government bonds, priority and deprived sector lending are the examples so such investments.

2.1.5 Portfolio Analysis

"A portfolio is a bundle of combination of individual assets or securities". *(Pandey; 1997:329)* If investor holds a well diversified portfolio, then his concern should be the expected return and risk of portfolio rather than individual assets or securities. The

portfolio theory provides a normative approach to the investors' decision to investment in assets or securities under risk. Portfolio expected return is a weighted average of the expected return of individual securities but the portfolio is sharp contrast, can be something less then a weighted average of variance. As a result an investor can reduce portfolio risk by adding another security with greater individual risk then any other securities in the portfolio. The seemingly curious result occur because risk greater on the covariance among the return of individual securities.

"Portfolio analysis is to develop a portfolio that has the maximum return at whatever level of risk the investor deems appropriate. A portfolio is a collection of investment securities."*(Weston and Brigham, 1992:123)* The portfolio of asset usually offers advantages of reduction risk through diversification. A stock or securities held, as part of a portfolio is less risky than the same stock held in isolation. The objective of portfolio analysis is to develop a portfolio that has the maximum return at whatever level of risk the investor deems appropriate.

Most financial assets are not held in isolation, rather they are held as pars of portfolios. "Portfolio theory deals with selection of optimal portfolios i.e. portfolios that provide the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return." *(Weston and Copeland, 2003: 366)* Portfolio management is the process of selecting a bundle of securities that provides the investing organization a maximum yield for a given level of risk or alternatively ensuring minimum level of risk for a given level of return. It can be also taken as risk and return management. Its aims to determine an appropriate asset mix which attains optimal level of risk and return. The objective of portfolio management is to analyze different individual assets and delineate efficient portfolios. The group of all efficient portfolios will be called the efficient set of portfolios. The efficient set of portfolios comprises the "efficient frontier". The efficient frontier is the locus of points in risk – return space having the maximum return at each risk class. The efficient frontier dominates all other investments.

"Portfolio theory was originally proposed by Harry M. Markowitz in 1952 A.D." *(Cheney and Moses, 1995: 162,208)* The theory is concerned with selection of an optimal portfolio by a risk avers investor. A risk adverse investor is an investor who selects a portfolio that maximizes expected return for any given level of risk or minimizes risk for any given level of expected returns. A risk adverse investor will select only efficient portfolios. Portfolio theory can be used to determine the combination of these securities that will create the set of efficient portfolios. The selection of the optimal portfolio depends on the investor's performance for risk and return.

2.1.6 Portfolio Analysis and Diversification

"Investment risk can be reduced by including more than one alternative or categories of assets in the portfolio and by including more than one asset from each category. Hence, diversification is essential to the creation of an efficient investment because it can reduce the variability of returns around the expected return. This diversification may significantly reduce risk without a corresponding reduction in the expected rate of return on the portfolio." *(Weston and Copeland, 2003: 366)*

"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 securities is limited. By placing one's eggs in many baskets, overall portfolio risk actually may be less than the risk of any component security considered in isolation." *(Bodie, Kane and Marcus, 2002:162,208)*

Diversification is an attempt to reduce risk by investing among various financial instruments and industries. Most investment professionals agree that, although it does not guarantee against loss. Diversification is the most important step to reaching your long range financial goals minimizing risk. Diversification helps to eliminate some degree of total risk. Since diversification risk can be avoided, investor did not compensate for bearing such risk, it happens due to un-professionalism and internal problems. Investor will be rewarded only for taking market risk which is also know as unavoidable risk and systematic risk. Diversification in the investment or making portfolio in security level or in industry level protect against volatility and uncertainty at rate of return.

To minimize risk, a bank must diversify its investment on different sectors. Diversification helps to sustain loss according to the law of average because if securities of a company deprived, there may be appreciation in the securities of other companies. In this way the loss cane be minimized or recovered. Different diversification techniques for reducing a portfolio risk are as follows;

i) Simple diversification

Simple diversification can be understood as "not putting all the eggs in one basket". The idea behind this is that we can reduce investment risk simply by spreading our investment in different securities. Even the portfolio of randomly selected securities can reduce risk. Further it is not necessary to include too many securities in the portfolio. A portfolio consisting of 10 to 15 randomly selection securities can eliminate almost all diversifiable risk. Simple diversification

reduces a portfolio's total diversification risk to zero and only the un-diversification risk remains.

ii) Superfluous Diversification

It refers to the investors spreading himself in so many investments on his portfolio. The investor finds it is impossible to manage the asset on his portfolio because the management of a large number of assets requires knowledge of the liquidity of each investment return, tax liability and thus becomes impossible without specialized knowledge.

In this context, Clarks adds that superfluous diversification usually result in the following portfolio management problems.

- Impossibility of good portfolio management
- Purchase of lackluster performers
- High search costs
- High transaction costs

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

iii) 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. Since all the industries are highly correlated with one another, diversification across industries is not much better than simply selecting securities randomly. The non diversification variability can not be diversified away simply by selecting securities from different industries.

iv) Superfluous Diversification Across Quality Rating Categories

Superfluous diversification across quality rating categories is investing in only same qualified and same rated securities. Such as NEPSE has rated security grade "A" and so on and in this portfolio investor will make in same category security.

v) Markowitz Diversification

Markowitz Diversification may be defined as combining assets which are less than perfectly positively correlated in order to reduce portfolio risk without sacrificing portfolio return. It can sometime reduce below the un-diversifiable level. There is a nature trade off between risk return in the market but at any given level of expected return, Markowitz diversification can reduce risk more than simple diversification. Applying diversification to a collection of potential investment assets with a computer is Markowitz portfolio analysis. It is a scientific way to manage a portfolio and its results are quite interesting. Since, Markowitz portfolio analysis considers both the risk and return of dozen and hundreds of different securities simultaneously. It is a more powerful method of analyzing a portfolio than using intuition.

2.1.7 Portfolio Risk and Return

Portfolio risk and return measured during the time interval is required. Two kinds of risk can be estimated the portfolio (a) market risk or systematic risk measured by its beat (b) total risk, measured by its standard deviation. The total risk is the combination of systematic risk and unsystematic risk. "Most financial assets neither are nor held in isolation; rather, they are held as parts of portfolios. Banks, pension funds, insurance companies, mutual funds, and other financial institutions are required by law to hold diversified portfolios. Even individual investors- at least those whose security holding constitute a significant part of their total wealth- generally hold stock portfolios, not the stock of only one firm. This begin the case, from an investor's standpoint the fact that a particular stock goes up or down is not very important; what is important is the return on his or her portfolio, and the portfolio's risk. Logically, then, "the risk and return of an individual security should be analyzed in terms of how that security affects the risk and return of the portfolio in which it is held." *(Weston and Brigham; 1992:183)*

i. Portfolio expected return

The expected return of a portfolio should depend on the expected return of each of the securities contained in the portfolio. It also seems logical that the amounts invested in each security should be important. The portfolio return is the weighted average expected return of the individual stocks in the portfolio, with weights being the fraction of the total portfolio invested in each stock. The portfolios expected return is defined in equation as follows;

$Rp = W_1K_1 + W_2K_2 + \ldots + W_nK_n$

Where,

R_p = Portfolio expected return

W_1 = Weight for stock 1

W_2 = Weight for stock 2

K_1 = Expected return for stock 1

K_2 = Expected return for stock 2

ii. Portfolio Risk

Portfolio risk is the risk as a whole for the specific portfolio. In totally, what is the risk of wealth is the risk of portfolio. Calculation of portfolio risk is not as easy as portfolio return. The portfolio risk depends upon the risk of each securities and the covariance of particular securities. Portfolio risk can be measured in terms of standard deviation and variance. The variance used to measure the risk of the portfolio. It is the square root of the standard deviation. The variance of a portfolio of assets depends on not only the variance portfolio but also how the assets track each other asset in the portfolio. This introduces the concept of covariance or correlation; that is to say the degree by which the returns of two assets vary or change together. To determine the variance of a portfolio of assets, the sum of the weighted variances of the individual assets and the sum of the weighted covariance of the assets added together.

iii. Measuring Portfolio Risk

"The measurement of a portfolio risk is not as a 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 asset's returns move together. The degree to which the assets returns move together is measured by the covariance or correlation coefficient. By combining the measures of individual assets risk, relative asset weights and the co. movement of asset's return the risk of the portfolio can be estimated." *(Cheney and Moses; 1995: 653)*

Individual's assets or securities are more risky than the portfolio. How is the risk of portfolio measured? As discussed above, risk is means used in terms of variance or standard deviation. However the standard of a portfolio is not simply the weighted average of standard deviation of individual securities. So, the portfolio risk is measured as;

Variance of portfolio

$$\pm_p^2 = \sum_{i=1}^{n}\sum_{j=1}^{n} x_i x_j Cov_{ij}$$

Taking the square root of both sides the risk of the portfolio in term of its standard deviation is *(Francis; 6th Edition: 236)*

$$\pm_p = \sqrt{\sum_{i=1}^{n}\sum_{j=1}^{n} x_i x_j Cov_{ij}}$$

Where,

Cov_{ij} = Covariance between securities i and j.

$Cov_{ij} = \pm_i \pm_j \rho_{ij}$

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

x_i = weight of security i.

x_j = weight of security j.

iv. Portfolio Risk In Case Of Two Assets

The standard deviation (risk) of return for two asset portfolio is given by;

$$\pm_p = \sqrt{X_A^2 \pm_A^2 + X_B^2 \pm_B^2 + 2 X_A X_B Cov_{AB}}$$

OR

$$\pm_p = \sqrt{X_A^2 \pm_A^2 + X_B^2 \pm_B^2 + 2 X_A^2 X_B \pm_A \pm_B \rho_{AB}}$$

Where,

A and B are two securities held in a portfolio.

X_A, X_B = Weights of securities A and B.

$\pm_A, \pm_B$ = Standard deviation of A and B.

ρ_{AB} = Correlation coefficient between A and B.

Cov_{AB} = Covariance between securities A and B.

v. Portfolio Risk in Case of N- Securities;

The calculation of risk becomes quite involved when a large number of securities are combined to form a portfolio. Based on the logic of portfolio risk in a two asset case, the portfolio risk in N- Securities can be calculated as follows; *(Pandey; 1997:338)*

$$\pm_p^2 = n\left(\frac{1}{2}\right)^2 \times avg.variance + n^2 - n\left(\frac{1}{n}\right)^2 \times avg.covariance$$

$$= \frac{1}{n} \times avg.variance + 1 - \frac{1}{n} \times avg.covariance$$

When, n is very large i.e. number of securities are very large, the portfolio variance will become approximately equal to the average covariance because the value of first part will become insignificant.

As the number of securities in portfolio increases, the covariance terms become more important relative to the variance terms. In a two security portfolio, there are two own variance terms and two covariance terms. For the four security portfolio, there are four own variance terms and twelve covariance terms. For a large portfolio then, total risk depends primarily on covariance among securities. For example, with a forty security portfolio there are 40 own variance in the matrix and 1560 covariance terms. This can be seen by examining the matrix.

For four securities, the matrix of co variances for possible Paris wise combination would be *(Van Horne; 1998:55)*

$$\begin{matrix} \pm 1,1 & \pm 1,2 & \pm 1,3 & \pm 1,4 \\ \pm 2,1 & \pm 2,2 & \pm 2,3 & \pm 2,4 \\ \pm 3,1 & \pm 3,2 & \pm 3,3 & \pm 3,4 \\ \pm 4,1 & \pm 4,2 & \pm 4,3 & \pm 4,4 \end{matrix}$$

The diagonal element $\pm_{1,1}, \pm_{2,2}, \pm_{3,3}, \pm_{4,4}$ show variances and remaining elements show co variances. In this matrix of sixteen elements, four elements represented variances and remaining twelve elements represented covariance.

2.1.8 Correlation Coefficient and Portfolio Risk

Closely related to covariance is the statistical measure known as correlation. In fact, the covariance between two random variables is equal to the correlation between the two random variables times the product of their standard deviations;

$$p_{ij} \text{ X } Cov_{ij} /(\pm_i \pm_j)$$

Where $^{\circ}_{ij}$ denotes the correlation coefficient between the return on security i and the return on security j. correlation between the return of two securities helps to identify the level of risk reduction in portfolio construction and provides possibility of eliminating some risk without reducing potential returns. If the correlation is perfectly positive (or1) then the portfolio cannot reduce any level of risk. On the contrary, if the correlation is perfectly negative (or-1), and then the proper combination of the two securities can reduce unsystematic risk even up to zero. So, the positive correlation between securities return is not so beneficial and vice-versa. A zero coefficient i.e. the two variables are not related to each other. So changes in one variable are independent of changes in the other. So, when securities in a portfolio are perfectly negatively correlated i.e. $^{\circ}$ XZ1 all risk can be diversified away but when securities are perfectly positively correlated, diversification does not good whatever. In the typical care, "Correlations among the individual stocks are positive but less than +1, some, but not all risk can be eliminated." *(Weston and Brigham, 1992:127).* In other words when the returns two securities are perfectly positively correlated i.e. $^{\circ}$ X1, the portfolio variance is just equal to the variance of individual securities. If the returns of securities are perfectly negatively correlated the portfolio variance is zero i.e. the combination of such securities completely reduces the risk. When the return of securities are weakly positively correlated the portfolio variance is less than the variance of individual securities. "The portfolio variance under weakly negative correlated returns of securities has reduced more than when the returns were weakly positively correlated." *(Van Horne, 1998:334)*

2.1.9 Portfolio Risk of a Risky and a Risk Free Security

"A risk free security is one which has a zero various or standard deviation consequently the covariance between the risk free securities and the risky security will be zero. Since the risk free security has a zero standard deviation and covariance between the risk free security and risky security is zero, when a risky asset is combined with a risk free asset, the product of standard deviation of risky asset and portfolio proportion invested in the risky asset." *(Bodie, Kane and Marcus, 2002:164)*

Here, $\pm_p \text{X} W_j \mid \pm_j$

Where,

$\pm_j$ = Standard deviation of risky securities.

W_j = Weight of risky securities in a portfolio.

The total risk of the portfolio can be partition into two parts. They are,

Undiversifiable risk / Market risk / Systematic risk

Diversification risk / company specific risk / Unsystematic risk / Unique risk

Systematic Risk

Systematic risk is that portion of total variability in return caused by market factors that simultaneously affect the prices of all securities. The systematic nature of these price changes makes them immune to much of the risk reduction effects of diversification, thus systematic risk called undiversifiable risk. Changes in the economy, political and sociological environment that affects security market are the source of systematic risk. Systematic variability of return found in nearly all securities to varying degree because most securities tend to move together in a systematic manner. Systematic risk is the market risk which could be avoidable. The systematic risk lies in the overall stock within market measured by beta (β). The beta of the stock is the slope of the characteristics line between return for the stock and those for the market. Beta depicts the sensitivity of the security's excess return to that of the market portfolio. If the slope is one, it means that excess vary proportionately with excess return for the market as a whole. If the slope steeper than one means that the stock's excess return varies more than proportionately with the excess return of the market portfolio. In other words, it is more systematic risk than the market as whole. This type if stock often called aggressive stock and slope less than 1 called defensive stock.

The un-diversifiable risk is caused by such factor which systematically affect all firms such as;

- War
- Inflations
- Recession

- Interest rates policy
- Corporate tax rate policy

Since all securities will tend to be negatively affected by these factors, systematic risk can not be eliminated by diversification therefore, an investor will expect a compensation for bearing this risk.

Unsystematic Risk

"Unsystematic risk or diversifiable risk is the portion of the total risk which is unexplained by overall market movements. Since it happens due to internal causes, it is diversifiable by increasing the efficiencies and effectiveness for the productivity of the organization. This kind of risk is diversifiable risk or avoidable risk. Unsystematic risk can be reduced as more and more securities are added to a portfolio. Various studies suggest that 15 to 20 securities selected randomly are sufficient to eliminate most of the unsystematic risk of a portfolio." *(Van Horne*; *1998:55-69)*

"Events such as labor strikes, management errors inventions, advertising, campaigns, shifts in consumer taste and lawsuits cause unsystematic variability in the value of a market asset. Since unsystematic security price movements are statistically independent from each other, and so they may be averaged to zero when different assets are combined to form a diversified portfolio. Therefore, unsystematic risk is also called diversifiable risk". *(Weston and Copeland; 2003: 366)*

2.1.10 Market Portfolio

"The market portfolio is the unanimously declarable portfolio consisting of all the securities where the proportion invested in each security corresponds to its relative market value. The relative market value of the security divided by the sum of the aggregate market value of all securities. The return on the market portfolio is the weighted average return on all capital assets *(Francis: 6th edition: 254).* Since the market portfolio contains all risky assets in proportion to their market value, it is by definition a perfectly diversified portfolio. The market portfolio is therefore subject 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 economy or industry specific factors. Volatility in return created by unsystematic risk, this risk can be diversified by adding risky assets to a portfolio." *(Cheney and Moses; 1995: 690)*

The market portfolio holds a special place in modern in theory and practices. It is central to CAPM, which assumes that the market portfolio lies on the efficient set and

that all investors hold the market portfolio in combing with a desired amount of risk free borrowing and lending.

2.1.11 Factor Affecting Investment Portfolio Decision

i. Amount of Investment

While determining the investment portfolio the finance manger should actually consider the amount of fund available with organization. Trading and manufacturing organization deal in securities only for the purpose of best utilization of their available surplus cash resource. The amount of surplus fund available with them will therefore decide the quantum of their investment in securities.

ii. Objective of Investment Portfolio

While determining the investment portfolio we should be clear about objective of making investment in securities. The objective may differ organization to organization. While an Organization looking for investment of provident fund of its employees can think of having in its investment portfolio only such securities which can assure safety of the fund and its return.

iii. Selection of Investment

This is an essential decision which a finance manager has to take. He has to decide the kind of investment in which he has to put his fund. The selection of investment involves deciding about the type of securities, proportion between fixed and variable yield securities, selection of industries, selection of companies etc.

iv. Timing of Purchase

To maximize the profit, it is not only important for the finance manager to buy the right security but it is also equally important to buy and sell it at the right time. It is the most intricate and complex decision for finance manager.

2.2 Review of Legislative Provision

In this section, the review of legislative framework (environment) under which the commercial banks are operating has been discussed. This legislative environment has significant impact on the commercial banks' establishment, their mobilization and utilization of resources. All the commercial banks have to conform to the legislative provision specified in the Commercial Bank Act 2031 and the rules and regulations formulated to facilitate the smooth running of commercial banks. The preamble of Nepal Bank Act 1994 clearly states the need of commercial bank in Nepal. "In the

absence of any bank in Nepal the economic progress of the country was being hampered an causing inconvenience to the people and therefore wit the objective of fulfilling that need by providing services to the people. For the betterment of the country this law is hereby promulgated for the established of the bank and operation."

As mentioned in this act, commercial banks will help in baking business by opening its branches in the different parts of the country under the direction of NRB, The main function of commercial banks established under this act will be, exchange money, to accept deposits and give loan to commercial and business activities.

NRB Rules Regarding Fund Mobilization of Commercial Bank

To mobilize bank's deposit in different sectors of the different parts of the nation to prevent them from the financial problems, central bank (NRB) any establish a legal framework by formulating various rules and regulations (prudential norms). The directives must have direct or indirect impact while making decision to discuss those rules and regulation, which are formulated by NRB in terms of investment and credit to priority sector, deprived sector, other institution, single borrower limit, CRR, loan loss provision, capital adequacy ratio, interest spread, productive sector investment. A commercial bank is directly related to the fact how much fund must be collected as paid up capital, while being established at a certain place of the nation? How much fund is needed to expand the branch and counters? How much flexible and helpful the NRB rules are important? But we discuss only those, which are related to investment function of commercial banks. The main provisions, established by NRB in the form of prudential norms in above relevant area are briefly discussed here under.

(*Source: http://bfr.nrb.org.np, Feb. 2009)*

1. Provision for Investment in the Deprived Sector

Some rules, which are formulated by NRB, affect the areas of credit and investment extension to the deprived sector by the commercial bank. According to the new provision, with effect from the 3rd quarter of FY 1995/96, investment in shares of the rural development bank by CBs, which used to be counted for the priority sector lending, only is now to be included under the deprived sector lending. The new provisions effective newer commercial banks are required to invest 0.25% of their total loans and advances to the deprived sector.

2. Provision for Credit to the Priority Sector

NRB requires commercial banks to extend loan & advances, amounting at least to 12% of their total outstanding credit to the priority sector. Commercial banks credit to

the deprived sector is also a part of priority sector credit. Under priority sector, credit to agriculture, credit to the cottage and small industries and credit to service are counted commercial banks' loan to the co-operatives licensed by the NRB is also to be computed as the priority sectors credit from the fiscal year 1995/96 onwards.

3. Provision for the Investment in Productive Sector

Nepal, being a developing country needs to develop infrastructure and other primary productive sectors like agriculture, industry etc. For this, NRB has directed commercial banks to extend at least 40% of their total credit to the productive sectors. Loans to priority sector, agriculture sector, and industrial sector have to be included in productive sector investment.

4. Provision for the Single Borrower Credit Limit

With the objective of lowering the risk of over concentration of bank loans to a few big borrowers and also to increase the access of small and middle size borrower to the bank loans. NRB directed CBs to set an upper limit on the amount of loan financed to an individual, firm, company or group of companies. According to this, CBs are required not to exceed the single borrower limit 35% in the case of fund-based credit and 50%, in the case of non-fund based credit. Such as the letter of credit, guarantee, acceptance letter, and commitment has been fixed is a proportion of capital funds of bank.

In the case of consortium financing, commercial banks are permitted to extend an additional 10% credit above the limit fixed by the NRB as before. In addition, Nepal Oil-Corporation, Agriculture-inputs Corporation and Nepal Food Corporation for their impost petrol, diesel, kerosene, and fertilizer and food stuffs respectively have been removed from the restrictions of single borrower credit limit.

Besides this, following the BASEL Capital Adequacy Accord, NRB has directed commercial banks to maintain at least 8% capital adequacy ratio (CAR) of their risk weighted assets (RWA) and off-balance sheet transaction i.e. letter of credit, letter of acceptance, Bonds, Guarantee etc. They are further required to classify their capital requirement in to (1) core capital (Tier 1) and (2) supplementary capital (Tier 2) and maintain at least 4% of their total capital in the form of core capital. As per the provision, risk weighted assets (RWA) are to be calculated by classifying assets and giving them different risk weights as presented below.

Table: 2.1

Allocation of Risk Factors

S. No.	Assets	Weight
1.	Cash balance	0
2.	Bank Balance: With NRB With other domestic banks With foreign banks	 0 20 20
3.	Call deposits	10
4.	Investments: Government papers Share and Debenture Other investment	 0 50 50
5.	Loan and Advances	100
6.	Fixed Assets	100
7.	Contingent Liabilities: Fully secured three months LC Commitment of more than a year Letter of acceptance, simple commitment and other LC transactions	 20 50 100

5. Cash Reserve Requirements (CRR)

To ensure adequate liquidity in the commercial banks to meet the depositors demand for cash at anytime and to inject the confidence in depositors regarding the safety of their deposited funds.

6. Loan Classification and Loss Provision

With a view to improving the quality of assets of commercial banks NRB has directed commercial banks to classify their out-standing loan and advances, investment and other assets into six categories. The classification is done in two ways. The loans of more than 10 million are to be classified as debt service charge ratio, repayment situation, financial condition of borrower, management efficiency, quality of collateral. The loans of less than 10 million have to be classified as per maturity period.

Furthermore, NRB has directed commercial banks to maintain certain reserves for loans so classified. The existing loan loss provisioning is as follows:

Table: 2.2

Loan Loss Provisioning (LLP)

(In % of Overdue Loan)

Loan Classification	Loan Loss Provisioning:
Good	10
Acceptable	10
Evidence of substandard	5
Doubtful	25
Bad	50
Total	**100**

LLP has affected banks capability to extend loans and made them risk averse in issuing newer loans, particularly to the private sector and priority sector where the loan default is high.

7. Directives Regarding Interest Rate Spread

The interest rate spread, the difference between interest charged on loan and advances and the interest paid to the depositors, has widened significantly in the aftermath of deregulation in interest rates which has caused lower financial intermediation. Therefore, NRB has required commercial banks to limit interest rate spread between deposit and lending rated to a maximum extent of 5%. NRB has also provided commercial banks with new calculation method of interest rate spread for a certain period recently.

2.3 Review of Previous Studies

This section is developed to the review of major related literature concerning portfolio in different countries. But in Nepal there are very few studies can be found in the topic of portfolio analysis on investment of commercial banks in Nepal. For this study, various books, journals, articles and past thesis are reviewed. It is reviewed from international context and Nepalese context.

2.3.1 Review from International Context

In international context, several studies have been done in the field of portfolio analysis. Among them some studies are reviewed as follows.

Markowitz, (1952) conducted a study on *"Portfolio Selection"* where he has establishes a relationship between a portfolios expected return and its level of risk as the criterion for selecting the optimum portfolio. So as to find the efficient set of portfolios and select the most effecting one, the portfolio manager will need to know

the expected returns and the risk of these returns for the individual securities. The portfolio model developed by Markowitz is based on the following reason able assumptions.

- The risk of an individual asset or portfolio is based on the variability of returns (standard deviation or variance)
- Investors depend solely on their estimates of return and risk in making their investment decisions. This means that an investor's utility (indifference) curves are only a function of expected return and risk.
- Investors adhere to the dominance principal. That is, for only given level of risk, investors prefer assets with a highest expect return to assets with lower expected return, for the expected return, for assets with the same expected return, investors prefer lower to higher risk.
- The expected return of the portfolio is the weighted average of the expected returns of the individual assets in the portfolio. The weights are defined as the portion of the investor's wealth invested in a particular asset.

  $R_p = \sum R_i \times X_i$

  $R_p = R_1X_1 + R_2X_2 + R_3X_3 + \ldots + R_nX_n$

  Where,

  R_p = expected return to portfolio.

  R_i = expected return to security.

  X_i = the proportion of total portfolio investment in security.

The Markowitz has presented the risk of the portfolio consists of the risk ness of the individual securities and the covariance between the returns of the securities among all possible combinations of them. Thus, portfolio risk can be calculated as follows:-

The portfolio risk

$\pm_p^2$ XX $X_1^2 \pm_1^2 \Gamma X_2^2 \pm_2^2 \Gamma 2X_1X_2 \mid \pm_1 \pm_2 \mid \circ_{12}$

Where,

X1 = proportion of funds invested in security 1.

X2 = proportion of funds invested in security 2.

$\pm_1^2, \pm_2^2$ = variance of the returns on securities 1 and 2.

r_{12} = correlation between the return of 1 and 2.

Edward J. Kane and Stephen A. Buser (1979) in their study *"Portfolio Diversification at Commercial Banks"* deals how a firm performs a useful function by holding a portfolio of efficiently priced securities.

It is the rational for a firm to engage round of asset diversification on behalf of its shareholder's even when all assets are priced efficiently and available for direct purchase by shareholders. As away of testing their perspective empirically, they estimates regression model designed to explain the number of distinct of U.S. treasury and federal agency debt held in a time series of cross section of large U.S. commercial Banks. They interpret the systematic pattern of the diversification observed for large U.S. commercial banks as evidence that banks stockholder from relatively uniform diversification clientele. For firm, marginal benefits fro diversification takes reduction in the cost equity funds offered by its specific clientele of stockholders. To maximize the value of the firm, these benefits must be weight against the explicit and implicit marginal cost of diversification.

E.J. Kane and S.A. Buser drown following concluding remarks.

- Even wealthy investors should be sensitive to administrative costs associated with selecting, evaluating, managing and continually keeping track of a large number of securities.

- Either homemade of firm produced diversification reduces the variance of shareholder's portfolio return. If homemade of firm produced diversification bears inordinately high levels of information risk. Some benefits of the firm produce diversification might not be reproducible by individual investors acting on their own.

- Investors with even modest resources, the stock pf financial institutions should be relatively less attractive than the stock of that avoid extensive diversification costs by engaging in specialized activities.

- Marginal diversification costs decline as bank size increases. But level off when total deposits reach and 500 million. Beyond this point marginal diversification costs are independent of bank size.

John D. Martin and Robert C. Klemkosky (1982) conducted a study on *"The Effect of Homogeneous stocks groupings on portfolio risk"* where he has entitled the portfolio is measured utilizing zero covariance market model, which ignores the possible existence of group effects and a full covariance model which incorporates them into its estimate of portfolio risk.

In their study tried to assess the impact of homogeneous stock groupings on portfolio risk. According to them portfolio risk is defined in terms of the variance in portfolio return for both zero and full covariance care.

To support their study, they used following linear function.

$$\bar{R}_{it} = \alpha_i + \beta_i \bar{R}_{mt} + \bar{e}_{it}$$

Where,

α_i = Const. whose value is such that the expected value of $\bar{e}_{it}$ is zero.

β_i = A measure of the responsiveness of $\bar{R}_{it}$ to change in $\bar{R}_{mt}$.

$\bar{R}_{it}$ = Return on securities i, in period t.

$\bar{R}_{mt}$ = Market return for period t.

$\bar{e}_{it}$ = Random element

Portfolio variance was computed for randomly selected portfolios containing n = 2,3,……N stocks, using both the Zero-covariance model and the full covariance model was as follows.

Zero covariance Model

$$\sigma^2(\bar{R}_p) = \underset{1 \times t}{x'} \; \underset{t \times 1}{x} \beta_i^2 \sigma^2(\bar{R}_m) + \underset{1 \times t}{x'} \; \underset{t \times 1}{\Gamma} \; \underset{t \times 1}{x} \sigma^2(\bar{E})$$

Where,

$\sigma^2(\bar{R}_m)$ = variance in market return.

x_i = proportion of the total portfolio invested in stock i.

n = no. of stocks in portfolio.

$\sigma^2(\bar{E})$ = Variance in the random element specific to stock i

Full Co-variance Model

$$\sigma^2_{full}(\bar{R}_p) = \frac{\sum_{t=1}^{m} (R_{pt} - \bar{R}_p)^2}{m}$$

$$R_{pt} = \underset{1 \times t}{x'} \; \underset{t \times 1}{R_{it}}$$

$$\bar{R}_p = \underset{1 \times t}{x'} \; \underset{t \times 1}{\frac{R_{pt}}{m}}$$

m = no. of period.

In their study, they were selected 4 homogeneous groups to test their model. A total of 150 form stocks including 40 growth stocks, 44 cyclical stocks, 44 stable stocks and 22 oil stocks. They further used Wilcox on matched pairs, singed rank test for each of the portfolio size containing 2~10 securities to test the statistical significance differences of the portfolio risk between zero covariance estimate & full covariance estimate.

The test result reveals that group effect was so large that they resulted in the zero covariance estimate of portfolio variance being significantly less than the full covariance estimate at the 5% level for portfolios containing only four growths stocks, four cyclical stocks, four stable stocks and two oil stocks. Similarly, the percentage of the portfolio variance attributable to the market risk of the portfolio was used to measure the extent of portfolio diversification. In the absence of the group effects, the closer to unity will be the ratio of portfolio market risk to the total risk. The proportion of the portfolio's risk attributable to group effects varied from group to group.

Paul D. Berger and Ziv Bodies Study (1997) has presented and proved "*three propositions, regarding optimal portfolio selection in the winter – take – all environments."* The three propositions discussed by them are as follows,

Proposition 1

Any investor seeking to maximize the expected utility of his wealth of his wealth will select a portfolio which maximizes the probability of his winning the contest i.e. of yielding the highest return. This is so regarded of the investor's attribute towards risk.

Proposition 2

If no short or buying on margin is allow, then the probability of a portfolio of two or more securities beating ever single security in the portfolio is zero.

Proposition 3

If the are more than two securities to choose from , one can not select the optimal security though a series of pair wish is interior to all the others in respective pair wish comparison might will be the best in choice among more than two of them.

According to them, the signal most important behavioral implication of the propositions above is that an individual engaged in a winner-take –all investment contests will tend not to diversify his portfolio, even if he is risk averse. It is

conjecture that is very highly positively correlated so as t approximates a single stock as closely as possible *(Journal of Finance, Vol.34:233-236)*

2.3.2 Review of Journals and Articles

In this section, effort has been made to examine and review of some related articles in different economic and financial journals.

Shiva Raj Shrestha (1998) has given a short glimpse on article entitled *"Portfolio Management in Commercial Banks; Theory and Practices"*. Mr. Shrestha in his article has highlighted the followings issues;

- The portfolio management becomes very important both for individuals and institutional investor.
- Investor would like to select better mix of investment assets subject on these aspects like, higher return that is comparable with alternatives according to the risk class of investor.
- Good liquidity with adequate safety on investment, maximum tax concession, economic efficient and effective mixes.

For fulfilling those aspects, the following strategies will be adopted.

- Do not hold any signal security i.e. try to have a portfolio of different securities.
- Choose such portfolio of securities, which ensure maximum return with minimum risk or less return for wealth maximizing objectives.

He has mention short transitory view on portfolio management in Nepalese commercial banks. Nowadays number of banks & financial institution are operating in this sector are having greater networks and access to national and international markets. They have to go with their portfolio management very seriously and superiority, to get success to increase their regular income as well as to enrich the quality service to their clients. In this competitive and market oriented open economy, each commercial banks and financial institution has to play a determining role by widening various opportunities for the sake of expanding provision of best service to their customers.

In this context he has presented two types of investment analysis techniques i.e. fundamentals analysis to consider any securities such as equity, debenture or bond and other money and capital market instrument. He has suggested that the banks having international joint venture network can also offer admittance to global

financial markets. He has pointed out the requirement of skilled labors, proper management information system in joint venture banks and financial institution to get success in portfolio management and customer assurance.

On the basis of his article, the portfolio management activities of Nepalese commercial banks at present is in nascent stage. However, on the other hand most of the banks are doing such activities so far because of following reasons. Such as unawareness of the client about the service available, hesitation of taking risk by the client to use such facilities, lack of proper techniques to run such activities in the best and successful manner, less development of capital market and availability of few financial investment in the financial market.

He has given the following conclusion for smooth running and operation of commercial banks and financial institution.

- For surviving commercial banks should depend upon their own financial health and various activities.
- In order to develop and expand the portfolio management activities successfully, the investment management methodology of portfolio manger should reflect high standards and give their clients the benefits of global strengths, local insights and product philosophy.
- With the discipline and systematic approval to the selection of appropriate countries, financial assets and management of various risks the portfolio manager could enhance the opportunity for each investor to earn supervisor returns over time.
- The Nepalese banks having greater network and access to national and international capital market have to go for portfolio management activities for the increment of their fee based income as well as to enrich the client base and contribute to the national economy.

Yagya Timilsina (1999) has published an article on "*Managing Investment Portfolio.*" He is however, confronted with problems of managing investment portfolio particularly in times of economic slowdown like ours. A rational investor would like to diversify his investments in different classes of assets so as to minimize risks and earn a reasonable rate of return.

Commercial banks have continuously been reducing interest rates on deposits. Many depositors are exposed to the increasing risk of non-refund of their deposits because of the mismanagement in some of the banks and finance institutions and accumulation of huge non-performing assets with them.

Few depositors of cooperative societies lost their deposits because some of these cooperatives were closed down because of their inability to refund public deposits. An investor in days of crisis has to make an effort to minimize the risk and at least earn a reasonable rate of return on his aggregate investment.

An investment in equity share can earn dividend income as well as capital gain, in the form of bonus share and right share until an investor holds it and capital profit when he sells it in the stock market. As returns from equity investments have fluctuated within a very wide range, investors feel it much difficulty to balance risk and reward in their equity portfolio. As a matter of fact, investors in equity shares should invest for a reasonable long time frame in order to manage the risk.
Making investment in fixed deposits with commercial banks is a normal practice among the common people. Normally fixed deposits with banks are considered risk-less, but they also are not 100% free of risk. You should select a bank to put your deposit therein, which has sound financial health and high credibility in banking business. In times of crisis if you select a sick bank deposit your money there is high probability that your money could be returned back.

An investor may have option of making investment in government bonds or debentures. In history we have examples that a government can nationalize the private property of its citizens, cancel out old currency notes, and can convert the new investment into some conditional instrument. But in democracy there is no probability that the government would default to repay money back. This is comparatively risk free investment, but yields low return.

An investor has to evaluate the risk and return of each of the investment alternatives and select an alternative, which has lower degree of risk and offer at least reasonable rate of return. One can draw a safe side conclusion to invest all the money he has only in government securities, but this is not a rational decision. An investor who doesn’t

try to maximize return by minimizing the possible risk is not a rational investor. On the other hand, one can place over-confidence on equity investment and assume high risk by investing the whole money in equity shares. Stock market these days is much dwindling and notoriously unpredictable; therefore this too is not a wise decision. Therefore, a portfolio, which consists of only one class of financial assets, is not a good portfolio.

2.4 Review of Thesis

Prabina Bajracharya, (2000) conduct a study on "*Investment of Commercial Banks in Priority Sector*" with the objective of;

- To analyze the trend of investments in private sectors for 10 years from 2047 B.S. to 2056 B.S.
- To analyze the trend of repayment in private sectors for 10 years.
- To measure the effectiveness of the program in terms of the investment and repayment in rural and urban sector.
- To evaluate the banking procedures and services in disbursing loan in this sector.

Researcher used to various financial tools to analyze the data to support the conclusion. The major ratios like total investment to total deposit ratio, loan and advances to total deposit ratio, net profit to total asset ratio, investment on government securities to total outside investment ratio etc. Other financial tools like return on portfolio return on loan and advances, return on share and debenture, return on government securities are used to find the relevance and significance of the samples. To process the financial dat6a, some common statistical tools like co-variance, coefficient of variation, mean and trend analysis are used.

Major Finding:

- The target of 12% investment of total outstanding liabilities in priority sector and 3% out of which has been invested in deprived sector has been met by RBB.
- Trend analysis for 10 years shows the increasing trend of investment in priority sectors which shows that the CBs are giving due consideration to increase investment in priority sector.

- Interest charged on the loan disbursed in this sector is fairly less than the interest charge on loans for other purposes. In addition to this, there is high overhead cost incurred for supervision, administration and others in this program.
- Regression analysis shoes positive relation between investment and repayment.
- The chi square test of effectiveness of program is more effective in rural & semi rural area as compared to the urban areas.
- Investment on agriculture is higher than investment on industry and service sector.
- The study revealed that the procedure of loan disbursing itself is complicated for the borrowers to understanding.
- In fact, if the supervisors make the scheduled supervision & inspection & the frequent contact with the borrowers, the chance of misuse of the loan can be minimized.

Kalpana Khaniya (Banjade) (2003), conducted her thesis on "*Investment Portfolio Analysis of Joint Venture Banks*". The study is based on five joint venture banks and they are; NABIL, SCBNL, HBL, NBBL & EBL. The general study of the present study is to identify the current situation of investment portfolio of joint venture banks in Nepal. The specific objectives are as follows;

- To analyze the risk and return ratios of commercial banks.
- To evaluate the financial performance of joint venture banks.
- To study exiting investment policies taken by Nabil in various sectors.
- To study portfolio structure Nabil bank ltd. In investment as compared to other joint venture banks.
- Preference given by Nabil bank ltd. For investment between loan investment, investment in real fixed assets, investment in financial assets.

Researcher used to various financial tools to analyze the data to support the conclusion. The major ratios like total investment to total deposit ratio, loan and advances to total deposit ratio, net profit to total asset ratio, investment on government securities to total outside investment ratio etc. Other financial tools like return on portfolio return on loan and advances, return on share and debenture, return on government securities are used to find the relevance and significance of the

samples. To process the financial dat6a, some common statistical tools like co-variance, coefficient of variation, mean and trend analysis are used.

Major finding;

Based on the analysis of the various data remarkable finding are drawn up. The major findings are as follows;

- SCBNL and HBL have better position. NBBL and NABIL have a low position in the industry. But EBL has a very low position in the industry because of having lowest mean return on shareholder's fund resulting from the negative returns in the fiscal years 1995/96 and 1996/97.
- SCBNL has the highest mean return and EBL has the lowest return. Expect EBL, all other four banks i.e. NABIL, SCBNL, HBL and NBBL have good performance.
- Among other joint venture banks, SCBNL has the highest return and EBL has above mean return than industry average. SCBNL and EBL mobilizes the funds in investment title is higher than the standard ratio.
- NABIL, SCBNL and HBL are investing low amount of deposits on loans and advance which is lower than industry average and NBBL and EBL have invested a high amount of deposits to loans and advances title which is higher than industry average.
- NABIL is investing the highest amount of funds on NRB bond as compared to other JVBs i.e. 3%. NBBL has invested no amount of funds in this title and EBL has invested the lowest of funds i.e. 0.4% and SCBNL and HBL have invested above industry average.
- SCBNL has the highest EPS and EBL has the lowest EPS. Similarly HBL also has above mean EPS than industry average and that of NBBL is lower than industry average.
- HBL has the lowest beta coefficient among the five JVBs which means that the systematic risk of HBL is the lowest among JVBs. The portfolio return of NBBL is 94%. This return is the average of capital gain yield and dividend yield.
- The coefficient of correlation between loans and advance in private sector and portfolio return if joint venture banks come out to be rxy = -0.6. Therefore it indicates that there is negative correlation between loans and advances in private sector and portfolio return of five JVBs in Nepal.

Manilata Mahandhar, (2003) conducted her thesis on "*Analysis of Risk and Return on Common Stock Investment of Commercial Bank in Nepal*". The main objective of the study is to analyze risk and return on common stock investment of CBs and other objectives are as follows;

- To examine risk and return on common stock of NABIL, BOKL, HBL, NBBL, NIBL.
- To calculate risk and return of their portfolio.
- To identify whether stocks of selected companies are over-priced, under-price and equilibrium priced.

Focusing on risk and return pattern of the sample taken from the listed companies, Researcher used financial tools to calculate the financial factors like MPS, DPS. The major financial tools like Holding Period Return (HPR), Expected Rate or Return, Beta coefficient to measure systematic risk, portfolio risk along with other statistical majors. To draw the conclusion, researcher has used Hypothesis test to satisfy the null hypothesis.

Major Finding:

- Stocks have greater volatility risk than other investment, which takes a random and unpredictable path. Stock market is risky in the short term and it is necessary to prepare the investors for it.
- This study used the historical data of five years starting from FY 053/054 to 057/058 and found that FY 057/058 is best for banking sector according to market capitalization.
- Expected return of the common stock of BOKL is maximum (i.e. 1.1267) due to the effect of unrealistic annual return. Similarly, expected return of the common stock of NIBL is found minimum (i.e.0.4917). On the basis of sector-wise comparison, expected return on banking sector (i.e. 67.39%) is higher and others sector is the least (i.e. 0.65%).
- Risks associated with common stock investment of different selected companies are 1.3949, 0.4154, 0.7392, 0.6798 and 0.1429 of BOKL, NABIL, HBL, NBBL, and NIBL respectively. In the context of comparison of banking sector with other sector expected return is greater than that of other sectors. Standard deviation of other sector is greater than that of other sectors. CV of others sector is greater than that of others.

- BOKL, NABIL, HBL, NBBL's beta coefficient is 2.30, 2.01, 1.0853, 1.7632 and 1.7441 respectively, which is greater than one. Therefore such banks common stocks are more volatile with market. On the other hand NIBL's beta coefficient is 0.3461, which is less than one, therefore common stock of NIBL is said to be less volatile with market.
- One of the main significance of beta coefficient is in capital asset priding model (CAPM). CAPM is a model that describes the relationship between risk and return.
- Stock of all banks in this study are said to be under priced. These companies' common sticks are worth to purchase, as their expected return is greater than required rate of return.
- Portfolio return is greater than portfolio risk of two banks (i.e. NBBL and HBL)

Sabita Shah, (2004) conducted her thesis on "*Impact of Interest Rate Structure on Investment Portfolio of Commercial Banks in Nepal*". The main objective of the study is to analyze the interest rates structure and its impact on various activities of commercial banks. Other objectives are as follows;

- To present the concrete picture of the interest rates structure before and after liberalization.
- To study the relationship between interest rates and other economic variables like deposit, loan, and advances, total investment and credit flow of commercial banks.
- To evaluate the trends of deposit, loan, and advances, total investment and credit position of commercial banks.
- To analyze loans and advances in different sectors of investment portfolio of commercial banks.
- To study the current impact of deregulation on interest rate and its effects on related fields.

Measuring interest rate impact in terms of return in investments, researcher used financial tools to calculate interest returns in savings and fixed deposits as well as the impact on loan distribution patterns. Research gave the key to find out the significance difference of interest rate structure between deposits and loans. Taking the liberalization policy as a marginal impact researcher tried to conclude the research by assessing various ratios in terms of interest.

Major finding:

- The interest rates on saving deposit are less or more constant in five years of before liberalization but it started to decline after liberalization. In the same way the fixed deposit rates also started to decline after liberalization. Thus the deposit is increasing at decreasing rate. The lower rates of interest rates decrease deposit. Deposit rate is the most important determinant of the deposit collection.
- The lending rates on purpose wise loan i.e. industrial sector, agricultural sector increased in average after liberalization but decreased in commercial sector. Increasing in lending rates resulted in the decrease in credit flow, which consequently decreased the profit of commercial banks.
- The amount of deposit increased after liberalization but the growth rate in average comparison to before liberalization increased only by 0.44%. Thus the deposit had not increased more even after the existence of liberalization is due to the declining deposit rates.
- Credit/ Loan and advances also influenced by the lending rates. Increment in lending rates decreases the growth percent of credit flow. In this analysis except agriculture and general use and purpose sector the other sector growth rate is found to be increasing after liberalization instead of increasing lending rates. So it can be say that this increasing is not only due to changing lending rates but also other factors i.e. income, inflation, competition which indirectly affects credit flow of CBs.
- CBs investment in government and other securities highly increased in the year liberalization, which is due to the lack of proper utilization of collected resources. But started to decline after two years of liberalization and reached to negative point due to the higher rate and enough promising investment opportunities available in private sectors.
- The correlation between interest rates and amount of saving deposit is found to be less correlated before liberalization. But in case of fixed deposit interest rates and amount are found to be negative correlation before liberalization. Higher the deposit higher will be the credit flow and higher will be the profit in which the correlation between deposit and credit is positive before liberalization but there is high degree of correlation between deposit and credit after liberalization. Correlation between deposit and investment is highly

positive correlated before liberalization but it is found to be negative correlation after liberalization. Lending rates after liberalization in commercial sectors is found to be decreasing.

- There is no significant relation between saving deposit and interest rates before and after liberalization but no significant relationship between fixed deposit and interest rates. Purpose wise loan and lending rates before and after liberalization is significant relationship. There is significant relationship between commercial and industrial sector loan before and after liberalization but no relation between agriculture, general use and purpose and service sector loan before and after liberalization.

Natasha Shrestha, (2005) conducted her thesis on "*Portfolio Analysis of Common Stock of Commercial Banks in Nepal*". The main objective of the study is to find out level of portfolio risk and return on stock of commercial bank investment and other objective are;

- To analyze the trend of NEPSE index.
- To analyze the risk and return of common stock of reviewed banks.
- To analyze the market price movement of the common stock.
- To try to find out the best portfolio from NEPSE.

Various tools are used to analyze the data to support the conclusion. Trend analysis showed the trends of NEPSE Index. Risk and return tools like Beta coefficient, Portfolio risk and return, Expected return, holding period return along with stastical tools like CV, Standard Deviation, Correlation and Regression are used to find out the relevance of data collected.

Major Findings:

- Expected return of HBL stock is highest i.e. 53.68% and NABIL is lowest i.e. 32.72% among the banks. NBBL and SCBL have expected return of 47.05% and 39.02% respectively. The risks of NBBL is highest i.e. 93% and SCBL has a lowest risk i.e. 55.42% HBL and NABIL have a risk of 84.98% and 60.86% respectively.
- The correlation of stock, return and market shows that all of the banks stock are highly positive correlated with the market. The correlation values of common stock of all bank with the markets is nearly equal +1. Stock of NBBL is highest positive correlation which has values of +O.918 and HBL is lowest positive correlated which has a value of +0.82.

- All of banks beta of common stock is greater than 1. Beta greater than 1 implies that stocks are more volatile than market or said to be aggressive stock. NBBL has the highest beta i.e. 2.1785 and SCBL has the lowest beta i.e. 1.2142. All of the stocks are aggressive.
- NBBL has highest portfolio return i.e. 7.98% and highest portfolio risk i.e. 21.70%. NBBL has invested its more funds on risky assets and fewer funds on risk free assets. So there exist highest risks as well as return. The principle "higher the risk higher the return" is applied for it. Likewise, HBL has the lowest portfolio return i.e. 5.33% and portfolio risk 0.35%. It has invested more of its fund in on risk free assets and least fund in risky market. The principle "no risk no gain" is applied for it.
- The performance measure shows the ranking stock by different method. The Sharpe's performance shows that performance of stock of SCBL is 1st and HBL is 4th. The Treynor's performance once measures shows that performance of stock of NBBL is 1st and HBL is 4th. Likewise Jenson's performance measure shows the performance of stock of SCBL is 1st and NBBL is 4th among the banks.
- Among four banks optimal portfolio return and risk shows that return NBBL is highest i.e.32.7% & return of HBL is lowest i.e. 24.9% and HBL has a highest portfolio risk of i.e. 61% and SCBL has a lowest portfolio risk of 34.8%.

Khem Raj Shrestha, (2006) conducted her thesis on "*A Study on Investment Portfolio of Commercial Banks in Nepal*". The general objective of this research is to identify the current situation of investment portfolio of CBs in Nepal. The main objectives are as follows:

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

Methodology used to analyze the data includes common financial tools like return on share and debenture, return on government securities, return on loan and advances and return on portfolio. For risk measurement, it was measured on risk on individual assets and risk on portfolio. The major ratios like return on total asset ratio, total

investment to total deposit ratio, loan and advances to total deposit ratio, government securities to total deposit ratio are used. To verify the assumption, there used common statistical tools like standard deviation, arithmetic mean, co- variance, correlation and regression analysis.

Major Findings:

- 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 that help to reduce the variability of return. In the analysis of risk and return comparatively SCBNL have more return from investment on government securities like same NABIL has better position on investment on loan and 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 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.
- The return is slightly lower than average return from loan and advances and share and debentures. The portfolio risk on investment is less than that of risk on loan and advances and risk on share and debenture. 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 shows the investment portfolio concept is not using properly by the selected banks.
- SCBNL is the bank that mobilizes its total deposits more effectively on government securities. EBL has concentrated to mobilize its depositor's funds in loan and advances. HBL, NSBIBL ands NIBL are not so successful to mobilize its depositor's funds in government securities. But NSBIBL is also more successful to mobilize depositor's funds in loan and advances as well as share and debentures. And NIBL effectively mobilize its depositor's funds in share and debentures.

Bhavishor Paudyal, (2006) conduct a study on "*A study on Portfolio Analysis of Commercial Banks in Nepal*" with the objective of

- To evaluate financial performance of commercial banks of Nepal.
- To examine the existing situation of portfolio management of Nepalese commercial bank.
- To analyze risk and return of commercial banks.
- To analyze the investment and loans and advance portfolio of commercial banks.
- To show the present position trend of loan and advance and investment to total deposit and forecast it.

Using common financial tools like ratios, portfolio returns, portfolio risk, systematic and unsystematic risks, and researcher tried to give up the insights of financial performance. To process the financial data, some common statistics tools like correlation, covariance, and coefficient of determinant are used to find the relevance and significance of the samples.

Major Findings:

- The industrial mean ratio of investment to total deposit is 21.86%. The only EBL has a greater ratio above industrial mean ratio i.e. 24.77>21.8. But other banks have lower investment to total deposit ratio than industrial mean ratio. It shows that EBL has effective mobilization its deposit on investment to generate the return. But other banks are investing its deposits in lower ratio than average industry ratio. Similarly, the CV of EBL is the lowest i.e. 19.9%. Lower ratio indicates that cost consistent which is better than high consistent. The industry CV ratio is 32.37%. The EBL and HBL have the lesser CV ratio to the comparison with industrial CV ratio. It shows variability of ratio of EBL and HBL is the most consistent.
- Among four commercial banks HBL has invested its more funds on government securities (i.e. risk free assets) and lesser fund on share and debenture (i.e. risky assets). All banks have invested more than83% amount in government securities. Only BOKL has invested it's 0.63% on non-resident sector. None of the banks have invested any amount on NRB bond.
- All of the selected commercial banks are granting very high amount its loan and advances to private sector. NIBL and HBL have given second priority to government enterprise and EBL and BOKL give second priority to foreign

bills purchase and discount. EBL and BOKL have granted very low (less than 1%) loan and advance to government enterprises.

- BOKL stock has the highest expected return i.e. 8.34% and HBL has the lowest expected return i.e. -8.82%. NIBL has also negative return i.e. -7.71%. The market expected return is -6.47%. The risk of BOKL is the highest i.e. 57.14% and HBL has the lower risk i.e. 15.26%. NIBL and EBL have risk 19.41% and 36.03% respectively. The market risk is 15.68%. In conclusion we can say that higher the risk higher the return and vice versa.
- Total risk of BOKL stock is highest and total risk of HBL stock is lowest among four commercial banks.
- HBL has the highest portfolio return i.e. 4.85%, NIBL stock has lowest (i.e. negative -1.19%) portfolio return and it has the highest portfolio risk i.e. 8.46%. It means NIBL invest its amount in risky assets so it become in loss. EBL and BOKL have a portfolio return of 4.79% and 4.80% respectively and portfolio risk is 0.28% and 5.77% respectively. It shows that the portfolio return of three banks is not so different but risk of BOKL is higher than HBL and EBL.
- EBL is utilizing its more collected fund on loan and advances and investment which mean percentage ratio is 95.85%. It is the highest average ratio among four commercial banks. HBL is in lost position on its 67.36%. Other banks NIBL and BOKL are utilizing their deposit in loan and investment is 83.59% and 94.73% respectively.

Research Gap

Portfolio investment refers to an investment that combines several assets. Commercial banks cannot utilize whole of its fund raised through deposit and borrowing into loans and advance. To fulfill the gap between borrowing and lending banks rather goes for investment. From the above study the researcher founds the gap that researcher has failed to analyze the financial performance of commercial banks in terms of investment strategies.

More specifically, researcher has taken the samples which are more bullish in current market and try to find out how they have managed the investment portfolio that made them success in unprecedented way. In this research, researcher has try to diagnosis

that good portfolio investment lead directly on the financial performance of the banks in long run and help to maximize market price of share.

Finally, the sample taken from the research purpose are unique that has hardly taken in previous study in a single batch for study purpose. This study will focus overall financial indicators that may or may not affect the financial performance of commercial banks in consideration with portfolio management. In this research, researcher presents the current data up to 2008.

CHAPTER – III

RESEARCH METHODOLOGY

Research methodology is the process of arriving at the solution of the problem through planned and systematic dealing with the collection, analysis and interpretation of facts and figures. Research is a systematic method of finding right solution for the problem whereas research methodology refers to the various sequential steps to adopt by a researcher in studying a problem with certain objectives in view. In other words research methodology refers to the various methods of practices applied by the researcher in the entire aspect of the study. It is the plan, structure and strategy of investigations conceived to answer the research question or test the research hypothesis. Research design is used to control variance *(Wolff and Pant; 2002:51).* It includes different dependent and independent variables, types of research design, research questions and hypothesis sample, data collection activities, technique of analysis etc.

3.1 Research Design

The present study is mainly based on two type of research design i.e. descriptive and analytical. Descriptive research design describes the general pattern of the Nepalese investors, business structure, problem of portfolio management etc. The analytical research design makes analysis of the gathered facts and information and makes a critical evaluation of it.

Finally research design is the plan, structure and strategy of investigations conceived so as to obtain answers to research questions and to control variances. To achieve this study descriptive and analytical research designs have been used.

3.2 Population and Sample

Under the study of investment portfolio analysis of Nepalese commercial banks, the total number of commercial banks including domestic and joint venture banks operating in the Nepal is the population. At present there are twenty six licensed commercial banks are running in Nepal. All 26 licensed Nepalese CBs will consider as the total population out of them this study will be concern with five CBs as a sample. In the sample, banks are taken according to their rapid growth rate and gradually growth rate which head office is in Kathmandu by which we can compare

about the investment portfolio of this bank. The selected sample banks for the analysis are as follows;

Standard Chartered Bank Ltd.

Nepal Investment Bank Ltd.

Nabil Bank Ltd.

Everest Bank Ltd.

Himalayan Bank Ltd.

Population size = 26

Sample size = 5

Sample Percentage = 19.23%

3.3 Sources of Data

This study mainly based on secondary data. Concerned banks, Nepal Rastra Bank, SEBO, and different library are the providers of the data. The review of literature of the proposed study was based on the text books, official publications, journals, unpublished thesis, web site etc. The necessary data and information at macro level have been collected from relevant institutions and authorities such as NRB Ministry of Finance, NEPSE, SEBO and their respective publications similarly the required micro level data derived from annual reports of selected banks, SEBO and NEPSE. In addition to above, supplementary data and information were collected from different library such as library of Shankar Dev Campus, T.U. Central library, SEBO etc. The major sources of data and information are as follows;

Quarterly Economic Bulletin, NRB, 2007/08

Main Economic Indicators of Nepal, NRB (Monthly Report 2008)

NRB Economic Report, NRB

Non-Banking Financial Statistics, NRB

Banking and Financial Statistics, NRB

Economic Survey, Ministry of Finance

Annual Reports of Concern Commercial Banks (from 2000/01 to 2007/08)

Annual Report of SEBO Nepal

Trading Report of NEPSE

Journal of Finance

Journal of Business

Previous Research Studies, Dissertation and Articles on the Subject

Various Text Books
Different Library
Different Website Related to study

3.4 Data Collection and Processing Techniques

Although, the study mainly used secondary data, high level of efforts and more time was paid to get data. Official publications like Economic Survey, Annual Reports, Banking and Non-Banking Financial Statistics, Economic Bulletin etc. were obtained from respective offices. Mainly most of the data are taken from the library of SEBO. To some extent, informal interview was scheduled and conducted to obtain more information and reality about the various published data, investment policies of the banks, portfolio concept in the field of investment etc.

Due to poor data base, the data obtained from the various sources cannot be directly used in their original form. Further they need to be verified and simplified for the purpose of analysis. Hence, in this study the available data, information, figures and facts were checked, rechecked, edited and tabulated for computation. Similarly, according to the need and objectives, the secondary data were compiled, processed tabulated and graphed if necessary for the better presentation.

3.5 Data Analysis Tools

Various financial and statistical tools were used to analyze the data ratio analysis, correlation coefficient, trend analysis, risk and return, standard deviation, hypothesis test, etc were used in the study. A brief explanations of statistical and financial tools employed in this study is given below.

a) Financial Tools

There are several tools which can be applied in order to analyze the performance of CBs. But the following main financial tools are used to analyze.

I. Ratio Analysis

The relationship between the two accounting figures expressed mathematically is known as ratio. Ratio analysis is used to compare a firm's financial performance and status to that of other firms or to itself on time *(Gitman; 1990:275).* Likewise, ratio

refers to the numerical or quantitative relationship between two items or variables. In simple language it is one number expressed in term of another and can be worked out by dividing the number to the other i.e. it is calculated by dividing one items of the relationship with the other *(Munakarmi;2002:204).* In financial analysis, ratio is used as an index of yardstick for evaluating the financial position and performance of the firms. Since, this study mainly moves around investment portfolio of CBs. Only such ratios which are related to investment of CBs are taken here. Hence, in this study the following ratios are calculated and analyzed.

1. Total Investment to Total Deposit Ratios

Investment is one of the major credits created to earn income. This implies the utilization of firms deposit on investment in government securities. This ratio can be obtained by dividing total investment by total deposit. This can be mentioned as;

$$\frac{\text{Total Investment}}{\text{Total Deposit}}$$

2. Loan and Advances to Total Deposit Ratio

This ratio assesses to what extent the banks are able to utilize the depositor's funds to earn profit by providing loan and advances. It is computed by dividing the total amounts of loans and advances by total deposited funds. The formula used to computed this ratio is as

$$\frac{\text{Loan and Advances}}{\text{Total Deposit}}$$

High ratio is the symptom of higher/ proper utilization of funds and low ratio is the single of balance remained unutilized/ idle.

3. Net Profit to Total Assets Ratio

This ratio is very much crucial for measuring the profitability of funds invested in the banks assets. It measures the return on assets. It is computed by dividing the net profit after tax by total assets. The formula used for computing this ratio is as

$$\frac{\text{Net Profit after Tax}}{\text{Total Assets}}$$

4. Investment on Government Securities to Total outside Investment Ratio

This ratio is crucial for measuring the investment on government securities out of total outside investment. This ratio is calculated by dividing investment on government securities by total outside investment.

$$\frac{\text{Investment on government securities}}{\text{Total outside investment}}$$

TOI = Loan advances + bill purchased + discounted + all types of investment

5. Investment on Share and Debenture to Total outside Investment

This ratio shows the bank investment in share and debenture of subsidiary and other companies. This ratio is calculated by dividing investment on share and debenture by total outside investment.

$$\frac{\text{Investment on share and debenture}}{\text{Total outside investment}}$$

6. Return on Government Securities

This ratio indicates how efficiently the bank has employed its resources to earn good return from government securities. This ratio is computed by dividing interest income on government securities by government securities. This can be expressed as;

$$\frac{\text{Interest income on government securities}}{\text{Government securities}}$$

7. Return on Loan and Advances

This ratio indicates how efficiently the bank has employed its resources to earn good return from provided loan and advances. This ratio is computed by dividing interest income on loan and advances by loan and advances. This can be expressed as;

$$\frac{\text{Interest income on loan and advances}}{\text{Loan and Advances}}$$

8. Return on Share and Debentures

The return on share and debenture considers dividend yield and capital gain yield. The dividend yield is only a partial indication of the return hence, return on share and

debenture significantly depends on the change in its share price. It is calculated as follows;

$$\text{Return on share and debenture } \int R_s \text{AX} \frac{P_t \text{ Z} P_{t\text{Z}1} \Gamma D_t ..or..It}{P_{t\text{Z}1}}$$

II. Risk on Individual Assets

The risky ness of assets depends on the variability of rates of return, which is defined as the extent of the deviation of individual rates of return from the average rate of return. Risk on individual assets can be calculated as;

$$\pm \text{ X} \sqrt{\frac{\int R \text{ Z} \bar{R} \text{Å}}{n \text{ Z} 1}}$$

Where

$\pm$ XStandard deviation or risk

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

R = rate of return on individual assets

n = no. of years

III. Return on Portfolio

The return of a portfolio is the weighted average of the returns of the individual assets in the portfolio. The weights are proportion of the investors wealth invested in each asset, and sum of the weights must be equal one.

$$\text{Portfolio return } \int R_p \text{AX} W_A R_A \Gamma W_B R_B \Gamma ..... \Gamma W_N R_N$$

Where,

R_p = Portfolio return

W_A = Weight of investment invested in stock ‘A’

W_B = Weight of investment invested in stock ‘B’

R_A = Return for stock ‘A’

R_B = Return for stock ‘B’

IV. Risk on Portfolio

The portfolio risk is measured by either variance or standard deviation of returns. The portfolio risk is affected by the variance of return as well as the covariance between the return of individual assets included in the portfolio and respective weights.

The portfolio risk can be calculated in term of its standard deviation as;

$$\pm_p X \sqrt{W_A{}^2 \pm_A{}^2 \Gamma W_B{}^2 \pm_B{}^2 \Gamma W_C{}^2 \pm_C{}^2 \Gamma 2Cov_{AB} \mid W_A \mid W_B \Gamma 2Cov_{AC} \mid W_A \mid W_C \Gamma 2Cov_{BC} \mid W_B \mid W_C}$$

Where,

W_A, W_B, W_C = Weight of assets A, B and C

$\pm_A, \pm_B, \pm_C$ = Standard deviation of A, B and C

Cov_{AB} = Co-variance between assets A and B

Cov_{BC} = Co-variance between assets B and C

Cov_{AC} = Co-variance between assets A and C

V. Co-Variance

The covariance measure how two variables co-vary. It is a measure of the absolute association between two variables. How the returns of individual stocks and market co-vary measured by covariance between the return of individual stocks and market return. If two variables are independent, their covariance will zero. It computed as;

Symbolically

$$Cov.(j \& m) X \circ_{j,m} \pm_j \pm_m$$

VI. Coefficient of Variation

We know that standard deviation is the absolute measure of dispersion of rate of return. The relative measure of dispersion based on the standard deviation is known as the coefficient of standard deviation.

$$C.V. = \frac{\pm_j}{\overline{R_j}}$$

Where,

$\pm_j$ = Standard deviation of securities j.

$\overline{R_j}$ = Average return on securities j.

The CV thus defines the risk associated with each dollar of expected return in terms of ratio of the standard deviation of return to the expected return (Pradhan; 2000:250).

VII. Portfolio Performance Measure

Sharpe's Portfolio Performance Measure

Portfolio performance evaluation on the basis of return only will be insufficient; therefore, it is necessary to consider both risk and return. The Sharpe ratio measures the amount of return from an investment portfolio for a given level of risk. It does this by dividing a measure of portfolio variability (the standard deviation of its returns over a specific period) into the excess returns generated by the portfolio over a risk free rate of return for the same period. The higher the resulting number (index), the better is the portfolio performance. This ratio is used to rank the performance of investment funds.

$$S_P = \frac{\text{Risk Premium}}{\text{Total Risk}} \quad \text{X} \frac{\overline{r_P} - r_f}{\pm_P}$$

Where,

S_P = Sharp's index of portfolio performance for portfolio i

$\overline{r_p}$ = Average return on portfolio, r_f = Risk free rate of return

$\pm_P$ = Standard deviation of portfolio

b) Statistical Tools

The process of analyzing and evaluating various data statistical tools has been used. In this study, statistical tools such as standard deviation, mean, coefficient of variation, coefficient of correlation between different variables, trend analysis as well as hypothesis test have been used, which are as follows;

I. Karl Person's Coefficient of Correlation

Correlation Coefficient is statistical tools for measure of the relative association between two variables series; it describes how much linear co-movement exits between two variables. Karl Person's measure, known as personas correlation coefficient between two variables (series) X and Y usually denoted by r(X,Y) or r_{xy} or simply r can be obtained as;

$$r = \frac{N \sum XY - \sum fX \sum fY}{\sqrt{N \sum X^2 - (\sum fX)^2}\sqrt{N \sum Y^2 - (\sum fY)^2}}$$

The value of correlation coefficient 'r' lies between -1 to +1

If r = 1 there is perfect positive relationship

r = -1 there is perfect negative relationship

r = 0 there is no correlation at all

The closer the value of ‘r’ is 1 or -1, the closer the relationship between the variables and the closer ‘r’ is to 0, the less close relationship.

II. Mean

It can also be denoted by AM or simply a mean of a set of observations is the sum of all the observation divided by the number of observations. AM is also known as arithmetic average. AM is the most popular one among the different measures of the averages. e.g., the AM of x of N observation $x_1, x_2, x_3 \ldots\ldots\ldots\ldots x_n$ is given by

$$\overline{X} = \frac{1}{N}(x_1 + x_2 + x_3 + \ldots\ldots + x_n)$$

$$\overline{X} = \frac{x}{N}$$

III. Trend Analysis

The straight line trend implies that irrespective of the seasonal and cyclical swings and irregular functions, the trend values increases or decreases by absolute amount per unit of time. It is computed as follows

Y = a + bx Where,

Y = the value of dependent variable

a = Intercept of trend line

b = Slope of trend line

x = Value of the independent variable

Following two equations can be developed putting the above values in normal equation

$$y = Na + b \quad x$$

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

Since $x = 0$, $a = \frac{y}{n}$ and $b = \frac{xy}{x^2}$

The constant ‘a’ is simply equal to the mean Y value and constant ‘b’ gives the rate of change.

This is a mathematical method which is widely used in practice. It is applied for finding out a trend line for those series which changes periodically in absolute amount.

CHAPTER – IV

DATA PRESENTATION AND ANALYSIS

The main theme of this chapter is to analyze and interpret the data by using financial and statistical tools. In this chapter, the concern is given in the presentation and analysis part of data in detail. As data presentation and analysis is the crucial part of any research, the purpose is to organize the collected data so that it can be used for interpretation whereas analysis of the data is to convert it from a crude form to an easy and understandable presentation. It is so obvious that the presentation of the data and its analysis help us to draw valid conclusion.

There are a number of methods which can be used to simplify the data. It is being felt that the easiest way to understand the data is by examining it through charts, tables and graphs. Necessary tables and figures are personated to achieve the objectives of the study. Here, all possible data are collected from Nepal Stock Exchange (NEPSE) and Security Board (SEBO). Similarly, some of the data are also collected from Internet, Journals and other concerned sources.

For the title of the thesis, the investment portfolio of CBs is analyzed with the help of following tools;

- Investment operations of CBs
- Ratio analysis
- Risk and return analysis of individual securities and portfolio investment
- Financial performance of individual as well as portfolio investment
- Trend analysis

4.1 Investment Operations of CBs

Investment is the most important functions of CBs because investment policy provides several inputs, through which banks can handle their investment operation efficiently and maximize return with, minimize risk which is the success path for the banks. CBs must mobilize it funds to profitable, secured, and marketable sector, so that it can earn more profit. CBs must fulfill the credit needs of various sectors of the economy including industry, commercial, social service, securities and agriculture sector.

Nowadays most of the banks depend upon the investment strategies. By which the CBs are playing the vital role in the economic development of the country. This chapter investment operation of CBs deals with the pinpointing analysis related to the investment of the CBs of Nepal in government securities, share and debentures and loan and advances prepared in various economic sectors.

4.1.1 Investment on Government Securities

The investment of the CBs on government securities includes the investment on treasury bills, development bonds, national savings bonds, insurance bond etc. In some extent all CBs seem to be interested to use their deposits by purchasing government securities.

Table 4.1
Structure of Investment on Government Securities Held by CBs
(Rs. in '000')

FY	SCBL	NIBL	NABIL	EBL	HBL	CBs
2000/01	4811010	300000	2767959	822996	2025252	10727217
2001/02	5784723	224400	4120294	1538897	2588562	14256876
2002/03	6581348	400000	3588772	1599350	3347102	15516572
2003/04	7948217	2001100	3672626	2466428	3431728	19520099
2004/05	7203066	1948500	2413939	2100289	5469729	19135523
2005/06	8635875	2522300	2301463	3322443	5144313	21926394
2006/07	7107937	3256400	4808348	3614541	6454871	25242097
2007/08	8137615	3155000	4646883	3237978	7471667	26649143
Total	**56209791**	**13807700**	**28320284**	**18702922**	**35933224**	**152973921**
Average	**7026224**	**1725963**	**3540036**	**2337865**	**4491653**	**19121740**

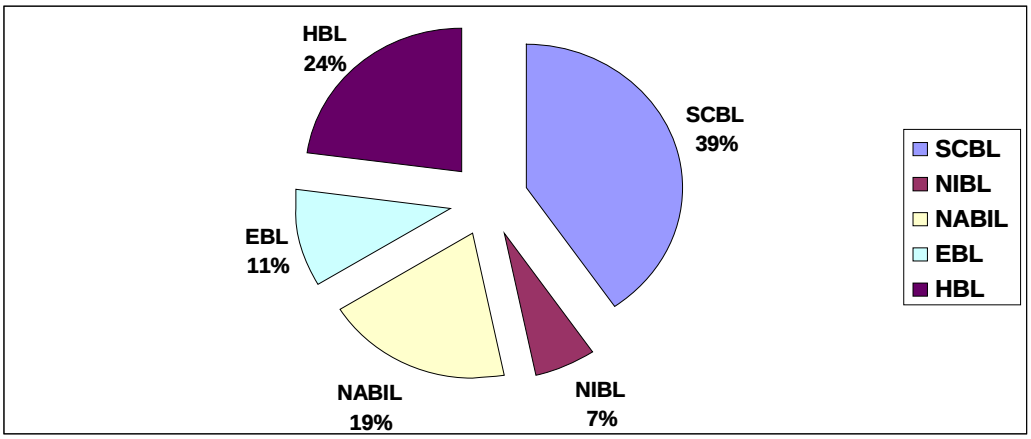
Source: Annual Reports of CBs from FY 2000/01 to 2007/08

Table 4.2
% Share of Investment on Government Securities of each Banks

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	44.85%	2.80%	25.80%	7.67%	18.88%
2001/02	40.57%	1.57%	28.90%	10.79%	18.16%
2002/03	42.41%	2.58%	23.13%	10.31%	21.57%
2003/04	40.72%	10.25%	18.81%	12.64%	17.58%
2004/05	37.64%	10.18%	12.61%	10.98%	28.58%
2005/06	39.39%	11.50%	10.50%	15.15%	23.46%
2006/07	28.16%	12.90%	19.05%	14.32%	25.57%
2007/08	30.54%	11.84%	17.44%	12.15%	28.04%
Mean	**39.08%**	**7.07%**	**19.31%**	**10.85%**	**23.69%**
S.D.	**5.79%**	**4.76%**	**6.26%**	**2.37%**	**4.38%**
C.V.	15.23%	**59.87%**	**32.07%**	**20.18%**	**19.29%**

Source: Table 4.1

Figure 4.1
Percentage Coverage of Government Securities Held By CBs



The above table reveals that most of the CBs made investment on government securities. The investment on government securities of SCBL is highest among other banks. The NIBL has been found to have investment on govt. securities lower comparative to other banks. Similarly the SCBL covers more shares i.e. 39.08% of the total investment on govt. securities made by CBs. HBL be on 2nd position by investing 23.69% of the total investment on govt. securities made by CBs. Similarly the lowest C.V. of SCBL shows the more consistency in investment.

NIBL has highest CV which means there is high variability in investment on govt. securities. From above analysis about the investment structure of CBs on the govt. securities reveal there is no similar trend of investment on govt. securities made by CBs. Some banks 3% of total investment while some covers more than that (i.e. nearly half parts) of total investment on govt. securities. From average mean and CV analysis, it is clear that SCBL, NABIL and HBL are the banks which mobilize maximum funds comparative to other banks on govt. securities. NIBL stood at the last position sharing average 7.07% in total investment.

4.1.2 Investment on Share and Debenture

Commercial banks are interested to invest its funds on share and debentures of other companies. Commercial banks invest their resources in finance, banks, rural micro finance company, companies, and regional development banks. Some companies whose shares are hold by commercial banks are Nepal Oil Corporation, Nepal housing development finance co. ltd., NIDC capital market, Insurance Corporation, rural development banks etc. the investment structure of commercial banks on share and debentures are shown in table below.

Table 4.3
Structure of Investment on Shares and Debentures Held by CBs
(Rs. in '000')

FY	SCBL	NIBL	NABIL	EBL	HBL	CBs
2000/01	11195	12695	18820	3700	10691	57101
2001/02	11195	13895	22220	17114	34265	98689
2002/03	11195	13895	22220	17114	34265	98689
2003/04	11195	13895	22220	17114	34265	98689
2004/05	13348	17738	27363	19387	39909	117745
2005/06	15343	17738	27563	19082	39909	119635
2006/07	44943	35253	57853	19887	73424	230555
2007/08	114536	59945.5	57853	101152	89558	423045
Total	**232950**	**185055**	**256112**	**214550**	**356286**	**1244953**
Average	**29119**	**23132**	**32014**	**26819**	**44536**	**155619**

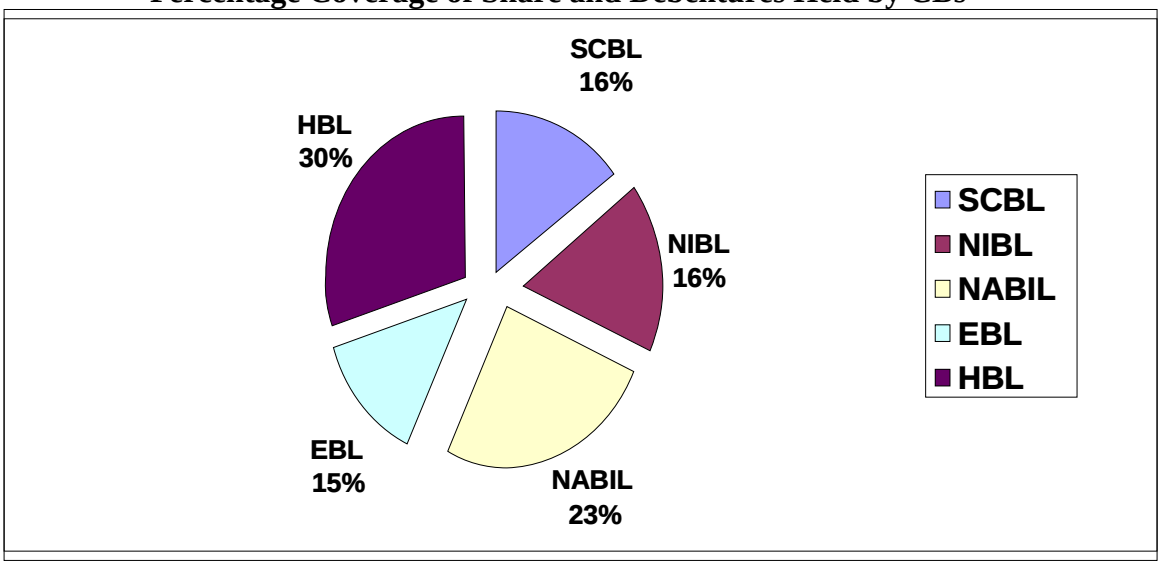
Source: Annual Reports of CBs from FY 2000/01 to 2007/08

Table 4.4
% Share of Investment in Shares and Debentures of each Banks

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	19.61%	22.23%	32.96%	6.48%	18.72%
2001/02	11.34%	14.08%	22.52%	17.34%	34.72%
2002/03	11.34%	14.08%	22.52%	17.34%	34.72%
2003/04	11.34%	14.08%	22.52%	17.34%	34.72%
2004/05	11.34%	15.06%	23.24%	16.47%	33.89%
2005/06	12.82%	14.83%	23.04%	15.95%	33.36%
2006/07	19.49%	15.29%	25.09%	8.28%	31.85%
2007/08	27.07%	14.17%	13.68%	23.91%	21.17%
Mean	15.54%	15.48%	23.20%	15.39%	30.39%
S.D.	**5.89%**	**2.77%**	**5.22%**	**5.55%**	**6.55%**
C.V.	**37.92%**	**17.91%**	**22.52%**	**36.05%**	**21.56%**

Source: Table No.4.3

Figure 4. 2
Percentage Coverage of Share and Debentures Held by CBs



The above table shows that CBs made very low parts on Shares and Debentures of other companies. The investment of Nepalese CBs on other companies' shares shows HBL has been investing highest among other CBs i.e. 30.39%. Similarly, EBL has least mean, which say that EBL invest lowest amount in share and debenture, its investment is more consistent than other banks.

It has been revealed that there is no any proper trend of investing on share and debenture of CBs. But all banks take part in such investment. Among the above five listed commercial banks; it is quite clear that HBL covers highest shares i.e. 30.39% and EBL covers lowest shares i.e. 15.39% of total investment on shares and debentures made by CBs.

4.1.3 Investment on Loan and Advances

Commercial banks are financial institutions that collect scattered savings of community and invest them into most desirable and high return sectors of economy. Pace of economic development is directly related to the quality and quantity of the credit. Commercial banks invest their funds in various sectors like industry, agriculture, commercial sector etc. commercial banks should invest its collected funds as loan and advance not to keep it as cash and bank balance for mobilize its fund. Investment structure of loan and advances of CBs are tabulated below.

Table 4.5
Structure of Investment on Loan and Advance Held by CBs

(Rs. in '000')

FY	SCBL	NIBL	NABIL	EBL	HBL	CBs
2000/01	5660803	2318907	7993282	2959446	8651735	27584173
2001/02	5248362	2518057	7135536	3923601	10200552	29026108
2002/03	5574061	5648032	7454262	4882788	10001848	33560991
2003/04	6322852	6917796	7953759	5860541	11635308	38690256
2004/05	7831626	9933084	10465266	7589332	12088708	47908016
2005/06	8637277	12613561	12681666	9770919	14307567	58010990
2006/07	10252469	17010464	15545778	13459953	16831888	73024420
2007/08	13718597	27242533	21365053	18390214	19551745	100268142
Total	**63246047**	**84202434**	**90594602**	**66836794**	**103269351**	**408149228**
Average	**7905756**	**10525304**	**11324325**	**8354599**	**12908669**	**51018654**

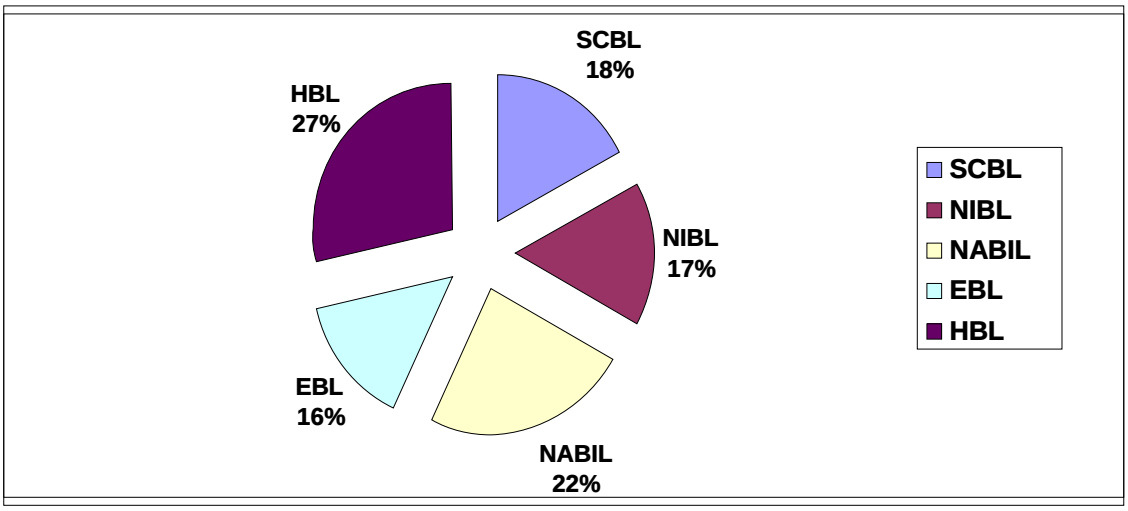
Source: Annual Reports of CBs from FY 2000/01 to 2007/08

Table 4.6
% Share of Investment on Loan and Advances of each Bank

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	20.52%	8.41%	28.98%	10.73%	31.36%
2001/02	18.08%	8.68%	24.58%	13.52%	35.14%
2002/03	16.61%	16.83%	22.21%	14.55%	29.80%
2003/04	16.34%	17.88%	20.56%	15.15%	30.07%
2004/05	16.35%	20.73%	21.84%	15.84%	25.23%
2005/06	14.89%	21.74%	21.86%	16.84%	24.66%
2006/07	14.04%	23.29%	20.96%	18.66%	23.05%
2007/08	27.07%	14.17%	13.68%	23.91%	21.17%
Mean	17.94%	16.95%	21.88%	16.11%	27.12%
S.D.	**4.22%**	**6.45%**	**4.26%**	**3.88%**	**5.36%**
C.V.	**23.49%**	**38.08%**	**19.49%**	**24.09%**	**19.78%**

Source: Table 4.5

Figure 4.3
Percentage Coverage of Loan and Advances of Different CBs



From the above table no. 4.5 and 4.6 shows that HBL has the highest shares i.e.27.12% on loan and advances among five CBs throughout the review period from 2000/01 to 2007/08. NABIL takes at the second position and EBL take last position covering 21.88% and 16.11% respectively loan and advances among five CBs. NABIL has less CV which indicates the consistency of investment on loan and advances.

It is clear that HBL is the best bank among five banks on the basis of utilization of resources in the field of loan and advances. In other hand the fluctuating trend of investment on loan and advances shows that there is a lack of any scientific approach towards investment on loan and advances of CBs.

4.2 Investment Portfolio Analysis

Commercial banks cannot utilize whole of its fund raised through deposit and borrowings into loans and advance. In order to fulfill the gap between borrowings and lending banks rather goes for investment on such as government securities, shares and debenture, NRB bond etc.

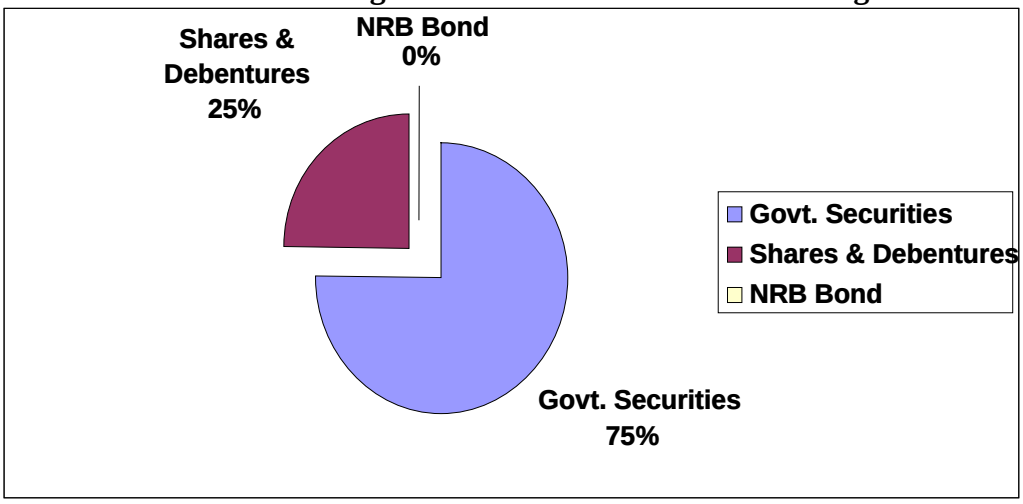
The portfolio of making investment by five commercial banks i.e. SCBL, NIBL, NABIL, EBL, HBL has been analyzed in the table.

Table 4.7
CBs Average Investment Portfolio in Percentage

Name of Banks	Govt. Securities	Shares and Debentures	NRB Bond
SCBL	73.83%	26.17%	0%
NIBL	49.55%	50.45%	0%
NABIL	78.82%	21.18%	0%
EBL	96.28%	3.72%	0%
HBL	80.27%	19.73%	0%
Industry Average	**73.75%**	**24.25%**	**0%**

Source: Banking and Financial Statistics, NRB, Mid July, 2008

Figure 4.4
CBS Average Investment Portfolio in Percentage



The above table shows the average investment portfolio of five commercial banks. SCBL is investing 73.83% on government securities, 26.17% of fund on shares and debentures and 0% of its fund in NRB bond. It shows that SCBL is investing its more funds on government securities, some of its fund on share and debenture and not any fund on NRB bond.

NIBL is not investing any fund on NRB bond i.e. 0%. It is investing high amount on share and debenture. The mean percentage investment on share and debenture is 50.45% and the mean percentage investment on government securities is 49.55%.

NABIL is investing very high amount of fund on government securities. Mean percentage of investing on government securities is 78.82%. Investment made in share and debenture is very low i.e. 21.18% only and NABIL has not invested any amount of funds on NRB bond i.e. 0%.

EBL is not investing its any amount of funds in NRB bond so its mean percentage ratio investment in NRB bond is 0%. EBL is investing higher amount of funds on government securities. Its mean percentage ratio investment on government securities is 96.28% and it is investing very low amount of its fund on share and debenture, its mean percentage ratio investment on share and debenture is 3.72%.

HBL is not investing its any amount of funds in NRB bond so its mean percentage ratio investment in NRB bond is 0%. HBL is investing higher amount of funds on government securities. Its mean percentage ratio investment on government securities is 80.27% and it is investing very low amount of its fund on share and debenture, its mean percentage ratio investment on share and debenture is 19.73%.

4.3 Loan and Advance Portfolio Analysis

Commercial bank provides loan and advance form the money which it receives by way of the person against the personal security of borrowers or against the security of movable and immovable properties. The major portion of short term investment of CBs is the loan and advance provided to various sector of the market. Mainly commercial banks are providing their funds to government enterprise, private sectors and foreign bills purchase and discount.

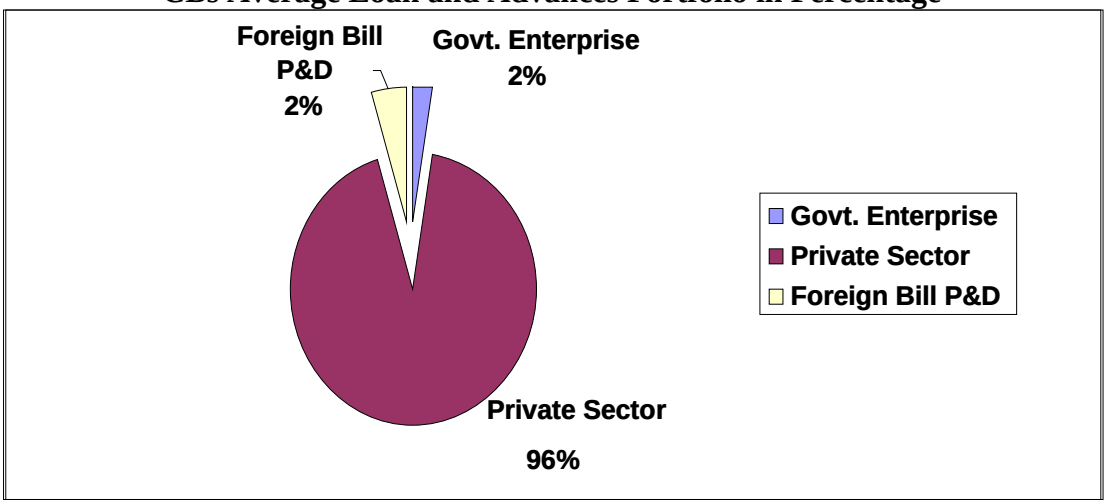
The portfolio of making loans and advance by five banks SCBL, NIBL, NABIL, EBL and HBL has been analyzed in the table.

Table 4.8
CBs Average Loan and Advances Portfolio in Percentage

Name of Banks	Govt. Enterprise	Private Sector	Foreign Bill P and D
SCBL	3.29%	94.40%	2.31%
NIBL	1.15%	97.28%	1.57%
NABIL	1.42%	95.99%	2.59%
EBL	2.26%	97.11%	0.63%
HBL	4.07%	94.42%	1.51%
Industry Average	**2.44%**	**95.84%**	**1.72%**

Source: Banking and Financial Statistics, NRB, Mid July 2008

Figure 4.5
CBs Average Loan and Advances Portfolio in Percentage



The above table shows the average loans and advance portfolio of five commercial banks. SCBL is providing very high amount of its loans and advances to the private sector. The mean percentage of loans and advances to the private sector is 94.40%. SCBL has given second priority to foreign bills P&D. The mean percentage of foreign bills P&D is 2.31%. The bank has finally given priority to government enterprise with the mean percentage of 3.29%.

NIBL is providing a very high amount of its loans and advances to the private sector. The mean percentage of loans and advances to the private sector is 97.28%. It has given second priority to foreign bills P&D. The mean percentage on it is 1.57%. And finally it invests on government enterprise with mean percentage of 1.15%.

NABIL has provided very high amount of its loans and advances to private sector. The mean percentage of loans and advances to private sector is 95.99%. It has given a second priority to foreign bills P&D. The mean percentage of loans and advances to foreign bills P&D is 2.59% which is the highest as compared to other commercial banks. Lastly it has given a priority in providing loans and advances to government securities with mean percentage of 1.42%.

EBL is providing very high amount of its loans and advances to the private sector. The mean percentage of loans and advances to the private sector is 97.11%. EBL has given second priority to government enterprise. The mean percentage of government enterprise is 2.26%. The bank has finally given priority to foreign bills P&D with the mean percentage of 0.63%.

HBL is providing a very high amount of its loans and advances to the private sector. The mean percentage of loans and advances to the private sector is 94.42%. It has

given second priority to government enterprise. The mean percentage on it is 4.07%. And finally it invests on foreign bills P&D with mean percentage of 1.51%.

4.4 Analysis of Ratios

An arithmetical relationship between two figures is ratio. In other words, the relationship between two accounting figures expressed in mathematical terms is known as financial ratios. A ratio is always calculated by dividing one item of the relationship with other. As a tool of financial analysis, ratio can be expressed in terms of %. Ratio analysis is a very important tool of financial analysis.

From the help of ratio analysis, the qualitative judgment can be done very easily and timely regarding financial performance of the firm. It establishes the significant relationship between the times of financial statements to provide a meaningful understanding of the performance and financial position of a firm. Ratio analysis serves as a stepping stone for an inter-firm comparison to take remedial measures. In this chapter only important ratios are analyzed.

a. Investment to Total Deposit Ratio

This ratio investment to total deposits is used to measure to which the banks are successful in mobilizing the total deposits on investment or not. CBs may mobilize its bank deposit by investing its fund in different securities issued by government and other financial or non financial companies. CBs are investing their funds in govt. securities such as treasury bills, development bonds, national saving bonds, special bonds etc. shares to other companies.

High ratio is the indicator of high success to mobilize the banking funds as investment and vice-versa. The ratio of investment to total deposit are shown in the table below;

Table 4.9
Investment to Total Deposits Ratio (%)

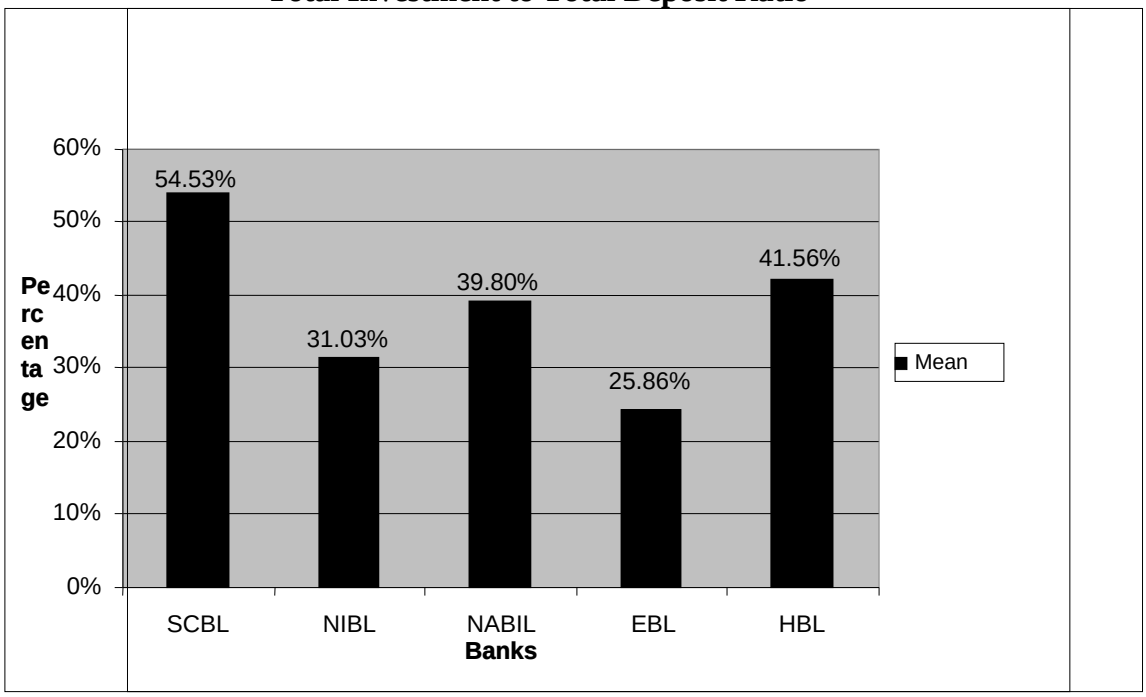
FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	61.95%	46.29%	48.64%	19.71%	23.29%
2001/02	58.58%	43.65%	52.88%	30.97%	49.18%
2002/03	54.47%	21.52%	44.85%	24.70%	48.35%
2003/04	53.68%	33.51%	41.33%	31.44%	42.22%
2004/05	50.18%	27.60%	29.27%	21.08%	47.12%
2005/06	55.67%	29.60%	31.95%	30.44%	41.10%
2006/07	54.99%	26.57%	38.32%	27.41%	39.35%
2007/08	46.74%	19.52%	31.14%	21.11%	41.90%
Mean	**54.53%**	**31.03%**	**39.80%**	**25.86%**	**41.56%**
S.D.	**4.68%**	**9.67%**	**8.67%**	**4.86%**	**8.23%**
C.V.	**8.58%**	**31.17%**	**21.80%**	**18.79%**	**19.81%**

Source: Appendix 03 (c)

Industry Average Mean = 38.06%

Industry Average CV = 20.14%

Figure 4.6
Total Investment to Total Deposit Ratio



From the above listed comparative table and figures reveals that the ratio of investment to total deposit of CBs are in fluctuating trend throughout the review period i.e. from the FY 2000/01 to 2007/08. The mean investment to total deposit of SCBL is the highest at the 54.53%. Similarly HBL and NABIL has second and third highest ratio of investment to total deposit with 41.56% and 39.80%. From the point of view of average ratio it can be said that the SCBL, NABIL and HBL capacity to mobilize its deposit on investment is better than others because their mean ratio are higher than average ratio on CBs 38.06% on the other hand HBL, EBL, NIBL mobilized their deposit on investment is not so good as compare to overall CBs.

But the coefficient of variation in the ratio of SCBL is the lowest i.e. 8.56%. Similarly the CV in the ratio of NIBL is the highest i.e. 31.17% indicates more inconsistent among other. So, it is clear that SCBL is the most successful in utilizing its resources on investment among other five banks. Similarly NABIL and HBL moderate in utilizing its resources on investment. Other banks are not so successful in utilizing its deposits on investment than other CBs.

b. Loan and Advance to Total Deposit Ratio

The loan and advance is also one of major sectors of an investment. This ratio measures extend to which bank are successful to mobilize their deposits fund to earn

profit by providing fund to outsiders in the form of loan and advances. The higher ratio represents the greater efficiency of the firm in utilizing fund and vice-versa. This ratio is calculated by dividing loans and advance by total deposit.

Where, loan and advances included loans to government enterprises, private sectors, foreign bills purchase and discount. Total deposit included current deposit, fixed deposit, saving deposit, money at call deposit and other deposit.

The following table shows the ratios of loan and advances to total deposit ratio of various CBs.

Table 4.10
Loan and Advance to Total Deposit Ratio (%)

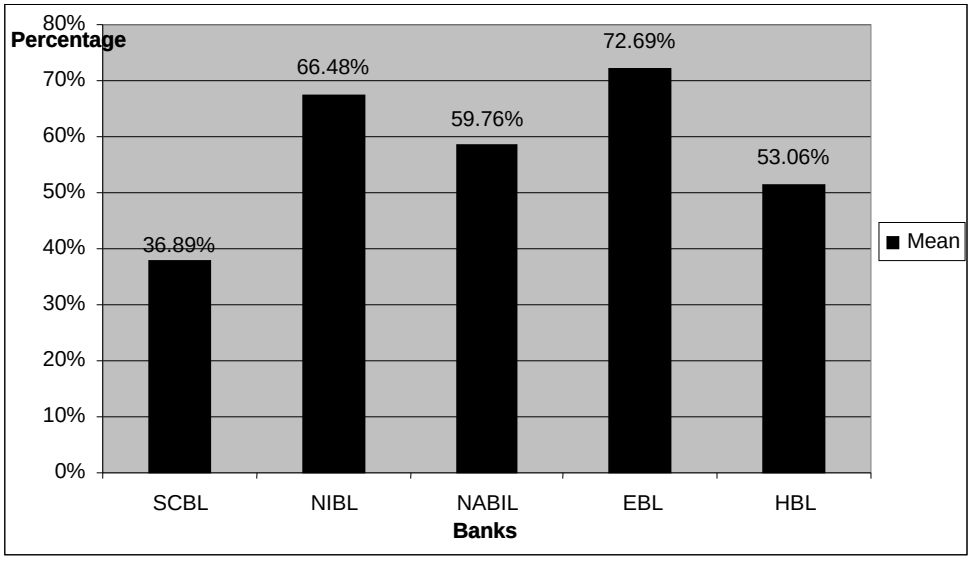
FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	36.69%	54.48%	50.47%	64.69%	49.35%
2001/02	33.14%	60.32%	46.02%	71.77%	54.78%
2002/03	29.72%	71.29%	55.43%	72.93%	47.53%
2003/04	29.88%	60.03%	56.33%	72.68%	52.86%
2004/05	40.50%	69.68%	71.75%	75.16%	48.72%
2005/06	37.45%	66.64%	65.55%	70.79%	54.01%
2006/07	41.60%	69.46%	65.57%	74.91%	56.02%
2007/08	46.12%	79.90%	66.94%	78.56%	61.23%
Mean	**36.89%**	**66.48%**	**59.76%**	**72.69%**	**53.06%**
S.D.	**5.80%**	**7.98%**	**9.01%**	**4.04%**	**4.51%**
C.V.	**15.72%**	**12.01%**	**15.08%**	**5.55%**	**8.51%**

Source: Appendix 03 (d)

Industry Average Mean = 57.77%

Industry Average CV = 6.27%

Figure 4.7
Loan and Advances to Total Deposit Ratio



In the table, the mean ratio loans & advances to total deposit of EBL is highest i.e. 72.69% & SCBL is lowest i.e. 36.89% among 5 commercial banks. Other banks NIBL, NABIL, HBL have a mean ratio 66.48%, 59.76%, 53.06% respectively. The industrial average mean ratio is 57.77%. It can be said that NIBL, EBL & NABIL capacity to mobilize its deposit on loan & advance is better than average ratio of CBs.

The CV ratio of EBL is lowest i.e. 5.55% among five commercial banks which indicates that the investment as HBL is the most uniform. SCBL has the highest CV ratio i.e. 15.72% among 5 commercial banks. It indicates that the investment of SCBL is more fluctuating. The lowest CV is better then highest CV. The industrial average CV ratio is 6.27%. EBL have a lowest CV than industrial average CV. So it can be concluded that EBL is the most effective, NABIL, NIBL, HBL is moderate effective and SCBL, HBL is least effective to mobilize its deposit on loan and advances.

C. Government securities to Total Deposit Ratio

The Government securities are also one of major sectors of an investment. This ratio measures that how banks has mobilize its deposit on government securities. Though investment in government securities yields less return but it is considered as more secure investment. The higher ratio represents the more secure investment of the firm in utilizing fund and vice-versa. This ratio is calculated by dividing investment in government securities by total deposit.

Where, investment in government securities included purchasing of government bonds, treasury bills etc. The following table shows the government securities to total deposit ratio of various CBs.

Table 4.11

Government securities to Total Deposit Ratio (%)

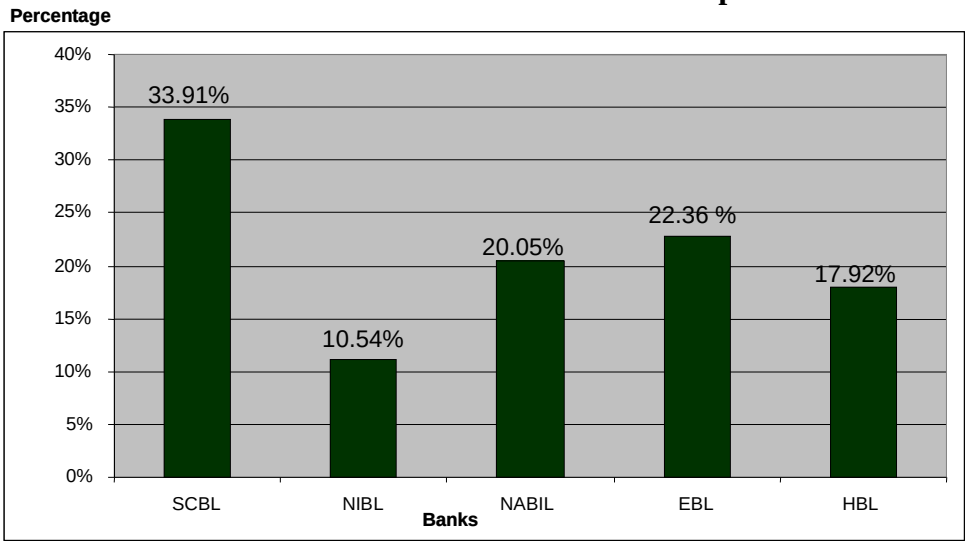
FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	31.18%	7.05%	17.48%	17.99%	11.55%
2001/02	36.53%	5.38%	26.57%	28.15%	13.90%
2002/03	35.09%	5.05%	26.69%	23.89%	15.90%
2003/04	37.56%	17.36%	26.01%	30.59%	15.59%
2004/05	37.25%	13.67%	16.55%	20.80%	22.04%
2005/06	37.45%	13.33%	11.90%	24.07%	19.42%
2006/07	28.84%	13.30%	20.60%	19.88%	21.48%
2007/08	27.36%	9.16%	14.56%	13.50%	23.46%
Mean	**33.91%**	**10.54%**	**20.05%**	**22.36%**	**17.92%**
S.D.	**4.16%**	**4.51%**	**5.83%**	**5.51%**	**4.29%**
C.V.	**12.28%**	**42.83%**	**29.08%**	**24.65%**	**23.94%**

Source: Appendix 03 (e)

Industry Average Mean = 20.95%

Industry Average CV = 26.56%

Figure 4.8
Government securities to Total Deposit Ratio



In the above table, the mean Government securities to total deposit ratio of SCBL is highest i.e. 33.91 and NIBL is lowest ratio i.e. 10.54% among five commercial banks. Other banks NABIL, EBL and HBL have mean ratios of 20.05%, 22.36% and 17.96% respectively. The industrial average mean ratio is 20.95%. It can be said that SCBL and EBL have secure investment (i.e. investment in government securities) than the rest of the banks.

The CV ratio of SCBL is lowest i.e. 12.28% among five commercial banks which indicates that the investment of SCBL is the more secure. NIBL has the highest CV ratio i.e. 42.83% among five commercial banks; it indicates that the investment of NIBL is unsafe. The lowest CV is better then highest CV. The industrial average CV ratio is 26.56%. SCBL, EBL, HBL have a lowest CV than industrial average CV. So it can be concluded that SCBL has the secure investment than that of other banks and NIBL is more risky than that of other banks.

d) Return on Total Assets

This ratio measures the effectiveness of the banks in using its overall resources. It measured in terms of relationship between net profit and total assets. The higher the ratio represents the efficient of the bank utilizing its overall resources and vice-versa. This ratio is calculated by dividing net profit after tax by total assets.

The net profit after tax represents that profit available to common stockholder and total assets includes the total assets of balance sheet item.

The following table shows the ratios of net profit after tax to total assets ratio of various CBs.

Table 4.12
Return on Total Assets (%)

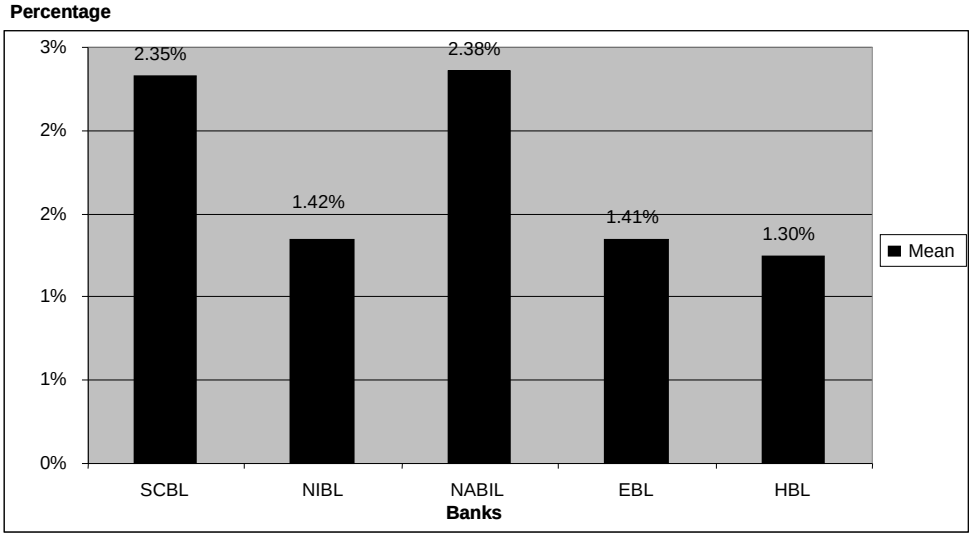
FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	2.23%	1.10%	1.59%	1.34%	1.42%
2001/02	2.60%	1.15%	1.54%	1.28%	1.10%
2002/03	2.42%	1.30%	2.51%	1.17%	0.91%
2003/04	2.27%	1.15%	2.72%	1.49%	1.06%
2004/05	1.80%	1.43%	3.02%	1.45%	1.11%
2005/06	2.56%	1.64%	2.84%	1.49%	1.55%
2006/07	2.42%	1.82%	2.47%	1.38%	1.47%
2007/08	2.46%	1.80%	2.32%	1.66%	1.76%
Mean	**2.35%**	**1.42%**	**2.38%**	**1.41%**	**1.30%**
S.D.	**0.25%**	**0.30%**	**0.55%**	**0.15%**	**0.29%**
C.V.	**10.83%**	**20.83%**	**23.02%**	**10.65%**	**22.62%**

Source: Appendix 03 (f)

Industry Average Mean = 1.77%

Industry Average CV = 17.59%

Figure 4.9
Return on Total Assets Ratio



The comparative table and figure shows that commercial banks has mixed trend on their return to total assets ratio. Among five CBs, NABIL has the highest mean return and EBL has the lowest return on total assets i.e. 2.35% and 1.35%. The overall average mean of CBs is 1.77%. However NABIL and SCBL also have mean return above average mean of CBs i.e. 2.38% and 2.35%.

Similarly looking at CV among the five CBs, EBL has the lowest CV i.e. 10.65% which is the most consistent than other banks. And, the highest CV in the ratios of

NABIL i.e. 23.02% shows, the return on total assets of NABIL is highly variable among five banks.

Lastly, it is concluded that SCBL is the best bank in relation to return on total assets ratio because it utilized overall resources efficiently than other bank. The profitability position of HBL is the weakest in relation to return on total assets during study period among five CBs.

e. Investment on Share and Debenture to Total outside Investment

The ratio between investment on share and debenture and total outside investment reflects the extent on which the banks are successful to mobilize their total outside investment on purchase of

A high ratio indicates more portion of investment on share and debentures out of total outside investment and vice-versa.

The following table shows the ratios of investment on share and debentures to total outside investment ratio of various CBs.

Table 4.13
Investment on Share and Debenture to Total outside Investment Ratio (%)

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	0.07%	0.29%	0.12%	0.09%	0.08%
2001/02	0.08%	0.32%	0.14%	0.30%	0.19%
2002/03	0.07%	0.19%	0.16%	0.26%	0.17%
2003/04	0.06%	0.13%	0.16%	0.20%	0.16%
2004/05	0.07%	0.13%	0.18%	0.20%	0.17%
2005/06	0.07%	0.10%	0.14%	0.14%	0.16%
2006/07	0.19%	0.15%	0.24%	0.10%	0.25%
2007/08	0.14%	0.61%	0.19%	0.10%	0.10%
Mean	**0.09%**	**0.24%**	**0.17%**	**0.17%**	**0.16%**
S.D.	**0.04%**	**0.17%**	**0.04%**	**0.08%**	**0.05%**
C.V.	**49.36%**	**70.46%**	**22.49%**	**45.52%**	**32.73%**

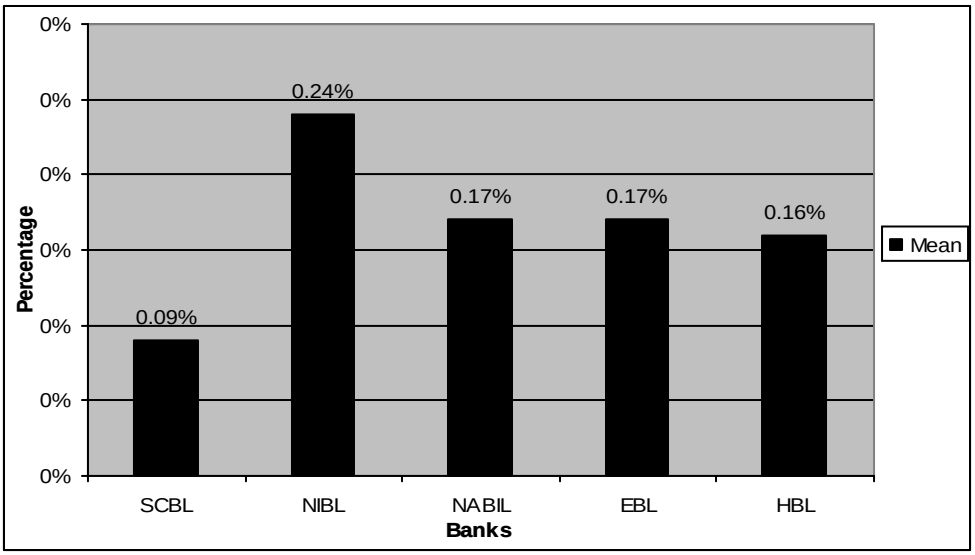
Source: Appendix 03(g)

Industry Average Mean = 0.17%

Industry Average CV = 44.11%

Figure 4.10

Investment on Share and Debenture to Total outside Investment Ratio



The comparative table shows that CBs has fluctuating trend on their investment on share and debentures to total outside investment. In share and debenture very low portion of the total outside investment is invest. Among five commercial banks NIBL has invested higher amount on share and debenture i.e. 0.24% of total outside investment while SCBL has invested lower amount on share and debenture i.e. 0.09% only.

NABIL has the lowest CV i.e. 22.49% among the five CBs, which shows that the variability of the ratios between investment on share and debenture and total outside investment is most uniform among the other CBs. Similarly, NIBL has the highest CV i.e. 70.46% which shows that it has mover variability in investment on share and debenture to total outside investment.

It is concluded that the CBs are not successful to mobilize their resources in the field of share and debenture of other companies. NIBL invest highest portion of total investment into share and debenture on the basis of mean. On the other hand NABIL is the most consistent bank in investing its total outside investment on share and debenture.

f. Investment on Government Securities to Total outside Investment

This ratio is very useful to know in which extent the CBs are successful in mobilizing their total outside investment on different types of government securities to maximize the income. Since government securities are highly liquid, to some extent, CBs seem to be interested to utilize their deposits by purchasing government securities.

A high ratio indicates better mobilization of fund as investment on government securities and vice-versa.

The following table shows the ratios of investment on government securities to total outside investment ratio of various CBs.

Table 4.14
Investment on Government Securities to Total outside Investment Ratio (%)

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	31.40%	6.82%	17.27%	21.06%	15.60%
2001/02	39.51%	5.12%	26.35%	27.28%	14.32%
2002/03	41.36%	5.35%	26.03%	24.37%	16.59%
2003/04	44.73%	18.20%	26.18%	29.29%	16.15%
2004/05	40.36%	13.86%	16.25%	21.55%	22.68%
2005/06	39.65%	13.72%	12.05%	23.73%	20.15%
2006/07	29.55%	13.69%	19.63%	19.38%	22.40%
2007/08	40.68%	0.00%	14.37%	10.18%	23.38%
Mean	**38.40%**	**9.59%**	**19.77%**	**22.11%**	**18.91%**
S.D.	**5.18%**	**6.14%**	**5.75%**	**5.82%**	**3.64%**
C.V.	**13.50%**	**64.00%**	**29.07%**	**26.33%**	**19.26%**

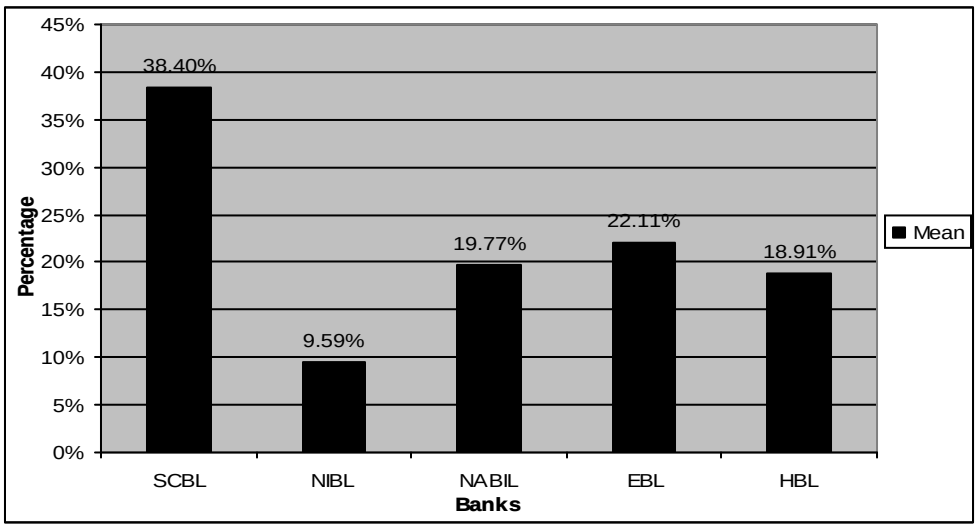
Source: Appendix 03(h)

Industry Average Mean = 21.76%

Industry Average CV = 30.43%

Figure 4.11

Investment on Government Securities to Total outside Investment Ratio



The comparative table shows that there is highly invest in government securities than in other investment portion because of secured on it. On government securities SCBL has the highest invest on government securities to total outside investment i.e. 38.40%

among five CBs. Similarly NIBL invest lowest parts of total outside investment to government securities because it has lowest investment on government securities to total outside investment i.e. 9.59%.

NIBL has the highest CV among five CBs which shows the least consistent. But SCBL has the lowest CV which shows the most consistent among five CBs.

From above analysis, it can be concluded that the mobilization of total outside investment into government securities of SCBL is higher among five CBs which is proved by highest ratio and lowest CV. Similarly NABIL, HBL, EBL have moderate position. Likewise NIBL has weakest position for mobilization of total outside assets into government securities.

4.5 Investment Portfolio Risk and Return Analysis of CBs

Risk and Return are two crucial phenomenons in world of investment. There is always linear relationship between risk and return. Nobody will take to invest in risky assets unless he is assured of adequate compensation for the assumption of risk. Generally in a market, higher risk will command higher premium.

The main purpose of risk and return analysis is to appraise investment performance and to explore combinations of investments that maximize returns, miinimize risk or achieve both. The risk minimization, in particular is not possible by holding only one asset or only one type of assets. What makes possible to minimize risk is the diversification of investments. Therefore, the analysis of risk of an investment in isolation is not very meaningful for understanding the risk minimization process. Risk plays a central role in the analysis of investments. CBs or investors generally do not invest their money in only one risky asset. Instead they hold a portfolio of many assets with the hope of diversifying the investment risk. In the context of portfolio, the contribution of each asset to the portfolio risk is the portion of relevant risk.

The portfolio of assets usually offers the advantage of reducing risk through diversification. The standard deviation of the returns on the portfolio many be less than the sum of the standard deviation of the returns from the individual assets. The portfolio return is the straight weighted average of returns from the individual assets. But the portfolio risk is not the weight average of the variance of return of individual assets. The portfolio risk is affected by the variances of return as well as the covariance between the returns of individual assets included in the portfolio and their respective weights. In reality, one will find an asset held in the portfolio to be relatively less risky than when it is held in isolation. This is because when an asset is held in a portfolio, the unsystematic risk is totally or at least partly eliminated.

Therefore, the portfolio standard deviation is not just the sum of variances of assets held in the portfolio.

4.5.1 Risk and Return on Individual Investment

Risk and return are two crucial phenomenons in world of investment. There is always linear relationship between risk and return. As the return goes on increasing, the risk also increases. Hence a rational investor has to consider the various aspects relating to R&R associated with investment while taking an investment decision. In the following section various aspects of R&R have been briefly explained in responses to the five selected banks. Risk is a complicated subject and needs to be properly analyzed. The expected return on an investment is the mean value of the probability distribution of its possible returns. The higher the probability that actual return will be far below the expected return, the greater the risk associated with owing an asset. When analyzing investments, analysis of tightness of return is most necessary one such measure is the standard deviations and another useful measure of risk is the coefficient of variation. Therefore standard deviations and coefficient of variation are taken as the measuring tools of risk and return.

Risk and Return on Government Securities

Governments often need to finance their expenditures by borrowing. To meet govt. expenditure, revenue surplus alone is not enough foreign grants as well as foreign and internal loans have to mobilize to meet such expenditures. Unlike business, govt. can not sell equity shares. Hence, they increase their required fund from internal loan by issuing treasury bills, treasury bonds, development bonds, national saving bonds etc. CBs also invest their funds by purchasing such govt. securities.

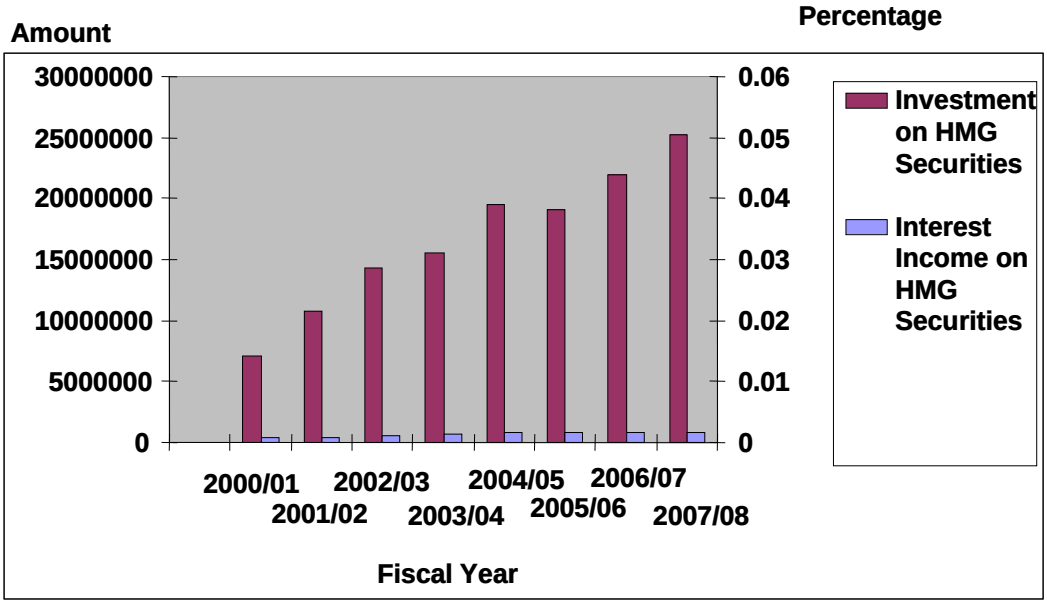
Table 4.15
Calculation of Risk and Return on Government Securities of Nepalese CBs

FY	Investment on GOVT. securities "000"	Interest Income on GOVT. Securities "000"	Return on GOVT. securities (%) (R_g)	$(R_g - \overline{R_g})^2$ (%)
2000/01	10727217	431165	4.02%	0.01
2001/02	14256876	571193	4.01%	0.01
2002/03	15516572	658918	4.25%	0.02
2003/04	19520099	871911	4.47%	0.13
2004/05	19135523	766371	4.00%	0.01
2005/06	21926394	837422	3.82%	0.08
2006/07	25242097	857397	3.40%	0.50
2007/08	26649143	1300478	4.88%	0.60
Total	**152973921**	**6294855**	**32.84%**	**1.36**

Source: Appendix 04 (a)

* X∫4.88 Z4.11Å² X0.59%

Figure 4.12
Return on Government Securities of CBs



Here, R_g = 32.84

n = 8

$\overline{R_g} = \frac{R_g}{n}$ = 32.84/8 = 4.11

$\overline{R_g}$ = 4.11%

Now,

Standard deviation $\pm_g = \sqrt{\frac{\sum_{t=1}^{n} (R_g - \overline{R_g})^2}{n - 1}} = \sqrt{\frac{1.35}{8 - 1}} = 0.44$

$\pm_g$ = 0.44%

Again,

Coefficient of Variation (CV) = $\frac{\pm_g}{\overline{R_g}} = \frac{0.44}{4.11} = 0.11$

Hence CVg = 0.11

From above table, it can be concluded that, in average the return on investment on govt. securities made by CBs is 4.57%. Standard deviation is 0.44% which indicates risk on govt. securities. In general concept there is no any risk on government securities but the result of standard deviation and coefficient of variation shows there

is risk on such securities. It is mainly due to the more fluctuating nature on investment on government securities. There is no fixed trend to invest on government securities such as treasury bills, national saving bonds, development bonds etc. by CBs its fund on treasury bills and the treasury bills are purchased directly at auction. Hence the returns on government securities are more volatility.

It is concluded that the higher variability of return on investment made on govt. securities is due to lack of proper investment on various securities.

Risk and Return on Loan and Advances

Loan and advances are the main sources of CBs. The facility of granting loan and advances is one of the main services which customers of the CBs can enjoy. In order to realize their objectives CBs invest in various sectors like industry, service sector, agriculture, commercial sectors and other sectors.

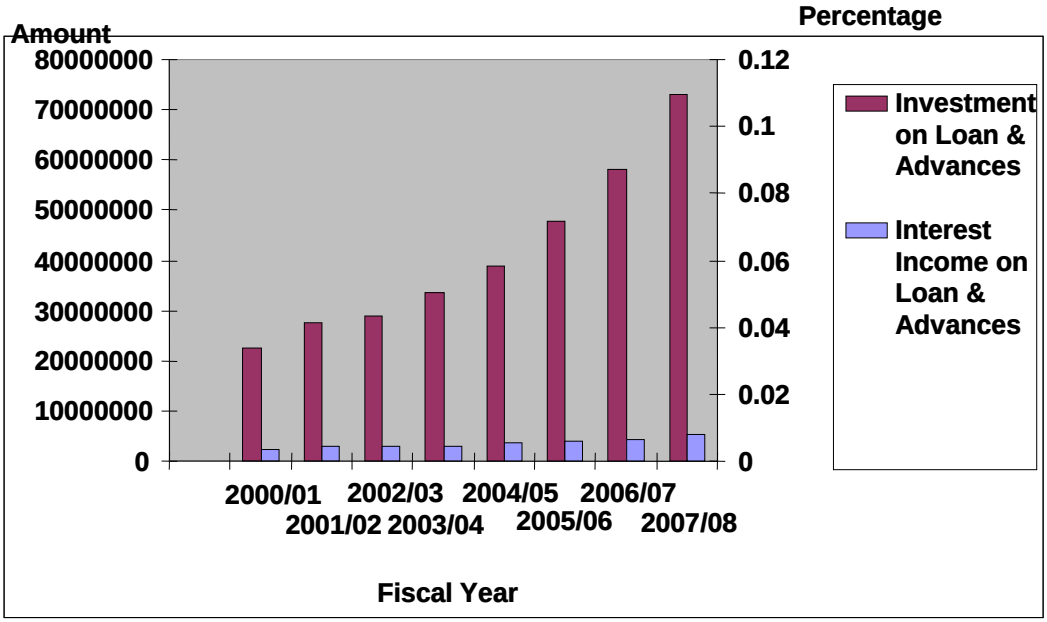
Table 4.16
Calculation of Risk and Return on Loan and Advances of Nepalese CBs

FY	Investment on Loan and Advance "000"	Interest Income on Loan and Advance "000"	Return on Loan and Advances (%) (R_L)	$(R_L - \overline{R_L})^2$ (%)
1999/00	22666645	2375339	10.48%	*2.04
2000/01	27584173	2832885	10.27%	1.49
2001/02	29026108	2849007	9.82%	0.59
2002/03	33560991	3130253	9.33%	0.08
2003/04	38690256	3515941	9.09%	0.02
2004/05	47908016	3968706	8.28%	0.59
2005/06	58010990	4459055	7.69%	1.85
2006/07	73024420	5407992	7.41%	2.69
2007/08	81425530	8533395	10.48%	2.06
Total	**330471599**	**28539178**	**72.36%**	**9.35**

Source: Appendix 04 (b)

* X ƒ10.48 Z9.05Å X2.04%

Figure 4.13
Return on Loan and Advances of CBs



Now, the average rate of return on loan and advances of CBs in Nepal is

$$\bar{R}_l = \frac{\sum R_l}{n} = \frac{72.36}{8} = 9.05\%$$

Again,

$$\sigma_l = \sqrt{\frac{\sum (R_l - \bar{R}_l)^2}{n-1}} = \sqrt{\frac{9.35}{8-1}} = 1.16\%$$

$$CV_l = \frac{\sigma_l}{\bar{R}_l}$$

$$= \frac{1.16}{9.05} = 0.13$$

From the above table and figure reveals that the return on investment on loan and advances has no any fixed trend. During the period 1999/2000 to 2006/07 the highest return is 10.48%in 1999/2000 and lowest return is 7.41% in 2006/07. The average return 9.05% means that in average the CBs generate 9.05% return on its investment made in loan and advances. The standard deviation 1.16% and coefficient of variation 13% show the risk of return on loan and advances. The variability on return on loan and advances seems to be less than return on government securities.

Risk and Return on Share and Debentures

The return on share and debenture considers dividend yield and capital gain yield. The information about dividend received and capital yield by CBs is not available properly. Due to information disclosure by the concern banks regarding return from share and debenture is insufficient for the calculation purpose. The general assumption has been established to calculate the necessary return on share and debenture by using market return. The market return on share and debenture for this purpose is the average return of the sample companies listed in NEPSE. 5 companies are selected for the study.

Table 4.17
Estimates of Market Parameter

Selected Co.	**2000/01**		**2001/02**		**2002/03**		**2003/04**		**2004/05**		**2005/06**		**2006/07**		**2007/08**	
	P_t	D_t	P_t	D_t	P_t	D_t	P_t	D_t	P_t	D_t	P_t	D_t	P_t	D_t	P_t	D_t
NABIL	1400	55	1500	40	735	30	740	50	1000	65	1505	165	2240	85	5050	140
HBL	1700	75	1500	57.5	1000	35	836	25	840	20	920	20	1100	35	1740	40
EBL	980	20	750	20	430	20	445	20	680	20	870	20	1379	25	2430	40
SCBL	1985	100	2144	100	1575	100	1640	110	1745	110	2345	110	3775	140	5900	130
NIBL	1401	25	1150	0	760	**0**	795	20	940	15	800	12.5	1260	20	1729	5
Total	**6065**		**7044**		**4500**		**3661**		**4265**		**5640**	**327.5**	**9754**	**305**	**16849**	**355**
No. of Observation (n)	**5**		**5**		**5**		**5**		**5**		**5**		**5**		**5**	
Average $\bar{P}_t$	**1213**		**1409**		**900**		**732**		**853**		**1128**		**1951**		**3370**	

Source: Trading Report Vol. 2 to10, NEPSE and Annual report of SEBO and NEPSE 2000 to 2008

Table 4.18

Calculation of Dividend Yield $\frac{D_t}{P_t}$

In Percentage

Selected Co.	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08
NABIL	3.93	2.67	4.08	6.76	6.50	10.96	3.79	2.77
HBL	4.41	3.83	3.50	2.99	2.38	2.17	3.18	2.30
EBL	2.04	2.67	4.65	4.49	2.94	2.30	1.81	1.65
SCBL	5.04	4.66	6.35	6.71	6.30	4.69	3.71	2.20
NIBL	1.78	0	0	2.51	1.59	1.56	1.59	0.29
Total	**15.42**	**13.83**	**18.58**	**20.95**	**18.12**	**20.12**	**14.09**	**9.21**
No. of observation (n)	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Average Dividend Yield	**3.08**	**3.45**	**4.64**	**4.19**	**3.62**	**4.02**	**2.82**	**1.84**

Appendix 04 (d)

Table 4.19
Calculation of Capital Yield and Dividend Yield on Share and Debentures of CBs

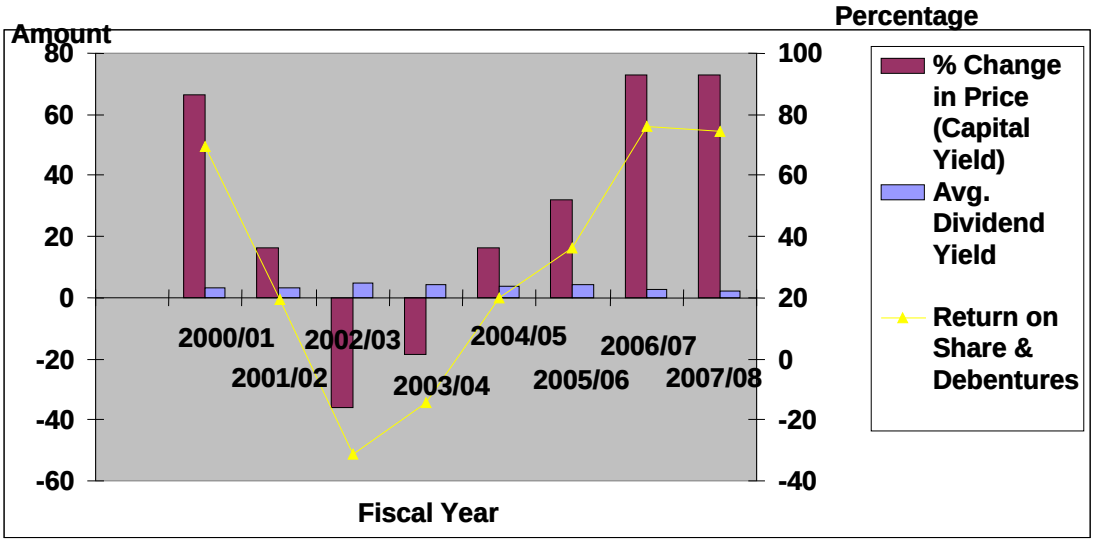
Fiscal year	Avg. Closing Price $\int P_t$	% Change in Price (Capital Yield)	Avg. Dividend Yield $\frac{D_t}{P_t}$	Return on Share and Debentures R_s	$\int R_s \, Z \overline{R_s}$
1999/00	729.48*	-	-	-	
2000/01	1213	66.28**	3.08	69.36***	1454.66
2001/02	1409	16.16	3.45	19.61	134.79
2002/03	900	-36.12	4.64	-31.48	3931.29
2003/04	732	-18.67	4.19	-14.48	2088.49
2004/05	853	16.53	3.62	20.15	122.54
2005/06	1128	32.24	4.02	36.26	25.40
2006/07	1951	72.96	2.82	75.78	1985.59
2007/08	3370	72.73	1.84	74.57	1879.22
Total				**249.77**	**11621.98**

Appendix -04 (e)

** $X\frac{1213 Z 729.48}{729.48} X 0.6628 X 66.28\%$

*** $X 66.28 \Gamma 3.08 X 69.36$

Figure 4.14
Capital Yield, Dividend Yield and Return on Share and Debentures



The average closing price in year 1999/00 is calculated on the basis of NEPSE index and 1999/00 average closing price

1999/00 NEPSE index = 216.92

2000/01 NEPSE index = 360.70

Closing price in year 2000/01 = 1213

Average closing price on 1999/00 $X\frac{1213}{360.70} | 216.92$

$X729.48*$

The average rate of return from Share and Debentures for CBs is;

$$\overline{R_s} X\frac{R_s}{n} \quad X\frac{249.77}{8} X31.22\%$$

Again,

$$\pm_s X\sqrt{\frac{\int R_s Z\overline{R_s}\text{Å}}{n Z1}} \quad X\sqrt{\frac{11621.98}{8 Z1}} X40.75\%$$

Now,

$$CV_s X\frac{\pm_s}{R_s} \quad X\frac{40.75}{31.22} X1.31$$

Return on share and debenture is the sum of capital yield and dividend yield. This is present in the above figure.

It can be observed from above table and figure that the annual rate of return of investment on share and debenture of CBs shows wide fluctuation, ranging from 20.15% in 2003/04 to 75.78% in year 2005/06. These fluctuations in returns are caused mainly by volatility of the share prices in the market. The change in dividends also contributed to the variability of the shares return in some extent.

The average rate of return of investment on share and debenture of CBs for eight years during 1998/99 to 2006/07 is 31.22%. Similarly the annual rate of return of investment on share and debenture show a high degree of variability, they deviated on an average by 40.75% from the average rate of 31.22%. This is also revels by the 131% coefficient of variation.

4.5.2 Risk and Return on Investment Portfolio

Portfolio Return on Investment

The return of a portfolio depends on (i) the expected rate of return of each security contained in the portfolio and (ii) the amount invested in each security. The portfolio return is the weighted average expected return of the individual stock in the portfolio, with weights being the proportion of investment on each security in the portfolio equation. CBs invest their funds in government securities, share and debenture and loan and advance. The weight of the investment on various assets and their average rate of returns are presented below;

Table 4.20
Calculation of Weight of Investment on Various Assets

S. No.	Assets	Investment Amount Rs. '000'	Proportion Weight (w)	Average Rate of Return (R)
1	**Government Securities**	152973921	0.6000*	4.11
2	**Share and Debenture**	1244953	0.0048	31.22
3	**Loan and Advance**	100946600	0.3952	9.05
Total		**255165474**		

Source: Appendix -04 (f) and Above Table

* = (152973921)/255165474 = 0.6000

Calculation of Portfolio Return $\int R_p$

R_p X $W \mid R$

=0.600*4.11% + 0.0048*31.22% + 0.3952*9.05%

=6.16%

Hence, Portfolio Return on Investment of CBs $\int R_p$ = 6.16%

Portfolio Risk on Investment

We measure the risk of a portfolio by the variance or standard deviation of the return of the portfolio. The riskiness of the portfolio expresses the extent to which the actual return may deviate from the expected return. However, its calculation is not as straight forward as the calculation of the expected return of portfolio. The portfolio risk is affected by the association of movement of returns of two securities. Hence, by combining the measures of individual asset risk, relative asset weights and the co-movement of assets returns (covariance) the risk of the portfolio can be estimated. Therefore before calculating portfolio risk on investment covariance between two assets return should be calculated.

Table 4.21
Calculation of Correlation Coefficient and Covariance between Various Assets

S. No.	Assets	Standard Deviation	Correlation Coefficient	Covariance	Weight (w)
1	Government Securities (g)	0.44	0.733	0.000037	0.6000
2	Share and Debenture (s)	40.75	-0.143	-0.00023	0.0048
3	Loan and Advance (l)	1.16	-0.476	-0.0023	0.3952

Sources: Appendix 04 (g) and Above Page

Where,

Cov_{gl} X r_{gl} | $\pm_g$ | $\pm_l$

X0.733 | 0.0044 | 0.0116 X0.000037

Cov_{ls} Xr_{ls} | $\pm_l$ | $\pm_s$

XZ0.476 | 0.0116 | 0.4075 XZ0.0023

Cov_{gs} X r_{gs} | $\pm_g$ | $\pm_s$

XZ0.143 | 0.0044 | 0.3731 XZ0.00023

r_{gl}, r_{ls} and r_{gs} are the correlation coefficient between government securities and loan and advance, loan and advance and share and debenture, government securities and share and debenture respectively.

$$\pm_p \text{ X} \sqrt{\begin{matrix} W_g^{\,2} \mid \pm_g^{\,2} \Gamma W_s^{\,2} \mid \pm_s^{\,2} \Gamma W_l^{\,2} \mid \pm_l^{\,2} \Gamma 2Cov_{gs} \mid W_g W_s \Gamma 2Cov_{ls} \mid W_l W_s \\ \Gamma 2Cov_{gl} \mid W_g W_l \end{matrix}}$$

=√ $[(0.600)^2*(0.44)^2 + (0.0048)^2 *(40.75)^2 + (0.3952)^2 *(1.16)^2 +2(-0.00023) * (0.600) * (0.0048)+2 (-0.0023) * (0.3952) *(0.0048)+2(-0.00023) *(0.600) *(0.3952)]$
= 0.56%

Hence, standard deviation of portfolio on investment of CBs σ_p = 0.56%

Portfolio risk and return on investment made by CBs in various assets, which is calculated above is important to note that the expected risk of the portfolio is considerably less than the expected risk of investment on government securities, loan and advances and share and debenture. Due to the negative correlation between return of investment on loan and advances and share and debenture and investment on government securities and share and debentures investment portfolio has considerably reduced. Lower the correlation co-efficient, lower the risk of the portfolio i.e. combining assets with negative correlation will significantly reduce the risk of the portfolio. Risk can be reduced by investing wealth in more than one asset.

The expected return on portfolio 6.16% is less than that of average rate of return of individual investment on share and debentures (31.22%) and investment on loan and advances (9.05%). But investing the total funds in share and debentures and loan and advances is more risky than that of investment on portfolio.

4.6 Test of Investment Portfolio Performance

The portfolio of assets usually offers advantage of reducing risk through diversification. The portfolio risk is depending upon weight of funds invested in various assets, risk of individual assets, the tendency of two variables to move together etc. In this topic, the efforts have been made to explore in which extent the CBs are able to utilize portfolio concept in their investment.

To test the portfolio performance, this study uses three portfolio performance models, which have been given below;

Sharpes' Portfolio Performance Measure

Portfolio performance evaluations on the basis of return only will be insufficient; therefore, it is necessary to consider both risk and return. William F. Sharpe devised an index of portfolio performance denoted by S_i which measures the slope of the line starting at risk less rate R and running out to asset is defined as below;

$$S_i \; \mathrm{X} \frac{Risk\ \mathrm{Pr}\ emium}{TotalRisk}$$

$$\mathrm{X} \frac{\bar{r}_i \; \mathrm{Z} R}{\pm_i}$$

Where,

$\bar{r}_i$ = Average Return of Assets i.

$\pm_i$ = Standard Deviation of Returns.

R = Risk less Rate of Return.

S_i = Sharpe's Index of Portfolio Performance.

The portfolio on investment is better than investment on other asset or not is determinant by the above model, which is used to test whether the portfolio in investment made by Nepalese CBs is appropriate or not.

Performance of government securities, share and debentures, loan and advances and portfolio is calculated in table below.

Table 4.22
Performance of Various Investment Assets

S. No.	Investment Assets	Average Annual Return (%) $fr_i A$	Standard Deviation of Annual Return $f\pm_i A$	Sharpe's Measure of Performance $S_i \text{ X} \frac{\bar{r}_i \text{ Z} R}{\pm_i}$, R=6%
1	**Government Securities**	4.11	0.44	-4.30
2	**Loan and Advance**	9.05	1.16	2.62
3	**Share and Debenture**	31.22	40.75	0.62
4	**Investment Portfolio**	6.16	0.56	0.29

Source: From Above Calculation

Risk less rate of interest (R) = 6% (Economic Survey 2008)

From the above calculation Sl>Ss>Sp>Sg, which indicates that the investment on loan and advances is a better performer than share and debentures, share and debentures is better than portfolio investment. Portfolio investment is better than government securities. So, portfolio made by the CBs among various investment assets is not so satisfactory. The lower Sharpe's portfolio performance than that of investment on loan and advances indicates that the commercial banks are not fully successful to utilize their resources on various assets by using portfolio concept to reduce risk and increasing return on assets. This is mainly to lack of well scientific approach towards diversification of funds among different assets.

4.7 Trend Analysis

The purpose of this topic is to analysis the trend of total investment, total deposits and investment on various assets such as government securities, share and debenture and loan and advance of the CBs and projection for next four years.

Method of least squares is used to determine trend value. Under this variable y and independent variable x be represented by,

$y = a + bx$

Where,

a= y intercept

b= slope of the trend line or amount of change that comes in y for a unit change in x.

To make calculation easier, the deviation of the independent variables i.e. time are taken from the middle of the time period so that $x \text{X} 0$ then, the value of a and b can be easily calculated by using following formula

$$a = \frac{y}{n}$$

$$b = \frac{xy}{x^2}$$

4.7.1 Trend Analysis of Total Investment and Total Deposit

The effort has been made to analyze trend of total investment and total deposit of the CBs for nine years and forecast of the same for next three years. The following table shows the trend values of total investment and total deposit of CBs.

Table 4.23
Trend Value (y_c Xa Γbx) of Total Investment and Total Deposit of CBs

(Rs. in million)

Year (t)	X=t-000.5	Total Investment		Total Deposit	
		Trend Value*	Actual Value	Trend Value**	Actual Value
2000	-3.5	15323.44	7090.03	42169.88	45428.80
2001	-2.5	19565.94	24218.64	52008.46	57632.18
2002	-1.5	23808.44	30147.70	61847.04	59602.92
2003	-0.5	28050.94	29782.03	71685.62	67866.11
2004	0.5	32293.44	32886.64	81524.20	76879.39
2005	1.5	36535.94	31727.67	91362.78	83087.98
2006	2.5	40778.44	39712.43	101201.36	101629.03
2007	3.5	45020.94	45812.33	111039.94	120712.84
2008	4.5	49263.44	50599.23	120878.52	151930.14
2009	5.5	53505.94		130717.10	
2010	6.5	57748.44		140555.68	
2011	7.5	61990.94		150394.26	

Source: Appendix -05(a)

Trend line for Total Investment of CBs

* y_c = 32441.86 + 4387.91x

Trend line for Total Deposit of CBs

** y_c = 84974.40 + 11858.44x

Figure 4.15
Trend and Actual Value of Total Investment of CBs

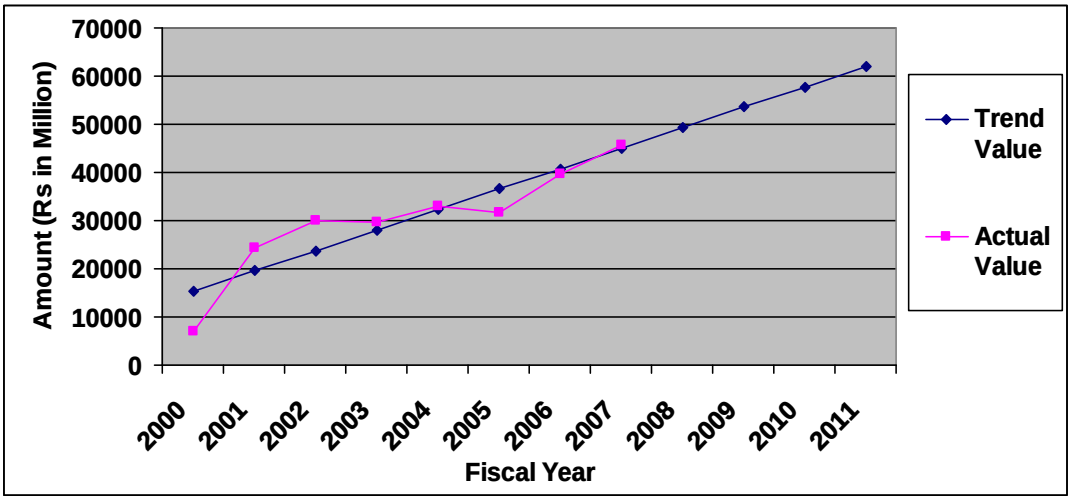
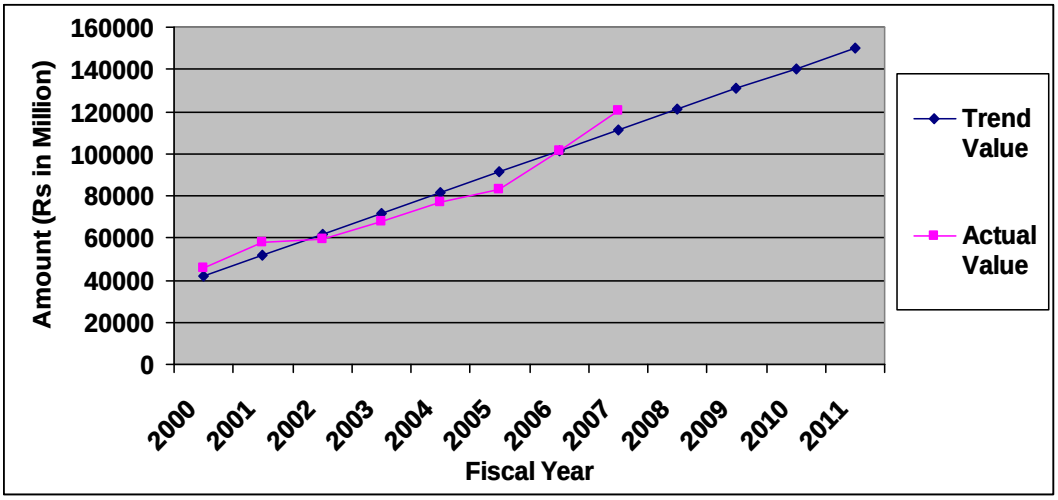


Figure 4.16
Trend and Actual Value of Total Deposit of CBs



From the above table and figure it is clear that CBs total investment has been increasing by Rs. 4387.91 million each year and is expected to reach Rs. 61990.94 million at the end of year 20011. Likewise total deposit of CBs are in increasing trend and which have been increasing by Rs. 11858.44 million every year and is expected to reaches Rs. 150394.26 at the end of year 20011. Other thing remaining the same the ratio of total investment and total deposit will be 41.22% (61990.94/150394.26) in year 2011 which is moderate ratio. This shows that deposit utilization position in relation to investment to total deposit ratio is appropriate.

4.7.2 Trend Analysis of Investment on Various Assets

Only three assets are taken i.e. government securities, share and debenture and loan and advance are taken for analysis. For analyze total investment on various assets of CBs for eight years and forecast of the same for next four years till 2011.

The following table shows the trend values of 12 years from 2000 to 2011 of CBs investment on different assets i.e. government securities, share and debentures and loan and advances.

Table 4.24

Trend Value (y_c X a Γ bx) of Investment on Government Securities, Share and Debentures and Loan and Advances of CBs.

(Rs. in million)

Year (t)	x = t-2000.5	Investment on Government Securities		Investment on Share and Debentures		Investment on Loan and Advances	
		Trend Value*	Actual Value	Trend Value**	Actual Value	Trend Value***	Actual Value
2000	-3.5	8250.63	7037.03	41.66	52	17708.38	22666.65
2001	-2.5	10656.23	10727.22	60.94	57.1	24451.40	27584.17
2002	-1.5	13061.83	14256.88	80.22	98.69	31194.42	29026.11
2003	-0.5	15467.43	15516.57	99.50	98.69	37937.44	33560.99
2004	0.5	17873.03	19520.10	118.78	98.69	44680.46	38690.26
2005	1.5	20278.63	19135.52	138.06	117.74	51423.48	47908.02
2006	2.5	22684.23	21926.39	157.34	119.63	58166.5	58010.99
2007	3.5	25089.83	25242.10	176.62	230.55	67909.52	73024.42
2008	4.5	27495.43	26649.14	195.90	423.04	71652.54	81425.53
2009	5.5	29901.03		215.18		78395.56	
2010	6.5	32306.63		234.46		43829.63	
2011	7.5	34712.23		253.74		91881.60	

Source: Appendix 05 (b)

Trend line of Investment on Government Securities of CBs is,

* y_c = 16670.23 + 2405.60x

Trend line of Investment on Share and Debentures of CBs is,

** Y_c = 109.14 + 19.28x

Trend line of Investment on Loan and Advances of CBs is,

*** y_c = 41308.95 + 6743.02x

Figure 4.17

Trend and Actual Value of Investment on Govt. Securities

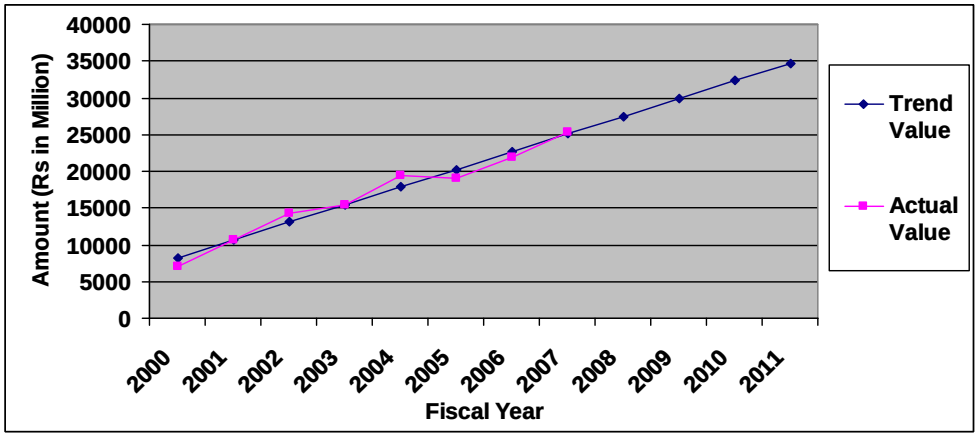


Figure 4.18
Trend and Actual Value of Investment on Share and Debentures

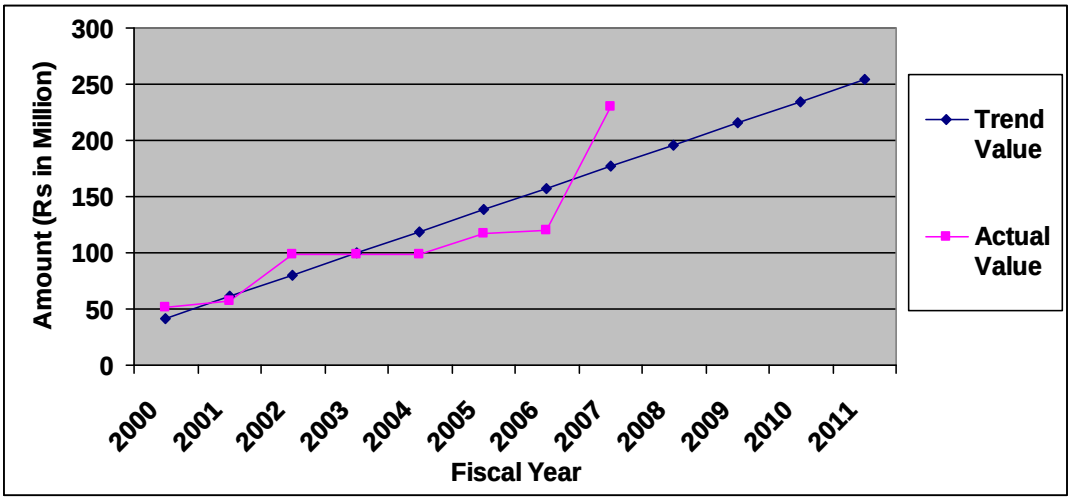
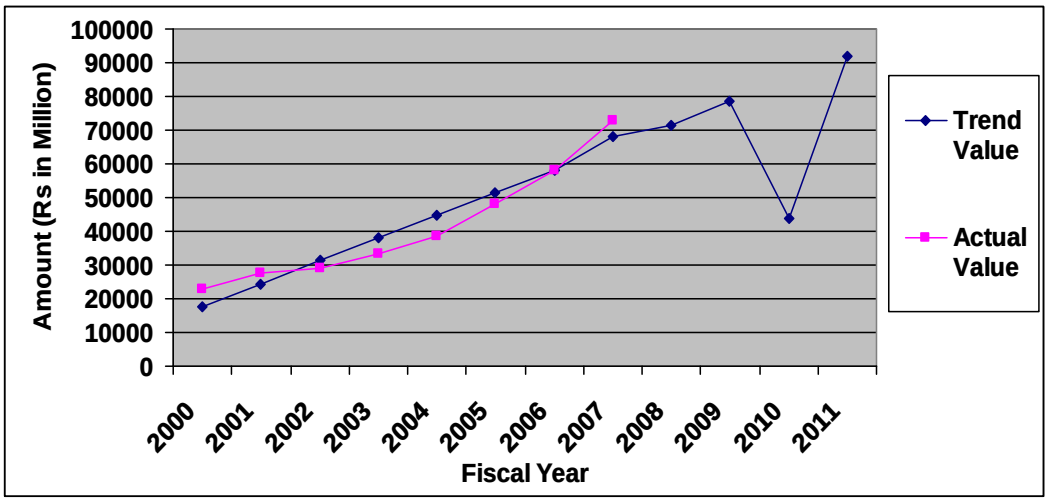


Figure 4.19
Trend and Actual Value of Investment on Loan and Advances



From the above table and figure, it is clear that the CBs investment on government securities, share and debenture and loan and advance all are in increasing trend. The investment on government securities, Share and debenture and loan and advance are increasing by Rs. 2405.60 million, Rs.19.28 million and Rs. 6743.02 million per year respectively. If other thing remaining same, the investment on government securities, share and debenture and loan and advance in 20011 will be Rs.34712.23 million, Rs. 253.74 million and Rs. 91881.60 million respectively, where as such investment in year 2007 is Rs. 25242.10 million, Rs. 230.55 million and Rs. 73024.42 million respectively.

Hence, it can be concluded that the investment of CBs on various assets like government securities, share and debenture and loan and advance all are increasing per year. In comparison, increasing ratio in government securities is 4.21 times

(34712.23/8250.63), in share and debenture is 6.09 times (253.74/41.66) and in loan and advance is 5.19 times (91881.60/17708.38). It shows that investing on government securities is increasing mere rapidly than share and debenture and share and debenture increasing more rapidly than loan and advance during the period of 2000 to 2011.

4.8 Major Finding

Based on the analysis of the various data remarkable findings are drawn up. The major findings are as follows;

Investment Portfolio

- In investment portfolio, the industry average investment on government securities is 73.75%, among the CBs, EBL has invested the highest amount of funds on govt. securities i.e. 96.28% and NIBL has invested lowest 49.55%, other banks SCBL, NABIL and HBL have investing highest amount of funds on government securities among CBs i.e. 73.83%, 78.82% and 80.27% and EBL have invested lowest amount of funds on S&D i.e.3.72%. NABIL and HBL have invested lower than industry average and the industry average in this case is 24.25%, on which SCBL and NIBL is invested higher than industry average i.e. 26.17% and 50.45% respectively. In case of NRB bonds no one banks are investing. There is zero amount of investment.

Loan and Advances Portfolio

- In loan and advances portfolio, the industry average investment on Govt. enterprises is 2.44%, Among the CBs HBL has invested the highest amount of funds on Govt. enterprises i.e. 4.07% and NIBL has invested lowest 1.15%, EBL and NABIL are below the industry average i.e. 2.26% and 1.42% respectively and SCBL is higher the industry average of 3.29%. NIBL is investing highest amount of funds on private sector among CBs i.e. 97.28% and EBL and NABIL have invested above the industry average on private sector i.e. 97.11% and 95.99% respectively. And SCBL and HBL have invested lowest amount of funds on private sector i.e. 94.40% and 94.42% respectively. NABIL is investing the highest amount of funds on for Bills P& D as compared to other CBs i.e. 2.58%. The industry average in this case is 1.72%. NIBL, SCBL, EBL and HBL have invested lower than the industry average i.e. 1.57%, 2.31%, 0.63% and 1.51% respectively.

Portfolio Risk and Return on Investment

- There is positive correlation coefficient between return on investment made by CBs in Govt. securities and loan and advance i.e. 0.733. And there is negative correlation coefficient between return on investment made by CBs in Govt. securities and S & D and loan and advance and S & D i.e. -0.143 & -0.476 respectively. This shows the low degree of negative relationship between assets. Such assets are very useful to make portfolio combination, So that the risk of the portfolio will be significantly reduced.

- According to the calculation, portfolio return is lesser than the individual return of S&D and L&A but higher then individual return of Govt. securities. And portfolio risk is less than the individual risk of L&A and S&D but very lower risk than individual risk of Govt. securities. This is due to negative correlation between assets, which shows that the portfolio reduce risk.

Ratio Analysis

- The total investment to total deposits ratio of selected CBs shows that SCBL is the most successful in utilizing its resources on investment than others CBs. The mean ratio and CV also revels that NABIL and HBL are moderate in utilizing its resources on investment. While NIBL and EBL are not so successful in better utilizing their total deposits on investment of various assets.

- The loan and advance to total deposit ratio of selected CBs shows that EBL is the most successful in utilizing its resources on L&A than other CBs. The mean ratio and CV also revels that NIBL and NABIL are moderate in utilizing its resources on L & A. while SCBL and HBL are not so successful in better utilizing their total deposits on L & A.

- The return on total assets ratio of selected CBs shows that, SCBL utilized its overall resources efficiently than other banks. HBL is the low profitability position among the 5 CBs but NIBL, NABIL and EBL are in moderate in profitability position.

- The ratio between investment on S&D and total outside investment reflects the extent on which the NIBL invest highest portion of total investment into share and debenture on the basis of mean. On the other hand NABIL is the most consistent bank in investing its total outside investment on share and

debenture. But SCBL have low portion of investment on S&D to total outside investment.

- The ratio between investments on Govt. securities and total outside investment reflects the extent on which the SCBL is higher among five CBs which is proved by highest ratio and lowest CV. Similarly NABIL, HBL, EBL have moderate position. Likewise NIBL has weakest position for mobilization of total outside assets into government securities. SCBL are better mobilization of fund as investment on Govt. securities and NIBL has weakest position for mobilization of funds as investment on Govt. securities.

- SCBL is the best bank among five CBs on the basis of exploitation of resources in the field of govt. securities, on the basis of S&D NABIL is the best bank among 5 CBs and EBL is the best bank among 5 banks on the basis of exploitation of resources in the field of loan and advances.

- On the basis of investment amount, the CBs gives first priority to invest their resources on loan and advances, then to govt. securities and lastly to share and debentures. Therefore CBs invest highest part of the resources to loan and advances.

Risk and Return

- The average return on govt. securities is 4.11% and its coefficient of variation is 11% which is very low return among other investment but lower risk than L&A investment.

- In broad hypothesis, there is less risk on investment on govt. securities but here is high risk due to the consideration of difference of year to year return on govt. securities as risk factors. CBs wants to invest in short term basis which return is not fixed because its return is resolute by demand and supply so return is volatile with demand and supply.

- CBs make faltering to invest on long term govt. securities that provide usual constant return. So that CV of government securities is privileged.

- The average rate of return and CV of loan and advances is higher than the government securities i.e. 9.05% and 13% respectively which shows that the investment on L&A have more fixed trend than govt. securities due to flat interest rate charged to clients on L&A.

- The average rate of risk and return are higher than other assets on S&D. The average return on S&D of CBs shows wide fluctuations due to transform in shares price. This is exposed by the high degree of CV.

- Rate of return of S&D is high but the risk is also high so that loan and advances is advanced than government securities and govt. securities are advanced than S&D according to the individual risk and return.

Test of Portfolio Performance

- By using Sharpe's portfolio performance test, it indicates that investment on loan and advances is the superior performance than that of investment on share and debentures, portfolio and govt. securities.

- The portfolio has lower performance than loan and advances, which shows that the CBs are not properly using portfolio concept to reduce risk and increase return from their investment.

- It shows that the CBs are not using proper diversification of funds among various assets.

Trend Analysis

- The total investment, total deposit and investment on S&D, L&A and govt. securities of CBs are increasing per year. In trend analysis the investment of CBs on S&D is increasing more rapidly than govt. securities and govt. securities is increasing more rapidly than L&A during the period on the study.

CHAPTER - V

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter is an accomplished specific and indicative enclose which contains summary, major finding and conclusion of finding and recommendations. Brief introduction to all chapters of the study and genuine information of the present situation under the topic of the study is defined on summary. Conclusions and Findings are analysis of applicable data by using various financial and statistical tools, which presents strengths, weakness, opportunities and threats of the CBs. And suggestions are obtainable in recommendation, which is arranged on the based from finding and conclusions.

5.1 Summary

Any country depends upon the economic development for developing the country. To strengthen, the economy of any country both the private and public sector should play a great role, which contributing to our nation. The process of the economic development depends upon various factors, however economists are now convinced that capital formation and its proper utilization plays a paramount role for rapid economic development. All the economic activities of each and every country are greatly influenced by the commercial banking business of the country.

Banks are an essential part of the business activities which are established to safe guard people's money and there by using the money in making loans and investments. CBs collects scattered financial resources from the masses and invests them among those engaged in commercial and economical activities of the country. CBs are those financial institutions deal in accepting deposits to persons and institutions and giving loans against securities and it also provide technical and administrative assistance to industries, trade and business enterprises. CBs are defined as a bank is a financial institution, which performs widest range of economic and financial functions of any business firm in the economy. CBs plays vital role for development of a developing country. Banks provides internal resources for developing country's economy.

The evolution of the organized financial system in Nepal has a more recent history than in other countries of the world. In Nepalese content, the history of development of modern banks started from the establishment of Nepal bank limited in 1937 A.D. nowadays there are 23 CBs operating in Nepal financial market which is in increasing due to the country moved towards economic liberalization, financial scenario has changed, and foreign banks were invited to operate in Nepal. For the better performance of CBs, successful formulation and effective implementation of

investment policy is the prime requisite. Nowadays there is a very high competition in the banking industries but very less opportunity to make investment. The opportunities are hidden. Thus these CBs should take initiative action in search of the new opportunities. So, that they can easily survive in this competitive banking business world and earn profit. A bank manager its investment has a lot to do with the economic health of the country because the bank loans support the growth of new business and trade empowering the economic activities of the country.

Investment portfolio refers to an investment that combines several assets. Investment portfolio is one which the income or profit of the banks depend upon directly. Investment portfolio usually offers the advantage of reducing risk through diversification of risk from risky investment to less risky investment. The objective of portfolio is to develop a portfolio that has the maximum return at whatever level of risk. The investment portfolio is the tool which helps to reduce risk and maximize return. The banks should never invest its funds in those securities; difference may cause a great loss. The bank should accept that type of securities which are commercial, durable, marketable stable, transferable and high market price.

Generally the investment of the CBs include the investment on government securities, like treasury bills, development bonds, national saving bonds, foreign government securities, shares on government owned companies and non government companies and investment on debentures, similarly the CBs used their funds as loan and advances. Most of the banks are interested to invest their funds in more liquid and less risky sector. Nepalese CBs don't have their own clear vision towards investment portfolio. The investment planning of the CBs in Nepal heavily depend upon the rules and regulation provided by the central banks. The composition of asset portfolio of the banks is influenced by the policy of the central bank. NRB's directives, unsecured climate created by political situation, government policy, Maoists problems etc are the most important problem for banking sectors in investment.

The researcher has tried to explore investment of CBs in various assets, portfolio management and risk return, risk and return on assets, relationship between various factors of CBs with various investment assets, performance of CBs towards investment for the study of 'Investment portfolio analysis of Nepalese CBs'. For the fulfillments of the objectives of the study many analysis has been done such as operation of CBs, investment and loan and advance portfolio, risk and return analysis, portfolio risk and return on investment, ratio analysis, trend analysis, portfolio performance test and hypothesis test. For the analysis mainly secondary data are used, which is collected from concerned banks, NRB, NEPSE, SEBO and different library and different information also provided from there. Financial and statistical tools are

used to reckoning and secondary data were compiled, processed, tabulated and graphed for better presentation from which various finding and conclusion have been drawn which are presented as below.

5.2 Conclusions

Commercial banks have been operating efficiently and have been successful in becoming the pillars of economic system of the country. These banks are performing as financial intermediaries, which provided a links between borrowers and lenders by mobilizing the scattered resources towards productive investments. It is not possible to achieve such goal without using portfolio concept on the investment strategies, which helps to reduce risk and increase return on investment. Most of the CBs are fascinated to invest their resources in more liquid and less risky sectors. CBs are unsuccessful to use the investment portfolio management to balanced investment opportunities.

From the analysis of risk and return of individual investment resources, it is conclude that the loan and advances is much better than investment on share and debentures and govt. securities. It is due to the fixed interest income on loan and advances. So that the CBs are eager to invest their maximum part of investment on loan and advances in different sectors due to return from loan and advances seems less explosive than other resources. The average rate of return and risk on share and debentures are advanced than other assets so that the CBs are invested very low portion of resources into share and debentures of other companies which terminate that the CBs are investment on less risky sectors by which CBs can reduced risk but reduced on return also. From the various ratios relating with the utilization of resources on investment it can be accomplished that SCBL is the bank which shows better performance on their investment strategies. While EBL, NIBL, NABIL imitate moderate performance in utilization of overall resources. And HBL is the weakest bank to mobilize its total resources in various investment assets among five CBs.

While comparing the investment portfolio weight set up by the CBs with directives given by the central banks, 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 than 90% of their funds into one sector. From investment portfolio analysis, it is accomplished that the CBs are given first priority to invest their funds in the govt. sector due to less risky and second priority given to the share and debentures of other companies. And in the case of investment on loan and advances portfolio CBs are concentrated in the private sector due to high return from them and given second

priority to bills P & D and lastly on the govt. enterprises due to the less return from them. CBs flow their funds from higher level of return to lower level of return.

From the negative correlation coefficient between various investment assets, the CBs can reduce total risk at minimum level and increase profit at higher level. From the study it can be accomplished that CBs are not able to diversify their resources efficiently, which is proved by the financial performance test. According to the Sharpe's portfolio performance test, it can terminate that the Nepalese CBs do not utilize portfolio concept efficiently in their investment.

The trend analysis of the CBs accomplished that total investment, total deposit, investment on share and debentures, investment on loan and advances, investment on govt. securities are ever-increasing per year. SCBL is the best bank among five CBs on the basis of exploitation of resources in the field of govt. securities, on the basis of S&D NABIL is the best bank among 5 CBs and EBL is the best bank among 5 banks on the basis of exploitation of resources in the field of loan and advances.

5.3 Recommendations

On the basis of the analysis, findings and conclusion, the following recommendations are suggested to overcome limitation, disorganization as well as exploit opportunities and to improve the present fund mobilization and investment portfolio of Nepalese CBs

- In investment portfolio, except NIBL all other four CBs are focusing on govt. securities for their investment as a result of various factors, among which the important ones are government policy and regulation framework of the central banks. Therefore, investment on govt. securities should be decreased and investment on other investment should be increase.

- The profitability position of HBL is the weakest in relation on return on assets. So, the bank should utilize its overall resources effectively to gain the peak profit margins.

- From the analysis of investment operation of CBs, NIBL and EBL increase its total investment by increasing total deposit and increasing investment on government securities.

- SCBL are not successful in better utilizing their total deposits on loan and advances so that it is recommended that SCBL should increase the amount of loan and advances.

- NABIL should invest more funds in government securities to control the risk.
- Among the five CBs, SCBL is the most excellent bank which is utilizing the investment in various assets and its best position on ratio analysis. The lowest investment on S&D to total outside investment and L&A to total deposit of SCBL is insufficient to reduce existing total risk. So that SCBL is to raise the investment on S&D of other companies and increased in loan and advances.
- Nepalese CBs have not formulated their investment policy in organized manner. They don't diversify the investment. Hence, CBs need to change their investment policy and investment in different sector not only high percentage on risk free assets but also on risky assets. From risky sectors there is a great opportunity for CBs to get higher return by using portfolio concept.
- Portfolio condition of a bank should be regularly revised from time to time. It should always try to maintain the balance in the portfolio condition of the bank. Risk can be minimized by invest in more than one assets not on only one assets. CBs are not pretty booming to invest their funds in various assets. CBs are invest most of the funds on only L&A but lower part of their funds in govt. securities and S&D. Commencing above study, correlation coefficient between investment assets are in –ve, which shows the fair opportunities for the CBs to minimize risk by investing in assets in suitable part. So, CBs must diversify appropriate proportion of their funds in the field of share and debentures along with govt. securities.
- It is clear from the above study that some CBs are able to exploit portfolio management concept in the field of investment, which is not satisfactory to reduce risk and maximize return in the finest level. So that CBs should used portfolio management concept usefulness and extend opportunities for exercising the portfolio management in investment.

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APPENDICES

Appendix - 1

Arrangement & Tabulation of Available Financial Data of Various CBs

List of Licensed Commercial Banks

May, 2009

S. No	Commercial Banks	Operation Date (A.D.)	Head Office
27.	Nepal Bank Ltd.	1937/11/15	Kathmandu
28.	Rastriya Banijya Bank Ltd.	1966/01/23	Kathmandu
29.	NABIL Bank Ltd.	1984/07/16	Kathmandu
30.	Nepal investment Bank Ltd.	1986/02/27	Kathmandu
31.	Standard-Chartered Bank Nepal Ltd.	1987/01/30	Kathmandu
32.	Himalayan Bank Ltd.	1993/01/18	Kathmandu
33.	Nepal SBI Bank Ltd.	1993/07/07	Kathmandu
34.	Nepal Bangladesh Bank Ltd.	1993/06/05	Kathmandu
35.	Everest Bank Ltd.	1994/10/18	Kathmandu
36.	Bank of Kathmandu Ltd.	1995/03/12	Kathmandu
37.	Nepal Credit and Commerce Bank Ltd.	1996/10/14	Siddharthanagar
38.	Lumbani Bank Ltd.	1998/07/17	Narayangadh
39.	Nepal Industry and Commercial Bank Ltd.	1998/07/21	Biratnagar
40.	Machhapuchhre Bank Ltd.	2000/10/03	Pokhara
41.	Kumari Bank Ltd.	2001/04/03	Kathmandu
42.	Laxmi Bank Ltd.	2002/04/03	Birgunj
43.	Siddhartha Bank Ltd.	20021/12/24	Kathmandu
44.	Agricultural Development Bank Ltd.	1968/01/02	Kathmandu
45.	Global Bank Ltd.	2007/01/02	Birgunj, Parsa
46.	Citizen Bank Ltd.	2007/06/21	Kathmandu
47.	Prime Bank Ltd.	2007/09/24	Kathmandu
48.	Sunrise Bank Ltd.	2007/10/12	Kathmandu
49.	Bank of Asia Nepal Ltd.	2007/10/12	Kathmandu
50.	Development Credit Bank Ltd.	2001/01/23	Kathmandu
51.	NMB Bank Ltd.	1996/11/26	Kathmandu
52.	Kist Bank Ltd.	2009/03/12	Kathmandu

(Source: http://bfr.nrb.org.np, 2009)

Appendix - 2

a) Investment on Government Securities

(Rs. in '000')

FY	SCBL	NIBL	NABIL	EBL	HBL	CBs
2000/01	4811010	300000	2767959	822996	2025252	10727217
2001/02	5784723	224400	4120294	1538897	2588562	14256876
2002/03	6581348	400000	3588772	1599350	3347102	15516572
2003/04	7948217	2001100	3672626	2466428	3431728	19520099
2004/05	7203066	1948500	2413939	2100289	5469729	19135523
2005/06	8635875	2522300	2301463	3322443	5144313	21926394
2006/07	7107937	3256400	4808348	3614541	6454871	25242097
2007/08	8137615	3155000	4646883	3237978	7471667	26649143
Total	**56209791**	**13807700**	**28320284**	**18702922**	**35933224**	**152973921**
Average	**7026224**	**1725963**	**3540036**	**2337865**	**4491653**	**19121740**

Source: Annual Reports of CBs from FY 2000/01 to 2007/08

b) % (percentage) Share of Investment on Government Securities of each Banks

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	44.85%	2.80%	25.80%	7.67%	18.88%
2001/02	40.57%	1.57%	28.90%	10.79%	18.16%
2002/03	42.41%	2.58%	23.13%	10.31%	21.57%
2003/04	40.72%	10.25%	18.81%	12.64%	17.58%
2004/05	37.64%	10.18%	12.61%	10.98%	28.58%
2005/06	39.39%	11.50%	10.50%	15.15%	23.46%
2006/07	28.16%	12.90%	19.05%	14.32%	25.57%
2007/08	30.54%	11.84%	17.44%	12.15%	28.04%
Mean	**39.08%**	**7.07%**	**19.31%**	**10.85%**	**23.69%**
S.D.	**5.79%**	**4.76%**	**6.26%**	**2.37%**	**4.38%**
C.V.	15.23%	**59.87%**	**32.07%**	**20.18%**	**19.29%**

Calculation of above table;
SCBL,
FY 2000/01 = (4811010)/(10727217) = 44.85 %

NIBL,
FY 2000/01 = (300000)/(10727217) = 2.8 %

Similarly,
NABIL, EBL and HBL = 25.8 %, 7.67% and 18.88 %.

Mean ($\overline{X}$) = (Total)/(n)

Mean of SCBL = (44.85+40.85+42.41+40.72+37.64+39.39+28.16+30.54)/8
= 39.08%.

Similarly,
NIBL, NABIL, EBL and HBL = 7.07 %, 19.31%, 10.85% and 23.69 %.

SD (σ) = Sqrt(Σ(X- $\overline{X}$ **)^2/(n-1))**

SD for SCBL = Sqrt((234.90)/7) = 5.79 %

Similarly,
NIBL, NABIL, EBL and HBL = 4.76 %, 6.26%, 2.37% and 4.38 %.

CV= (σ)/ ($\overline{X}$ **)**
CV for SCBL = 5.79/39.08 = 15.23 %

Similarly,
NIBL, NABIL, EBL and HBL = 59.87 %, 32.07%, 20.18% and 19.29 %.

C) Investment on Shares and Debentures

FY	SCBL	NIBL	NABIL	EBL	HBL	CBs
2000/01	11195	12695	18820	3700	10691	57101
2001/02	11195	13895	22220	17114	34265	98689
2002/03	11195	13895	22220	17114	34265	98689
2003/04	11195	13895	22220	17114	34265	98689
2004/05	13348	17738	27363	19387	39909	117745
2005/06	15343	17738	27563	19082	39909	119635
2006/07	44943	35253	57853	19887	73424	230555
2007/08	114536	59945.5	57853	101152	89558	423045
Total	**232950**	**185055**	**256112**	**214550**	**356286**	**1244953**
Average	**29119**	**23132**	**32014**	**26819**	**44536**	**155619**

Source: Annual Reports of CBs from FY 2000/01 to 2007/08

d) Percentage of Investment in Share and Debentures

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	19.61%	22.23%	32.96%	6.48%	18.72%
2001/02	11.34%	14.08%	22.52%	17.34%	34.72%
2002/03	11.34%	14.08%	22.52%	17.34%	34.72%
2003/04	11.34%	14.08%	22.52%	17.34%	34.72%
2004/05	11.34%	15.06%	23.24%	16.47%	33.89%
2005/06	12.82%	14.83%	23.04%	15.95%	33.36%
2006/07	19.49%	15.29%	25.09%	8.28%	31.85%
2007/08	27.07%	14.17%	13.68%	23.91%	21.17%
Mean	15.54%	15.48%	23.20%	15.39%	30.39%
S.D.	**5.89%**	**2.77%**	**5.22%**	**5.55%**	**6.55%**
C.V.	**37.92%**	**17.91%**	**22.52%**	**36.05%**	**21.56%**

Calculation as similar to above table, Appendix – 02 (b) & data refer from table (C)

e) Investment on Loans and Advances

(Rs. in '000')

FY	SCBL	NIBL	NABIL	EBL	HBL	CBs
2000/01	5660803	2318907	7993282	2959446	8651735	27584173
2001/02	5248362	2518057	7135536	3923601	10200552	29026108
2002/03	5574061	5648032	7454262	4882788	10001848	33560991
2003/04	6322852	6917796	7953759	5860541	11635308	38690256
2004/05	7831626	9933084	10465266	7589332	12088708	47908016
2005/06	8637277	12613561	12681666	9770919	14307567	58010990
2006/07	10252469	17010464	15545778	13459953	16831888	73024420
2007/08	13718597	27242533	21365053	18390214	19551745	100268142
Total	**63246047**	**84202434**	**90594602**	**66836794**	**103269351**	**408149228**
Average	**7905756**	**10525304**	**11324325**	**8354599**	**12908669**	**51018654**

Source: Annual Reports of CBs from FY 2000/01 to 2007/08

f) Percentage Share of Investment on Loan and Advances

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	20.52%	8.41%	28.98%	10.73%	31.36%
2001/02	18.08%	8.68%	24.58%	13.52%	35.14%
2002/03	16.61%	16.83%	22.21%	14.55%	29.80%
2003/04	16.34%	17.88%	20.56%	15.15%	30.07%
2004/05	16.35%	20.73%	21.84%	15.84%	25.23%
2005/06	14.89%	21.74%	21.86%	16.84%	24.66%
2006/07	14.04%	23.29%	20.96%	18.66%	23.05%
2007/08	27.07%	14.17%	13.68%	23.91%	21.17%
Mean	17.94%	16.95%	21.88%	16.11%	27.12%
S.D.	**4.22%**	**6.45%**	**4.26%**	**3.88%**	**5.36%**
C.V.	**23.49%**	**38.08%**	**19.49%**	**24.09%**	**19.78%**

Calculation as similar to above table, Appendix – 02 (b) & data refer from table (e)

Appendix – 03

a) Investment Portfolio Analysis (%)

	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	Mean
SCBL									
Govt. Securities	99.67	99.77	62.36	64.91	69.96	74.23	67.27	52.46	73.83
Share & Deb.	0.33	0.23	37.64	35.09	30.04	25.77	32.73	47.54	26.17
NRB Bond	0	0	0	0	0	0	0	0	0
NIBL									
Govt. Securities	0	95.94	85.65	22.92	47.96	49.52	44.46	49.96	49.55
Share & Deb.	100	4.06	14.35	77.08	52.04	50.48	55.54	50.04	50.45
NRB Bond	0	0	0	0	0	0	0	0	0
NABIL									
Govt. Securities	98.63	99.28	79.20	99.34	99.34	56.53	38.42	59.86	78.83
Share & Deb.	1.37	0.72	20.80	0.66	0.66	43.47	61.58	40.14	21.18
NRB Bond	0	0	0	0	0	0	0	0	0
EBL									
Govt. Securities	99.04	99.55	94.49	98.94	99.31	98.65	84.46	95.82	96.28
Share & Deb.	0.96	0.45	5.51	1.06	0.69	1.35	15.54	4.18	3.72
NRB Bond	0	0	0	0	0	0	0	0	0
HBL									
Govt. Securities	99.57	99.52	98.70	99.15	96.64	46.78	47.24	54.60	80.28
Share & Deb.	0.43	0.48	1.30	0.85	3.36	53.22	52.76	45.40	19.73
NRB Bond	0	0	0	0	0	0	0	0	0

Source: Annual Reports of CBs from FY 2000/01 to 2007/08

b) Loans and Advances Portfolio Analysis (%)

	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	Mean
SCBL									
Govt. Entp.	7.37	6.08	4.94	0.85	0.10	2.58	0.90	3.47	3.29
Pvt. Sector	88.64	92.48	93.12	98.29	98.90	93.74	95.83	94.20	94.40
For. Bill P&D	3.99	1.44	1.94	0.86	1.00	3.68	3.27	2.33	2.31
NIBL									
Govt. Entp.	1.21	1.03	0.92	1.93	2.33	0.65	0.64	0.47	1.15
Pvt. Sector	96.50	97.09	98.24	96.78	96.08	97.49	98.11	97.91	97.28
For. Bill P&D	2.29	1.88	0.84	1.29	1.59	1.86	1.25	1.62	1.58
NABIL									
Govt. Entp.	1.50	1.20	0.88	0.25	0.23	4.23	2.72	0.38	1.42
Pvt. Sector	93.64	95.66	95.62	96.47	98.23	94.47	95.63	98.23	95.99
For. Bill P&D	4.86	3.14	3.50	3.28	1.54	1.30	1.65	1.39	2.58
EBL									
Govt. Entp.	0	0	0	1.19	1.13	6.33	4.86	4.56	2.26
Pvt. Sector	98.26	98.57	99.67	98.44	98.63	93.29	94.84	95.15	97.11
For. Bill P&D	1.74	1.43	0.33	0.37	0.24	0.38	0.30	0.29	0.64
HBL									
Govt. Entp.	2.69	5.85	3.64	6.71	5.86	0	3.84	3.93	4.07

Pvt. Sector	95.60	90.45	96.36	91.67	94.14	97.45	94.56	95.12	94.42
For. Bill P&D	1.70	3.70	0	1.62	0	2.55	1.60	0.95	1.52

Source: Annual Reports of CBs from FY 2000/01 to 2007/08

c) Investment to Total Deposits Ratio (%)

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	61.95%	46.29%	48.64%	19.71%	23.29%
2001/02	58.58%	43.65%	52.88%	30.97%	49.18%
2002/03	54.47%	21.52%	44.85%	24.70%	48.35%
2003/04	53.68%	33.51%	41.33%	31.44%	42.22%
2004/05	50.18%	27.60%	29.27%	21.08%	47.12%
2005/06	55.67%	29.60%	31.95%	30.44%	41.10%
2006/07	54.99%	26.57%	38.32%	27.41%	39.35%
2007/08	46.74%	19.52%	31.14%	21.11%	41.90%
Mean	**54.53%**	**31.03%**	**39.80%**	**25.86%**	**41.56%**
S.D.	**4.68%**	**9.67%**	**8.67%**	**4.86%**	**8.23%**
C.V.	**8.58%**	**31.17%**	**21.80%**	**18.79%**	**19.81%**

Calculation as similar to Appendix -02 (b) and data source from Annual Reports of CBs from FY 2000/01 to 2007/08

d) Loan and Advance to Total Deposit Ratio (%)

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	36.69%	54.48%	50.47%	64.69%	49.35%
2001/02	33.14%	60.32%	46.02%	71.77%	54.78%
2002/03	29.72%	71.29%	55.43%	72.93%	47.53%
2003/04	29.88%	60.03%	56.33%	72.68%	52.86%
2004/05	40.50%	69.68%	71.75%	75.16%	48.72%
2005/06	37.45%	66.64%	65.55%	70.79%	54.01%
2006/07	41.60%	69.46%	65.57%	74.91%	56.02%
2007/08	46.12%	79.90%	66.94%	78.56%	61.23%
Mean	**36.89%**	**66.48%**	**59.76%**	**72.69%**	**53.06%**
S.D.	**5.80%**	**7.98%**	**9.01%**	**4.04%**	**4.51%**
C.V.	**15.72%**	**12.01%**	**15.08%**	**5.55%**	**8.51%**

Calculation as similar to Appendix -02 (b) and data source from Annual Reports of CBs from FY 2000/01 to 2007/08

e) Government securities to Total Deposit Ratio (%)

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	31.18%	7.05%	17.48%	17.99%	11.55%
2001/02	36.53%	5.38%	26.57%	28.15%	13.90%
2002/03	35.09%	5.05%	26.69%	23.89%	15.90%
2003/04	37.56%	17.36%	26.01%	30.59%	15.59%
2004/05	37.25%	13.67%	16.55%	20.80%	22.04%
2005/06	37.45%	13.33%	11.90%	24.07%	19.42%
2006/07	28.84%	13.30%	20.60%	19.88%	21.48%
2007/08	27.36%	9.16%	14.56%	13.50%	23.46%

Mean	**33.91%**	**10.54%**	**20.05%**	**22.36%**	**17.92%**
S.D.	**4.16%**	**4.51%**	**5.83%**	**5.51%**	**4.29%**
C.V.	**12.28%**	**42.83%**	**29.08%**	**24.65%**	**23.94%**

Calculation is as similar to above tables and data source from annual reports.

f) Return on Total Assets (%)

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	2.23%	1.10%	1.59%	1.34%	1.42%
2001/02	2.60%	1.15%	1.54%	1.28%	1.10%
2002/03	2.42%	1.30%	2.51%	1.17%	0.91%
2003/04	2.27%	1.15%	2.72%	1.49%	1.06%
2004/05	1.80%	1.43%	3.02%	1.45%	1.11%
2005/06	2.56%	1.64%	2.84%	1.49%	1.55%
2006/07	2.42%	1.82%	2.47%	1.38%	1.47%
2007/08	2.46%	1.80%	2.32%	1.66%	1.76%
Mean	**2.35%**	**1.42%**	**2.38%**	**1.41%**	**1.30%**
S.D.	**0.25%**	**0.30%**	**0.55%**	**0.15%**	**0.29%**
C.V.	**10.83%**	**20.83%**	**23.02%**	**10.65%**	**22.62%**

Calculation is as similar to above tables and data source from annual reports.

g) Investment on Share and Debenture to Total outside Investment Ratio (%)

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	0.07%	0.29%	0.12%	0.09%	0.08%
2001/02	0.08%	0.32%	0.14%	0.30%	0.19%
2002/03	0.07%	0.19%	0.16%	0.26%	0.17%
2003/04	0.06%	0.13%	0.16%	0.20%	0.16%
2004/05	0.07%	0.13%	0.18%	0.20%	0.17%
2005/06	0.07%	0.10%	0.14%	0.14%	0.16%
2006/07	0.19%	0.15%	0.24%	0.10%	0.25%
2007/08	0.14%	0.61%	0.19%	0.10%	0.10%
Mean	**0.09%**	**0.24%**	**0.17%**	**0.17%**	**0.16%**
S.D.	**0.04%**	**0.17%**	**0.04%**	**0.08%**	**0.05%**
C.V.	**49.36%**	**70.46%**	**22.49%**	**45.52%**	**32.73%**

Calculation is as similar to above tables and data source from annual reports.

h) Investment on Government Securities to Total outside Investment Ratio (%)

FY	SCBL	NIBL	NABIL	EBL	HBL
2000/01	31.40%	6.82%	17.27%	21.06%	15.60%
2001/02	39.51%	5.12%	26.35%	27.28%	14.32%
2002/03	41.36%	5.35%	26.03%	24.37%	16.59%
2003/04	44.73%	18.20%	26.18%	29.29%	16.15%
2004/05	40.36%	13.86%	16.25%	21.55%	22.68%
2005/06	39.65%	13.72%	12.05%	23.73%	20.15%
2006/07	29.55%	13.69%	19.63%	19.38%	22.40%
2007/08	40.68%	0.00%	14.37%	10.18%	23.38%

Mean	**38.40%**	**9.59%**	**19.77%**	**22.11%**	**18.91%**
S.D.	**5.18%**	**6.14%**	**5.75%**	**5.82%**	**3.64%**
C.V.	**13.50%**	**64.00%**	**29.07%**	**26.33%**	**19.26%**

Calculation is as similar to above tables and data source from annual reports.

Appendix – 04

a) Calculation of Risk and Return on Government Securities of Nepalese CBs

FY	Investment on GOVT. securities "000"	Interest Income on GOVT. Securities "000"	Return on GOVT. securities (%) (R_g)	$(R_g - \overline{R_g})^2$ (%)
2000/01	10727217	431165	4.02%	0.01
2001/02	14256876	571193	4.01%	0.01
2002/03	15516572	658918	4.25%	0.02
2003/04	19520099	871911	4.47%	0.13
2004/05	19135523	766371	4.00%	0.01
2005/06	21926394	837422	3.82%	0.08
2006/07	25242097	857397	3.40%	0.50
2007/08	26649143	1300478	4.88%	0.60
Total	**152973921**	**6294855**	**32.84%**	**1.36**

Calculation;

Return on govt. securities (R_g) = Interest Income from govt. securities / Total Investment on govt. securities

(R_g) 2000/01 = 431165/10727217 = 4.02 %

Average rate of return $\overline{R_g} = \frac{\sum_{t=1}^{n} R_g}{n}$

$\overline{R_g}$ = 32.84 /8 = 4.11 %

$(R_g - \overline{R_g})^2$ 2000/01 = $(4.02-4.11)^2$ = 0.01 %

Similarly calculated for other years.

b) Calculation of Risk and Return on Loan and Advances of Nepalese CBs

FY	**Investment on Loan and Advance "000"**	**Interest Income on Loan and Advance "000"**	**Return on Loan and Advances (%) (R_L)**	$(R_L - \overline{R_L})^2$ (%)
1999/00	22666645	2375339	10.48%	*2.04
2000/01	27584173	2832885	10.27%	1.49
2001/02	29026108	2849007	9.82%	0.59
2002/03	33560991	3130253	9.33%	0.08
2003/04	38690256	3515941	9.09%	0.02
2004/05	47908016	3968706	8.28%	0.59
2005/06	58010990	4459055	7.69%	1.85

2006/07	73024420	5407992	7.41%	2.69
2007/08	81425530	8533395	10.48%	2.06
Total	**330471599**	**28539178**	**72.36%**	**9.35**

Calculation;

Return on Loan and Advances R_l = Interest income on loan and advances / Investment on loan and advances

R_l 1999/00 = 2375339/22666645 = 10.48 %

Average return on loan and advances $\overline{R_l}$ = $\frac{R_l}{n}$ Where, n = No. of historical year

$\overline{R_l}$ 1997/00 = 72.36/8 = 9.05 %

$(R_L - \overline{R_L})^2$ 1997/00 = $(10.48 - 9.05)^2$ = 2.04 %

Similarly calculated for other years.

c) Estimates of Market Parameter

Selected Co.	**2000/01**		**2001/02**		**2002/03**		**2003/04**		**2004/05**		**2005/06**		**2006/07**		**2007/08**	
	P_t	D_t	P_t	D_t	P_t	D_t	P_t	D_t	P_t	D_t	P_t	D_t	P_t	D_t	P_t	D_t
NABIL	1400	55	1500	40	735	30	740	50	1000	65	1505	165	2240	85	5050	140
HBL	1700	75	1500	57.5	1000	35	836	25	840	20	920	20	1100	35	1740	40
EBL	980	20	750	20	430	20	445	20	680	20	870	20	1379	25	2430	40
SCBL	1985	100	2144	100	1575	100	1640	110	1745	110	2345	110	3775	140	5900	130
NIBL	1401	25	1150	0	760	**0**	795	20	940	15	800	12.5	1260	20	1729	5
Total	**6065**		**7044**		**4500**		**3661**		**4265**		**5640**	**327.5**	**9754**	**305**	**16849**	**355**
No. of Observation (n)	**5**		**5**		**5**		**5**		**5**		**5**		**5**		**5**	
Average $\int P_t A$	**1213**		**1409**		**900**		**732**		**853**		**1128**		**1951**		**3370**	

Source: Trading Report Vol. 2 to10, NEPSE and Annual report of SEBO and NEPSE 2000 to 2008

d) Calculation of Dividend Yield $\frac{D_t}{P_t}$

In Percentage

Selected Co.	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08
NABIL	3.93	2.67	4.08	6.76	6.50	10.96	3.79	2.77
HBL	4.41	3.83	3.50	2.99	2.38	2.17	3.18	2.30
EBL	2.04	2.67	4.65	4.49	2.94	2.30	1.81	1.65
SCBL	5.04	4.66	6.35	6.71	6.30	4.69	3.71	2.20
NIBL	1.78	0	0	2.51	1.59	1.56	1.59	0.29
Total	**15.42**	**13.83**	**18.58**	**20.95**	**18.12**	**20.12**	**14.09**	**9.21**
No. of observation (n)	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Average Dividend Yield	**3.08**	**3.45**	**4.64**	**4.19**	**3.62**	**4.02**	**2.82**	**1.84**

Source above table c

e) Calculation of Capital Yield and Dividend Yield on Share and Debentures of CBs

Fiscal year	Avg. Closing Price fP_t	% Change in Price (Capital Yield)	Avg. Dividend Yield $\frac{D_t}{P_t}$	Return on Share and Debentures R_s	$fR_s \ Z \overline{R_s}$
1999/00	729.48*	**-**	-	**-**	
2000/01	1213	66.28**	3.08	69.36***	1454.66
2002/03	1409	16.16	3.45	19.61	134.79
2003/04	900	-36.12	4.64	-31.48	3931.29
2004/05	732	-18.67	4.19	-14.48	2088.49
2005/06	853	16.53	3.62	20.15	122.54
2006/07	1128	32.24	4.02	36.26	25.40
2007/08	1951	72.96	2.82	75.78	1985.59
Total	3370	72.73	1.84	74.57	1879.22
				249.77	**11621.98**

Calculation;

$$** \ X\frac{1213 \ Z 729.48}{729.48} \ X0.6628 \ X66.28\%$$

$$*** \ X66.28 \ \Gamma 3.08 \ X69.36$$

The average closing price in year 1998/99 is calculated on the basis of NEPSE index and 1998/99 average closing price

1998/99 NEPSE index = 216.92

1999/2000 NEPSE index = 360.70

Closing price in year 1999/2000 = 1213

Average closing price on 1998/99 $\text{X}\frac{1213}{360.70} \mid 216.92$

$\text{X}729.48*$

The average rate of return from Share and Debentures for CBs is;

$$\overline{R_s}\ \text{X}\frac{R_s}{n}\quad \text{X}\frac{249.77}{8}\ \text{X}31.22\%$$

Again,

$$\pm_s\ \text{X}\sqrt{\frac{\int R_s\ \text{Z}\overline{R_s}\text{Å}}{n\,\text{Z}1}}\quad \text{X}\sqrt{\frac{11621.98}{8\,\text{Z}1}}\ \text{X}40.75\%$$

Now,

$$CV_s\ \text{X}\frac{\pm_s}{\overline{R_s}}\quad \text{X}\frac{40.75}{31.22}\ \text{X}1.31$$

f) Calculation of Weight of Investment on Various Assets

S. No.	Assets	Investment Amount Rs. '000'	Proportion Weight (w)	Average Rate of Return (R)
1	**Government Securities**	152973921	0.6000*	4.11
2	**Share and Debenture**	1244953	0.0048	31.22
3	**Loan and Advance**	100946600	0.3952	9.05
Total		**255165474**		

Calculation;

* = (152973921)/255165474 = 0.6000

Calculation of Portfolio Return $\int R_p$

$R_p\ \text{X}\quad W \mid R$

=0.600*4.11% + 0.0048*31.22% + 0.3952*9.05%

=6.16%

Hence, Portfolio Return on Investment of CBs $\int R_p$ = 6.16%

g) Calculation of Correlation Coefficient and Covariance between Various Assets

S. No.	Assets	Standard Deviation	Correlation Coefficient	Covariance	Weight (w)
1	Government Securities (g)	0.44	0.733	0.000037	0.6000
2	Share and Debenture (s)	40.75	-0.143	-0.00023	0.0048
3	Loan and Advance (l)	1.16	-0.476	-0.0023	0.3952

Calculation;

Cov_{gl} Xr_{gl} |$\pm_g$ |$\pm_l$

X0.733 | 0.0044 | 0.0116 X0.000037

Cov_{ls} Xr_{ls} |$\pm_l$ |$\pm_s$

XZ0.476 | 0.0116 | 0.4075 XZ0.0023

Cov_{gs} Xr_{gs} |$\pm_g$ |$\pm_s$

XZ0.143 | 0.0044 | 0.3731 XZ0.00023

r_{gl}, r_{ls} and r_{gs} are the correlation coefficient between government securities and loan and advance, loan and advance and share and debenture, government securities and share and debenture respectively.

$$\pm_p \text{ X} \sqrt{W_g{}^2 \mid \pm_g{}^2 \Gamma W_s{}^2 \mid \pm_s{}^2 \Gamma W_l{}^2 \mid \pm_l{}^2 \Gamma 2Cov_{gs} \mid W_g W_s \Gamma 2Cov_{ls} \mid W_l W_s \Gamma 2Cov_{gl} \mid W_g W_l}$$

=√ [$(0.600)^2$*$(0.44)^2$ + $(0.0048)^2$ *$(40.75)^2$ + $(0.3952)^2$ *$(1.16)^2$ +2(-0.00023) * (0.600) * (0.0048)+2 (-0.0023) * (0.3952) *(0.0048)+2(-0.00023) *(0.600) *(0.3952)]

= 0.56%

Hence, standard deviation of portfolio on investment of CBs $\pm_p$ = 0.56%

h) Performance of Various Investment Assets

S. No.	Investment Assets	Average Annual Return (%) r_i	Standard Deviation of Annual Return $\pm_i$	Sharpe's Measure of Performance $S_i = \frac{\bar{r}_i - R}{\pm_i}$, R=6%
1	**Government Securities**	4.11	0.44	-4.30*
2	**Loan and Advance**	9.05	1.16	2.62
3	**Share and Debenture**	31.22	40.75	0.62
4	**Investment Portfolio**	6.16	0.56	0.29

Calculation;

* $S_i = \frac{\bar{r}_i - R}{\pm_i}$ = (4.11-6.0)/0.44 = -4.3 %

Appendix - 05

A Sample Calculation of Straight Line Trend

Let straight line trend between dependent variables (total investment) y and independent variable (time) x be;

$$y = a + bx$$

For finding the value of a & b we have

$$a = \frac{y}{n} \text{ and } b = \frac{xy}{x^2} \qquad \text{it is only when} \qquad x = 0$$

Deviations are taken from the middle of the years.

a) Trend Value ($y_c \; X a \; \Gamma bx$) of Total Investment and Total Deposit of CBs

(Rs. in million)

Year (t)	X=t-000.5	Total Investment		Total Deposit	
		Trend Value*	Actual Value	Trend Value**	Actual Value
2000	-3.5	15323.44	7090.03	42169.88	45428.80
2001	-2.5	19565.94	24218.64	52008.46	57632.18
2002	-1.5	23808.44	30147.70	61847.04	59602.92
2003	-0.5	28050.94	29782.03	71685.62	67866.11
2004	0.5	32293.44	32886.64	81524.20	76879.39
2005	1.5	36535.94	31727.67	91362.78	83087.98
2006	2.5	40778.44	39712.43	101201.36	101629.03
2007	3.5	45020.94	45812.33	111039.94	120712.84
2008	4.5	49263.44	50599.23	120878.52	151930.14
2009	5.5	53505.94		130717.10	
2010	6.5	57748.44		140555.68	
2011	7.5	61990.94		150394.26	

Calculation;

Trend line for Total Investment of CBs

* y_c = 32441.86 + 4387.91x

Trend line for Total Deposit of CBs

** y_c = 84974.40 + 11858.44x

b) Trend Value ($y_c \ X a \Gamma bx$) of Investment on Government Securities, Share and Debentures and Loan and Advances of CBs.

(Rs. in million)

Year (t)	x = t-2000.5	Investment on Government Securities		Investment on Share and Debentures		Investment on Loan and Advances	
		Trend Value*	Actual Value	Trend Value**	Actual Value	Trend Value***	Actual Value
2000	-3.5	8250.63	7037.03	41.66	52	17708.38	22666.65
2001	-2.5	10656.23	10727.22	60.94	57.1	24451.40	27584.17
2002	-1.5	13061.83	14256.88	80.22	98.69	31194.42	29026.11
2003	-0.5	15467.43	15516.57	99.50	98.69	37937.44	33560.99
2004	0.5	17873.03	19520.10	118.78	98.69	44680.46	38690.26
2005	1.5	20278.63	19135.52	138.06	117.74	51423.48	47908.02
2006	2.5	22684.23	21926.39	157.34	119.63	58166.5	58010.99
2007	3.5	25089.83	25242.10	176.62	230.55	67909.52	73024.42
2008	4.5	27495.43	26649.14	195.90	423.04	71652.54	81425.53
2009	5.5	29901.03		215.18		78395.56	
2010	6.5	32306.63		234.46		43829.63	
2011	7.5	34712.23		253.74		91881.60	

Trend line of Investment on Government Securities of CBs is,

* y_c = 16670.23 + 2405.60x

Trend line of Investment on Share and Debentures of CBs is,

** Y_c = 109.14 + 19.28x

Trend line of Investment on Loan and Advances of CBs is,

*** y_c = 41308.95 + 6743.02x