# PORTFOLIO INVESTMENT, RISK AND RETURN ANALYSIS OF JOINT VENTURE COMMERCIAL BANK

(With reference to SCBL,SBI, HBL AND NABIL Bank Ltd.)

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**A THESIS SUBMITTED TO**

Office of the dean

Faculty of Management

Tribhuvan University

***In partial fulfillment of the requirement for the degree of Master of Business Studies (M.B.S)***

Kathmandu, Nepal

March 2014

## RECOMMENDATION

This is to certify that the thesis

Submitted by:

**Arjun Khanal**

Entitled:

**PORTFOLIO INVESTMENT, RISK AND RETURN ANALYSIS OF JOINT-VENTUR COMMERCIAL BANK**

(With reference to SCBL, SBI, HBL AND NABIL Bank Ltd)

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

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# VIVA-VOCE SHEET

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

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DECLARATION

I hereby declare that the work reported in this thesis entitled “PORTFOLIO INVESTMENT, RISK AND RETURN ANALYSIS OF JOINT-VENTURE COMMERCIAL BANK” submitted to the partial fulfillment of the requirements for the Masters of Business Studies (MBS) level Lumbini Banijya Campus, T.U. is my original work. This work is done by me under the supervision of Lecturer Mr. Rajendra Lamsal of Lumbini Banijya Campus, Rupandehi.

Arjun Khanal

# ACKNOWLEDGEMENTS

Giving me great opportunity to prepare this thesis to fulfill the partial requirement of MBS program held under Tribhuvan University, I would like to heartily thank to Tribhuvan University.

I express my profound gratitude to my supervisor Mr. Rajendra Lamsal for her patient and continuous guidance with valuable comments and kind support to me all way through this thesis.

I also owe an indebtedness to all reputed authors whose writings have provided me the necessary guidance and invaluable materials for the enrichment of my research paper in all possible ways. I would like to express my genuine appreciation to Dr. Ishwor Gautam Campus Chief and all the staff of Lumbini Banijya Campus, Central library staff and Security Board library that provide me necessary information and data. And also express my gratitude to the staff of various corporate bodies who bigheartedly made accessible the requisites information.

I have tried to cover all the possible matters that I felt, important to sum up the “Portfolio Investment, Risk and Return Analysis of Joint Venture Commercial Banks”. I am hopeful that this task will be helpful to the students of business studies and to those who want to make further researchers under this topic.

Arjun Khanal

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## ABBREVIATIONS

| | | |
|---|---|---|
| A.D. | : | Anno Domini |
| AGM | : | Annual General Meeting |
| ATM | : | Automatic Teller Machine |
| CAPM | : | Capital Assets Pricing Model |
| CBs | : | Commercial Banks |
| CDs | : | Certificate of Deposit |
| Co. | : | Company |
| CV | : | Coefficient of Variation |
| FY | : | Fiscal Year |
| GDP | : | Gross Domestic Product |
| Govt. | : | Government |
| HBL | : | Himalayan Bank Limited |
| IFIC | : | International Finance Investment and Commercial Bank |
| IMF | : | International Monetary Fund |
| JVBs | : | Joint Venture Banks |
| LC | : | Letter of Credit |
| Mkt. | : | Market |
| MSCI | : | Morgan Stanley Capital International |
| NEPSE | : | Nepal Stock Exchange |
| NIBL | : | Nepal Investment Bank Limited |

| | | |
|---|---|---|
| NAIBL | : | Nepal Arab Bank Limited |
| NPAT | : | Net Profit After Tax |
| NRB | : | Nepal Rastra Bank |
| P&D | : | Purchase and Discount |
| Pvt. | : | Private |
| R&R | : | Risk and Return |
| RWA | : | Risk Weighted Assets |
| SBI | : | State Bank of India |
| SCBL | : | Standard Chartered Bank Limited |
| SEBO | : | Securities Board |
| TBs | : | Treasury Bills |

# CHAPTER- I

## INTRODUCTION

## 1.1 Background of the study

Commercial Banks are those financial institutions that deal in accepting deposits of individual and institutions and giving loan against securities. They mobilize monetary resources from the savers to the users. They provide working capital needs of trade, industries and even to agricultural sectors. Moreover commercial banks also provide technical and administrative assistance to industries, trade and business enterprises. CBs pool together the saving or the community and arrange them for the productive use. A part from financing, they also render services like collection of bills and checks, safekeeping of the valuables, financial intermediaries etc. to their customers.

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).

A Commercial Bank refers to such type of bank other than specified bank related to Cooperative, agricultural, Industrial and other which deals in money exchange, accepting deposits and advancing loans etc (Commercial Bank Act 2031).

The network of a well-organized financial system of the country has great bearing in capital formation. It collects scattered financial resources from the masses and invests them among those engaged in commercial and economic activities of the country. It has been well established that the economic activities of any country can hardly be carried forward without the assistance and support of financial institutions. Financial institutions have catalytic role in the process of economic development. Thus, commercial banks have become the heart of financial system. A key factor in the development in 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. Portfolio is holding securities and investment in financial assets like bond, stock. Portfolio means the risk of holding in securities owned by an investor or institution. Portfolio theory deals with the selection of optimum portfolios; 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. Successful formulation and effective implementation of investment policy is the prime requisite for the successful performance of banks. 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. 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

Investment, in its broadest sense means the sacrifice of current dollars for future dollars. 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 According to Sharpe, Alexander & Bailey

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)

Portfolio means a collection or group of assets. (Gitman, 1990).

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.

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. The bases Investment Pattern of Commercial Bank are as follows:

- **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

- **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.

- **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.

## 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.

## 1.3 Statement of Problem

Investment range of commercial Bank, 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.

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. 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 total position of investment on government securities, share, debenture, loan, advance and bills purchase?
- How is the sectors wise investment of joint venture CBs?
- 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?
- Whether commercial banks effectively utilize portfolio in their investment to minimize risk and maximize return or not?

## 1.4 Objectives of the Study

The main and basic objectives of this study are to find out the condition of portfolio management, and to estimate an optimal portfolio among investment Patton of four selected commercial Banks.

The other objectives of the study are as follows:

- To analysis the position of investment on government securities, share, debenture loan, advance, and bills purchase.
- To analysis the sectors wise investment of joint venture CBs.
- To evaluate the financial performance of commercial banks in term of investment strategies.
- To analyze the risk and return on individual securities as well as portfolio investment of joint venture commercial banks.

## 1.5 Limitations of Study

This study is simply a partial study for the fulfillment of MBS degree. Hence, this study is not far from several limitations of its own kind, which weaken 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 four joint venture commercial banks are taken under study.
- The study covers a period of six fiscal years from 2007 to 2012, which will be tabulated and processed for drawing conclusion.
- 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.
- The consistency of findings and conclusions are dependent upon the reliability of secondary data and information

## 1.7 Organization of the Study

This research work has been organized in five chapters as mentioned below:

The first chapter deals with introduction. This includes background of the study, statement of problem, objectives of the study, significance of the study, limitation of the study.

The chapter second presents review of available literature, which consists of conceptual framework from book, reports, article journal, previous thesis etc.

Third chapter incorporates the research methodology used in the study, which includes research design, sources of data population and samples, methods of data collection and analysis.

The fourth chapter deals with analysis of data collected from different sources. Based on the data analysis of analysis of investors' preferences will be made using statistical and non-statistical tools. This chapter also includes major findings of the study.

The fifth chapter includes summary, conclusion and offers suggestions for further improvement. And finally

# CHAPTER- II

# REVIEW OF LITERATURE

Review of Literature consists of study of past research studies and relevant information that they used and induced. It is an advancement of existing knowledge and in-depth study of subject matters. It starts with a search of a suitable topic and continuous throughout the volumes of similar or related subjects. This chapter with about review of literature; deals with the review of the financial system and investment opportunity. The more details are in descriptive manner, for this study, various books, journal and articles as well as the past thesis review were taken into consideration. During the review of this research, in depth study and theoretical investigation regarding portfolio's aspects and their present application and potentialities also are made.

It is a vital and mandatory process in research works. During the review of this research, in depth study and theoretical investigation regarding portfolio's aspects and their present application and potentialities made. Investment Range of investment held by an investor, company etc. (Oxford Dictionary, 1994) A portfolio simply represents the having their funds in more than one assets. The combination of investment assets is portfolio. Hence, in this chapter, 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 has been reviewed. Therefore, this chapter is arranged into the following order: review of supportive text, review of legislative provisions, review of previous studies, review unpublished thesis and research gap

## 2.1 Review of Supportive Text

Review of supportive text provides the fundamental theoretical framework and foundation to the present study. Portfolio management is the process of selecting a bundle of securities that provides the investing the organization a maximum yield for a given level of risk or alternatively ensuring minimum level of risk for 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. Various books, which are either dependent or independent deals with theoretical aspects of risk, return and portfolio, are taken into consideration in this

chapter. Major focus is on the investment pattern of commercial bank and its impact on corporate risk, return and portfolio.

### 2.1.1 Definition of Investment

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)

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)

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).

The common definition of investment is, the sacrifice of certain present value for future value (Sharp and Alexander, 1999). Investment is not a gamble rather it is the systematic and scientific way of using the excess fund to get the maximum return at minimum level of risk. Investment made to obtain some expected profit. Investment forgives the present return for future return. Present investment is contribution to the future return. Investment is not gambling rather than it is systematic and scientific way of using excess fund from income to gain expected return with lower level of risk. While investing future return one should not forget that the amount s/he investing i.e. capital, a collective form of surplus. The surplus is that part of money deducting all the expenses from income. A person spends his/her years in capital formation process. That is why each one should be rational while investing. Since most of investors are risk averters, they require additional unit of return for bearing one more level of risk. People always try to reduce the risk factor. Common definition say us that contribution of present value for future return is investment or it's a search of certainty within the uncertainty. An investment is a commitment of money that expects to generate additional money. Every investment entitles some degree of risk; it required a present sacrifice for a future uncertain benefit. The motivating factor of investment is collective form of saving, expectation of future return and wealth position maximization.

### 2.1.2 Investment Alternatives

In the market, a wide range of investment alternatives are available to an individual investor.(Cheney and Moses, 1995) 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. Bankers 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

### 2.1.3 Portfolio Analysis

A portfolio is a bundle of combination of individual assets or securities. (Pandey, 1997) 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) 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) 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) 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.

### 2.1.4 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)

#### 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)

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

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

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

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

Where,

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

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

$\circ_{ij}$ = correlation coefficient between i and j.

$x_i$ = weight of security i.

$x_j$ = weight of security j.

**Portfolio Risk In Case Of Two Assets**

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

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

OR

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

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.

$\circ_{AB}$ = Correlation coefficient between A and B.

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

**iv. 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)

$$\pm_p^2 = n\left[\frac{1}{2}\right]^2 \times avg.\text{var}iance + \left(n^2 - n\right)\left[\frac{1}{n}\right]^2 \times avg.\text{cov}ariance$$

$$= \left[\frac{1}{n}\right] \times avg.\text{var}iance + \left[1 - \frac{1}{n}\right] \times avg.\text{cov}ariance$$

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.

### 2.1.5 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;

$$\pm_{ij} = \circ_{ij} \pm_i \pm_j$$

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. $\circ = -1$ 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. $\circ = 1$, 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)

### 2.1.6 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). 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 only to systematic or non diversifiable risk. The volatility of the market portfolio is due to macroeconomic factors that affect all risky assets and not to economy or industry specific factors. Volatility in return created by unsystematic risk, this risk can be diversified away by adding risky assets to a portfolio. (Cheney and Moses, 1995)

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.

### 2.1.7 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.

## 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 entitled the portfolios theory 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. (Markowitz, 1952)

- 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.
- 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

$$\pm_p^2 = X_1^2 \pm_1^2 + X_2^2 \pm_2^2 + 2X_1X_2 \times \pm_1 \pm_2 \times \circ_{12}$$

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

John D. Martin and Robert C. Klemkosky 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.

**Zero covariance Model**

$$\pm^2(\overline{R}_p) = \sum_{t=1}^{n}(x_i \times \ _i)\pm^2(\overline{R}_m) + \sum_{t=1}^{n}(x_i^2 \times \ _i^2)\pm^2(\overline{E})$$

Where,

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

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

n = no. of stocks in portfolio.

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

**Full Co-variance Model**

$$\pm^{2} full\left(\overline{R}_p\right) = \frac{\sum_{t=1}^{m}\left(R_{pt} - \overline{R}_p\right)^2}{m}$$

$$R_{pt} = \sum_{t=1}^{n} x_i R_{it}$$

$$\left(\overline{R}_p\right) = \sum_{t=1}^{m} \frac{R_{pt}}{m}$$

m = no. of period.

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

### 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 journals, magazines, newspapers and other related books and publication.

Shrestha, SR (1998), Mr. Shrestha in his thesis 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.

Shrestha (1999**),** concluded that the credit deposit ratio would be 51.30% other things remaining same in 2004 A.D. which was the lowest under the period of review. So, it is strongly recommended that the commercial banks should try to give more credit earning field as far as possible. Otherwise, they might not be able to absorb even its total expenses.

Mahat, L.D. (2004) has accomplished, the efficiency of banks can be measured using different parameters. The concept of productivity and profitability can be applied while evaluating efficiency of banks. The term productivity refers to the relationship between the quantity of inputs employed and the quantity of outputs produced. An increase in productivity means that more output can be produced from the same inputs or the same outputs can be produced from fewer inputs. Interest expense to interest income ratio shows the efficiency of banks in mobilizing resource at lower cost and investing in high yielding asset. In other words, it reflects the efficiency in use of funds.

## 2.4 Review of Unpublished Thesis

Banjade, (2003) Based on the analysis of the various data remarkable finding are drawn up. He draws the following conclusion;

- 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.
- 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.

- 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.

Shrestha, (2006) the researcher concludes the following issue.

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.

Udai, (2011) Measuring Credit Risk Management, researcher used financial tools to calculate interest returns in savings and fixed deposits as well as the impact on loan and advance distribution patterns. From the analysis of the data collected from various sources following conclusions have been made.

- The total investment regression line of NABIL and HBL is upward slopping where as NABIL has aggressive upward slopping of total investment regression line. It refers that NABIL has better increasing regression of total investment that HBL.
- The regression line of Net profit for NABIL and HBL is upward slopping but NABIL has aggressively and HBL has smoothly. The position of NABIL is better in order to generate profit than HBL.

Pradhan, (2012) The 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. Mr. Pradhan has highlighted the followings issues on his thesis.

- Average cash and bank balance to total deposit ratio of PBB and NBL were less then 20 percent.
- Credit and Investment to total deposit ratios of NBL and RBB were 57% and 78% respectively on an average for the study period..
- The average return to total asset ratio for RBB and NBL were 3.1% and 2% respectively.
- The average net profit on loan and advance ratio for the RBB and NBL were 9% and 8% respectively.

**2.5 Research Gap**

From the above study the researcher founds the gap that researcher has failed to analyze the financial performance of joint venture 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 unique way. In this research, researcher 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 focuses overall financial indicators that may or may not affect the financial performance of commercial banks in consideration with portfolio management.

# CHAPTER - III

# RESEARCH METHODOLOGY

A research is systematic and in-depth study or search of any particular topic by formulating hypothesis, collecting information, analyzing and interpreting them through the valid results. It is also called a creative investigation to search new insight to the phenomena.

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it we study the various steps that are generally adopted by a researcher in studying his research problem along with logic behind them.

Research methodology is the way in which the data are collected for the research project. It refers to the various sequential steps to be adopted by a researcher in studying a problem with certain objectives in view. It describes the methods and process applied in the entries subject of the study. It is the way to systematically solve the research problem (Kothari, 1990 :).

This chapter has been divided in to five sections. First section presents the research design of the study while the second section deals with the nature of population and samples. Third section consists of the nature and sources of data and four sections explain data collection and processing techniques. The final section deals with data analysis tools.

## 3.1 Research Design

Research Design is a plan, structure and strategy of investigations conceived so as to obtain answers to research questions and to control variances (Wolf, 1975). It is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. Considering the objectives of the study, the analysis is based on certain research design. In order to achieve objectives, descriptive and analytical research design has been adopted.

Descriptive research design describes the general pattern of the investors, business environment, problem of portfolio management etc. The analytical research design makes analysis of the information and data. Most of the data and information of the study were concerned with past phenomenon. So it can be regarded as historical research.

## 3.2 Population and Sample

At the present, there are six Joint Venture Commercial Banks operated in the market out of them four banks are taken under study. This study is based on the portfolio investment, risk

and return analysis of five selected commercial banks in NEPAL. That's why it implies the study of 67% population out of total number of the joint venture commercial Banks in Nepal, out of them SCBL, SBI, NABIL, & HBL are taken.

## 3.3 Sources of Data

This study is mainly based on secondary data. The various required data for the study are collected from concerned banks, Nepal Rastra Bank, NEPSE, SEBO/N and different libraries. Similarly, the required micro-level data received from annual reports of selected banks and websites of banks as well as NEPSE. In addition to above, supplementary data and information was collected from different library such as library of Lumbini Banijaya Campus, T.U. Central Library, Library of NRB, NEPSE, etc. Likewise, various data and information were collected from the periodical economic journals and from other published and unpublished reports. Similarly, information enquires and dialogue with authorities of related institutions is also other sources of data.

The major sources of data and information are as follows:

- Economic survey, Ministry of Finance
- Quarterly Economic Bulletin, NRB
- Macro Economic Indicators of Nepal, NRB
- Annual reports of different joint venture Bank.
- Journal of Finance
- Journal of Business
- Website if NEPSE
- Website if different Commercial Banks

## 3.4 Data Collection Procedures.

Most of the data used in the research are secondary data. Annual reports of joint venture commercial banks, annual reports of NEPSE, and Websites of NRB, Websites of related bank are used as secondary data.

## 3.5 Data analysis Tools and Techniques used

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

Financial tools are those, which are used for the analysis and interpretation of financial data. These tools can be used to get the precise knowledge of a business which in turn, is fruitful in exploring the strengths and weakness of the financial policies and strategies. There are various tools in financial sector but for the purpose of this study and in accordance to the studies objectives, ratio analysis was performed in this study. Ratio analysis certainly showed the position of investment and return and their contribution on overall performance

### 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). 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). For proper financial analysis of data, ratio analysis is an important tool. It is a very simple analyzing tool under which ratios are taken to express the relation between two or more data. Simply relation between two figures is known as ratio. 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;

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

**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 compute this ratio is as:

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

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:

$$\frac{Net \quad \text{Pr}ofit \quad after \quad Tax}{Total \quad Assets}$$

3. **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;

$$\frac{Interest \quad Income \quad on \quad Government \quad Securities}{Government \quad Securities}$$

**5. 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;

$$\frac{Interest\ \ Income\ \ on\ \ Loan\ \ and\ \ Advances}{Loan\ \ and\ \ Advance}$$

**6. 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

$$\text{Return on share and debenture}\left(R_s\right) = \frac{P_t - P_{t-1} + D_t}{P_{t-1}}$$

**II. Risk on Individual Assets**

The riskiness 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;

$$\pm = \sqrt{\frac{\sum\left(R - \overline{R}\right)^2}{n-1}}$$

Where

$\pm$ = Standard deviation or risk

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

R = rate of return on individual assets

n = no. of years

## III. Return on Portfolio

The expected of the portfolio is the weighted average of the expected returns of the individual assets in the portfolio. The weighted are proportion of the investor wealth in each asset, and of the sum of the weights must be equal to one.

Portfolio return ($R_p$) = $W_A R_A + W_B R_B$ +……..+ $W_N R_N$

Where,

$R_P$ = Portfolio return

$W_A$ = Weight of investment invested in stock A

$W_B$ = Weight of investment invested in stock B

$R_A$= Expected return for stock A

$R_B$= Expected return for stock B

### IV. Risk on Portfolio

The calculation of a portfolio risk is not as simple as the calculation of portfolio 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 assets' return move together. We measure the risk of an individual asset by the variances of returns or its square root, the standard deviation. The degree, to which the assets' return moves together, is measured by the covariance or correlation coefficient. By combining the measures of individual assets risk (Variance or standard); the risk of portfolio can be estimated. The portfolio risk is measured by either variance or the standard deviation of returns. The portfolio risk is affected by the variance of returns as well as the covariance between the return of individual assets included in the portfolio and respective weights. The variance of returns from portfolio made up an asset is defined by following equation:

$$\sigma_p^2 = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2\, W_A W_B\, COV\,(r_A r_B)}$$

$\sigma_p = W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2\, W_A W_B\, COV\,(r_A r_B)$

Where,

$\sigma_p^2$=Variance of portfolio rate of return

$\sigma_{p=}$ Portfolio rate of return

$\sigma_A$=Standard deviation of stock A

$\sigma_B$= Standard deviation of stock B

$W_A$= Weight of stock A

$W_B$= Weight of stock B

COV ($r_A r_B$) = Covariance of returns between asset A and B

The covariance is related to correlation as shown in equation:-

COV ($r_A r_B$)= $P_{AB}\ \sigma_A\ \sigma_B$

**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

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

**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.

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

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).

**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.

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

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

Statistical tools are used for attaining accuracy on analysis and study. Various statistical mathematics are studied which are related to decision making for premium collection and investment pattern under statistical analysis. Mean, Standard deviation, Coefficient of correlation, trend analysis, Coefficient of variation and hypothesis test are performed.

**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;

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

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 the 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

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

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

**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

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

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

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

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

This chapter Data presentation and Analysis is an important part of the study. Here, the calculated data are interpreted and analyzed to fulfill the objectives of this research.

Under This chapter various financial ratios and statistical tools i.e. mean, S.D, C.V etc. are used which are related to analyze the investment policy of the selected banks.

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

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

## 4.1 Investment Operations of joint venture CBs

Investment is the most important functions of joint venture 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. Joint venture CBs must mobilize it funds to profitable, secured, and marketable sector, so that it can earn more profit. Joint venture 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 joint venture CBs are playing the vital role in the economic development of the country. This chapter investment operation of joint venture CBs deals with the pinpointing analysis related to the investment of the joint venture CBs of Nepal in government securities, share and debentures and loan and advances prepared in various economic sectors.

### a) Investment on Government Securities

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

**Table 4.1**

**Investment on Government securities (in million)**

| FY | SCBL | SBI | HBL | NABIL | INS. Total | INS.AVE |
|---|---|---|---|---|---|---|
| 2007 | 7115.6 | 2345.6 | 6454.8 | 4305.7 | 20221.7 | 5055.4 |
| 2008 | 8137.6 | 3093.6 | 7471.7 | 4646.9 | 23349.8 | 5837.5 |
| 2009 | 9998.8 | 3306.6 | 4212.3 | 3705.2 | 21222.9 | 5305.7 |
| 2010 | 8531.5 | 3720.6 | 4455.4 | 7941.3 | 24648.8 | 6162.2 |
| 2011 | 9965.8 | 5574.8 | 4725.6 | 8742.3 | 29008.5 | 7252.1 |
| 2012 | 7862.7 | 4560.7 | 6440.6 | 7991.2 | 26855.2 | 6713.8 |
| Total | 51612.0 | 22601.9 | 33760.4 | 37332.6 | 145306.9 | 36326.7 |
| Average | 8602.0 | 3767.0 | 5626.7 | 6222.1 | 24217.8 | 6054.5 |

*Source: Banking and Financial Statistics, NRB, Mid July 2012*

**Table 4.2**

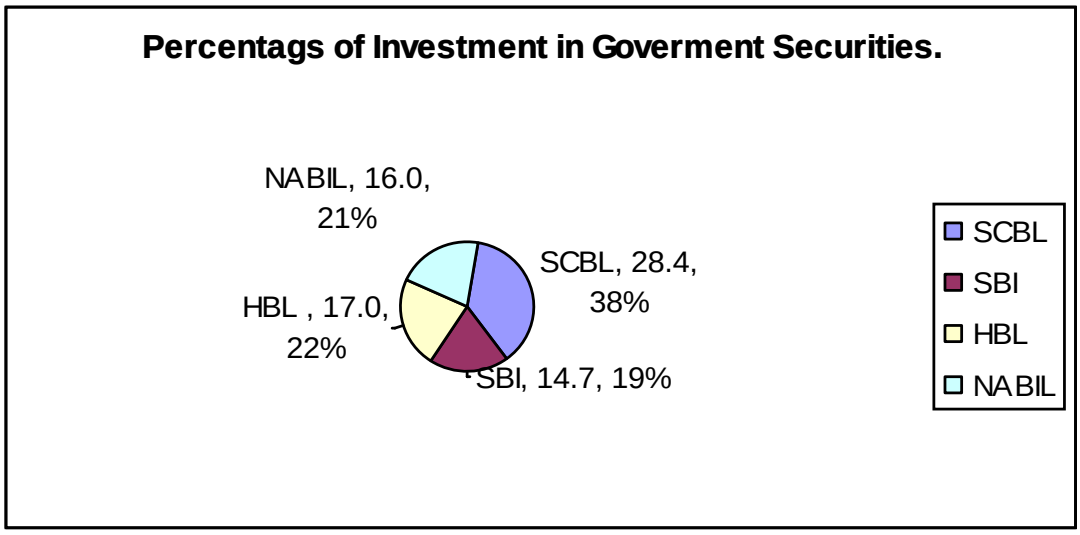
**% of Investment on Government Securities of each Banks**

| FY | SCBL | SBI | HBL | NABIL | INS/AVE |
|---|---|---|---|---|---|
| 2007 | 29.2 | 18.9 | 21.8 | 17.4 | 21.8 |
| 2008 | 29.2 | 19.5 | 28.5 | 14.6 | 22.9 |
| 2009 | 30.7 | 11.4 | 12.3 | 9.5 | 16.0 |
| 2010 | 23.7 | 15.8 | 11.9 | 20.1 | 17.9 |
| 2011 | 33.8 | 13.7 | 11.4 | 19.8 | 19.7 |
| 2012 | 24.0 | 9.0 | 16.3 | 14.4 | 15.9 |
| Total | 170.6 | 88.3 | 102.1 | 95.8 | 114.2 |
| Average | 28.4 | 14.7 | 17.0 | 16.0 | 19.0 |
| S.D | 3.9 | 4.2 | 6.9 | 4.0 | 6.0 |
| C.V | 13.7 | 28.6 | 40.6 | 25.0 | 31.6 |

*Source: Table 4.1 and Appendix 1. (e)*

**Figure 4.1**

**Percentage Coverage of Government Securities Held By joint venture CBs**




The analysis of above table and pie-chart most of the joint venture Commercial Bank more amount investment on Government securities. The investment on government securities of SCBL is highest among the other's banks. The SBI, HBL and NABIL Invest 14.7%, 17% and

16% respectively on Government Securities of there's total investment. Similarly the SCBL covers more shares i.e. 28.4% of the total investment on govt. securities. HBL be on 2nd position by investing 17% of the total investment on govt. securities. The industrial average investment on govt. securities is 19%.

The lowest C.V. shows the more consistency in investment on govt. securities. The highest CV which means there is high variability in investment on govt. The Industrial C.V of investment on govt. securities is 31.6% .The HBL has 4.6% C.V which is highest among the above bank. It means HBL has more high variability in investment on govt. securities. Similarly SCBL has lowest CV which means there is consistency in investment on govt. securities. From above analysis about the investment structure of joint venture joint venture CBs on the govt. securities expose there is no similar trend of investment on govt. securities made by joint venture CBs. Some banks 16% of total investment while some covers more than 28% of total investment on govt. securities. From average mean and CV analysis, it is clear that industrial average investment on government securities is 19% and industrial C.V on investing government securities is 31.6%. Among the individual bank, SCBL is the banks which mobilize maximum funds comparative to other banks on govt. securities. SBI stand at the last position sharing average 17.4% in total investment.

**b) Investment on Share and Debenture**

Joint venture 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 Share and Debenture Held by joint venture CBs**

**(Rs. in Millions)**

| FY | SCBL | SBI | HBL | NABIL | Ins. Ave |
|---|---|---|---|---|---|
| 2007 | 45.0 | 31.9 | 73.4 | 7.2 | 39.4 |
| 2008 | 114.5 | 32.8 | 89.6 | 81.8 | 79.7 |
| 2009 | 115.4 | 32.9 | 93.9 | 161.7 | 101.0 |
| 2010 | 115.4 | 37.2 | 78.9 | 92.7 | 81.1 |
| 2011 | 117.9 | 39.6 | 90.0 | 936.4 | 296.0 |
| 2012 | 117.9 | 30.7 | 90.0 | 834.7 | 268.3 |
| Total | 626.1 | 205.1 | 515.8 | 2114.5 | 865.4 |
| Average | 104.4 | 34.2 | 86.0 | 352.4 | 144.2 |

*Source: Banking and Financial Statistics, NRB, Mid July 2012*

**Table 4.4**

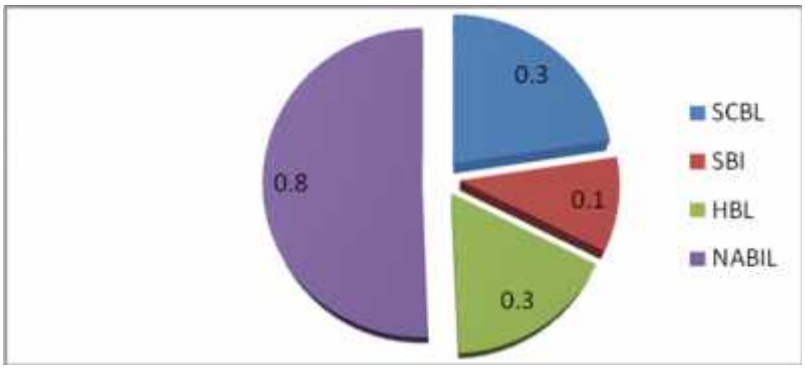
**% of Investment on Share and Debenture of each Bank**

| FY | SCBL | SBI | HBL | NABIL | Total | Inds.Average |
|---|---|---|---|---|---|---|
| 2007 | 0.2 | 0.3 | 0.2 | 0.0 | 0.7 | 0.2 |
| 2008 | 0.4 | 0.2 | 0.3 | 0.3 | 1.2 | 0.3 |
| 2009 | 0.4 | 0.1 | 0.3 | 0.4 | 1.2 | 0.3 |
| 2010 | 0.3 | 0.2 | 0.2 | 0.2 | 0.9 | 0.2 |
| 2011 | 0.4 | 0.1 | 0.2 | 2.1 | 2.8 | 0.7 |
| 2012 | 0.4 | 0.1 | 0.2 | 1.5 | 2.1 | 0.5 |
| Total | 2.0 | 0.9 | 1.5 | 4.6 | 9.0 | 2.3 |
| Average | 0.3 | 0.1 | 0.3 | 0.8 | 1.5 | 0.4 |

*Source: Table 4.3 and Appendix 1. (e)*

**Figure 4.2**

**Percentage Coverage of Loan and Advances of Different CBs**




From the above table no. 4.3 and 4.4 and Figure 4.2 shows that NABIL has the highest shares i.e. 0.8% on Share and Debenture among four joint venture CBs review period from 2007 to 2012. HBL and SCBL takes at the second position, SBI takes at the last position covering 0.3% and 0.1 % respectively on Share and Debenture among four joint venture CBs. HBL has less CV which indicates the consistency of investment on Share and Debenture. Similarly, NABIL has highest CV which means there is high variability in investment on Share and Debenture.

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

### c) Investment on Loan, Advances and Bills Purchase.

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 and domestic and foreign bills purchase 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, advances and bills purchase of joint venture CBs are tabulated below.

**Table 4.5**

**Structure of Investment on Loan and Advance Held by joint venture CBs**

**(Rs. in Millions)**

| FY | SCBL | SBI | HBL | NABIL | Total | INS/AVE |
|---|---|---|---|---|---|---|
| 2007 | 10790.0 | 10065.1 | 17841.5 | 15903.0 | 54599.6 | 13649.9 |
| 2008 | 13964.4 | 12742.6 | 20233.9 | 21769.7 | 68710.6 | 17177.7 |
| 2009 | 13880.7 | 15612.0 | 25577.4 | 27997.1 | 83067.2 | 20766.8 |
| 2010 | 16176.7 | 18023.4 | 29123.8 | 33031.0 | 96354.9 | 24088.7 |
| 2011 | 18662.4 | 21718.8 | 32968.2 | 38922.7 | 112272.1 | 28068.0 |
| 2012 | 18828.5 | 26463.7 | 35968.5 | 42867.7 | 124128.4 | 31032.1 |
| Total | 92302.7 | 104625.6 | 161713.3 | 180491.2 | 539132.8 | 134783.2 |
| Average | 15383.8 | 17437.6 | 26952.2 | 30081.9 | 89855.5 | 22463.9 |

*Source: Banking and Financial Statistics, NRB, Mid July 2012*

**Table 4.6**

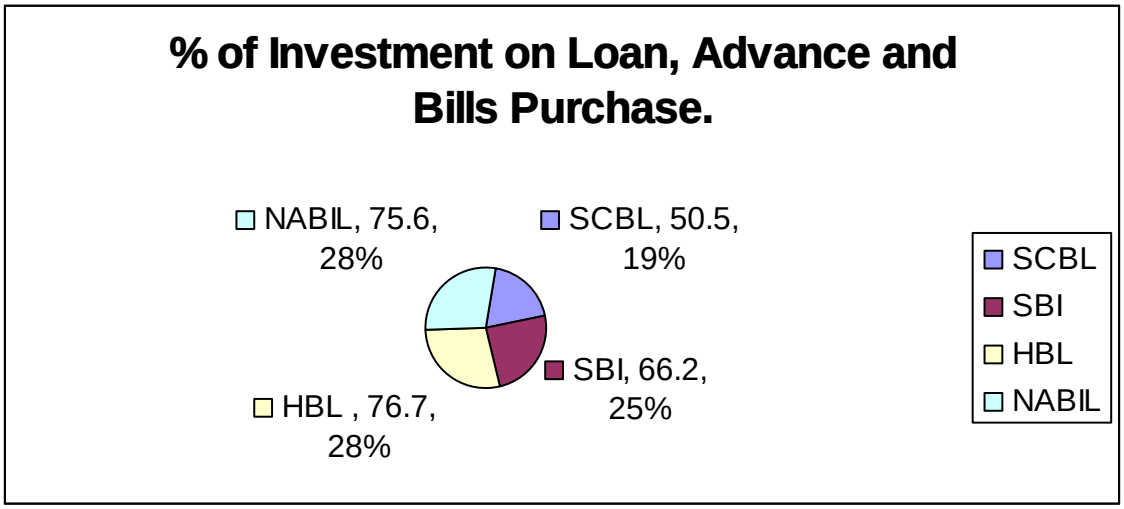
**% Share of Investment on Loan and Advances of each Bank**

| FY | SCBL | SBI | HBL | NABIL | INS/AVE |
|---|---|---|---|---|---|
| 2007 | 44.3 | 80.9 | 60.1 | 64.1 | 62.4 |
| 2008 | 50.1 | 80.2 | 77.1 | 68.6 | 69.0 |
| 2009 | 42.7 | 54.0 | 75.0 | 72.0 | 60.9 |
| 2010 | 44.9 | 76.8 | 77.9 | 83.6 | 70.8 |
| 2011 | 63.4 | 53.5 | 79.2 | 88.2 | 71.1 |
| 2012 | 57.4 | 52.0 | 90.8 | 77.2 | 69.3 |
| Total | 302.8 | 397.3 | 460.1 | 453.7 | 403.5 |
| Average | 50.5 | 66.2 | 76.7 | 75.6 | 67.2 |
| S.D | 8.3 | 14.4 | 9.8 | 9.1 | 10.4 |
| C.V | 16.4 | 21.8 | 12.8 | 12.0 | 15.5 |

*Source: Table 4.5 Appendix 1. (e)*

**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.28% on loan, advances and bills purchase among four joint venture CBs and covers 76.7% of its total investment throughout the review period from 2007 to 2012. NABIL takes at the second position, SBI takes at the third position and SCBL take last position covering 28%, 25% and 19 % respectively on loan and advances among four joint venture CBs. NABIL has less CV which indicates the consistency of investment on loan and advances. Similarly, SBI has highest CV which means there is high variability in investment on Loan, Advance and Bills Purchase.

It is clear that HBL is the best bank among five banks on the basis of utilization of resources in the field of loan, advances and bills purchase. In other hand the fluctuating trend of investment on loan, advances and bills purchase shows that there is a lack of any scientific approach towards investment on loan, advance and bills purchase of joint venture 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, NRB bond, Gov. Non-Fin-Ins etc.

The portfolio of making investment by five commercial banks i.e. SCBL, SBI, HBL, NABIL, has been analyzed in the table. (Detail on Appendix 2.a)

**Table 4.7**

**Joint venture CBs Average Investment Portfolio in Percentage**

| **SCBL** | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
|---|---|---|---|---|---|---|---|
| Gov.Securities | 100.0 | 99.9 | 99.9 | 99.9 | 99.9 | 99.9 | 99.9 |
| NRB Bond | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Gov.Non-Fin-Ins | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Other Non-Fin-Ins | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Non Residents | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| **SBI** | | | | | | | |
| Gov.Securities | 100.0 | 100.0 | 100.0 | 86.3 | 100.0 | 100.0 | 97.7 |
| NRB Bond | 0.0 | 0.0 | 0.0 | 13.7 | 0.0 | 0.0 | 2.3 |
| Gov.Non-Fin-Ins | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other Non-Fin-Ins | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Non Residents | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| **HBL** | | | | | | | 0.0 |
| Gov.Securities | 100.0 | 100.0 | 100.0 | 100.0 | 73.8 | 100.0 | 95.6 |

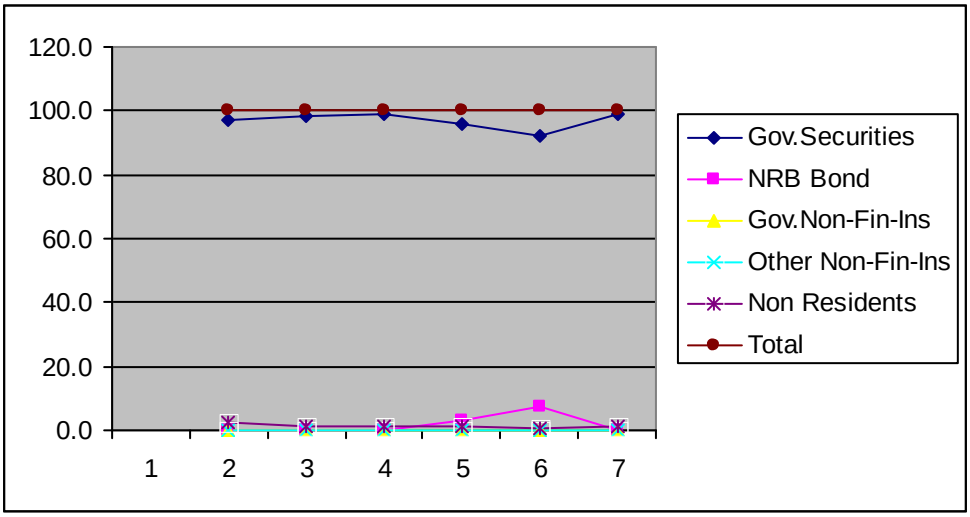
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NRB Bond | 0.0 | 0.0 | 0.0 | 0.0 | 26.2 | 0.0 | 4.4 |
| Gov.Non-Fin-Ins | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other Non-Fin-Ins | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Non Residents | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| **NABIL** | | | | | | | |
| Gov. Securities | 89.7 | 95.0 | 93.2 | 80.9 | 83.1 | 97.3 | 89.9 |
| NRB Bond | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Gov. Non-Fin-Ins | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other Non-Fin-Ins | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Non Residents | 10.3 | 5.0 | 6.8 | 19.1 | 16.9 | 2.7 | 10.1 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| **Industrial** | | | | | | | |
| Gov. Securities | 97.4 | 98.5 | 98.7 | 95.7 | 91.9 | 99.0 | 96.9 |
| NRB Bond | 0.0 | 0.0 | 0.0 | 3.2 | 7.3 | 0.0 | 1.8 |
| Gov. Non-Fin-Ins | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Other Non-Fin-Ins | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Non Residents | 2.6 | 1.4 | 1.3 | 1.0 | 0.8 | 0.9 | 1.3 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

*Sou*

*rce: Banking and Financial Statistics, NRB, Mid July 2012 and Appendix 2 (a)*

**Figure 4.4**

**Joint venture CBS Average Industrial Investment Portfolio in Percentage**




The above table shows the average industrial investment portfolio of four commercial banks. Out of investment term CBs invest there fund in Gov. Securities, NRB Bond Gov. Non Financial Institutions Other Non-Fin-Ins and Non- Residents. From the above chart shows, the industrial average investment on Gov. Securities is 96.9%, on NRB bond 1.8%, Government & Other financial institution 0% and Non-Residents Sectors is 1.6%.

SCBL is investing 99.9% on government securities. It shows that SCBL is investing its more funds on government securities, some of its fund on Non-Gov. FIN-INS and not any fund on NRB bond.

SBI is investing very high amount of fund on government securities. Mean percentage of investing on government securities is 97.7%. Investment made in NRB Bond is very low i.e. 2.3% only and NABIL has not invested any amount of funds on Gov. Non Financial Institutions Other Non-Fin-Ins and Non- Residents.

HBL is investing higher amount of funds on government securities. Its mean percentage ratio investment on government securities is 95.6% and it is investing very low amount of its fund on NRB Bond i.e. 4.4%.

NABIL is investing 89.9% on government securities. It shows that SCBL is investing its more funds on government securities, some of its fund on Non Residents i.e. 10.1% and not any fund on NRB bond.

## 4.3 Share, Debenture and others investment Portfolio Analysis

Joint venture 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 portfolio structure of joint venture CBS on share and debentures are shown in table below.

**Table 4.8**

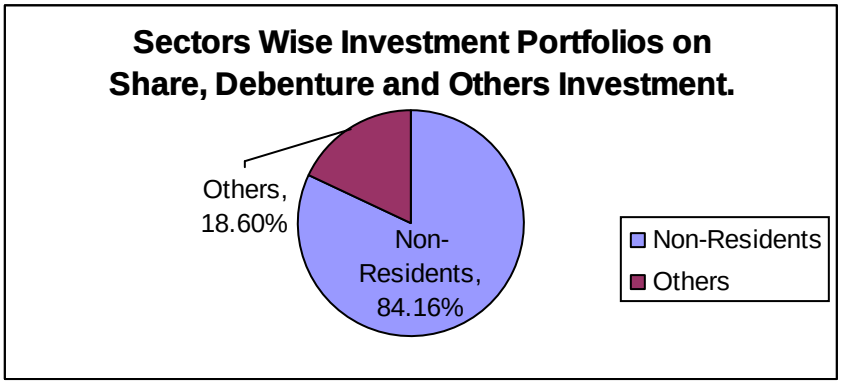
**Share, Debenture and others investment Portfolio on Percentage**

| Name of Banks | Non-Residents | Others | Total |
|---|---|---|---|
| SCBL | 80.1 | 19.9 | 100 |
| SBI | 49.4 | 50.6 | 100 |
| HBL | 80.7 | 19.3 | 100 |
| NABIL | 80.4 | 19.6 | 100 |
| **Average CBs** | **84.16%** | **18.60%** | **100.00%** |

*Source: Banking and Financial Statistics, NRB, Mid July 2012 and Appendix 2 (a)*

**Figure: 4.5**

**CBs Sectors wise Share, Debenture and others investment Portfolio**




The above table shows the average **Share, Debenture and others investment Portfolio** of four joint ventures CBs. The mean percentage of Share, Debenture and others investment in Non-Residents is 84.16%. The mean percentage of Share, Debenture and others in others sectors is 18.6%

SCBL is providing a very high amount of its share, debenture and others investment to the Non-Residents. The mean percentage of Share and debenture to the Non-Residents is 80.1%. Similarly, it's invest share, debenture and others investment to others sectors is 19.9%.

SBI is providing a very least amount of its share, debenture and others investment to the others sectors Non-Residents. The mean percentage of Share and debenture to the Non-Residents is 49.4%. This is very least among the other bank. Similarly, SBI is providing a very high amount of its share, debenture and others investment to the Non-Residents is 50.6%. It is very high percentage with compare to others bank.

HBL is providing a very high amount of its share, debenture and others investment to the Non-Residents. The mean percentage of Share and debenture to the Non-Residents is 80.7%. Which is highest among the others bank. Similarly, it's invest share, debenture and others investment to others sectors is 19.3%.

NABIL is providing a very high amount of its share, debenture and others investment to the Non-Residents. The mean percentage of Share and debenture to the Non-Residents is 80.4%. Similarly, it's invest share, debenture and others investment to others sectors is 19.6%.

## 4.3 Loan, Advance and Bill Purchase 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 joint venture 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 four banks SCBL, SBI, HBL and NABIL, has been analyzed in the table.

**Table 4.9**

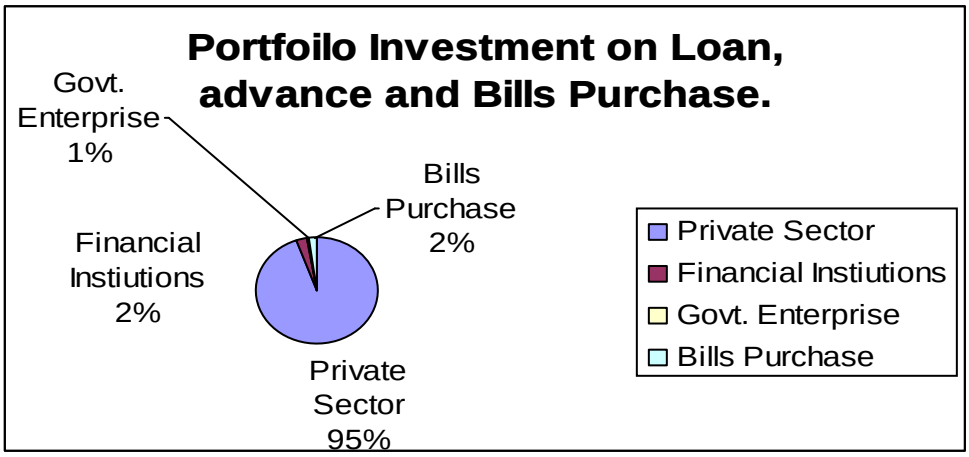
**Joint venture CBs Average Loan and Advances Portfolio in Percentage**

| Name of Banks | Private Sector | Financial Institutions | Govt. Enterprise | Bills Purchase | Total |
|---|---|---|---|---|---|
| SCBL | 90.2 | 4.0 | 1.5 | 4.4 | 100 |
| SBI | 95.4 | 2.7 | 1.0 | 0.9 | 100 |
| HBL | 96.9 | 0.4 | 0.7 | 2.1 | 100 |
| NABIL | 96.5 | 2.3 | 0.4 | 0.6 | 100 |
| **Average CBs** | **94.76%** | **2.35%** | **0.86%** | **2.00%** | **100%** |

*Source: Banking and Financial Statistics, NRB, Mid July2012 and Appendix 2.a and b*

**Figure 4.6**

**Joint venture CBs Average Loan and Advances Portfolio in Percentage**




The above table shows the average loans, advance and bills purchase portfolio of four joint ventures CBs. HBL 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 96.9%. NABIL has given second priority, SBI has third and SCBL has fourth position to invest on Private sectors. Joint venture CBs average investment on loan and advance in private sectors is 95% which is highest again the gov.Ins. and bills purchase. The mean percentage of bills purchase and investment loan and advance in financial institution is 2% an average limited fund of load and advance invest on government enterprise i.e. 1%.

SCBL 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 90.2%. It has given second priority to Bills purchase and discount. The mean percentage on it is 4.4%. It has given third position priority to loan and advance investment on financial institution. The mean percentage on it is 4%. And finally it invests on government enterprise with mean percentage of 1.5%.

SBI has provided very high amount of its loans and advances to private sector. The mean percentage of loans and advances to private sector is 95.4%. It has given a second priority to loan and advances to financial institution. The mean percentage of loans and advances to financial institutions is 2.7% 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% and bills purchase of 0.9%.

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 96.9%. This is the highest as compared to other commercial banks. It has given second priority to Bills purchase and discount. The mean percentage on it is 2.1%. It has given third position priority to loan and advance investment on government enterprise. The mean percentage on it is 0.7%. And finally it invests on financial institution with mean percentage of 0.4%.

NABIL 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 96.5%. It has given a second priority to loan and advances to financial institution. The mean percentage of loans and advances to financial institutions is 2.3%. Lastly it has given a priority in providing loans and advances to bills purchase with mean percentage of 0.6% and government securities of 0.4%.

## 4.5 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. **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. This can be stated as:

$$\frac{Investment\ in\ Government\ Securities}{Total\ Deposit}$$

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 4.10**

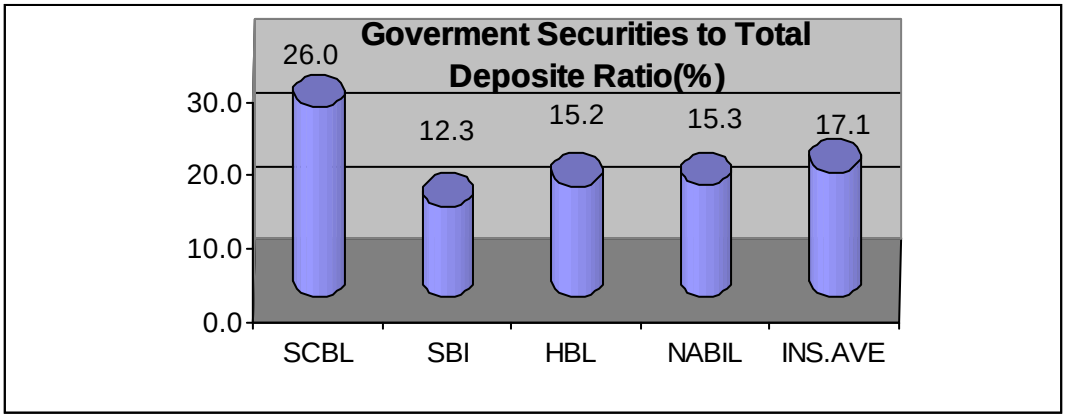
**Government securities to Total Deposit Ratio (%)**

| FY | SCBL | SBI | HBL | NABIL | INS.AVE |
|---|---|---|---|---|---|
| 2006/07 | 28.9 | 20.5 | 21.6 | 18.4 | 22.4 |
| 2007/08 | 27.4 | 22.6 | 23.5 | 14.6 | 22.0 |
| 2008/09 | 27.9 | 12.1 | 12.1 | 9.9 | 15.5 |
| 2009/10 | 24.2 | 10.7 | 11.8 | 17.1 | 16.0 |
| 2010/11 | 26.6 | 13.1 | 11.5 | 17.6 | 17.2 |
| 2011/12 | 21.9 | 8.6 | 13.5 | 14.5 | 14.6 |
| Average | 26.0 | 12.3 | 15.2 | 15.3 | 17.2 |
| S.D | 2.62013 | 6.144061 | 5.413982 | 3.118037 | 4.3 |
| C.V | 10.09244 | 49.79169 | 35.70573 | 20.35024 | 29.0 |

*Source: Appendix 1 (a, f)*

**Figure 4.7**

**Government securities to Total Deposit Ratio**




In the above table, the mean Government securities to total deposit ratio of SCBL is highest i.e. 26% and SBI is lowest ratio i.e. 12% among five commercial banks. Other banks HBL and NABIL have mean ratios of 15.2% and 15.3% respectively. The industrial average mean ratio is 17.2%.

The CV ratio of SCBL is lowest i.e. 10.1% among five commercial banks which indicates that the investment of SCBL is the more secure. SBI has the highest CV ratio i.e. 49.8 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 19%. SCBL and NABIL have a lowest CV than industrial average CV. So it can be concluded that SCBL and NABIL has more consistency ratio between investment in government securities and total deposit than that of other banks and NIBL is more variability (risky) ratio than that of other banks.

**b. Loan, Advance and Bills Purchase to Total Deposit Ratio.**

The loan advance and bills purchase 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. This can be stated as

$$\frac{Loans \quad andvances \quad and \quad bills \quad purchase}{Total \quad Deposit}$$

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.

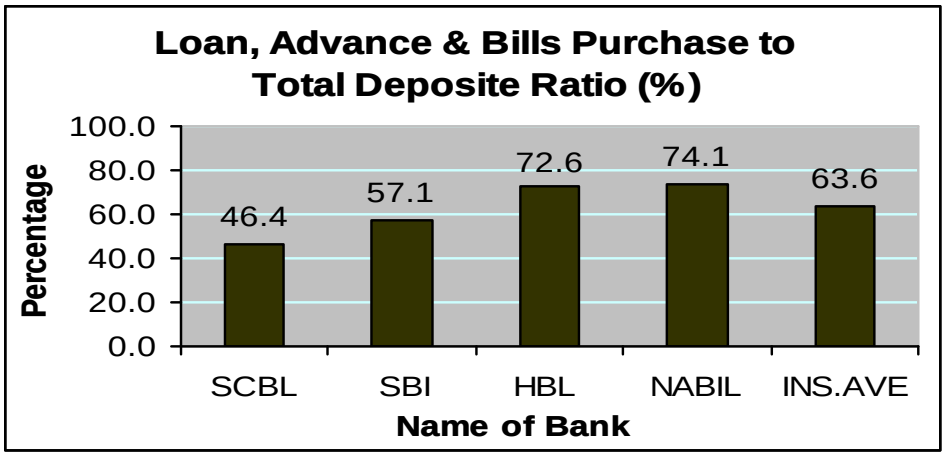
**Table 4.11**

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

| FY | SCBL | SBI | HBL | NABIL | INS.AVE |
|---|---|---|---|---|---|
| 2007 | 43.8 | 87.9 | 59.7 | 68.1 | 64.9 |
| 2008 | 46.9 | 92.9 | 63.6 | 68.2 | 67.9 |
| 2009 | 38.7 | 57.1 | 73.8 | 75.0 | 61.1 |
| 2010 | 46.0 | 51.6 | 77.4 | 71.3 | 61.6 |
| 2011 | 49.9 | 51.2 | 80.6 | 78.3 | 65.0 |
| 2012 | 52.4 | 49.6 | 75.4 | 77.9 | 63.8 |
| Average | 46.4 | 57.1 | 72.6 | 74.1 | 62.6 |
| S.D | 4.8 | 21.7 | 8.3 | 4.7 | 9.9 |
| C.V | 10.3 | 38.0 | 11.4 | 6.4 | 16.5 |

*Source: Appendix 1 (c, f)*

**Figure 4.8**




In the above table, the mean loans and advances to total deposit ratio of NABIL is highest i.e. 74.1% and SCBL is lowest ratio i.e. 46.4% among five commercial banks. Other banks SBI and HBL have a mean ratio of 57.1%, and 72.6% respectively. The industrial average mean ratio is 63.6%. It can be said that NABIL and HBL successful to mobilize its deposit on loan, advance and bills purchase is better than average ratio of joint venture CBs.

The CV ratio of NABIL is lowest i.e. 6.4% among four joint venture commercial banks which indicates that the investment as NABIL is the most uniform. SBI has the highest CV ratio i.e. 38% among four commercial banks; it indicates that the investment of NABIL is more fluctuating. The lowest CV is better then highest CV. The industrial average CV ratio is 16.5%. SCBL, HBL and NABIL have a lowest CV than industrial average CV. So it can be concluded that they are the more effective loan, advance and Pills purchase to total deposit ratio then SBI.

**c. Share and Debenture to Total Deposit Ratio**

Joint venture 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 higher ratio represents the greater efficiency of the firm in utilizing fund and vice-versa. This ratio is calculated by dividing share and debenture by total deposit. This can be stated as:

$$\frac{Share \quad and \quad Debenture}{Total \quad Deposit}$$

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

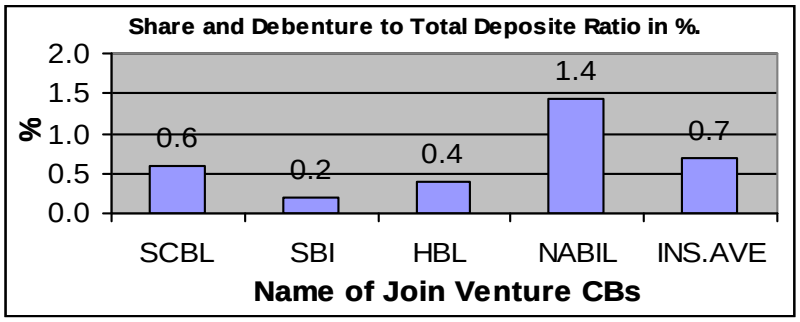
**Table 4.12**

**Share and Debenture to Total Deposit Ratio (%)**

| FY | SCBL | SBI | HBL | NABIL | Ins. Ave |
|---|---|---|---|---|---|
| 2006/07 | 0.50 | 0.30 | 0.30 | 0.40 | 0.38 |
| 2007/08 | 0.40 | 0.20 | 0.30 | 0.50 | 0.35 |
| 2008/09 | 0.30 | 0.10 | 0.20 | 0.20 | 0.20 |
| 2009/10 | 0.30 | 0.10 | 0.20 | 2.00 | 0.65 |
| 2010/11 | 0.30 | 0.10 | 0.20 | 1.70 | 0.58 |
| 2011/12 | 1.70 | 0.40 | 1.10 | 3.80 | 1.75 |
| Total | 3.60 | 1.20 | 2.40 | 8.60 | 3.95 |
| Average | 0.60 | 0.20 | 0.40 | 1.40 | 0.65 |
| S.D | 0.55 | 0.13 | 0.35 | 1.38 | 1.38 |
| C.V | 92.20 | 63.25 | 88.74 | 98.25 | 85.61 |

*Source: Appendix 1 (d, f)*

**Figure 4.9**




In the above table, the mean share and debenture to total deposit ratio of NABIL is highest i.e. 1.4% and SBI is lowest ratio i.e. 0.2% among four joint venture commercial banks. Other banks SCBL and HBL have a mean ratio of 0.6% and 0.4% respectively. The industrial average mean ratio is 0.7%. It can be said that NIBL, EBL and NABIL capacity to mobilize its deposit on share and debenture is very low than others average ratio of joint venture CBs.

The CV ratio of SBI is lowest i.e. 63.25% among four joint venture CBs which indicates that the investment as SBI is the more uniform then others. NABIL has the highest CV ratio i.e. 98.25% among four joint venture CBs, it indicates that the investment of NABIL is more fluctuating. The lowest CV is better then highest CV. The industrial average CV ratio is 85.61%. SBI has a lowest CV than industrial average CV. So it can be concluded that SBI is the most effective, SCBL, HBL and NABIL are less effective share and debenture to total deposits ratios.

**d. Total 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. Joint venture CBs may mobilize its bank deposit by investing its fund in different securities issued by government and other financial or non financial companies. Normally CBs are investing their funds in govt. securities such as treasury bills, development bonds, national saving bonds, special bonds etc. and others company's share and debenture, loan, advance and bills purchase etc. It is computed as;

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

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 of SCBL, SBI, HBL and NABIL are shown in table below;

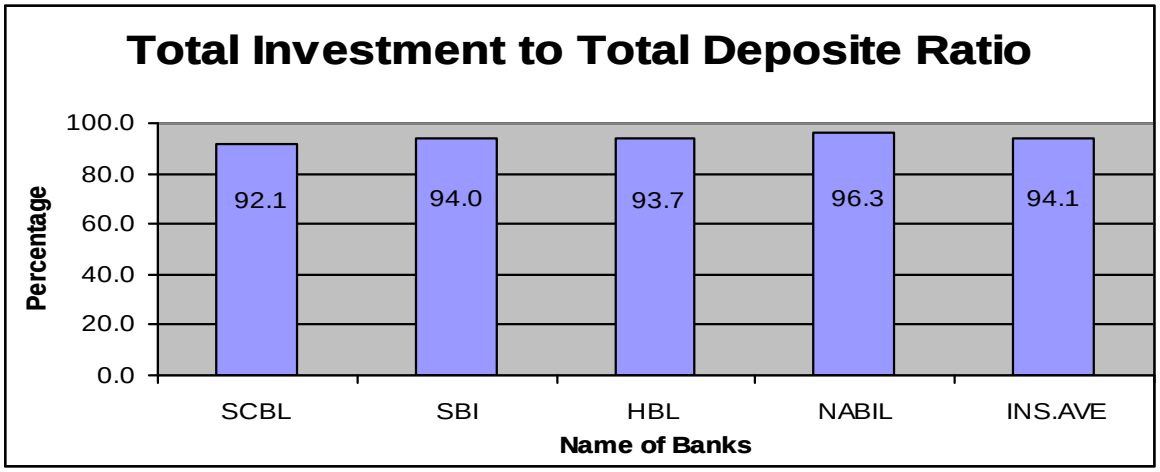
**Table 4.13**

**Total Investment to Total Deposits Ratio (%)**

| FY | SCBL | SBI | HBL | NABIL | INS.AVE |
|---|---|---|---|---|---|
| 2006/07 | 98.94766 | 108.7146 | 99.18845 | 106.2053 | 103.26 |
| 2007/08 | 93.69047 | 115.8508 | 82.55228 | 99.47204 | 97.89 |
| 2008/09 | 90.65952 | 105.6329 | 98.35039 | 104.0794 | 99.68 |
| 2009/10 | 102.3975 | 67.28077 | 99.46715 | 85.24068 | 88.60 |
| 2010/11 | 78.72174 | 95.78997 | 101.74 | 88.82342 | 91.27 |
| 2011/12 | 91.17351 | 95.48157 | 82.96097 | 100.9787 | 92.65 |
| Total | 92.06478 | 94.04853 | 93.71875 | 96.28556 | 94.03 |
| Average | 92.06478 | 94.04853 | 93.71875 | 96.28556 | 94.03 |
| S.D | 8.216905 | 17.58538 | 8.822399 | 8.590658 | 10.80 |
| C.V | 8.93 | 18.70 | 9.41 | 8.92 | 11.49 |

*Source: Appendix 1 (e, f)*

**Figure 4.10**




From the above listed comparative table and figures reveals that the ratio of total investment to total deposits of joint venture CBs are in fluctuating trend throughout the review period i.e. from the FY 2006/07 to 2011/12. The mean total investment to total deposit of NABIL is the highest at the 96.3%. Similarly SBI and HBL has second and third highest ratio of Total investment to total deposit with 94% and 93.7% and SCBL is least investment to deposit ratio. From the point of view of average ratio it can be said that the NABIL mobilize its deposit on investment is better than others because their mean ratio are higher than average ratio on CBs 94.1% all those others joint venture banks also near investment to total deposit ratio from mean ratios.

The coefficient of variation in the ratio of NABIL is also the lowest i.e. 8.92%. Similarly the CV in the ratio of SBI is the highest i.e. 18.7% indicates more inconsistent among other. So, it is clear that NABIL is the most successful in utilizing its resources on investment among other four banks. Similarly SCBL and HBL moderate in utilizing its resources on investment.

**e) 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. This can be stated as

$$Return\ on\ Total\ Assets = \frac{Net\ profit\ after\ tax}{Total\ assets}$$

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 4.14**

**Return on Total Assets (%)**

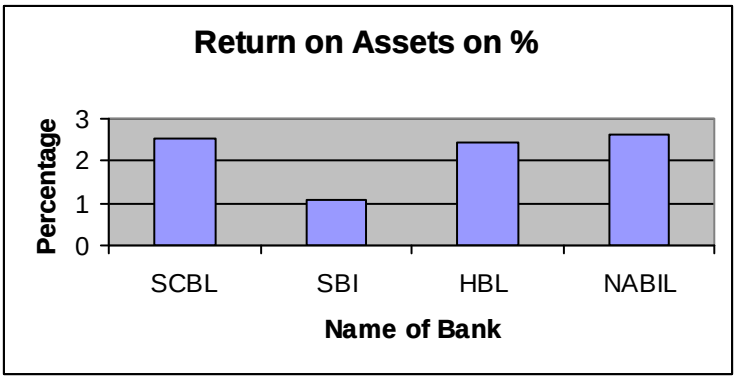
| FY | SCBL | SBI | HBL | NABIL | Ins. Ave |
|---|---|---|---|---|---|
| 2006/07 | 2.31 | 2.56 | 2.39 | 2.31 | 2.97 |
| 2007/08 | 2.40 | 1.37 | 2.80 | 1.95 | 2.79 |
| 2008/09 | 2.47 | 1.06 | 2.90 | 3.54 | 3.25 |
| 2009/10 | 2.62 | 1.02 | 1.95 | 3.29 | 2.88 |
| 2010/11 | 2.48 | 0.97 | 2.98 | 2.07 | 2.66 |
| 2011/12 | 2.73 | 0.80 | 1.88 | 2.41 | 2.40 |
| Average | 2.51 | 1.09 | 2.46 | 2.60 | 2.79 |
| S.D | 0.15 | 0.68 | 0.49 | 0.66 | 0.56 |
| C.V | 6.01 | 62.53 | 19.82 | 25.37 | 28.43 |

*Source: Appendix 1 (g, h)*

Industry Average Mean = 2.79%

Industry Average CV = 28.43%

**Figure 4.11**




The comparative table and figure shows that joint venture commercial banks has mixed trend on their return to total assets ratio. Among five joint venture CBs, NABIL has the highest mean return and SBI has the lowest return on total assets i.e. 2.60% and 1.09%. SCBL and HBL are near to industrial mean ratios. The overall average mean of CBs is 2.79%.

Similarly looking at CV among the five CBs, SCBL has the lowest CV i.e. 6.01% which is the most consistent than other banks. And, the highest CV in the ratios of SBI i.e. 62.53% shows, the return on total assets of SBI is highly variable among four 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 SBI is the weakest in relation to return on total assets during study period among four CBs.

## 4.6 Investment Portfolio Risk and Return Analysis of CBs

Risk and Return are two crucial phenomenon's 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, minimize 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 of the asset.

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.

**a) Risk and Return on Individual Investment**

Risk and return are two crucial phenomenon's 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 four selected joint venture commercial 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.

The risk and return on govt. securities is calculated by dividing interest income on govt. securities by total investment on govt. securities which is shown below;

Return on govt. securities ($R_g$) = Interest Income from govt. securities

Total Investment on govt. securities

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

Risk on govt. securities $\pm_g = \sqrt{\frac{\sum_{t=1}^{n}\left(R_g - \overline{R_g}\right)^2}{n-1}}$

**Table 4.15**

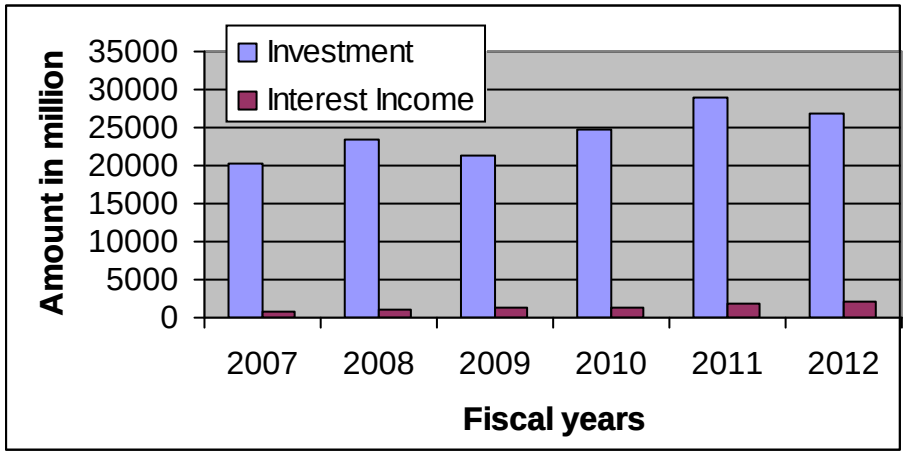
**Calculation of Risk and Return on Government Securities of Nepalese joint venture CBs**

| **FY** | **Investment on GOVT. Securities "000** | **Interest Income on GOVT. Securities "000"** | **Return on GOVT. Securities (%)** $(R_g)$ | $(R_g - \overline{R_g})^2$ (%) |
|---|---|---|---|---|
| 2007 | 20221.7 | 769.5 | 3.8% | 2.87 |
| 2008 | 23349.8 | 976.1 | 4.2% | 1.74 |
| 2009 | 21222.9 | 1185.2 | 5.6% | 0.01 |
| 2010 | 24648.8 | 1254.9 | 5.1% | 0.17 |
| 2011 | 29008.5 | 1887.1 | 6.5% | 1.01 |
| 2012 | 26855.2 | 1984.9 | 7.4% | 3.58 |
| **Total** | 145306.9 | 8057.7 | **32.6%** | **9.37** |

*Source: Appendix1 (a) (j) and (l)*

**Figure 4.12**

**Return on Government Securities of CBs**



Here, $\sum R_g$ = 32.6

n = 6

$\overline{R_g} = \frac{\sum R_g}{n} = \frac{32.6}{6} = 5.43$

$\overline{R_g}$ = 5.43%

Now,

Standard deviation $(\pm_g) = \sqrt{\frac{\sum_{t=1}^{n}(R_g - \overline{R_g})^2}{n-1}} = \sqrt{\frac{9.37}{6-1}} = 1.36$

$(\pm_g)$ = 1.36%

Again,

Coefficient of Variation (CV) = $\frac{\pm_g}{\overline{R_g}} = \frac{1.36}{5.43} = 0.25$

Hence CVg = 0.25=25%

From above table, it can be concluded that, in average the return on investment on govt. securities made by CBs is 5.43%. Standard deviation is 1.36% 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 and Bills Purchase.**

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

$$\text{Return on Loan and Advances}\left(R_l\right) = \frac{Interest \quad income \quad on \quad loan \quad and \quad advances}{Investment \quad on \quad loan \quad and \quad advances}$$

$$\text{Average return on loan and advances } \left(\overline{R_l}\right) = \frac{\sum R_l}{n}$$

Where,

n = No. of historical year

$$\text{Standard deviation on return on loan and advances } \left(\pm_l\right) = \frac{\sqrt{\sum\left(R_l - \overline{R_l}\right)^2}}{n}$$

$$\text{Coefficient of variation } \left(CV_l\right) = \frac{\pm_l}{\overline{R_l}}$$

**Table 4.16**

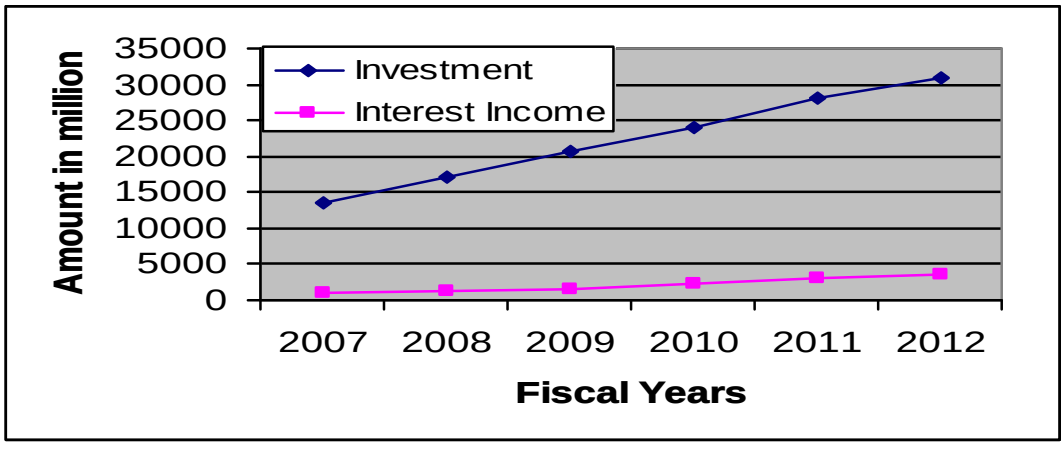
**Calculation of Risk and Return on Loan, Advances and Bills Purchase of Nepalese joint venture CBs**

| FY | Investment on Loan and Advances "000" | Interest Income on Loan and Advances "000" | Return on Loan and Advances (%) $(R_L)$ | $(R_L - \overline{R_L})^2$ (%) |
|---|---|---|---|---|
| 2007 | 13649.9 | 971.0 | 7.1 | 3.64 |
| 2008 | 17177.7 | 1177.4 | 6.8 | 4.81 |
| 2009 | 20766.8 | 1594.0 | 7.7 | 1.66 |
| 2010 | 24088.7 | 2296.3 | 9.3 | 0.09 |
| 2011 | 28068.0 | 3182.7 | 11.2 | 4.95 |
| 2012 | 31032.1 | 3692.9 | 11.8 | 8.01 |
| **Total** | 134783.2 | 12914.2 | 54.0 | 23.2 |

*Source: Appendix1 (c) (k) and (m)*

**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

$$\left(\overline{R_l}\right) = \frac{\sum R_l}{n} = \frac{54}{6} = 9\%$$

Again,

$$\pm_l = \sqrt{\frac{\sum\left(R_l - \overline{R_l}\right)^2}{n-1}} = \frac{23.2}{6-1} = 4.64\%$$

$$CV_l = \frac{\pm_l}{\overline{R_l}}$$

$$= \frac{4.64}{9} = 51.55\%$$

From the above table and figure reveals that the return on investment on loan and advances has no any fixed trend. During the period 2007 to 2012 the highest return is 11.8% in 2012 and lowest return is 6.8% in 2008. The average return 9% means that in average the joint venture CBs generate 9% return on its investment made in loan and advances. The standard deviation 4.64% and coefficient of variation 51.55% show the higher risk of return on loan and advances. The variability on return on loan and advances seems to be higher 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. Four joint venture commercial banks are selected for the study.

The risk and return on investment in share and debenture of the CBs can be calculated as follows;

Return on share and debenture $\left(R_s\right)$ = Capital gain yield + Dividend yield.

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

Risk on share and debenture $\left(\pm_s\right) = \sqrt{\frac{\left(R_s - \overline{R_s}\right)^2}{n-1}}$

Coefficient of variation $\left(CV_s\right) = \frac{\pm_s}{\overline{R_s}}$

$P_t$ and $P_{t-1}$ are the average closing price of year t and t-1

$D_t$ = Dividend per share (all types of dividend**)**

| Selected Co. | 2007 | | 2008 | | 2009 | | 2010 | | 2011 | | 2012 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_t$ | $D_t$ | $P_t$ | $D_t$ | $P_t$ | $D_t$ | $P_t$ | $D_t$ | $P_t$ | $D_t$ | $P_t$ | $D_t$ |
| **SCBL** | 2345.00 | 110.00 | 6830.00 | 130.00 | 6010.00 | 100.00 | 3279.00 | 70.00 | 1800.00 | 50.00 | 1799.00 | 60.00 |
| **SBI** | 1700.00 | 75.00 | 1511.00 | 0.00 | 1900.00 | 42.11 | 741.00 | 17.50 | 565.00 | 17.50 | 635.00 | 17.50 |
| **HBL** | 1740.00 | 40.00 | 1980.00 | 45.00 | 1760.00 | 43.56 | 816.00 | 36.84 | 575.00 | 36.84 | 853.00 | 28.42 |
| **NABIL** | 5050.00 | 140.00 | 5275.00 | 100.00 | 4899.00 | 85.00 | 2384.00 | 70.00 | 1252.00 | 30.00 | 1355.00 | 60.00 |
| **Total** | **10835.00** | **365.00** | **15596.00** | **275.00** | **14569.00** | **270.67** | **7220.00** | **194.34** | **4192.00** | **134.34** | **4642.00** | **165.92** |
| **No. of Observation (n)** | **4.00** | **4.00** | **4.00** | **4.00** | **4.00** | **4.00** | **4.00** | **4.00** | **4.00** | **4.00** | **4.00** | **4.00** |
| **Average** | **2708.75** | **91.25** | **3899.00** | **68.75** | **3642.25** | **67.67** | **1805.00** | **48.59** | **1048.00** | **33.59** | **1160.50** | **41.48** |

**Table 4.17**

**Estimates of Market Parameter**

*Source: Annual Report of joint venture commercial bank from F.Y 2007 to 2012*

**Table 4.18**

**Calculation of Dividend Yield $\left(\frac{D_t}{P_t}\right)$**

**in Percentage**

| Selected Co. | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|
| **SCBL** | 4.69 | 1.90 | 1.66 | 2.13 | 2.78 | 3.34 |
| **SBI** | 4.41 | 0.00 | 2.22 | 2.36 | 3.10 | 2.76 |
| **HBL** | 2.30 | 2.27 | 2.48 | 4.51 | 6.41 | 3.33 |
| **NABIL** | 2.77 | 1.90 | 1.74 | 2.94 | 2.40 | 4.43 |
| **Total** | 14.17 | 6.07 | 8.9 | 11.95 | 14.68 | 13.85 |
| **No. of observation (n)** | 4 | **4** | **4** | **4** | **4** | **4** |
| **Average Dividend Yield** | **3.54** | **1.52** | **2.02** | **2.99** | **3.67** | **3.46** |

*Source: Table no. 4.17*

**Table 4.19**

**Calculation of Capital Yield and Dividend Yield on Share and Debentures of CBs**

| Fiscal year | Avg. Closing Price $(P_t)$ | % Change in Price (Capital Yield) | Avg. Dividend Yield $\left(\frac{D_t}{P_t}\right)$ | Return on Share and Debentures $R_s$ | $\left(R_s - \overline{R_s}\right)^2$ |
|---|---|---|---|---|---|
| **2007** | 2708.75 | - | - | - | |
| **2008** | 3899.00 | 43.94 | 1.52 | 45.46 | 2654.2 |
| **2009** | 3642.25 | -6.59 | 2.02 | -4.56 | 2.2 |
| **2010** | 1805.00 | -50.44 | 2.99 | -47.46 | 1713.6 |
| **2011** | 1048.00 | -41.94 | 3.67 | -38.27 | 1037.5 |
| **2012** | 1160.50 | 10.73 | 3.46 | 14.20 | 410.4 |
| **Total** | **14263.50** | **-44.29** | **13.66** | **-30.63** | **5817.87** |

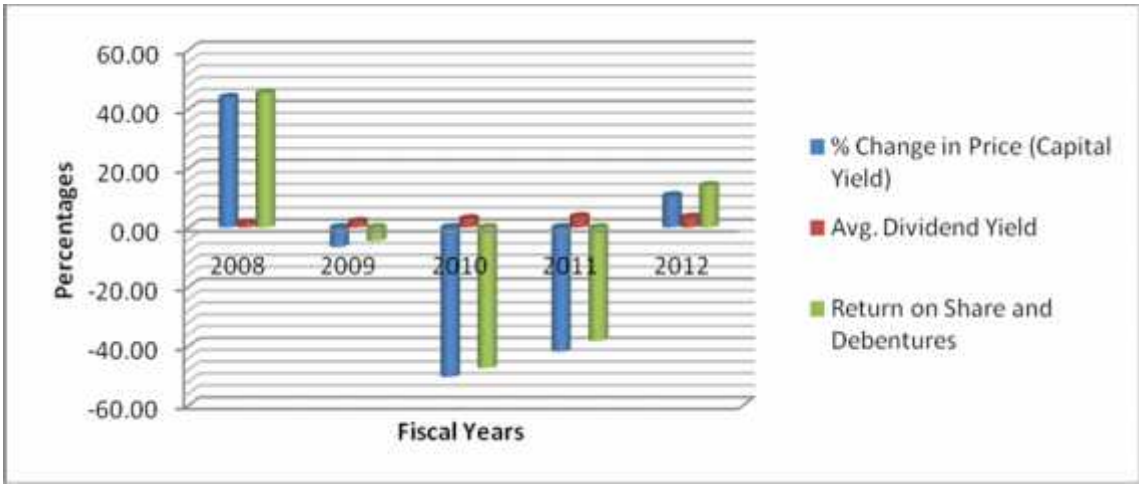
*Source: Table No. 4.16 and 4.17*

$$Capital\ Yield = \frac{3899.00 - 2708.75}{2708.75} = 43.94\%$$

$$Total\ Yield = 43.94 + 1.52 = 45.46\%$$

**Figure 4.14**

**Capital Yield, Dividend Yield and Return on Share and Debentures**




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

$$\overline{R_s} = \frac{\sum R_s}{n} = \frac{-30.63}{5} = -6.12\%$$

Again,

$$\pm_s = \sqrt{\frac{\sum \left(R_s - \overline{R_s}\right)^2}{n-1}} \quad \sqrt{\frac{5817.87}{6-1}} = 34.11\%$$

Now,

$$CV_s = \frac{\pm_s}{\overline{R_s}} = \frac{34.11}{-6.12} = -5.57$$

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 joint venture CBs shows wide fluctuation, ranging from 45.46 in 2008 to -38.27% in year 2012 and 14.20% in years 2013. 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. Similarly the annual rate of return of investment on share and debenture show a high degree of variability, they deviated on an average by 34.11% from the average rate of -6.12%. This is also revels by the 557% coefficient of variation.

**b) 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 Amt Rs. Million | Proportion Weight (w) | Average Rate of Return (R) | Portfolio Return $(R_p)$ |
|---|---|---|---|---|---|
| **1** | **Gov. Securities** | 6054.50 | 0.21 | 5.43 | 1.140 |
| **2** | **Share and Debenture** | 144.20 | 0.01 | -6.00 | -0.030 |
| **3** | **Loan and Advance** | 22463.90 | 0.78 | 9.00 | 7.054 |
| **Total** | | **28662.60** | **1.00** | **7.11** | **8.164** |

*Source: Appendix 1(a), (b), (c), (l), (m) and Table 4.19*

$$Proportion\ Weight = \frac{Invested\ in\ selected\ security}{Total} = \frac{6054.5}{28662.6} = .21$$

Calculation of Portfolio Return $(R_p)$

$$R_p = \sum W \times R$$

=0.21*5.43+.01*-6+.78*9

= 8.164%

Hence, Portfolio Return on Investment of CBs $(R_p)$ = 8.164%

**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 | Covariance | Weight (w) |
|---|---|---|---|---|---|---|
| 1 | Government Securities (g) | 0.0136 | 0.9162 | 0.0006 | $Cov_{gl} = r_{gl} \times \pm_g \times \pm_l$ | 0.21 |
| 2 | Share and Debenture (s) | 0.3411 | (0.1929) | (0.0009) | $Cov_{gs} = r_{gs} \times \pm_g \times \pm_s$ | 0.01 |
| 3 | Loan and Advance (l) | 0.0464 | (0.3856) | (0.0061) | $Cov_{ls} = r_{ls} \times \pm_l \times \pm_s$ | 0.78 |

*Sources: Appendix 3 and Table 4.20*

Where,

$Cov_{gl} = r_{gl} \times \pm_g \times \pm_l$

$= 0.9162 \times 0.0136 \times 0.0464 = 0.0006$

$Cov_{gs} = r_{gs} \times \pm_g \times \pm_s$

$= -0.9162 \times 0.0136 \times 0.3411 = -0.0009$

$Cov_{ls} = r_{ls} \times \pm_l \times \pm_s$

$= -0.3856 \times 0.0464 \times 0.3411 = -0.0061$

$r_{gl}, r_{ls}$ 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.

The standard deviation of portfolio investment $(\pm_p)$ be

$$\pm_p = \sqrt{W_g^{\,2} \times \pm_g^{\,2} + W_s^{\,2} \times \pm_s^{\,2} + W_l^{\,2} \times \pm_l^{\,2} + 2Cov_{gs} \times W_g W_s + 2Cov_{ls} \times W_l W_s + 2Cov_{gl} \times W_g W_l}$$

$$= \sqrt{0.21^2 \times 0.0136^2 + .3411^2 \times 0.01^2 + 0.0464^2 \times 0.78^2 + 2 \times (-0.0009) \times 0.01 \times 0.21 + 2 \times (-0.0061) \times 0.78 \times 0.01 + 2 \times 0.0006 \times 0.21 \times 0.78}$$

=.1051%

Hence, standard deviation of portfolio on investment of CBs $(\pm_p)$ = 0.1051%

Portfolio risk and return on investment made by joint venture 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 8.164% is less than that of average rate of return of individual investment on Loan and advance (9%) and higher then investment government securities and share and debenture. But investing the total funds in share and debentures, loan and advances and government securities are more risky than that of investment on portfolio.

## 4.7 Test of Investment Portfolio Performance

In this topic, the efforts have been made to explore in which extent the joint venture CBs are able to utilize portfolio concept in their investment. 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. 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;

$$S_i = \frac{Risk\ \Pr emium}{TotalRisk}$$

$$= \frac{\overline{r_i} - R}{\pm_i}$$

Where,

$\overline{r_i}$ = 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 (%) $(r_i)$ | Standard Deviation of Annual Return $(\pm_i)$ | Sharpe's Measure of Performance $S_i = \frac{\bar{r}_i - R}{\pm_i}$, R =7% |
|---|---|---|---|---|
| 1 | **Government Securities** | 5.43 | 1.36 | -1.154412 |
| 2 | **Loan and Advance** | 9 | 4.64 | 0.431034 |
| 3 | **Share and Debenture** | -6.13 | 34.11 | -0.384931 |
| 4 | **Investment Portfolio** | 8.16 | 0.11 | 10.54545 |

*Source: From table 4.18, 4.19 and 4.20*

Risk free rate of interest (R) = 7% (Economic Survey 2012 Interest Rate of Treasury bills)

From the above calculation $S_l > S_p > S_s > S_g$, which indicates that the investment on loan and advances is a better performer than portfolio investment, portfolio investment is better than share and debentures, share and debentures 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.

## 4.8 Major Finding of the Study

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

**Investment pattern of joint venture CBs**

- The industrial average investment on govt. securities is 19%.
- The industrial average investment on loan, advance & bills purchase is 67.2%.
- The joint venture CBs has invest lowest percentage of total investment invest in share and debenture. The industrial average investment on share and debenture is .4%. All the joint venture CBs invest less than 1 percentage on share and debenture.
- The investment on government securities of SCBL is highest among the other's banks. The SBI, HBL and NABIL Invest 14.7%, 17% and 16% respectively on Government Securities of theirs total investment. Similarly the SCBL covers more shares i.e. 28.4% of the total investment on govt. securities. HBL be on 2nd position by investing 17% of the total investment on govt. securities.
- HBL has the highest shares on loan, advances and bills purchase among four joint venture CBs and covers 76.7% of its total investment. NABIL takes at the second position, SBI takes at the third position and SCBL take last position covering 28%, 25% and 19 % respectively on loan and advances among four joint venture CBs.

**Investment Portfolio**

- In investment portfolio, the industrial average investment on gov.securities is 96.9%, on NRB bond 1.8%, Government & Other financial institution 0% and Non-Residents Sectors is 1.6%.

- SCBL is investing 99.9% on government securities. It shows that SCBL is investing its more funds on government securities, some of its fund on Non-Gov. FIN-INS and not any fund on NRB bond.

- SBI is investing very high amount of fund on government securities. Mean percentage of investing on government securities is 97.7%. Investment made in NRB Bond is very low i.e. 2.3% only and NABIL has not invested any amount of funds on Gov.Non Financial Institutions Other Non-Fin-Ins and Non- Residents.

- HBL is investing higher amount of funds on government securities. Its mean percentage ratio investment on government securities is 95.6% and it is investing very low amount of its fund on NRB Bond i.e. 4.4%.

- NABIL is investing 89.9% on government securities. It shows that SCBL is investing its more funds on government securities, some of its fund on Non Residents i.e. 10.1% and not any fund on NRB bond

**Share, Debenture and others Portfolio**

- Share, Debenture and others investment Portfolio of four joint ventures CBs. The mean percentage of Share, Debenture and others investment in Non-Residents is 84.16%. The mean percentage of Share, Debenture and others in others sectors is 18.6%

- SCBL is providing a very high amount of its share, debenture and others investment to the Non-Residents. The mean percentage of Share and debenture to the Non-Residents is 80.1%. Similarly, it's invest share, debenture and others investment to others sectors is 19.9%.

- SBI is providing a very least amount of its share, debenture and others investment to the others sectors Non-Residents. The mean percentage of Share and debenture to the Non-Residents is 49.4%. This is very least among the other bank. Similarly, SBI is providing a very high amount of its share, debenture and others investment to the Non-Residents is 50.6%. It is very high percentage with compare to others bank.

- HBL is providing a very high amount of its share, debenture and others investment to the Non-Residents. The mean percentage of Share and debenture to

the Non-Residents is 80.7%. Which is highest among the others bank. Similarly, it's invest share, debenture and others investment to others sectors is 19.3%.

**Loan and Advances Portfolio**

- Loans, advance and bills purchase portfolio of four joint ventures CBs. HBL 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 96.9%. NABIL has given second priority, SBI has third and SCBL has fourth position to invest on Private sectors. Joint venture CBs average investment on loan and advance in private sectors is 95% which is highest again the gov.Ins. and bills purchase. The mean percentage of bills purchase and investment loan and advance in financial institution is 2% an average limited fund of load and advance invest on government enterprise i.e. 1%.

**Ratio Analysis**

- The ratio of total investment to total deposits of joint venture CBs are in fluctuating trend throughout the review period i.e. from the FY 2006/07 to 2011/12. The mean total investment to total deposit of NABIL is the highest at the 96.3%. Similarly SBI and HBL has second and third highest ratio of Total investment to total deposit with 94% and 93.7% and SCBL is least investment to deposit ratio. From the point of view of average ratio it can be said that the NABIL mobilize its deposit on investment is better than others because their mean ratio are higher than average ratio on CBs 94.1% all those others joint venture banks also near investment to total deposit ratio from mean ratios.

- The coefficient of variation in the ratio of NABIL is also the lowest i.e. 8.92%. Similarly the CV in the ratio of SBI is the highest i.e. 18.7% indicates more inconsistent among other. So, it is clear that NABIL is the most successful in utilizing its resources on investment among other four banks. Similarly SCBL and HBL moderate in utilizing its resources on investment.

**Risk and Return**

- Among five joint venture CBs, NABIL has the highest mean return and SBI has the lowest return on total assets i.e. 2.60% and 1.09%. SCBL and HBL are near to industrial mean ratios. The overall average mean of CBs is 2.79%.

- In average the return on investment on govt. securities made by CBs is 5.43%. Standard deviation is 0.27% 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

- The average rate of return of loan and advances is higher than the government securities i.e. 9% on the other hand government has lower CV then loan and advance i.e 25%.

- The average return on share and debenture of joint venture CBs is -6.13% and average CV is 557%.

- The average return on share and debenture of joint venture CBs shows wide fluctuations due to change in shares price. This is exposed by the high degree of CV.

- In term of return, investing in loan & advance has better then investing in government securities and investing in Share and debenture. In term of risk, investing in government securities has better then other investment due to less risk.

**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, and govt. securities.

- It shows that the CBs are using proper diversification of funds among various assets in case of reduce risk.

# 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

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 31 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.

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.

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 which shows variability in investment. The investment planning of the joint venture 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, etc are the most important problem for banking sectors in investment.

The researcher has tried to explore investment of joint venture 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, risk and return analysis of Nepalese joint venture 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, portfolio performance 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 calculation 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 Conclusion

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 Loan and Advance.

From investment portfolio analysis, it is accomplished that the CBs are given first priority to invest their funds in Loan and advance due to high return and second priority given to government securities due to less risky and last priority to share and debenture 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 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 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 excited to invest their maximum part of investment on loan and advances in different

sectors due to return from loan and advances seems more than other resources. The average rate of return is negative and risk on share and debentures is higher 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 and increase in return.

SCBL and NABIL have more consistency ratio between investment in government securities and total deposit than that of other banks and NIBL is more variability (risky) ratio than that of other banks.

The coefficient of variation in the ratio of NABIL is also the lowest i.e. 8.92%. Similarly the CV in the ratio of SBI is the highest i.e. 18.7% indicates more inconsistent among other. So, it is clear that NABIL is the most successful in utilizing its resources on investment among other four banks. Similarly SCBL and HBL moderate in utilizing its resources on investment.

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 SBI is the weakest in relation to return on total assets during study period among four CBs

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.

All four joint venture CBs have 90% above investment to deposit ratios so that deposit utilization position in relation to investment to total deposit ratio is appropriate. NABIL is the most successful in utilizing its resources on investment among other four banks. Similarly SCBL and HBL moderate in utilizing its resources on investment.

## 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

- SBI stand at the last position sharing average 17.4% in government securities of total investment. So, SBI increase their investment in government securities for reduce risk and consistency.

- The fluctuating trend of investment on loan, advances and bills purchase shows that there is a lack of any scientific approach towards investment on loan, advance and bills purchase of joint venture CBs.

- Joint venture commercial bank's investment of loan and advance highly invested in private sectors so it's create risk. CBs should utilized there loan and advance on private sectors as well as financial institution, government enterprise and bills purchase.

- The profitability position of SBI is the weakest in relation to return on total assets during study period among four CBs. So, the bank should utilize its overall resources effectively to gain the peak profit margins.

- Risk can be minimized by invest in more than one assets not on only one assets. CBs are not attractive successful to invest their funds in various assets. CBs are investing most of the funds on only L&A but lower part of their funds in govt. securities and S&D. From the above study, correlation coefficient between investment on various 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.

# BIBLIOGRAPHY

**BOOKS**


Bajracharaya, B.C. (2066). *Basic Statistics.* Kathmandu: M.K. Publishers and Distributor.

Cheney, J. M. & Edward A. M. (1995). *Fundamentals of investments*. *10th Edition*. St. Paul: West Publishing Company.

Fisher, E. D. & Ronald, J. J. (2000). *Security analysis and portfolio management. 6th Edition*. New Delhi: Prentice Hall of India Pvt. Ltd.

Frank & Reilly (2006). *Investment*. *7th Edition.* Chicago: The Dryden Press.

Frank, J. C. (2006). *Investment analysis and management*. *6th Edition*. New Delhi: Mc Grew Hill International.

Gitman, L.J. & Joehnk (1990). *Fundamentals of investment*. *9th Edition.* New York: Mc-Grew Hill Publishing House.

Gupta, S.C. (1987). *Fundamentals of statistics*. *5th Edition.* Bombay: Himalayan Publishing House.

Kothari, C.R. (2004). *Research methodology method and techniques*. *2nd Edition.* New Delhi: Vikas Publishing House Pvt. Ltd.

Pradhan, S. (2058). *Basics of financial management*. *2nd Edition.* Kathmandu: Educational Enterprise Pvt. Ltd.

Singh, P. (1998). *Investment management*. *3rd Edition.* Bombay: Himalayan Publishing House.

Van Horne, J.C., (1996). *Financial Management and Policy*. 10th Edition, New Delhi: Prentice Hall of India Pvt. Ltd.

Weston, J. F. & Eugene F. B. (2005). *Essentials of Managerial Finance*. *9th Edition*, Chicago: The Dryden Press.

Weston, J. F. & Thomas, E. C. (2003). *Managerial finance*. *9th Edition.* Chicago: The Dryden Press.

Willian, F. S., Alexander, J. G, & Baily. V. J. (2004). *Investment*. *7th Edition.* New Delhi: Prentice Hall of India Pvt. Ltd.

**JOURNALS AND PERIODICALS**

Bawa, V. S., Edwin, J. E. & Martin J. G, (1979) . *Simple rules for optimal portfolio selection in stable pertain markets.* Journal of Finance.

Berger, P. D. and Zvi, B. (1985). *Optimal portfolio selection in a winner yake all environments.* Journal of Finance, 34 (1): 233-236

Gaumnitz, J. E. (1970). *Appraising performance of investment portfolio.* Journal of Finance, 25 (6): 555-560.

Jones, M. B. (1999). *The sampling error in estimates of mean variance efficient portfolio weights.* Journal of Finance, 54(2):655-668.

Kane, E. J. & Stephen, A. B. (1979). *Portfolio diversification at commercial banks.* Journal of Finance, 34(3):19-31.

Mahat, L.D., (8 April 2004). *Efficient Banking.* The Kathmandu Post.

Markowitz, Harry M., (1952). *Portfolio Selection.* Journal of Finance, 40 (6): 77-91.

Martin, J. D. & Robert C. K. (1989). *The effect of homogeneous stock grouping on portfolio risk.* Journal of Business, 49(2):239-246.

Shrestha, S. R. (Baishakh 2055). *Portfolio management in commercial banks, Theory and practice,* Nepal Bank Patrika.

Thapa, C. (9th March 2003). *Managing banking risk.* The Kathmandu Post.

**OFFICIAL PUBLICATIONS**

Banking Operation Department. *Banking and Financial Statistics*. NRB.

Himalayan Bank Ltd., *Annual Report.* FY 2007 – 2012.

NABIL Bank Ltd., *Annual Report.* FY 2007-12.

Research and Planning Division, Nepal Stock Exchange Ltd., Singadurbar Plaza, KTM, Nepal. *Trading Report*. FY 2007-2013.

Research Department, NRB *NRB Samachar,* 2007.

Research Department, NRB. *Economic Report*. FY 2011/12.

SBI Bank Ltd, *Annual Report*. FY 2007-2012.

Standard Chartered Bank Ltd., *Annual Report.* FY 2007 – 2012.

**DISSERTATIONS**

Bajracharya, R. (2000). *Investment of CBs in priority sector.* Kathmandu: An Unpublished Master Degree of Business Administration, University Campus, Kirtipur.

Banjade, K.(2003). *Investment portfolio analysis of JVBs in Nepal.* Kathmandu: an Unpublished Master Degree Thesis, Thesis submitted to Shanker Dev Campus, Putalisadak, Kathmandu.

Paudyal, B. (2006). *A study on portfolio analysis of commercial banks in Nepal.* Kathmandu: An Unpublished Master Degree Thesis, Thesis submitted to Shanker Dev Campus, Putalisadak, Kathmandu.

Pradhan, R. (2012). *Credit management of commercial bank in the context of financial sectors reform program.* Rupandehi: An Unpublished Master Degree Thesis submitted to Lumbini Banijya Campus, Butwal, Rupandehi.

Shrestha, K. (2006). *A study on investment portfolio of commercial banks in Nepal.* Kathmandu: Aan Unpublished Master Degree Thesis, Thesis submitted to Shanker Dev Campus, Putalisadak, Kathmandu.

| **Web Sites** | **Visit Date** |
|---|---|
| <http://www.nepalstock.com.np> | May 19, 2013 |
| <http://www.nrb.org.np> | May 19, 2013 |

<http://www.google.com> May 20, 2013.

<http://www.searchepnet.com> May 20, 2013.

<http://www.sebonp.com> Jan 25, 2014.

# APPENDICES

## Appendix - 1

**Arrangement & Tabulation of Available Financial Data of Various CBs**

**a) Investment on Government Securities (Rs. in 'million')**

| FY | SCBL | SBI | HBL | NABIL | INS.Total | INS.AVE |
|---|---|---|---|---|---|---|
| 2007 | 7115.6 | 2345.6 | 6454.8 | 4305.7 | 20221.7 | 5055.4 |
| 2008 | 8137.6 | 3093.6 | 7471.7 | 4646.9 | 23349.8 | 5837.5 |
| 2009 | 9998.8 | 3306.6 | 4212.3 | 3705.2 | 21222.9 | 5305.7 |
| 2010 | 8531.5 | 3720.6 | 4455.4 | 7941.3 | 24648.8 | 6162.2 |
| 2011 | 9965.8 | 5574.8 | 4725.6 | 8742.3 | 29008.5 | 7252.1 |
| 2012 | 7862.7 | 4560.7 | 6440.6 | 7991.2 | 26855.2 | 6713.8 |
| Total | 51612.0 | 22601.9 | 33760.4 | 37332.6 | 145306.9 | 36326.7 |
| Average | 8602.0 | 3767.0 | 5626.7 | 6222.1 | 24217.8 | 6054.5 |

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

| FY | SCBL | SBI | HBL | NABIL | INS/AVE |
|---|---|---|---|---|---|
| 2007 | 29.2 | 18.9 | 21.8 | 17.4 | 21.8 |
| 2008 | 29.2 | 19.5 | 28.5 | 14.6 | 22.9 |
| 2009 | 30.7 | 11.4 | 12.3 | 9.5 | 16.0 |
| 2010 | 23.7 | 15.8 | 11.9 | 20.1 | 17.9 |
| 2011 | 33.8 | 13.7 | 11.4 | 19.8 | 19.7 |
| 2012 | 24.0 | 9.0 | 16.3 | 14.4 | 15.9 |
| Total | 170.6 | 88.3 | 102.1 | 95.8 | 114.2 |

| | | | | | |
|---|---|---|---|---|---|
| Average | 28.4 | 14.7 | 17.0 | 16.0 | 19.0 |
| S.D | 3.9 | 4.2 | 6.9 | 4.0 | 6.0 |

**c) Investment on Shares and Debentures (Rs. in 'million')**

| FY | SCBL | SBI | HBL | NABIL | Total | Inds.Ave |
|---|---|---|---|---|---|---|
| 2007 | 45.0 | 31.9 | 73.4 | 7.2 | 157.5 | 39.4 |
| 2008 | 114.5 | 32.8 | 89.6 | 81.8 | 318.7 | 79.7 |
| 2009 | 115.4 | 32.9 | 93.9 | 161.7 | 403.9 | 101.0 |
| 2010 | 115.4 | 37.2 | 78.9 | 92.7 | 324.2 | 81.1 |
| 2011 | 117.9 | 39.6 | 90.0 | 936.4 | 1183.9 | 296.0 |
| 2012 | 117.9 | 30.7 | 90.0 | 834.7 | 1073.3 | 268.3 |
| Total | 626.1 | 205.1 | 515.8 | 2114.5 | 3461.5 | 865.4 |
| Average | 104.4 | 34.2 | 86.0 | 352.4 | 576.9 | 144.2 |

**d) Investment on Loans Advances and Bills Purchase.(Rs. in 'million')**

| FY | SCBL | SBI | HBL | NABIL | Total | INS/AVE |
|---|---|---|---|---|---|---|
| 2007 | 10790.0 | 10065.1 | 17841.5 | 15903.0 | 54599.6 | 13649.9 |
| 2008 | 13964.4 | 12742.6 | 20233.9 | 21769.7 | 68710.6 | 17177.7 |
| 2009 | 13880.7 | 15612.0 | 25577.4 | 27997.1 | 83067.2 | 20766.8 |
| 2010 | 16176.7 | 18023.4 | 29123.8 | 33031.0 | 96354.9 | 24088.7 |
| 2011 | 18662.4 | 21718.8 | 32968.2 | 38922.7 | 112272.1 | 28068.0 |
| 2012 | 18828.5 | 26463.7 | 35968.5 | 42867.7 | 124128.4 | 31032.1 |
| Total | 92302.7 | 104625.6 | 161713.3 | 180491.2 | 539132.8 | 134783.2 |
| Average | 15383.8 | 17437.6 | 26952.2 | 30081.9 | 89855.5 | 22463.9 |
| | | | | | | |

**e) Total Investment (Rs. in 'million')**

| FY | SCBL | SBI | HBL | NABIL | Total | INS/AVE |
|---|---|---|---|---|---|---|
| 2007 | 24381.0 | 12442.6 | 29663.1 | 24790.9 | 91277.6 | 22819.4 |
| 2008 | 27867.2 | 15889.4 | 26256.0 | 31746.5 | 101759.1 | 25439.8 |
| 2009 | 32521.2 | 28898.2 | 34108.9 | 38871.9 | 134400.2 | 33600.1 |
| 2010 | 36026.2 | 23478.5 | 37409.0 | 39496.1 | 136409.8 | 34102.5 |
| 2011 | 29441.3 | 40629.7 | 41632.6 | 44137.6 | 155841.2 | 38960.3 |
| 2012 | 32791.1 | 50927.1 | 39598.1 | 55562.2 | 178878.5 | 44719.6 |
| Total | 183028.0 | 172265.5 | 208667.7 | 234605.2 | 798566.4 | 199641.6 |
| Average | 30504.7 | 28710.9 | 34778.0 | 39100.9 | 133094.4 | 33273.6 |

**f) Total Deposit (Rs. in 'million')**

| FY | SCBL | SBI | HBL | NABIL | Total | INS.AVE |
|---|---|---|---|---|---|---|
| 2006/07 | 24640.3 | 11445.2 | 29905.8 | 23342.4 | 89333.7 | 22333.43 |
| 2007/08 | 29743.9 | 13715.4 | 31805.3 | 31915 | 107179.6 | 26794.9 |
| 2008/09 | 35871.8 | 27357.2 | 34681 | 37348.3 | 135258.3 | 33814.58 |
| 2009/10 | 35182.7 | 34896.3 | 37609.4 | 46334.8 | 154023.2 | 38505.8 |
| 2010/11 | 37399.2 | 42415.4 | 40920.6 | 49691.4 | 170426.6 | 42606.65 |
| 2011/12 | 35965.6 | 53337.1 | 47731 | 55023.7 | 192057.4 | 48014.35 |
| Total | 198803.5 | 183166.6 | 222653.1 | 243655.6 | 848278.8 | 212069.7 |
| Average | 33133.92 | 30527.77 | 37108.85 | 40609.27 | 141379.8 | 35344.95 |

**g) Net Profit (Rs. in 'million')**

| FY | SCBL | SBI | HBL | NABIL | Total | Ins.Ave |
|---|---|---|---|---|---|---|
| 2006/07 | 692.1 | 394.5 | 828.5 | 685.6 | 2600.7 | 650.18 |
| 2007/08 | 824.4 | 255.2 | 1050.8 | 750.4 | 2880.8 | 720.20 |
| 2008/09 | 1028.3 | 337.6 | 1182.1 | 1624.9 | 4172.9 | 1043.23 |
| 2009/10 | 1086.8 | 400.5 | 871.8 | 1798.7 | 4157.8 | 1039.45 |
| 2010/11 | 1120.5 | 458.4 | 1471 | 1269.7 | 4319.6 | 1079.90 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2011/12 | 1173.2 | 471.1 | 1052.5 | 1720.9 | 4417.7 | 1104.43 |
| Total | 5925.3 | 2317.3 | 6456.7 | 7850.2 | 22549.5 | 5637.38 |
| Average | 987.55 | 386.2167 | 1076.117 | 1308.367 | 3758.25 | 939.56 |

**h) Total Assets(Rs. in 'million')**

| FY | SCBL | SBI | HBL | NABIL | Total | Ins.Ave |
|---|---|---|---|---|---|---|
| 2006/07 | 29937.4 | 15397.2 | 34645.5 | 29660.4 | 109640.5 | 21928.1 |
| 2007/08 | 34312.9 | 18594 | 37526.8 | 38478.6 | 128912.3 | 25782.46 |
| 2008/09 | 41678.8 | 31989.8 | 40790.7 | 45941.6 | 160400.9 | 32080.18 |
| 2009/10 | 41525.2 | 39381.3 | 44768.8 | 54609.8 | 180285.1 | 36057.02 |
| 2010/11 | 45227.2 | 47129.9 | 49289.5 | 61292.6 | 202939.2 | 40587.84 |
| 2011/12 | 42970.8 | 59196.8 | 55898.4 | 71545.3 | 229611.3 | 45922.26 |
| Total | 235652.3 | 211689 | 262919.7 | 301528.3 | 1011789 | 202357.9 |
| Average | 39275.38 | 35281.5 | 43819.95 | 50254.72 | 168631.6 | 33726.31 |

**j) Interest Income on Government Securities (Rs. in 'million')**

| FY | SCBL | SBI | HBL | NABIL | INS.Total | INS.AVE |
|---|---|---|---|---|---|---|
| 2007 | 326.5 | 109.5 | 201.3 | 132.2 | 769.5 | 192.4 |
| 2008 | 329.6 | 93.2 | 354.9 | 198.4 | 976.1 | 244.0 |
| 2009 | 406.3 | 133.6 | 354.9 | 290.4 | 1185.2 | 296.3 |
| 2010 | 436.3 | 209.9 | 211.6 | 397.1 | 1254.9 | 313.7 |
| 2011 | 607.9 | 370.2 | 389.1 | 519.9 | 1887.1 | 471.8 |
| 2012 | 552.9 | 341.6 | 474.9 | 615.5 | 1984.9 | 496.2 |
| Total | 2659.5 | 1258.0 | 1986.7 | 2153.5 | 8057.7 | 2014.4 |
| Average | 443.3 | 209.7 | 331.1 | 358.9 | 1343.0 | 335.7 |

**k) Interest Income on Loans and Advances(Rs. in 'million')**

| FY | SCBL | SBI | HBL | NABIL | Total | INS/AVE |
|---|---|---|---|---|---|---|
| 2007 | 744.6 | 708.7 | 1256.3 | 1174.4 | 3884.0 | 971.0 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **2008** | **886.8** | **862.9** | **1457.4** | **1502.5** | **4709.6** | **1177.4** |
| **2009** | **1123.5** | **1182.2** | **1883.0** | **2187.1** | **6375.8** | **1594.0** |
| **2010** | **1197.1** | **1761.8** | **2852.8** | **3373.5** | **9185.2** | **2296.3** |
| **2011** | **1946.2** | **2443.0** | **3858.8** | **4482.6** | **12730.6** | **3182.7** |
| **2012** | **2225.1** | **2983.8** | **4300.0** | **5262.5** | **14771.4** | **3692.9** |
| **Total** | **8123.3** | **9942.4** | **15608.3** | **17982.6** | **51656.6** | **12914.2** |
| **Average** | **1353.9** | **1657.1** | **2601.4** | **2997.1** | **8609.4** | **2152.4** |

**l) Return on Government Securities**

| FY | SCBL | SBI | HBL | NABIL | INS.AVE |
|---|---|---|---|---|---|
| 2007 | 4.6 | 4.7 | 3.1 | 3.1 | 3.8 |
| 2008 | 4.1 | 3.0 | 4.7 | 4.3 | 4.2 |
| 2009 | 4.1 | 4.0 | 8.4 | 7.8 | 5.6 |
| 2010 | 5.1 | 5.6 | 4.7 | 5.0 | 5.1 |
| 2011 | 6.1 | 6.6 | 8.2 | 5.9 | 6.5 |
| 2012 | 7.0 | 7.5 | 7.4 | 7.7 | 7.4 |
| Total | 30.9 | 31.5 | 36.7 | 33.8 | 32.6 |
| Average | 5.2 | 5.6 | 5.9 | 5.8 | 5.5 |

**m) Return on Loans and Advances**

| FY | SCBL | SBI | HBL | NABIL | INS/AVE |
|---|---|---|---|---|---|
| 2007 | 6.9 | 7.0 | 7.0 | 7.4 | 7.1 |
| 2008 | 6.4 | 6.8 | 7.2 | 6.9 | 6.8 |
| 2009 | 8.1 | 7.6 | 7.4 | 7.8 | 7.7 |
| 2010 | 7.4 | 9.8 | 9.8 | 10.2 | 9.3 |
| 2011 | 10.4 | 11.2 | 11.7 | 11.5 | 11.2 |
| 2012 | 11.8 | 11.3 | 12.0 | 12.3 | 11.8 |
| Total | 51.0 | 53.7 | 55.1 | 56.1 | 54.0 |
| Average | 8.5 | 8.9 | 9.2 | 9.4 | 9.0 |

# Appendix - 2

**a) Investment ( In million)**

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Total | Average |
|---|---|---|---|---|---|---|---|---|
| SCBL | | | | | | | | |
| Investment | 7115.7 | 8146.1 | 10007.3 | 8540.0 | 9965.8 | 7871.2 | 51646.1 | 8607.7 |
| Shares & Others | 6475.3 | 5756.7 | 8633.2 | 11309.5 | 813.0 | 5091.4 | 38079.1 | 6346.5 |
| L&A & Bills Purchases | 10790.0 | 13964.4 | 13880.7 | 16176.7 | 18662.5 | 19828.5 | 93302.8 | 15550.5 |
| Total | 24381.0 | 27867.2 | 32521.2 | 36026.2 | 29441.3 | 32791.1 | 183028.0 | 30504.7 |
| SBI | | | | | | | 0.0 | 0.0 |
| Investment | 2345.6 | 3093.6 | 3306.6 | 4313.3 | 5574.8 | 4560.7 | 23194.6 | 3865.8 |
| Shares & Others | 31.9 | 53.3 | 9979.6 | 1141.8 | 13336.1 | 19902.7 | 44445.4 | 7407.6 |
| L&A & Bills Purchases | 10065.1 | 12742.5 | 15612.0 | 18023.4 | 21718.8 | 26463.7 | 104625.5 | 17437.6 |
| Total | 12442.6 | 15889.4 | 28898.2 | 23478.5 | 40629.7 | 50927.1 | 172265.5 | 28710.9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| HBL | | | | | | | 0.0 | 0.0 |
| Investment | 6454.8 | 741.7 | 4212.3 | 4455.4 | 6407.4 | 2759.0 | 25030.6 | 4171.8 |
| Shares & Others | 5366.8 | 5280.4 | 4319.2 | 3829.8 | 2257.0 | 870.6 | 21923.8 | 3654.0 |
| L&A & Bills Purchases | 17841.5 | 20233.9 | 25577.4 | 29123.8 | 32968.2 | 35968.5 | 161713.3 | 26952.2 |
| Total | 29663.1 | 26256.0 | 34108.9 | 37409.0 | 41632.6 | 39598.1 | 208667.7 | 34778.0 |
| NABIL | | | | | | | 0.0 | 0.0 |
| Investment | 5359.2 | 4889.6 | 3978.6 | 981.3 | 1052.4 | 8211.5 | 24472.6 | 4078.8 |
| Shares & Others | 3528.7 | 5077.0 | 6896.3 | 5483.8 | 4162.5 | 4783.0 | 29931.3 | 4988.5 |
| L&A & Bills Purchases | 15903.0 | 21779.9 | 27997.0 | 33031.0 | 38922.7 | 42567.7 | 180201.3 | 30033.6 |
| Total | 24790.9 | 31746.5 | 38871.9 | 39496.1 | 44137.6 | 55562.2 | 234605.2 | 39100.9 |
| **Industrial** | | | | | | | 0.0 | 0.0 |
| Investment | 21275.3 | 16871.0 | 21504.8 | 18290.0 | 23000.4 | 23402.4 | 124343.9 | 20724.0 |
| Shares & Others | 15402.7 | 16167.4 | 29828.3 | 21764.9 | 20568.6 | 30647.7 | 134379.6 | 22396.6 |
| L&A & Bills Purchases | 54599.6 | 68720.7 | 83067.1 | 96354.9 | 112272.2 | 124828.4 | 539842.9 | 89973.8 |
| Total | 91277.6 | 101759.1 | 134400.2 | 136409.8 | 155841.2 | 178878.5 | 798566.4 | 133094.4 |

**b) Investment Portfolio Analysis (%)**

| | | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | Total | Average |
|---|---|---|---|---|---|---|---|---|---|
| **SCBL** | | | | | | | | | |
| **Investment** | | **29.2** | **29.2** | **30.8** | **23.7** | **33.8** | **24.0** | **170.7** | **28.2** |
| Shares & Others | | 26.6 | 20.7 | 26.5 | 31.4 | 2.8 | 15.5 | 123.4 | 20.8 |
| L&A & Bills Purchases | | 44.3 | 50.1 | 42.7 | 44.9 | 63.4 | 60.5 | 305.8 | 51.0 |
| Total | | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 600.0 | 100.0 |
| SBI | | | | | | | | 0.0 | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Investment | 18.9 | 19.5 | 11.4 | 18.4 | 13.7 | 9.0 | 90.8 | 13.5 |
| Shares & Others | 0.3 | 0.3 | 34.5 | 4.9 | 32.8 | 39.1 | 111.9 | 25.8 |
| L&A & Bills Purchases | 80.9 | 80.2 | 54.0 | 76.8 | 53.5 | 52.0 | 397.3 | 60.7 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 600.0 | 100.0 |
| HBL | | | | | | | 0.0 | |
| Investment | 21.8 | 2.8 | 12.3 | 11.9 | 15.4 | 7.0 | 71.2 | 12.0 |
| Shares & Others | 18.1 | 20.1 | 12.7 | 10.2 | 5.4 | 2.2 | 68.7 | 10.5 |
| L&A & Bills Purchases | 60.1 | 77.1 | 75.0 | 77.9 | 79.2 | 90.8 | 460.1 | 77.5 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 600.0 | 100.0 |
| NABIL | | | | | | | 0.0 | |
| Investment | 21.6 | 15.4 | 10.2 | 2.5 | 2.4 | 14.8 | 66.9 | 10.4 |
| Shares & Others | 14.2 | 16.0 | 17.7 | 13.9 | 9.4 | 8.6 | 79.9 | 12.8 |
| L&A & Bills Purchases | 64.1 | 68.6 | 72.0 | 83.6 | 88.2 | 76.6 | 453.2 | 76.8 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 600.0 | 100.0 |
| **Industrial** | | | | | | | 0.0 | |
| Investment | 23.3 | 16.6 | 16.0 | 13.4 | 14.8 | 13.1 | 97.1 | 15.6 |
| Shares & Others | 16.9 | 15.9 | 22.2 | 16.0 | 13.2 | 17.1 | 101.2 | 16.8 |
| L&A & Bills Purchases | 59.8 | 67.5 | 61.8 | 70.6 | 72.0 | 69.8 | 401.6 | 67.6 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 600.0 | 100.0 |

**a)Calculation of Correlation between Various Investment Securities of CBs**

| S. No. | Assets | Investment Amount Rs. Million | Proportion Weight (w) | Average Rate of Return (R) | Portfolio Return |
|---|---|---|---|---|---|

| | | | | | $(R_p)$ |
|---|---|---|---|---|---|
| **1** | **Government Securities** | 6054.50 | 0.21 | 5.43 | 1.140 |
| **2** | **Share and Debenture** | 144.20 | 0.01 | -6.00 | -0.030 |
| **3** | **Loan and Advance** | 22463.90 | 0.78 | 9.00 | 7.054 |
| **Total** | | **28662.60** | **1.00** | **7.11** | **8.164** |

**b) Calculation of Correlation Coefficient and Covariance between Various Assets**

| **S. No.** | **Assets** | **Standard Deviation** | **Correlation Coefficient** | **Covariance** | Covariance | **Weight (w)** |
|---|---|---|---|---|---|---|
| 1 | Government Securities (g) | 0.0136 | 0.9162 | 0.0006 | $Cov_{gl} = r_{gl} \times \pm_g \times \pm_l$ | 0.21 |
| 2 | Share and Debenture (s) | 0.3411 | (0.1929) | (0.0009) | $Cov_{gs} = r_{gs} \times \pm_g \times \pm_s$ | 0.01 |
| 3 | Loan and Advance (l) | 0.0464 | (0.3856) | (0.0061) | $Cov_{ls} = r_{ls} \times \pm_l \times \pm_s$ | 0.78 |

Where,

$Cov_{gl} = r_{gl} \times \pm_g \times \pm_l$

= 0.9162x0.0136x0.0464= 0.0006

$Cov_{gs} = r_{gs} \times \pm_g \times \pm_s$

= -0.9162x0.0136x0.3411= -0.0009

$Cov_{ls} = r_{ls} \times \pm_l \times \pm_s$

= -0.3856x0.0464x0.3411= -0.0061