

CHAPTER – I

INTRODUCTION

1.1 Background of the Study

Development of a country is linked with the economic development of country. Nepal is an economically weak country lying on the lap of Himalayan & Surrounded by two strong countries china & India. Economic development is connected with banking system. Without economic development, There is no possibilities of that country. A great amount of needs to be utilized for the economic development.

The evolution of the organized financial sectors in Nepal has more recent history compared to that other developing south Asian countries . Financial institutions play an important role in the economic growth and development of that country .

Nepal's planning history has begun with the establishment of Nepal Bank Ltd. in 1937 AD. Later on other commercial Banks were established to continue the Banking sector development. In the year 1980, when the government "Financial sector reform". Government allowed to accelerate economic development nation & to serve high banking system . The first joint venture is Nebil Bank Ltd. (Former name Nepal Arab Bank Ltd.) is established in 1984. Now, There are 26 Joint venture commercial Banks are operating in Nepal aiming to contribute in trade & Commercial sector of the nation.

Commercial Banks formulate sound investment policy which helps to maximize equality & quantity of investment and eventually to the economic growth of a country. Commercial Banks most follow the rules & regulations as well as direction issued by central Bank. The Loan provided by commercial Bank is guided by the several principles such as length of time. There purpose profitability safety etc. These fundamental principle of commercial Banks investment are portfolio. Investment direction is one of the major decision function of financial management.

Investment portfolio is one such tool that helps for proper utilization of resources of the nation. A portfolio is usually defines as the combination of assets. It is collection of securities portfolio is defined as a combination of various securities, bonds and stocks where the investor or institution

gets maximum return and bears the minimum risk . Portfolio management is related to the efficient portfolio investment in financial assets.

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

1.1.1 Development of Commercial Banks in Nepal

"A commercial Banks refer to such type of bank other than specified Banks related to co-operative, agriculture, Industrial and other which deals in money exchange, accepting deposit and advancing loan etc." Commercial Banks are those Banks which pool together the saving of the community and arrange them for the productive use. Commercial bank transfers monetary sources from the savers to users. They provide loans and advance form the money which they receive through deposits.

The history of modern banking system is not so long in Nepal. In depth, evidence of money lending function was also found in practice before 8th century. In those days, people used to borrow money from money lenders and paying some interest. In 14th century, Malla king Jayasthiti Malla divided people in 64 catagories as per working occupation. Which one of was "Tanka Bhari", They practiced monetary transaction or money lending business. It shows that lending process was prevailing during the Malla rule in Nepal.

During the period of Rana rule, Priminister Ranadip established a financial institution. Tejarath Adda "Prior to establishment of Nepal Bank Ltd. certain extent of Banking needs of people was fulfilled by the institution which was to supply credit to government officials at 5% rate of interest, there after they provided loan to general people against security of gold, sliver and ornament. Tajaratha expended the credit facilities by opening some branches.

Tajaratha could not fulfill the credit needs of the whole society. It was a government institution that benefited government officials only so the general people had depended on money lenders. To make free the rural people from the griped of handlers and to develop trade and industry in the country the need for commercial bank was realized in the country.

Nepal Banking history had begun with the establishment of Nepal Bank Ltd. In 1937 A.D. with 10 million of authorized capital and 842 thousand paid capital. It is the first commercial equity i.e. 51% government ownership. After establishment of "Nepal Bank limited" it replaced Tajaratha Adda by taking over its operation and over its limitation. It has done pioneering function in spreading the banking habits among people.

To manage and control banking system monetary policy development, to regulate issue of currency and to mobilize capital for economic development "Nepal Rasta Bank (NRB)" came into existence as central bank of Nepal in 1956 under 'Nepal Rasta Bank' Act 2012 B.S. . After this NRB diverted its attention toward development of banking system by formulating relevant policies and procedure prior to this, There was no such formal organization to control and regulate the monetary system in the country. It is an autonomous body and fully banking system in the country. NRB started issuing currency in 1959. To fulfill the growing credit requirement of the country, Commercial Bank Rastriya Banijya Bank' was established in 1966 under RBB Act 1964 with fully government equity that of authorized capital of Rs. 10 million and paid up capital of Rs. 2.5 million.

In 1980 the government introduced 'financial sector reforms'. Government allowed the entry of foreign Banks in Nepal as joint venture bank entered to accelerate the economic development at nation and to service high banking system. The first joint venture bank is Nebil Bank Ltd. (Former name Nepal Arab Bank Ltd), is established in 1984. The financial scenario has changed with the introduction of joint venture Banks in 1984. Number of commercial has been increasing. Since then various financial institution, domestic commercial Banks, development Banks, financial companies, co-operative society have come into existence to cater the financial development in the country.

1.1.2 Concept and Role of Joint Venture Bank in Nepal

The concept of joint venture bank is a new innovation in finance. It is on growing stage mostly in developing countries. Joint venture means "A business contract of management effort between two person, companies or organizations involving risk and benefit sharing". So joint venture is the process of sharing risk and return from a specific venturing.

A joint venture is the joining of between two or more enterprises for the purposes carrying out a specific operation (Industrial or commercial investment or production or trade). In Nepal, there has been substantial growth in the number of joint venture bank since 1985. The main reason

behind this is the government liberal policy of allowing foreign joint venture to operate in Nepal. Government's liberalization policy also encourages the traditionally run domestic commercial Banks to enhance their efficiency and competitiveness through modernization, Mechanization via computerization and prompt customers services by setting them to the exposure of the joint venture Banks .

In the year 1980 when government introduced "financial sector reform" Nepal allowed the entry of foreign banks as joint ventures with up to maximum 50% equity participation. A meaningful step towards financial liberalization was undertake in the fiscal year 1987/88, with the objective of expediting the process of economized major reforms including liberalization of interest rate strengthening of banking operation of a shift from direct to indirect monetary control instruments .

The existence of foreign joint venture Banks has brought an environment of healthy competition in front of the existing commercial Banks. The increased competition forces the existing Banks to improve their quality and extend their services by simplifying procedures and by training, motivating their own staff to respond to the new challenges.

The main roles of joint venture Banks of Nepal are pointed out below.

- ❖ Emergence of healthy competition,
- ❖ Foreign investment,
- ❖ New banking techniques ,
- ❖ Contribution to national economy.

However, the joint venture banks are operating in Nepal and play important role in the economic development of the country.

1.1.3 Functions of Commercial Bank

Bank collects unused money from public by providing attractive sound interest and can earn profit by lending it on mainly in business organization, industrial as well as Agricultural sector and investing in government Bonds. So the main function of commercial Banks is to mobilize idle resource in productive areas by collecting it from scattered sources and generating profit. There are many function performed by commercial banks which may be summarized follows.

- ❖ Accepting Deposit

Commercial Banks deposit all kinds of deposit especially under three main heading namely current saving and fixed deposit.

a. Current Deposit:- There is also known as demand deposit whereby the banker incurs the obligations at paying legal tender on demand . Thus the bank does not pay any interest for the deposit.

b. Saving Deposit:- Saving deposit is the deposit which collected from general savers, small depositors, and low income depositors. The bank usually pays small interest to the depositors against their deposit.

c. Fixed Deposit:- It is one of those in which the customer money is deposits for a fixed period of time. Generally by those who do not need money for a stipulated time period. Thus bank pays higher rate of interest to the depositor.

❖ Advancing Loans

Commercial Bank collects funds by taking all kinds of deposits and than it mobilizes by providing loans and advances. Direct loans and advances are given to all types of persons against the personal security of the borrowers or against the security of movable and immovable properties. Loans are granted by banks in four forms namely:

-) Overdrafts
-) Direct Loans
-) Cash Credit
-) Discounting Bill of exchange

❖ Agency Services

Commercial Bank provides a range of investment services. It undertakes to buy and sell securities on behalf of its clients. Banks undertake the payment of subscriptions, Premium rents etc. It collects checks, bills, promissory notes, dividends, interest etc. on behalf of the customers. Bank charges a small amount of customers other Banks and financial institutions.

❖ Credit Creation

It is the very important function of the commercial banks. They accept deposits and advance loans when the bank advances loan, it opens an account to draw the money by Cheque according to borrowers needs.

❖ Other functions

Other functions of the commercial bank are as follows:

a) Assets in foreign Trades

Commercial bank discounts the bills of exchange drawn by Nepalese exporters on the foreign importer and enables the exporters to receive money in the native currency.

b) Offers security brokerage services

Many commercial banks have begun to market security brokerage services offering customers the opportunity to buy the stocks, bonds and other securities without having to go to a security dealer or broker.

c) Financial Advising

Many banks offer a wide range of financial advisory services from helping in financial planning and consulting business managers.

1.1.4 Objectives of Joint Ventures Banks

At present most of joint venture banks are operating in financial sectors especially in banking, insurance, finance and Leasing etc. Less effort has been made in manufacturing, construction, designing etc. Joint venture pose serious challenges can be taken by the domestic banks as an opportunity to modernize themselves and sharpen their competitive zeal.

So, it is clear that joint venture banks are playing an increasing dynamic role to boost up and improve the economic status. The main objectives of joint venture Banks are described as follows:

I. Providing new services :

Even though the joint venture banks so far not providing any remarkable new services that was not offered by the domestic bank. They have drawn a large number of customers who assume that they will eventually benefit from their association with these Banks when they introduce new services.

II. Introducing new methods and technology in banking services :

The joint venture banks have invited a new era of banking in this underdeveloped country by introduction of high technology and efficient methods in the banking business.

III. Providing more resources for investment

The joint venture banks have played a significant role in the channeling additional resources for investment for the development of the country. Although it is assumed that joint venture banks argued by many resources raised to locally in prevailing market. These resources would have been mobilized.

IV. Creating competitive environment

The joint venture banks have creates a competitive environment in the banking business in Nepal. It will benefit the common man, business, industry and the country as whole.

V. Offering better links with international market

The joint venture banks are usually better place to raise resource internationally for aim able projects in developing country like Nepal mainly international market. It is very easier for Nepalese business to product international linkage through the joint venture Banks.

1.1.5 *Profiles of the Banks under study*

In this section general introduction of the bans under study is being attempted to furnish for the easy references of the samples to the research.

I. Nepal SBI bank Ltd. (SBI)

Nepal SBI bank Ltd was established in 1993 under the company Act 1964. This is the joint venture of state bank of India and Nepali Promoters. It is managed by state Bank of India under the joint venture and technical services agreement signed between it and Nepali Promoters viz. Employee provident fund and agriculture development Bank, Nepal. The main objective of the Bank is to carry out modern banking business in the country under the commercial Bank Act 1974. This Bank provides loan to agriculture, commerce and industrial sector. The Bank is one of the largest shareholder based company. Authorized capital of NSBIBL is Rs.1000 million, issued capital Rs.650 million, paid in capital is Rs.874.53 million, face value at share Rs.100 and no of shareholders 16893. The composition of equity capital of NSBIBL is as follows: -

)	State bank of India	50%
)	Employees provident fund	15%
)	Agriculture bank Ltd	5%
)	General public share holders	30%

II. *Everest Bank Ltd.*

Everest Bank Ltd. was established in 1992 under the company Act, 1964. United Bank of India Ltd. under technical services agreement signed between it and Nepali promoters was managing the Bank from the very beginning till November, 1996. Later on it handed over the management to the Punjab national Bank Ltd, India which holds 20% equity on the Bank's share capital. The main object of Banks is to carry out commercial banking activities under the commercial Bank Act, 1974. Authorized capital, Issued capital and Paid of capital of EBL as on mid July 2003 is Rs. 750 million, 465 million and 518 million respectively. Now the share capital of the Bank is as follows:

Nepalese Promoters	50%
General Public shareholders	30%
Punjab national Bank Ltd	20% .

1.2 *Force of the study*

The investment decision is one of the major functions of financial management. Increasing numbers of banks and financial institutions has created a comparative environment in financial sector. The investment opportunities of trade industries agriculture & other sectors haven't comparatively been extended. So, commercial banks have to face so many difficulties to mobilize their fund on profitability sector. Risk is involved in every steps of return. Every sector went a maximum return from minimum level of risk. So to minimize risk, investor should diversity it's investment by the means of portfolio.

Primary objectives of portfolio are to be maximized return & to minimize risk. Secondary objectives are regular return, stable income, Appreciation of capital, liquidity, easy marketability, safety investment & tax benefit. Portfolio management is Banks assets mean allocation of fund to be different component of banking assets having different degree of risk and varying rate of return in such way that balance the complicating goal of maximum field and minimum risk. When the processes of portfolio management of Bank assets are done various factors such as availability

of fund liquidity, requirement of central Bank policy etc. should be considered.

In this study, the trend of investment process of joint venture Bank in various sectors by the main of portfolio will analyzed the existing investment situation and it's investment strategy features be analyzed further the concrete scholars, Academicians, Investor, Professionals, may also be benefited from this study will also suggest to improve portfolio management in coming day .

1.3 Statement of problem

The major problem in almost all under developed countries and Nepal is the capital formation and proper utilization. In such country's joint venture Banks have more responsibilities to avoid above problem and there by contribute to national economy. In the context of Nepalese joint venture Banks. There is no optimum utilization of funds to have greater return. They are interested to invest in less risky and liquid sectors i.e. treasury bills, development bonds , national saving, share & debenture etc. and cannot show the capability of invest in little high risk where is more profit. Due to the lack of portfolio management, joint venture Banks have less consider about portfolio optimization that cause can not formulate appropriate investment policy. In Nepal, commercial Banks invest their funds in limited areas to achieve highest amount of profit. They are found to be making investment only on short term basis against movable merchandise.

The numbers of joint venture Banks. Commercial Banks are being increased in response to the economic liberalization policies of the government. Other institutions offering similar nature of services like finance companies, co operative societies and development Banks are growing in large number. The joint venture Banks are central tendency to urban areas, some are expanded in the rural areas of Nepal but don't seem to have activated their role effectively in deposit mobilization and loan distribution there. Unsecured loan and investment may cause the liquidation of those Banks . If the funds are wrongly invested without thinking any financial risk, business risk and other related facts, the Bank cannot obtain profitable return. Nepal Rastra Bank has also played important role to make commercial Banks to invest their funds in good sector for this purpose, NRB has imposed many roles and regulations so those banks can have sufficient liquidity and security. Banks should follow as per direction of NRB and be make clear vision towards investment portfolio itself.

Though some of the investors invest in two or more randomly, They invest their funds in different securities on the basic of expectation and assumptions of individual securities to invest under such situation the present study will try to analyze investment portfolio management of joint venture banks, return on various types of investment, portfolio risk and return and performance towards investment. Thus this study will deal with the following issues:

1. What is the relationship of investment, loan and advance with total deposits & total net profit?
2. Does the investment decision affect to the total earnings of the Bank?
3. How is the investment portfolio managed by the joint venture Banks?
4. How far joint venture Banks have been able to mobilize and utilize domestic resources ?
5. Is joint venture Banks effectively utilized portfolio concept in their investment directed towards objectives of maximize return ?
6. What is the trend of investment in different assets?

1.4 Objective of the study

The main objectives of the study is to analyze and interpret the investment, loan & advances portfolio of joint venture Banks. The specific objectives of the research are pointed as follows:

1. To highlight the objectives of selected joint venture Banks.
2. To evaluate the investment portfolio of joint venture Banks.
3. To analyze the risk and return of selected joint venture Bank. On investment using portfolio concept.
4. To evaluate and interpret the financial performance of those Banks in term of investment strategy.
5. To examine the trend of investment in different sector.
6. To suggest & recommend some measure, on the basis of analyzing data and findings.

1.5 Need, Scope & Significance of the study

Joint venture banks and commercial Banks have pivotal role in collection of dispersed small saving and transforming them into meaningful capital investment success and prosperity of the Banks relies heavily upon the successful investment of collected resources to the productive sector of economy. Hence successful formulation and effective implementation of investment policy is the prime requisite for the successful performance of

Banks and other financial institution. Therefore, the study is to analyze the existing investment portfolio of joint venture Bank of Nepal and point out the various weakness of defect inherent in it and provide package of suggestion for its improvement. The result of the research will be helpful for joint venture Banks for especially for sample Banks to formulate strategies to face the increasing competitions. The study no doubt will also have multi dimensional importance for various areas which are mentioned below in brief:

1. Importance to policy formulators and also be useful for teachers, students of the subject, particularly those in commerce, character, accountancy and institutional finance.
2. Importance to shareholders.
3. This study will be helpful to investors regarding the risk return statistics association with investment.
4. Importance to management bodies of sample banks for the evaluation at the performance of their banks and in comparison with other Banks.
5. Importance to interest outside parties such as investors customer (Depositors, Loan takers as well as other types of clients) competitors and personnel of the Banks, stockbroker, dealers & market makers

1.6 Limitations of the Study

This study isn't comprehensive study. This study is conducted for the partial fulfillment of degree of MBS. So, these are many deficiencies may find in this study due to various limitation. Some of the limitations are as follows:-

- a) The study will basically concrete with portfolio investment management of commercial Banks. It doesn't consider the financial aspect of the Bank.
- b) The study is mainly based on secondary data consequently the result. Depend on reliability of secondary data.
- c) The study only covers a period of four years.
- d) Due to the wide range of data deficiencies only simple technique have been used in analysis.
- e) Among the various commercial banks in Nepal, only concern on two commercial banks which are
 -) Nepal SBI Bank Ltd.
 -) Everest Bank Ltd.
- f) The truth of research result is based upon secondary data.

1.7 Organization of the study

On this research the study is carried out in different stage and procedure, as it needed. The study organized on following chapters in order to make easy to understand.

CHAPTER - I

INTRODUCTION

The first chapter is introduction. This chapter deals with the introduction that include background, meaning, force of study, statement of problem, need, scope and significance of the study, limitation of the study and organization of the study .

CHAPTER – II

REVIEW OF LITERATURE

This chapter deals on descriptive conceptually framework of portfolio management. It considered to the review of major related literature about the portfolio management and related studies.

CHAPTER - III

RESEARCH METHODOLOGY

This chapter explains the research methodology used in study. Which includes research design, population and sample, sources of data, data collection techniques and data analysis tools.

CHAPTER - IV

DATA PRESENTATION&ANALYSIS

This chapter is the major part of the whole study in which all collect relevant data are analyzed and interpreted by the help of different financial and statistical tools. we explain the major findings of the study in it .

CHAPTER - V

SUMMARY, CONCLUSION & RECOMMENDATION

This chapter is suggestive to all concerned in accordance of analysis and interpretation of data. It gives a summary of study, recommendation is made for concerned authorize and institutions as well as conclusion of the study are also carried out.

CHAPTER – II

REVIEW OF LITERATURE

Review of literature is the study of past research studies and relevant materials. It is advancement of existing knowledge and in depth study of subject materials. It deals with the theoretical aspect of topic on investment portfolio in more details and descriptive manner. Review of literature means reviewing research studies or other relevant preposition in the related area of the study so that all the past studies, their conclusion and deficiencies may be known and further research can be conducted. It is an integral and mandatory process in research works. Hence, in this chapter, the focus has been made the review of literature relevant to the investment portfolio of commercial Banks for the study, different journals articles, books, annual reports and some research paper related with this study has been reviewed. Therefore, this chapter arranged as follows:

-) Review of supportive text
-) Review of relevant studies /popular model of portfolio.
-) Review of reports and articles.
-) Review from journal
-) Review of previous thesis.

2.1 Review of supportive text

2.1.1 Concept of investment

The simple meaning of the investment is to employ available funds to generate more money in future. An investment involves the sacrifice of current rupees for future rupees. The sacrifice takes place in the present and certain. The reward comes later and is uncertain investment generally involves real assets or financial assets. Real assets are tangible, material things such as building, automobiles, machinery factories and textbooks. Real assets are generally less liquid than financial assets, financial assets are pieces of paper representing an indirect claim to real assets held by someone else. Investment is the employment of funds with the aim of achieving additional income or growth in value. It involves the commitment

of resources that have been saved or put away from current consumption in the hope that same benefits will occur in future. Investment involves long term commitment and waiting for reward. "The word investment is being fourth visions of profit, risk, speculation and wealth."(Chancy, John M.and Mosses, Edward A. 1992 page 6, Fundamental of investment .)

"Investment may be defined as the purchase by an individual or institutional produces a return proportional to the risk assumed over some future investment period". – F. Amling

"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." – Sharpe, Alexander & Bailey, 2000.

"An Investment is a commitment of funds made in the expectation of some positive rate of return. If the investment is properly undertaken, the return will be comensurate with the risk the investor assumes."Donald E. Fischer and Ronald, J. Jordan.

In other words of Gitman and Joehak, " Investment is any vehicles into which funds can be played with the expectation that will preserve or increase in value and generated positive returns ."

Dr. Preeti singh has defined investment as " Investment is the employment of funds with the aim of achieving additional income of growth in values ."

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

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

There are two forms of investment, financial investment and real investment. Investment in financial assets like common stock, bond etc, are called financial investment. A real assets represents an actual tangible assets that always be seen held or collected e.g. real estate, gold etc. Investment in such tangible assets is called real investment.

2.1.2 Investment process

The investment process describes how an investor makes decisions about what securities to invest in how extensive these investments should be and when they should be made. the investment process involves five steps . (Francis, Jack Clark, 2002, pg 10)

1. Set investment policy

The first steps of the investment process is to set investment policy. It involves determining the investor objectives and the amount of his or her invest able wealth. This step involves the identification of the potential categories of financial assets for consideration in the ultimate portfolio.

2. Perform Security Analysis

The second step of the investment process is to perform security analysis. Security analysis involves examining a number of individual securities within the broad categories of financial assets. There are two main appropriate to security analysis. They are,

- i. Technical analysis
- ii. Fundamental analysis

3. Construct a portfolio

The third steps of the investment process is construction of portfolio. Construction of portfolio involves identification of specific securities in which to invest able wealth to be put into each security.

4. Revise the portfolio

The fourth step of the investment process is portfolio revision. Portfolio revision both realizing that the currently held portfolio is not optimal and specifying another to hold with superior risk return characteristics.

5. Evaluate the portfolio performance

The fifth step of the investment process is evaluate the portfolio performance evaluation. It involves determination of the actual performance of a portfolio in terms of risk and return & compares the performance with that of on appropriate "Benchmark" portfolio.

2.1.3 Investment Alternative

There are various alternatives for investors

1. Equity security
 - a. Common Stock
 - b. Preferred Stock
2. Short term debt security
 - a. Negotiable certificates deposit
 - b. Commercial paper
 - c. Banker's acceptance
 - d. Treasury bills
3. Intermediate and Long term debt security
 - a. Government securities
 - i. Treasury Notes
 - ii. Treasury Bonds
 - iii. Saving Bonds
 - b. Agency securities
 - c. Municipal securities
 - i. Revenue Bonds
 - ii. General obligations Bond
 - d. Corporate Bonds
4. Hybrid Securities
 - a. Convertible Preferred Stock
 - b. Convertible Bonds
5. Derivative Securities
 - a. Options
 - b. Commodity futures
 - c. Financial futures
 - d. Options on futures
 - e. Warrants.
6. Real Assets
 - a. Precious Metal

- b. Real Estate
 - c. Collectibles
- 7. International investment.
 - a. Multinational corporations
 - b. Foreign Stocks traded on a. Local exchange
 - c. American Depository receipts
- 8. Other investment alternatives
 - a. Pension funds
 - b. Mutual funds
 - c. Closed end companies.

2.1.4 Source of investment uncertainty (Risk)

Every investment has uncertainties. Uncertainties market future investment returns risky. The sources of uncertainty that contribute to investment risk are as follows:

❖ Interest rate risk

It is the potential variability of return caused by changes in the market interest rates. If market interest rate rises, then investment values and market prices will fall and vice versa. The variability of return that results is interest rate risk. This interest rate risk affects the price of bonds, stocks etc.

❖ Purchasing power Risk

It is the variability of return an investor suffers because of inflation. Inflation seems to be the normal way of life in most countries today. However, when inflation takes place, financial assets may lose their ability to command the same amount of real goods and services they did in the past. To put another way the real rate of return of financial assets may not adequately compensate the holder of financial assets for inflation.

$$\text{Rate of inflation in the CPI in period (T)} = \frac{CPI_t - CPI_1}{CPI_1} \times 100$$

❖ Bull- Bear Market Risk

This risk arises from the variability in market return resulting from alternating bull and bear market forces.

When a security index rises fairly consistently from a low point called a trough. for a period of time, this upward trend is called a bull market . The bull market ends when the market index reaches a peak and starts a downward trend. The period during which the market declines to the next trough is called a bear market.

❖ Default Risk

It is the portion of an investment's total risk that results from changes in the financial integrity of the investment.

❖ Liquidity Risk

It is the portion of an asset's total variability of return that from price discounts gives or sales commission paid in order to sell the asset without delay. Perfectly liquid assets are highly marketable and suffer no liquidation costs. Liquid assets are not readily marketable. Either price discounts must be given or sales commission must be paid or both of these costs must be incurred by the seller.

❖ Call ability Risk

Some bonds and preferred stocks are issued with a provision that allows the issuer to call them in for repurchase.

The portion of a security's total variability of return that derives from the possibility that the issue may be called is the call ability risk.

❖ Convertibility Risk

Convertibility risk is that portion of the total variability of return from a convertible bond or a convertible preferred stock.

❖ Political Risk

The portion of an asset's total variability of return caused by changes in the political environment that affect the asset's market value.

❖ Industry Risk

An industry is a group of companies that compete with each other to market a homogeneous product. Industry risk is that portion of an

investment's total variability of return caused by events that affect the products and firms that make up an industry.

2.1.5 Introduction to investment portfolio

A portfolio is usually defined as a combination and investment in financial assets i.e. bond, stock. A portfolio is a collection of investment securities.

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

According to Weston and Brigham "A portfolio simply represents the practice among the investors of having their funds in more than one asset. The combination of investment called a portfolio ".

According to Raymond Brockington "The term portfolio simply means collection of investment. For an investor through the stock exchange the portfolio will be a collection of shareholding in different companies. For a property investor portfolio will be collection of buildings. To a financial manager within an industrial company portfolio will be a collection of real capital projects. It will be apparent that the actual nature of the components of a portfolio depends on the population of opportunities from which the selection has been made.

Portfolio is collection or group of assets. It is a collection of securities. An investor who has been paying someone to actively manage his or her portfolio has every right to insist on knowing what sort of performance was obtained. Such information can be used to alter either the constraint placed on the manager the investment objective given to the manager or the amount of money allocated to the manager. Perhaps more important by evaluating performance in specified ways a client can forcefully communicate his or her interest to the investment manager and in all likelihood affect the way in which his or her portfolio is managed in the future. Moreover an investment manager by evaluating his or her own performance can identify sources of strength or weakness.

Portfolio theory was originally proposed by Harry M. Markowitz in 1952. The theory is concerned with the selection of an optimal portfolio by

a risk adverse investor. One investor has selected securities to be considered for inclusion in a portfolio. Portfolio theory can be used to determine the combination of securities that will create the set of efficient portfolio. The selection of the optimal portfolio depends on the investor's preferences for risk and return. An appreciation of the theory will provide the investor with an understanding of how risk is measured in portfolio context and the relationship between return & risk.

2.1.6 Introduction to portfolio management

Portfolio management is basically concerned with efficient management of portfolio investment in financial assets including shares and debentures of companies. Portfolio management assumes periodic evaluation of the security in the portfolio. Buy & hold philosophy, in present competitive society and in view of the fluctuation of the stock is not a very prudent conservative or rational plan of action for sound portfolio management. The management may be by professionals others or by individual themselves. A portfolio of an individual or corporate unit is the holding of securities and investment in financial assets. These holding are the result of individual preference process of decision making and correctness in which can not be ensured in all cases. The basic problem of portfolio management is to establish an investment objective or goal and then decide the reach the goal with the securities available. This has been stated an attempt by the investor to obtain the maximum return with minimum risk.

According to Cohen, Zeikel, "Portfolio management is the art of handing a pool of funds so that is not only preserve its original worth but also over time appreciates in value and yields an adequate return consistent with the level of risk assumed .

Similarly, according to Keith Ambachtcheer, "portfolio management concerns it self with selecting 'good' stock or a bond is fading ".

The objective of portfolio management is to analyze different individual assets and delicate efficient portfolio. Often most objectives turn out to be closely related to theoretical objectives of maximizing return for the level of risk inherent in the portfolio. The objectives of the portfolio management are as follows:

- a. Safety of fund

- b. Stability of price
- c. Liquidity
- d. Return
- e. Marketability
- f. Capital growth

2.1.7 Portfolio Return

The expected return of the portfolio is weighted average of the expected returns of the individual assets in the portfolio. The weights are proportion of the investors wealth invested in each assets and sum of the weight must be equal use. (Cheney and Moses A.D.652)

$$R_p = W_A R_A + W_B R_B + \dots + W_N R_N$$

where,

R_p = Portfolio expected 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

2.1.8 Portfolio Risk

The portfolio risk is measured by either variance or the standard deviation of return. "The portfolio risk is affected by the variance of return as well the covariance between the return of individual assets included in the portfolio and respective weights ". (Pradhan, 1992, pg 295)

The variance of returns from portfolio made up an assets is defined by following equation,

$$\text{Variance} = \sum P^2 X W_A^2 + \sum A^2 \Gamma W_B^2 + \sum B^2 \Gamma 2 W_A W_B + \text{Cov} \sum r_A r_B$$

$$\sigma_P = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B \text{Cov}(r_A, r_B)}$$

where,

σ_P = Standard deviation of portfolio rate of return .

$\text{Cov}(r_A, r_B)$ = Covariance of return between assets A and B .

The co-variance is related to correlation coefficient as shown in equation

$$\text{Cov}(r_A, r_B) = P_{AB} \cdot \sigma_A \cdot \sigma_B$$

P_{AB} = Correlation coefficient between variable A & B.

2.1.9 Basic assumptions of portfolio analysis

a) All investors maximize and period expected utility as exhibit diminishing marginal utility of wealth. This implies that investors visualize each investment opportunity as being represented by a probability distribution of addition to there terminal wealth equivalently, all investors visualize assets as probability distribution at expected return over some holding period.

b) Investors risk estimates are proportional to the variability of the expected returns.

c) Investors are willing to base their decisions safety in terms of expected return and risk. That's utility is a function of variability of returns for any given level of rate of return . Conversely for any given level of rate of return investors prefer less risk over more risk. (Francis and Archer, 1979, pg 5)

2.1.10 Objectives of portfolio management

There are several objectives which should be considered as basic an executed investment programmer. The objective of portfolio analysis is to develop a portfolio that has a maximum return at whatever level of risk the investor deems appropriate. We can point out the following objective as the main objective of portfolio management.

- a) Primary objectives
 -) To minimization of risk
 -) To maximization of return
- b) Secondary objectives
 -) For safety or security of an investment
 -) To stable of income
 -) To easy marketability of assets
 -) To ever liquidity
 -) Income by the way of interest and dividend
 -) Tax benefit.

2.1.11 Portfolio management policy

The portfolio management policies may vary from company to company. Some of the common types of policies of portfolio management used are discussed.

a) Conservative Defensive policy

The defensive policy gives more emphasis on safety of principal amount. This policy will be useful when it is suspected that the market will decline in near future. Bond and preferred stock are defensive type of securities. This policy depends more upon long term source of fund.

b) Aggressive policy

This policy gives more emphasis on yields of securities. This policy assumed that the market is strong and rising that common stocks will be best outlets for the portfolio in rising market. This policy depends more on short term source of funds.

c) Matching /Moderate Policy

This policy suggests for the construction of balanced portfolio of various types of securities. It is the hedge of aggressive and defensive policy or hedge against a rise or fall in the stock market.

d) Income Vs growth policy

The income policy gives more emphasis upon maximization of current income and attaches insignificant importance to capital gain and growth. The growth policy gives more emphasis on the capital appreciation of the portfolio.

2.1.12 Factor Affecting investment portfolio decision

❖ Amount of investment

While determining the investment portfolio the finance manager should actually consider the amount of fund available with organization deal in securities only for the purpose of best utilization of their available Surplus cash resources. The amount of surplus funds available with them will therefore decide the quantum of their investment in securities.

❖ Objectives of investment portfolio

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

❖ Selection of investment

This is an essential decision which a finance manager has to take . He or She 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.

2.1.13 Expression used a portfolio

Various variables have been included to analyzed the portfolio analysis. Among them some variables are being explained as follows:

❖ Total Risk

The total variation of the rate of return for an individual security as measured by the standard deviation or variance of the rate of return is called total risk. According to CAPM total risk divided into two parts. They are systematic and unsystematic risk. (Thapa, 2000, page 71)

❖ Systematic risk

The variability of return or stock or portfolio associated with changes in return on the market as a whole . These are risks that affect securities overall and consequently cam not be diversified portfolio will be exposed to this type of risk.

(Vanhorn and Waehowicz)

❖ Unsystematic risk

The variability of return on stock or portfolio not explained by general market movements. By diversification the risk can be reduce and even eliminated if diversification is efficient. Therefore, not all of the risk involved in holding a stock is relevant since part of this risk can be diversified away. (Vanhorn and Wachawicz, 1996 page 100)

❖ *Characteristics line*

A line which describes the relationship between on individual securities return and return on the market portfolio is called characteristic line. It depicts the expected relationship between excess return for the stock and excess return for the market portfolio. The expected relationship may be based on the past experience, in which case actual excess return for the stock and for the market portfolio would be plotted on the graph and a regression line best characterizing the historical relationship would be drawn. The stop of this line is beta. (Vanhorn & Wachowicz, 1996, page 102)

❖ *Beta*

Beta is a simply slop (i.e. the change in excess return on the stock over the change in excess on market portfolio) of characteristic line. The beta of a portfolio is simply a weighted average of the individual stocks betas in the portfolio. The beta of stock represents its contribution to the risk of highly diversified portfolio of stock. (Vanhorn & Wachowicz, 1996, pg 102& 103)

❖ *Security Market line (SML)*

SML describe the relationship between an individual securities expected return and its systematic risk as measured by beta. The linear relationship is known as the SML.

❖ *Efficient portfolio*

Efficient portfolio are those portfolios which after the highest expected return for given level of risk . The plot of expected returns for an efficient portfolio against their respective standard deviation is called market line. (Cohen, Zinbarg & Zaikel n.d. 694)

❖ *Optimal portfolio*

Given the efficient frontier and risk return indifference carries, the optimal portfolio is found set the point of tangency between the efficient frontier and a utility indifference curve, This point represents the highest level of utility the investor can reach. (Prasannra, 1998, pg 13)

❖ *Market average portfolio*

Market average consists of all market represent able securities traded in the Market, the risk is minimized to systematic level. In other

words, the market portfolio is simply the rightly priced portfolio as that offers average return for the average level of risk. (Pradhan, 1992, pg300)

❖ *Minimum Variance portfolio*

Minimum variance portfolio is also called the feasible least risky portfolio with the lowest level of risk in efficient frontier. The minimum variance portfolio of any number of assets is determined by the weighted distribution of assets held a portfolio. (pradhan, 1992,pg 300)

❖ *Overpriced and under priced securities*

An overpriced securities is unattractive and investor holding it will sell it, those not holding it will avoid it. Thus the price of securities will fall under priced security provides an expected return in excess of that required by the market for the systematic risk involved. As a result, the securities will be attractive to investors, according to the theory the expected demand will cause the price to rise. (Vanhorn, 1997, pg, 74-75)

❖ *Diversification*

The process of adding securities to a portfolio in order to reduce the portfolio's unique risk and thereby, the portfolio total risk. The objective of portfolio analysis is to reduce risk. By combining securities of low risks with securities of high risk, Success can be achieved by investor in making a choice of investment outlets. (Thapa, 2001, pg 12)

2.1.14 Covariance and correlation coefficient in portfolio Risk

a. Meaning of covariance in portfolio risk

The covariance is an absolute measure of the degree of relationship between the returns a pair of securities. It is a statistical measure of the relationship between two random variables. A positive value of covariance indicates that the securities returns tend to move in the same direction. A negative value of the covariance indicates the return of securities move in the opposite direction and the zero value of the covariance indicates no relationship between the securities return. The covariance between the securities return can be calculated by using the following equation.

I. If past data are used

$$Cov(r_i, r_j) = \frac{\sum_{t=1}^n (r_{it} - \bar{r}_i)(r_{jt} - \bar{r}_j)}{n}$$

$$Cov(r_i, r_j) = \frac{\sum_{t=1}^n (r_{it} - \bar{r}_i)(r_{jt} - \bar{r}_j)}{n}$$

II. *If probabilities are used*

$$\text{Cov}(r_i, r_j) = \frac{1}{n} \sum_{t=1}^n (r_{it} - \bar{r}_i)(r_{jt} - \bar{r}_j)$$

where,

$\text{Cov}(r_i, r_j)$ = Covariance between return on security i and security j.

r_{it}, r_{jt} = Single period return on security (i and j) .

\bar{r} = Expected rate of returns.

n = Number of observation.

P = Probability of return.

b. *Meaning of correlation in portfolio risk*

"Correlation is a relative measure of relationship that is bounded by +1.0 and -1.0 ". Weston, J. Fred Eugene, F. Brigham pg 195). It is a statistical measure of the extent to which the returns on any two securities are related however it denotes only association not causation. The correlation measure the degree of relationship of movement of securities return. Correlation is measured by using the following formula,

$$P_{ij} = \frac{\text{Cov}_{ij}}{\sigma_i \sigma_j}$$

Portfolio risk reduction depends on:

1. The number of securities in the portfolio
2. The correlation between the return from the individual securities in the portfolio.
3. The weight of the individual securities in the portfolio in relation to their correlation among one another.

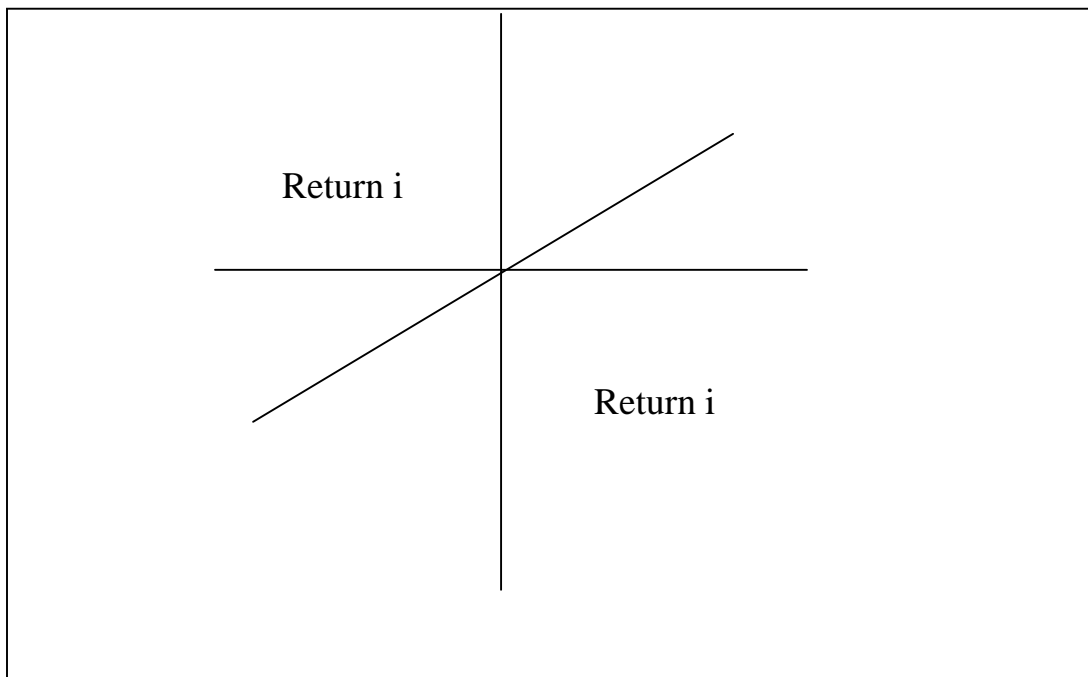
❖ *Various causes of correlation and risk condition*

Case I. *Perfect positive correlation* ($P_{ij} = +1$)

Return on two perfectly positively correlated stock would move up and down together would be exactly as risky as the individual stocks. Thus diversification does nothing to reduced risk if the portfolio consists of perfectly positively correlation stock. It is presented in the figure below.

Figure no. 2.1

Figure presenting the perfectly positive correlated return

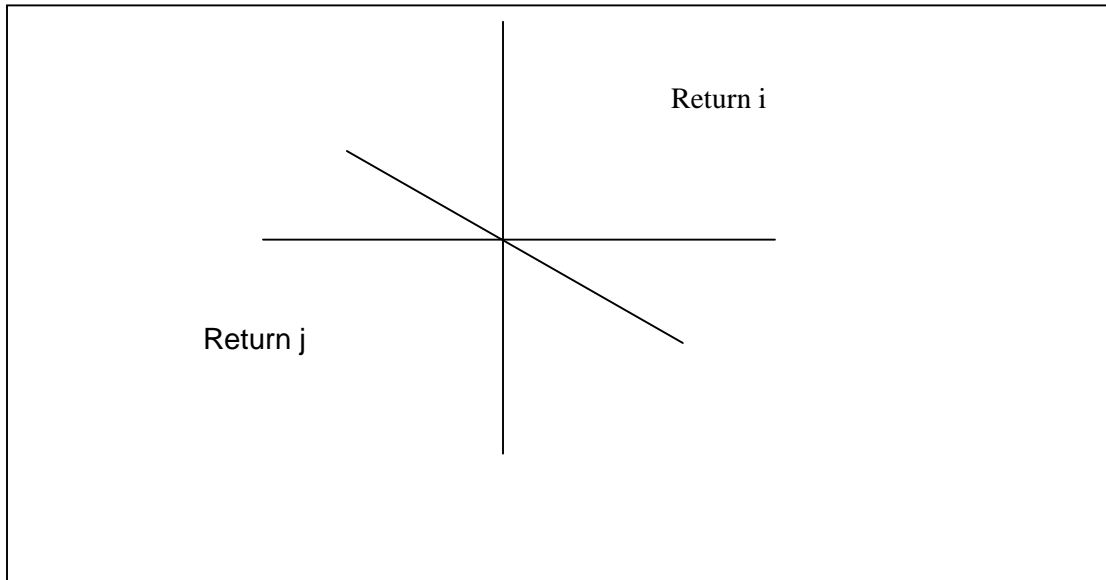


Case 2 Perfect negative correlation ($P_{ij} = -1$)

Return on two perfectly negative correlated stocks would move perfectly together but in exactly opposite directions. In the condition, risk can be completely eliminated. Perfect negative correlation almost never found in the real world. It is presented in the figure below:

Figure no 2.2

Figure presenting the perfectly negative correlated return.

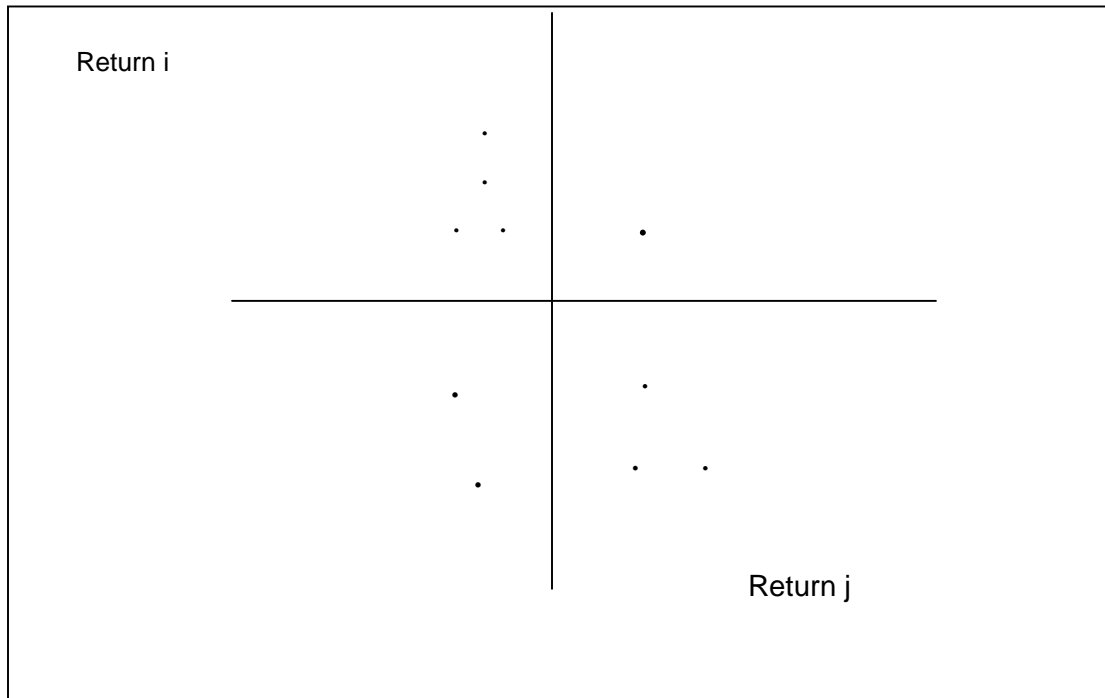


Case 3 No relationship between returns ($P_{ij} = 0$)

When the correlation between two stocks is exactly zero there is no relationship between the returns. They are independent of each other. In this condition some risk can be reduced. It is show in figure below:

Figure no 3

Figure presenting the uncorrelated return



Case 4 Intermediate risk ($P_{ij} = +0.5$)

Most stocks are positively correlated but not perfectly on average the return on two stocks would lie on the range of +0.4 and +0.75 under this condition combining stock into portfolio reduces but does not eliminated completely .

2.2 Review of popular models of portfolio

2.2.1 Markowitz's portfolio selection model

Markowitz developed the basic model, which defines the expected return of a portfolio as a 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 particular assets.

Markowitz used the variance of return as the measure of risk. The risk of the portfolio is not the weighted average of the variances of the expected returns of the individual assets in the portfolio. However, estimating portfolio risk in this way would obscure the effect of combining assets with different return patterns in a portfolio. Portfolio expected return and risk will be explained and illustrated in the next two sections.

The portfolio model developed by Markowitz is based on the following reasonable assumptions,

- a) The expected return from an asset is the mean value of probability distribution of future returns over some holding period.
- b) The risk of an individual asset or portfolio is based on the variability of returns. (i.e. the standard deviation or variance)
- c) 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.
- d) Investors adhere to the dominance principle. That is, for any given level of risk, investors prefer assets with a higher expected return to an asset with a lower expected return for an asset with the same expected return, investors prefer lower to higher risk.

According to Markowitz, the expected return of the portfolio is the weighted average of the expected returns of the individual assets in the portfolio. The weights are proportion of the investor's wealth invested in each asset and the sum of the weights must be equal to one. (Chency & Moses n.d. 652-652)

$$R_p = W_A R_A + W_B R_B + \dots + W_N R_N$$

$$R_p = W_A R_A + W_B R_B + \dots + W_N R_N$$

Where,

R_p = Portfolio expected returns .

W_A = Weighted of investment invested in stock 'A'

R_A = Expected return for stock 'A'

W_B = Weighted of investment invested in stock 'B'

R_B = Expected return for stock 'B'.

According to Markowitz, The portfolio risk is measured by either variance or the standard deviation of return. "The portfolio risk is affected by the variance of return as well as the covariance between the return of individual assets included in the portfolio and respective weight." (Pradhan, 1992, pg 295)

The variance of returns from portfolio made up on assets is defined by following equation.

For two assets,

$$\text{Variance } \sigma_P^2 = W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B \text{Cov}(r_A, r_B)$$

$$\sigma_P = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B \text{Cov}(r_A, r_B)}$$

For three assets,

$$\sigma_P^2 = W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + W_C^2 \sigma_C^2 + 2W_A W_B \text{Cov}(r_A, r_B) + 2W_A W_C \text{Cov}(r_A, r_C) + 2W_B W_C \text{Cov}(r_B, r_C)$$

Where,

σ_P = Standard of portfolio rate of return

$\text{cov}(r_A, r_B)$ = Covariance of return between assets A& B.

The co-variance is related to correlation coefficient as shown in equation,

$W_A, W_B \text{ \& } W_C$ = Weighted of securities of A, B and C.

$$\text{cov}(r_A, r_B) = P_{AB} \sigma_A \sigma_B$$

P_{AB} = Correlation coefficient between variable A& B .

2.2.2 Capital Assets pricing Model

A model that describes the relationship between risk and expected return, in this model a securities expected return is the risk free rate plus a premium based on the systematic risk of the securities. This model was developed in 1960 A.D. and it has had important implications for finance ever since, while other models also attempt to capture market behavior. The CAPM is simple in concept and has real word applicability. It allows us to draw certain implications about risk and the size of the risk premium necessary to compensate for bearing risk. (Vanhorn& Wachoeicz, 1996, pg 101)

Assumption of the capital assets pricing model

Capital market theory(CMT) used portfolio theory as its starting point; thus, the assumption underling portfolio theory also pertains to CAPM. The assumptions underlying CMT and the CAPM appear less realistic than the portfolio theory assumption.

- a) All investors are risk averse. Thus all investors seek to be on the efficient frontier.
- b) There are no constraints on the amount of money that can be borrowed. Borrowing and lending occurs at the identical risk free rate.
- c) All investors have identical belief about the expected returns and risk of assets and portfolio that is all investors have homogeneous expectations.
- d) All investors have a common investment horizon whether it is one month, three month, one year or whatever.
- e) All investments are infinitely divisible and marketable that is it possible to buy or sell any portion of an assets or portfolio.
- f) Taxes and transaction cost do not exist. That is there are no tax effects, costs of acquiring information or transecting costs associated with buying or selling securities. These are often referred to as perfect market assumption. Markets are assumed to be competitive therefore the same investment opportunities are available to investors.
- g) There are no unanticipated changes in inflation or interest rates.
- h) The capital markets are in a state of equilibrium or striving toward equilibrium, there are no under pricing or overpricing exists, the prices will move to correct this disequilibrium situation.

2.2.3 Arbitrage pricing Theory Model

CAPM is based on only a single factor of the average market performance, and it is based on some unrealistic assumptions. Such a reservation on the part of the user called for a new model. Stephen A Ross's multifactor model(1976), called Arbitrage pricing Theory (APT), is the answer to this call.

The APT is said to superior on the ground that it is more general than CAPM. The CAPM assumes that the rate of return on a security is influenced by only one factor that is the average market performance. Unlike CAMP the APT assumes that the rate of return on a marketable security is a linear function of the movement of a set of economic factors (FK) common to all securities. The random rate of return under APT model is a linear function of 'K' factors as follows,

$$R_j = r_j + b_{j1}F_1 + b_{j2} F_2 + + b_{jk} F_k + e_j .$$

Where,

R_j = Random rate of return on stock J.

r_j = Expected rate of return on stock J.

F_k = mean zero Kth factor common to the returns of assets under consideration .

e_j = random error term indicating the unique effect on return.

The F_k is the mean zero random variable of K^{th} factor and it is the deviation of realized value from the expected value (i.e. $F_k = F_k - F_k$) . The error term E_j is the unique or unsystematic risk which can be eliminated through diversification and does not affect the stock rate of return. Therefore, the APT model is rewritten as follows,

The arbitrage refers to the market condition where two or more securities of identical factor sensitive are priced differently, providing opportunities to make profit by selling over priced securities short and buying under priced securities long such transaction are called arbitrage and they allow market participants to make profit without investment and without assuming any risk through short selling and buying long for the amount equivalent to the short selling such opportunities rarely exist in an efficient market and no one can benefit from arbitrage transaction. Otherwise, prices will continue to change until the expected return from

such transaction is zero. Therefore the expected arbitrage profit is zero the long run if the market functions efficiently. The APT is based on this very principle of “no investment, no risk, and on return.”

The APT states that if no arbitrage opportunity exists in the market, the assets pricing is a function of risk free rate and a set of relevant factor related to risk premium. It is therefore, true that APT is not different from CAPM which also states that return on security is equal to risk free rate and risk premium for the market related factor. The APT model can be expressed through some mathematical manipulation in CAPM Format and follows,

$$R_j = r_f + b_{j1} (f_1 - f_1) + b_{j2} (f_2 - f_2) + \dots + b_{jk} (f_k - f_k) .$$

Thus, We can see that the APT logic is not much different from the logic used in the CAPM. Similar to CAPM, Only the set of systematic risk is priced in the above model and no price is assigned for the diversifiable risk. The risk premium for systematic risk of each factor is determined as the market price per unit of risk multiplied by the degree of factor's systematic risk. (Pradhan, 1992, 286-287)

2.3 Review of Reports and Articles

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

Mr. Shiba Raj Shrestha, Deputy Chief Officer of Nepal Rastra Bank, Banking operation Department, has given a short glimpse on the “Portfolio management in commercial Bank, Theory and practice.”

According to Mr. Shrestha, The portfolio management becomes very important for both individual as well as institutional, investors would like to select the best mix of investment assets subject to the following aspects,

- a. Higher return which is comparable with alternative opportunities available according to the risk class of investors.
- b. Good liquidity with adequate safety of investment.
- c. Certain capital gain.
- d. Maximum tax concession.
- e. Flexible investment.

f. Economic, efficient and effective investment mix.

In view of above aspects, following strategies are adopted.

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

However, Mr. Shrestha has also presented the following approaches to be adopted for designing a good portfolio and its management.

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

Mr. Shrestha has expressed his view that the portfolio management activities of Nepalese commercial Banks at present are in nascent stage. However, on the other hand most of the banks are not doing such activities so far because of following reason,

- Unawareness of the clients about the service available.
- Hesitation of taking risk by the clients to use such facility.
- Less developed capital market and availability of few financial instruments in the financial market.
- Lack of proper techniques to run such activities in the best successful manner.

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

- The survival of the Banks depend upon its own financial health and various activities.
- In order to develop and expand the portfolio management activities successfully, the investment management methodology of portfolio manager should reflect high standard and give their clients the benefits of global strengths, local insights and product philosophy.

- With the discipline the systematic approval from the respective country, financial risk and management of various risks, portfolio manager could enhance the opportunity for each investor (client) to earn superior returns overtime.
- Nepalese bank having greater network and access to national and international capital markets have to go for portfolio management activities for the increment of their fee based income tax as well as to enrich the client base and contribution in national economy.

In this context Mr. Shrestha has presented two types of investment analysis and technical analysis to consider any securities such as equity, debenture or bond and other money and capital market. He has also pointed out the required skilled of manpower to get success in portfolio management and customer's confidence.

Dr. Sunity shrestha in her study "Portfolio behavior of commercial Banks in Nepal" has made remarkable efforts to examine various portfolio behavior of commercial Bank in Nepal such as investment portfolio liability portfolio, assets, assets portfolio, etc. According to her, when analyze investment of commercial Banks invest in government securities, national saving bond, debenture and company's shares. On the basis of this study, she sound that the supply of Bank credit was expected to depend on total deposit, lending rate, Bank rate, lagged variable and dummy variable. Similarly, demand of Bank credit was assured to be affected by national income, lending return treasury bill rate and others variables like total deposits, cash reserves requirement, Bank rate and lending rate. Following are the finding conclusion of her:

- The relationship of Banks portfolio variables are best explained by co-linear equation .
- Demand of deposit for commercial Banks in Nepal is positively affected by the GDP from non- agriculture and the deposit rate and lending rate of interest.
- The investment of commercial Banks on government securities has been observed to be affected by total deposit; cash reserve requirement, treasury bills rates and lending rate.
- The investment of commercial Banks in share and securities is normal and non found to have strategic decisions towards in shares and securities.
- The loan loss ratio has been found to increases with low recovery to loan .

2.4 Review of Journal

Some related "journal to our study has been taken into account." Bill Ausura in his articles entitled "Current issues in technology management" shows portfolio management has become one of the hot topics in Industry over last three years. Portfolio management must be interwoven in to multitudes of other business activities, processes and disciplines in order to really be effective. Some key items which must connect with and precede portfolio management include formulation of company missions, goals/objectives, strategy and established of solid work and organizational structures. One final item to consider in context for portfolio management is the nature of corporate culture and its people. But people elements have failed to consider and it is often one which presents the great implementation barrier during starting the portfolio management.

Portfolio management has been studied, documented and discussed for decades. Some companies have done an excellent job of establishing and maintaining core competencies in this key business function. But today more than ever companies are challenged to learn and apply the full discipline of life cycle portfolio management. If the market and competitive pressure continue to increase due to times of economic uncertainty, the needs for good portfolio management is increase. However, Some markets and competitive pressures often causes companies to miss the critical role of portfolio management, due to cutting of budget and human resources.

Lewellen and Shanken in their journals entitled "Learning Assets pricing test and market efficiency" studies the assets pricing implication of parameter experiential test can find patterns in the data that differ from those perceived by the rational investor. Returns might appear predictable to an econometrician or appear to depart from capital assets model. But saver can neither perceive nor exploits this certainty. Returns may also appear excessively volatile even though prices react efficiently to cash flow news. They conclude that parameter uncertainty can be important for characterizing and testing market efficiency.

Financial economist generally assumes that, investor knows the means, variance and co-variance of the cash flow process. Practitioners do not have this luxury. To apply the elegant framework modern portfolio theory, they must estimate the process using whatever information is available. However, Black(1986) so memorably observe that the world is noisy place, their observation is necessarily imprecise. The literature on estimation of risk formalize seems to have little impact on mainstream thinking about assets pricing and market pricing. They believe that this is due in part to its focus on the subjective beliefs of investor rather than the

empirical properties of return. They show that learning can significantly affect asset pricing tests. Prices in their model satisfy commonly accepted notions of market efficiency and rational expectation, investor we all available information when making decision and in equilibrium, the perceived pricing function equals the true pricing function, in spite of this, the empirical properties of returns differ significantly from the properties perceived by investor. Excess return can appear to be predictable even though all investor are rational and the CAPM can fail to describe return even though investor attempt to hold mean variance efficient portfolios. Put simply, empirical test can find patterns in returns the rational investor can neither perceive nor exploit. It is important to note that predictability is but to some spurious estimation problem. Rather, it is a feature of the true data generation process. This means that parameter uncertainty can affect empirical test in surprising ways. We find, for example, that an implementable market timing strategy in real time is expected to find in frequenters sense, risk adjusted profits, again, however a rational investors does not gains anything from following strategy. The investor's perceived zero profit. A similar phenomenon explains why investor can not use cross sectional predictability to beta the market. This puzzle highlights the distinction between the repeated sampling perspective of empirical test and conditional perspective of investment decision. It also shows how difficult it might be to construct valid assets pricing test in the presence of parameter uncertainty.

The fact parameter uncertainty might explain observed assets pricing anomalies does not of course, mean that it does. Their simulations suggest that learning might be important, but empirical tests are not necessary to draw strong conclusion. The assets market efficiency, the researcher may, in effect, need to copy the Bayesian updating process of rational investor to determine whether the patterns observed due the data could not be exploited, this is not an easy task, it would necessarily require same judgment about the learning process and what make up a reasonable past. This observation is suggestive of Fama's (1970) critique of Assets pricing test. He emphasizes that empirical test always entail a joint hypothesis of market efficiency and model of perceived expected returns. Their study suggests that empirical test may also require an assumption about prior beliefs. The role of prior beliefs and learning is typically ignored, but it might be critical for understanding anomalies. (Liewellyn & Shanken, 2002)

Another journal published in journals of finance entitled "local return factor and emerging stock markets." by Mr. Rouwenhorst: 1999 is also relevant to our study. This article examines the sources of return variation in emerging stock markets. Compared to developed market the correlation

between most emerging market and stock market has been historically low and until recently many emerging country rusticated investments by foreign investor.

He attempts two set of questions to answer by his solution. Many emerging stock market have firms with multiple shares classes are treated as single value weighted portfolio of the outstanding equity securities. He concludes that the return factors in emerging market are qualitatively similar to those in developed markets. The low correlation between the country returns factor suggest that the premiums have a strong local character. Furthermore global exposure can not explain the average factors returns of emerging market. There id little evidence that correlation between the local factor portfolio have increased which suggests that factors responsible for increase of emerging market country relation are separated from those that derive the difference between expected return with in these market. A Bayesian analysis of premiums in developed and emerging market shows that unless one has stronger prior believes to the contrary, the empirical evidence favors the hypothesis that the size, momentum and value strategic are compensated for expected returns around the world. At last, the paper documents the relationship between expected return and share turnover examine the turnover characteristic of local return and turnover in emerging market. However, beta, size and momentum & value are positively cross sectional correlated with turnover in emerging markets. This suggests that the returns premiums do not simply reflect compensation for liquidity. (R. Wenhorst, 1999: 1439 – 1440)

2.5 Review of previous Thesis

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

Mr. Satya Ram Kisi, in his thesis paper, entitled, "Portfolio of commercial Banks in Nepal" has made an effort to examine the concept of investment, loans and advances portfolio of commercial Banks. In this study, he has analyzed financial performance and portfolio of commercial Banks with ratio analysis, investment portfolio analysis, loan and advance portfolios, risk and return analysis and trend analysis. Then he had made following conclusion:

- Commercial Banks are investing considerably higher amount of their in government securities.
- Commercial Banks are investing very low amount of their fund in shares of other companies i.e. less than 1% in an average.

- Commercial Banks are providing very high amount of their funds on private sector i.e. more than 82% in an average.
- Commercial Bank has given the second priority to the foreign bills purchase.
- Beta coefficient of commercial Banks have higher have higher than one, the commercial have some risky.
- Return of commercial Bank lies above the security market line which indicates that commercial Banks stock is under price and accepted.
- Through the trend of loans and investment and total deposits of commercial Banks are increasing, the percentage change in each year is decreasing.
- Financial performance of commercial Banks, the joint venture Banks are found to be performing better than the domestic Nepalese Banks operating under the same environment .

Mr. Prakash shrestha, in his thesis paper entitled, "Portfolio analysis on investment of Nepalese commercial Banks" by using 8 years data i.e. fiscal year 1994/95 to 2001/02 has presented the following as summary of major finding and conclusion :

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

Roopak Joshi (2002) conducted a research entitled, "Investor problem in choice of optimum portfolio of stock exchange". The main objective of the study was to identify the investor's problems choice of optimum portfolio of stock in NEPSE which conclude that portfolio management is new concept for Nepalese investor. Due to lack of sufficient information proper investment is not possible. Proper investment needs huge information internal as well external . The stock market of

Nepal is also in growing stage only. The only one stock exchange located in Kathmandu . Traditionally cry system for trading stock. Limited number of security broker, lack of opportunity of investment and many other reasons are there, which is acting as barrier of development of NEPSE. Investor does not know in which stock to invest, how to formulate the portfolio, even many stock broker does not give information to the investor, investor are purchasing and selling their stocks mostly on the pressure of broker. Due to lack of sufficient information the decision for purchase and sell of stock has been difficult. It needs special knowledge as well as adequate skills to analyze portfolio.

Dipesh Bhatta(2003) prepared a thesis entitled "Portfolio finance companies in Nepal " the main objective of the study was to identify the present situation of portfolio management of finance company in Nepal with the help of risk return and other relevant variables. Which conclude that the most of finance companies gave enough unsystematic risk(diversifiable risk) that means there is not effective portfolio management of listed finance companies . In context of portfolio risk and return of Nepalese finance companies investor has to bear a higher portfolio risk to increase little bid of portfolio return.

The major problem to manage the portfolio is volatility of different securities in Nepalese capital market. For the selection of portfolio in Nepal technical analysis does not work effectively but fundamental analysis work effectively. In Nepalese stock market passive strategy is more suitable the active strategy to achieved better result. Corporate investor think portfolio evaluation is necessary but lack of specific knowledge they depend on conventional method. (Bhatta, 2003)

Sangita subedi in her thesis "Portfolio Analysis of the joint venture Banks in Nepal (2008)" had analyzed between investment analysis and different variables like. Deposit ratio, Government Securities, Share & Debenture, Net profit and Loan & Advance. She concluded that most of the joint venture Banks have focused their banking service specially to big clients such as to purchase shares and debentures of other financial and non financial companies.

Kritika Dahal in her thesis paper "Portfolio investment of commercial Banks (2008)" shows that the portfolio is the act of investing the fund in different securities so that the loss occurred in one security can be covered by other and the portfolio companies of two or more than two security.

CHAPTER – III

RESEARCH METHODOLOGY

Research methodology describes the methods and process applied in entire aspect of the study focus of data, data gather instrument and procedure, data tabulating and processing and methods of analysis.

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 research problem along with the logic behind them. (Kothari, 1990; pg 10)

This chapter has included research design, nature of data, data gathering procedure population and samples & data processing procedures.

3.1 *Research Design*

A research design is a plan that shows a research intends to fulfill the goals of a purposed study. In others words research design is the logical and systematic planning and direction of a piece of research . The preparation of a research plan for a study aids in establishing direction to the study and in knowing exactly what has to be done and how & when it has to be done at every stage. It enables the researcher to consider before hand the various decisions to be made what are the objectives of the study ? what are the investigative questions ? what are the sources of data? what is the universe of the study ? what sampling method is appropriate ? and so on .

A research plan prescribed the boundaries of research activities and enables the researcher to channel his energies in the right work. With clear research objectives in view, the researcher can proceed systematically toward their achievement. Finally, A research design is the program that guides the investigator in the process of collection analyzing and interpreting observations.

3.3 Data collection procedure

3.3.1 Population and Sample

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

- I. Nepal SBI Bank Ltd.
- II. Everest Bank Ltd.

3.3.2 Sources and Types of data

The data collection from field is field data i.e. primary data. Primary data are collected from primary sources in the field. The data collected from one else and used already and made available as published or unpublished statistics are known as secondary data. Source of secondary data will be published data like annual reports, journals, articles from various magazines, statistical reports, previous thesis & dissertation, Homepage and related text books and so on. Data & information collection will be made by following way:

- Library research.
- Internet / Homepages.
- Study articles, Journals & related materials from various sources.
- Collection and study of review & reports of NSBIB, Everest Bank Ltd.

3.4 Tools for Analysis

Data are collected for analyzed. Collected data are meaning less unless it is analyzed for further meaning . The data can be analyzed by using various statistical and financial tools. In this study, the collected data are analyzed by using both financial and statistical tools.

3.4.1 Statistical tools

The following statistical tools will be used while making analysis of data.

❖ *Arithmetic mean*

Arithmetic mean is the most familiar statistical to any investor or individual. Therefore, the word mean will refer the arithmetic mean unless otherwise specified. We invest today in an expectation of earning in the future . That is, investment decisions that we make today are based on expectation of return n . Arithmetic means of given set of observation is their sum divided by the number of observation. If $X_1, X_2, X_3, \dots, X_n$ are the given observation, then their arithmetic mean (A.M) usually denoted by \bar{X} is given by :

$$\bar{X} = \frac{X_1 + X_2 + X_3 + X_4 + \dots + X_n}{n}$$

$$= \frac{X}{n}$$

Where,

\bar{X} = Arithmetic mean

X = Sum of observations

n = number of observations

❖ *Standard deviation*

Karl Pearson propounded the standard deviation concept in 1893 . It is one of the more used technique in the field of studying dispersion. Standard deviation is the absolute measure of variability . Standard deviation, usually denoted by the latter σ (sigma) of the Greek alphabet, is defined as the positive square root of the arithmetic mean of the square of the deviations of the given observations from their arithmetic mean. Thus, If $X_1, X_2, X_3, \dots, X_n$ is a set of 'n' observations then its standard deviation is given by;

$$\exists = \sqrt{\frac{\sum f_x (x - \bar{x})^2}{n}}$$

where,

\bar{x} = Arithmetic mean

x = Observations set

\exists = Symbol for standard deviation

n = Number of observations .

Standard deviation is an absolute measure of dispersion and does not consider the dispersion of outcomes in relationship to an expected value .

❖ *Variance*

Variance is the mean of the squared deviations about the mean of a series. In other words variance is the square root of the standard deviation and denoted by \exists^2 or VAR

$$\text{VAR} = \exists^2 = \frac{\sum f_x (x - \bar{x})^2}{N}$$

❖ *Coefficient of Variation (C.V.)*

C.V. is another method of measuring the risk. It is the standardized measure of the risk per unit of return, calculated as the standard deviation divided by the expected return . The coefficient of variation shows the risk per unit of return and it provides a more meaningful basic for comparison when the expected return on the two alternatives is the same. The standard deviation is only an absolute measure of dispersion depending upon the units of measurement of dispersion based on standard deviation is called the coefficient at standard deviation and is given by

$$\text{Coefficient of variation (C.V.)} = \frac{\exists}{\bar{x}} \times 100\%$$

\bar{X} = Arithmetic mean

Σ = Standard deviation

❖ *Correlation*

Karl Pearson's method popularly known as Pearson coefficient of correlation, is most widely used in practice. The correlation coefficient between two variables X and Y, usually denoted by $r(x,y)$ or r_{xy} is a numerical measure of linear relationship between them and is defined by

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

where,

r_{xy} = correlation coefficient between variable X and Y.

N = number of observations.

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

❖ *Probable Error*

Probable error correlation is an old measure testing the reliability of an observed value of correlation coefficient. It is calculated to find the extent to which correlation coefficient is dependable as it depends upon the condition of random sampling. Probable error of correlation

coefficient denoted by P.E. (r) is obtained as
$$P.E. (r) = 0.6745 \sqrt{\frac{1 - r^2}{n}}$$

where,

r = calculated correlation coefficient

n = number of observations

❖ *Least square Linear Trend*

The general tendency of the time series data to increase or decrease or stagnate during a long period of time is called trend. This method is the most popular and widely used in practice. It provides basis

for obtaining the line of the best fit in the series. As per this method, the trend line between dependent variable Y and the independent variable X be represented by,

$$Y = a + bx$$

where,

Y = Dependent variable

X = Independent variable ie time.

a = Y – intercept

b = Slope of the trend line the two parameter a and b in the equation are obtained by solving two normal equation as follows:

$$y = na + b \ x$$

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

where,

n = Number of years

3.4.2 Financial Tools

As this study is related to investment portfolio analysis . Financial tools are more applicable. 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 are fruitful in exploring the strength and weaknesses of the investment policies and strategies. For the sake of analysis, following various financial tools have been used in order to meet the purpose of the study

- Risk & return on individual investment assets and investment portfolio.
- Financial ratios.

3.4.2.1 Risk & Return on individual investment assets and investment portfolio.

- I. Return on government securities

The return on government securities is calculated by dividing interest earned from government securities by total investment on government securities. This can be calculated as, Return on Government securities $\times \frac{\text{Interest earned from Government Securities}}{\text{Total Investment on Government Securities}}$

II. Return on loan and Advance

The return on loan and advances is calculated by dividing interest earned from loan and advances by total amount of loan and advance. This can be calculated as :

Return & Loan & Advances

$$\text{Return on Loan and Advance} \times \frac{\text{Interest Earned From Loan}}{\text{Total Amount of Loan \& Assets}}$$

III. Average rate of return

When historical return are used following formula is used to calculate as average rate of return

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

III. Risk on individual Assets

Risk on individual assets can be measure by the help of standard deviation. Standard deviation is defined as the positive square root of the mean of the square of the deviation taken from arithmetic mean.

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

$$\bar{r} = \frac{r_1 + r_2 + r_3 + \dots + r_n}{n}$$

$r_1, r_2, r_3 \& r_n$ = Rate of return in different period

n = number of period

Risk on individual Assets

Risk on individual assets can be measure by the help of standard deviation. Standard deviation is defined as the positive square root of the mean of the square the deviation taken from arithmetic mean.

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

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

Where,

r = Rate of return on individual assets

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

n = Number of year or observations.

IV. Return on Portfolio

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

$$\text{Return on Portfolio} = \sum_{i=1}^n W_i E(r_i)$$

$$\text{or } r_P = W_1 E(r_1) + W_2 E(r_2) + \dots + W_n E(r_n)$$

Where,

$E(r_P)$ = Expected return of portfolio

W_1 = weight of tth asset of stock

$E(r_1)$ = Expected return of tth asset

n = No. of assets included in the portfolio.

V. Risk on portfolio

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

For two assets

$$\sigma_P = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2 r_{AB} W_A W_B \sigma_A \sigma_B}$$

where,

$W_A W_B$ = Weights of Securities A & B.

$\sigma_A \sigma_B$ = Standard deviation of A & B.

r_{AB} = Correlation between Securities A & B.

3.4.2.2 Financial Ratios

An Arithmetic relationship between two figures is ratio. In other words, the relationship between two accounting figures expressed in mathematical term is known as financial ratio. "Ratio analysis is used to compare a firms financial performance and status to that of other firms or to itself on time." (Gitman, Lowarance, J.1988, pg 275) . Ratio is always computed by dividing one item of relationship with the other. Ratio analysis is an important technique of financial analysis. In this study only such ratios which are related to investment portfolio of commercial Banks are taken here. Hence in the study, following ratios are calculated and analyzed.

a) Total investment to total Deposit Ratio

This ratio can be calculated by dividing total investment by total deposit. It can be calculated as

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

b) Government Securities to Total Deposit Ratio

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

$$\text{Government Securities to Total Deposit Ratio} \times \frac{\text{Investment on Government Securities}}{\text{Total Deposits}}$$

c) Share and Debenture to total Deposit Ratio

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

$$\text{Net Profit Total Deposit Ratio} \times \frac{\text{Investment on Share \& Debenture}}{\text{Total Deposits}}$$

d) Net profit to total Deposit Ratio

This ratio can be calculated by dividing net profit by total deposits . This ratio can be stated as;

$$\text{Net Profit total Deposit Ratio} \times \frac{\text{Investment on Share \& Debenture}}{\text{Total Deposits}}$$

e) Net profit to total Deposit Ratio

This ratio can be calculated by dividing net profit by total deposits. This ratio can be stated as;

$$\text{Net Profit to Total Deposit Ratio} \times \frac{\text{Net Profit}}{\text{Total Deposits}}$$

f) Return on total assets Ratio

This ratio can be calculated by dividing net profit after tax by total assets. This ratio can be stated as;

$$\text{Return on total assets Ratio} \times \frac{\text{Net Profit after tax}}{\text{Total assets}}$$

g) Cash and Bank balance to total Deposit Ratio

This ratio can be calculated by dividing cash and Bank balance by total deposit. This ratio can be stated as:

Cash and Bank balance to total deposit ratio $\times \frac{\text{Cash and Bank balance}}{\text{Total deposit}}$

h) Investment on government securities to total outside investment Ratio

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

Investment on government securities to total outside investment $\times \frac{\text{Investment on government Securities}}{\text{Total outside investment}}$.

i) Loan and advances to total outside investment

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

side investment Ratio $\times \frac{\text{Loan \& A dvance}}{\text{Total Outside investment}}$.

j) Investment on share and debenture to total outside investment

This ratio shows that the banks investment on shares and debentures of others companies. It can be stated as;

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

CHAPTER – IV

DATA PRESENTATION AND ANALYSIS

This chapter is the heart of the whole study. This chapter makes an analysis and interpretation of all collected relevant data related to the study.

In this chapter the data have been analysis and interpreted using financial tools following the research methodology deals in the third chapter, In the course of analysis, Data gathered from the various sources have been inserted in the tabular form according to their homogeneous nature. The various tables prepared for the analysis purpose, directive of NRB and other factors while using the tools, Furthermore, money suitable graphs, lines and diagrams have also been used to clarify the actual position of the Banks. In this section, the investment portfolio of commercial Banks in analyzed with help of following tools:

- Risk and Return an individual investment Assets and investment portfolio.
- Analysis of ratios.
- Least square linear trend.
- Correlation analysis.
- Multiple regression analysis.

4.1 Risk and Return an individual investment Assets and investment portfolio.

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

4.1.1 Risk and Return on Government securities

Government Securities are the fixed income securities issued by the Government. These securities are among the safest of all investment, as the Government is unlikely to default on interest on principle repayments.

The risk and Return on Government securities such as treasury Bills, development Bond, National saving Bond etc can be calculated as follow.

The return on Government securities is computed by dividing interest income on Government Securities by total investment on Government securities i.e.

$$\text{Return on Government Securities} = \frac{\text{Interest income on Government Securities}}{\text{Total investment on Government Securities}}$$

$$\text{Average rate of return on Government Securities} (\bar{r}_g) = \frac{\sum_{t=1}^n r_{gt}}{n}$$

Now, Risk on Government securities is denoted by

σ_g and can be calculated by using following formula

$$\sigma_g = \sqrt{\frac{\sum_{t=1}^n (r_{gt} - \bar{r}_g)^2}{n}}$$

$$\text{Coefficient of variance } CV_g = \frac{\sigma_g}{\bar{r}_g}$$

where,

n = No. of historical years / period.

Table No 4.1

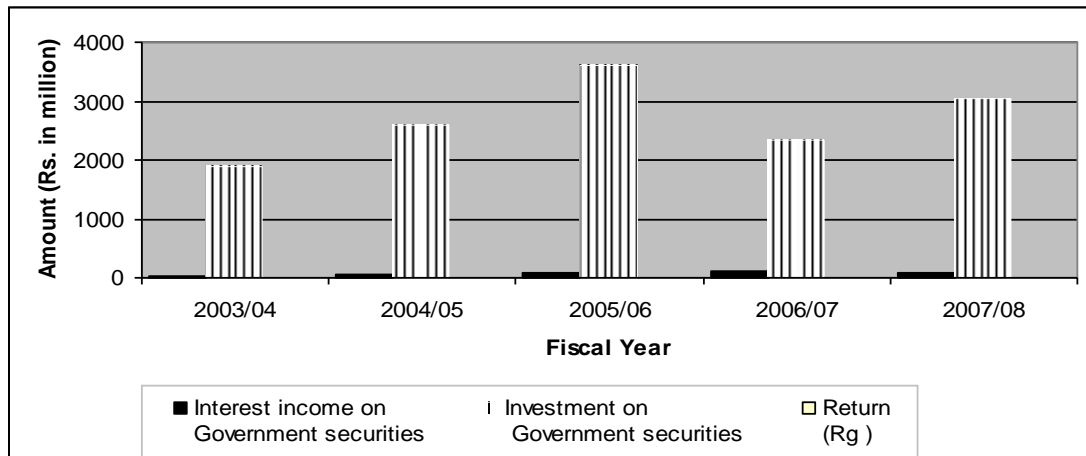
Calculation of Risk and Return on Government Securities of SBI Bank Ltd.
(Rs. in million)

Fiscal Year	Interest income on Government securities	Investment on Government securities	Return (R_g)	$R_g - \bar{R}_g$	$(R_g - \bar{R}_g)^2$
2003/04	38.688	1889.635	2.05	-0.80	0.64
2004/05	50.029	2588.141	1.933	-0.92	0.8464
2005/06	91.407	3591.773	2.54	-0.31	0.0961
2006/07	109.46	2345.58	4.65	1.80	3.24
2007/08	93.2	3035.554	3.07	0.22	0.0484
Total	382.784	13450.683	14.243		4.87
Mean			2.85		
Standard Deviation			0.98		
Covariance			15.44%		

Source: Annual Report of SBI Bank Ltd

Figure no: 4.1

Risk and Return on Government Securities of SBI Bank Ltd.



source: Table no. 4.1

Table no 4.2

Risk and Return on Government Securities of Everest Bank Ltd

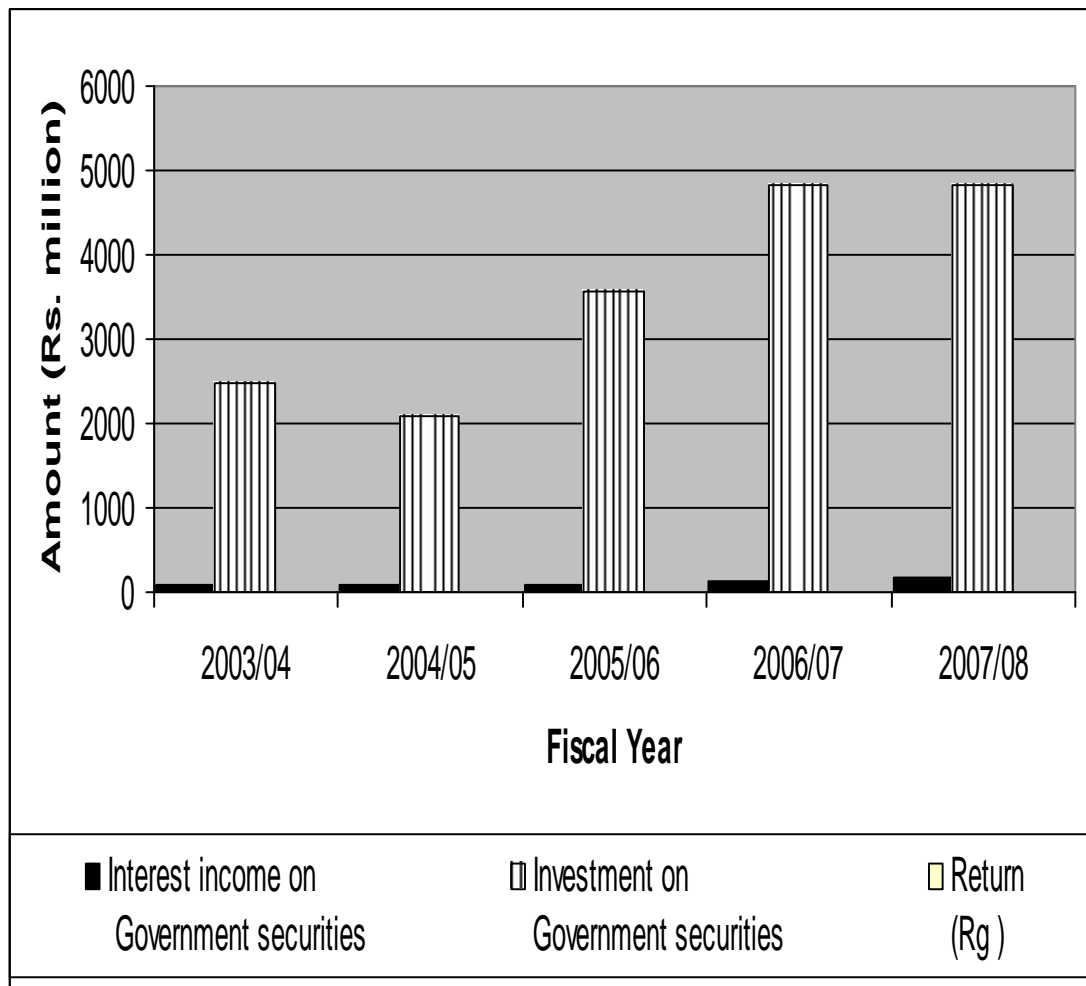
Rs. in million

Fiscal Year	Interest income on Government securities	Investment on Government securities	Return (R _g)	$\frac{R - \bar{R}_g}{Z \bar{R}_g}$	$\frac{(R - \bar{R}_g)^2}{Z \bar{R}_g^2}$
2003/04	92.509	2466.429	3.75	0.43	0.1832
2004/05	77.993	2100.289	3.75	0.39	0.1505
2005/06	97.272	3548.617	2.74	-0.58	0.3387
2006/07	128.506	4821.605	2.67	-0.65	0.4251
2007/08	180.219	4821.605	3.74	0.42	0.1747
Total	576.499	17758.545	16.65		1.27
Mean	3.33				
Standard Deviation	0.05				
Covariance	15.19%				

Source: Annual Report of Everest Bank Ltd

Figure No: 4.2

Risk and Return on Government Securities of Everest Bank Ltd.



Source: Table no 4.2

Table no 4.3

Risk and Return on Gov. Securities of Joint Venture Banks

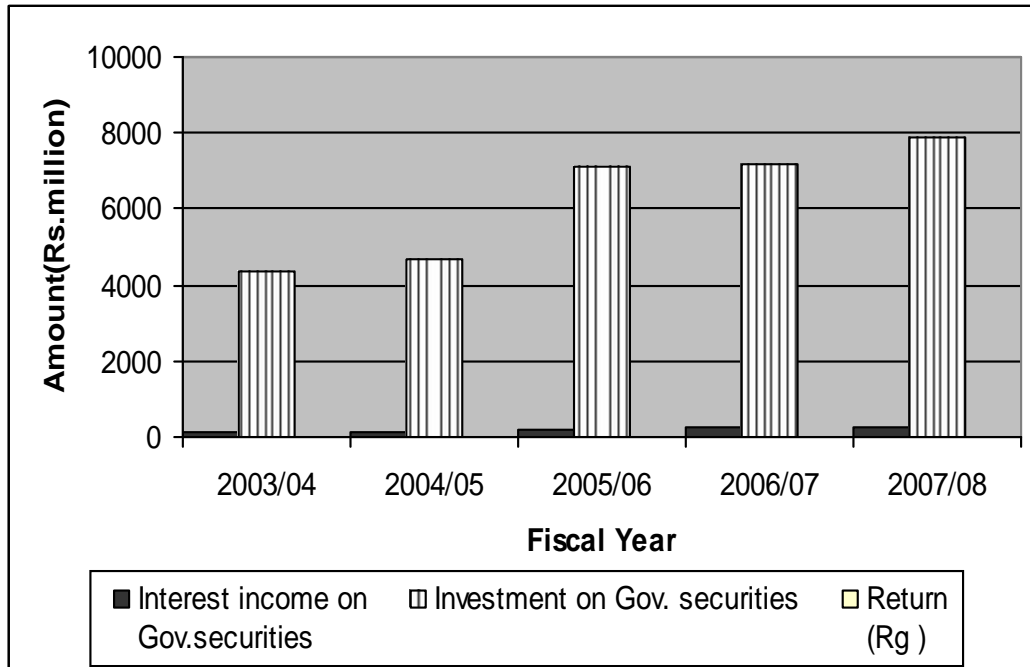
Rs. in million

Fiscal Year	Interest income on Gov.securities	Investment on Gov. securities	Return (R _g)	$\sum R Z \bar{R}_g A$	$\sum R Z \bar{R}_g A$
2003/04	131.20	4336.06	3.03	-0.04	0.00
2004/05	128.02	4688.43	2.73	-0.34	0.12
2005/06	188.68	7140.39	2.64	-0.43	0.18
2006/07	237.97	7167.19	3.32	0.25	0.06
2007/08	286.42	7857.16	3.65	0.58	0.33
Total	972.29	31189.23	15.37		0.70
Mean			3.074		
Standard Deviation			0.37		
Covariance			12.10%		

Source: From Table no 4.1 & 4.2

Figure no 4.3

Risk & Return on Government Securities of Joint Venture Banks.



Source: Table No. 4.3

Table no 4.1, 4.2 and 4.3 shows the risk and return on Government securities of SBI Bank Ltd, Everest Bank Ltd and joint venture Banks respectively. Tables show that return on investment on Government Securities has no any fixed trend. Similarly, there is no fixed trend to invest on Government securities and interest income from Government securities during the study period.

During the study period 2003/04 to 2007/08 the highest return is 4.65% in 2006/07 and lowest return is 2.64% in 2005/06 of SBI Bank Ltd. By the same way the highest return is 3.75% in 2003/04 and lowest return is 2.67% in 2006/07 of Everest Bank Ltd while examining the average return is 2.85% of SBI Bank Ltd, 3.322% of Everest Bank and 3.074% of JVBs. Similarly, the Standard deviation is 0.98% of SBI Bank Ltd 0.50% of Everest Bank Ltd and 0.37% of JVBs. Likewise the coefficient of variance is 0.1544 of SBI Bank Ltd. 0.1519 of Everest Bank Ltd. and 0.1210 of JVBs. This result shows that the risky ness of return on Government Securities.

4.1.2 Risk and Return on Loan and Advances

The major portion of short term investment of commercial Bank is the Loan and Advance provided to various sectors of the market. It is the main sources of income for commercial Banks provide Loan and Advances from the money i.e. the money it reserves by way of the movable and immovable properties. Mainly the Banks are providing their funds to the various sectors. The risk and Return on investment in the form of loan and advances can be calculated as follows:

$$\text{Return on Loan \& Advances} = \frac{\sum_{t=1}^n \frac{\text{Interest income on Loan \& Advance}}{\text{Invest on Loan \& Advance}}}{n}$$

$$\text{Average Rate of Return on Loan \& Advance} = \frac{\sum_{t=1}^n r_t}{n}$$

Now, Risk on Loan and Advances are denoted by σ_L and can be calculated by using following formula,

$$\sigma_L = \sqrt{\frac{\sum_{t=1}^n (r_t - \bar{r})^2}{n}}$$

$$\text{Coefficient of variation (CV}_L\text{)} = \frac{\sigma_L}{\bar{r}_L}$$

Where,

N = No. of historical years (periods)

The Risk & Return on investment in the form of Loan and Advances can be calculated as follows.

$$\text{Return on Loan \& Advances (} r_L \text{)} = \frac{\text{Interest Income on Loan \& Advances}}{\text{Investment on Loan \& Advances}}$$

Table No. 4.4

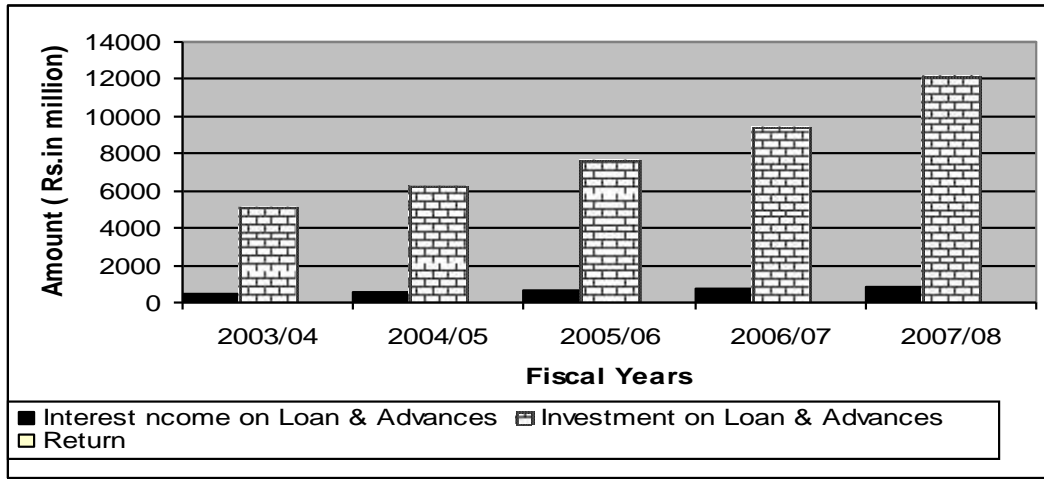
Calculation of Risk and Return on Loan and Advances of SBI Bank Ltd

Fiscal year	Interest income on Loan & Advances	Investment on Loan & Advances	Return	$r_L - \bar{r}_L$	$(r_L - \bar{r}_L)^2$
2003/04	448.283	5143.662	8.72	0.79	0.62
2004/05	520.43	6213.879	8.38	0.45	0.20
2005/06	608.321	7626.736	7.98	0.05	0.00
2006/07	705.63	9460.45	7.46	-0.47	0.22
2007/08	860.191	12113.698	7.1	-0.83	0.69
Total	3142.855	40558.425	39.64		1.74
Mean			7.93		
Standard Deviation			0.59		
Covariance			7.42%		

Source: Annual Report of SBI Bank Ltd

Figure No: 4.4

Risk and Return on Loan & Advances of SBI Bank Ltd.



Source: Table no. 4.4

Table No 4.5

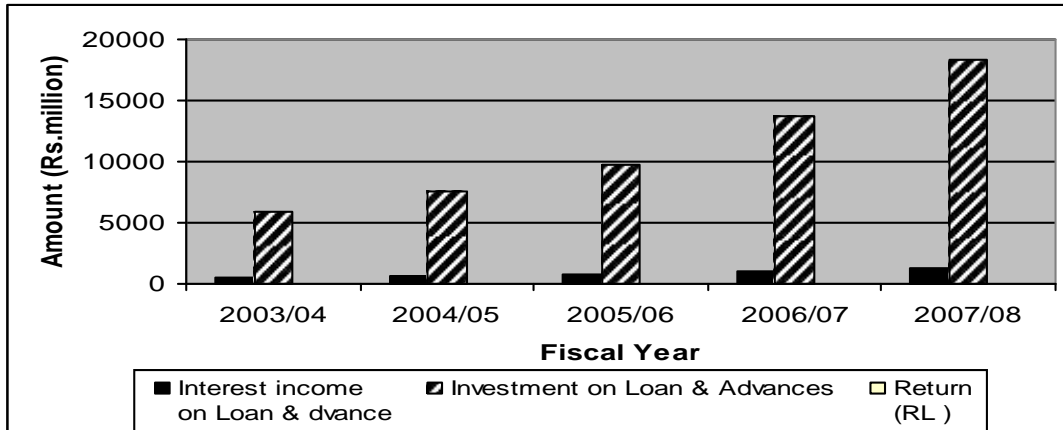
Calculation of Risk and Return on Loan and Advance of Everest Bank Ltd.

Fiscal Year	Interest Income on Loan & Advance	Investment on Loan & Advance	Return (R_L)	$R_L - \bar{R}_L$	$(R_L - \bar{R}_L)^2$
2003/04	563.137	5884.123	9.57	1.55	2.4025
2004/05	633.625	7618.671	8.32	0.30	0.09
2005/06	770.827	9801.308	7.86	-0.16	0.0256
2006/07	967.178	13664.082	7.08	-0.94	0.8836
2007/08	1329.695	18339.086	7.25	-0.77	0.5929
Total	4264.462	55307.27	40.08		3.99
Mean			8.02		
Standard Deviation			0.89		
Covariance			11.14%		

Source: Annual Report of EBLtd

Figure No: 4.5

Risk and Return on Loan and Advance of EBL.



Source: Table No. 4.5

Table No. 4.6

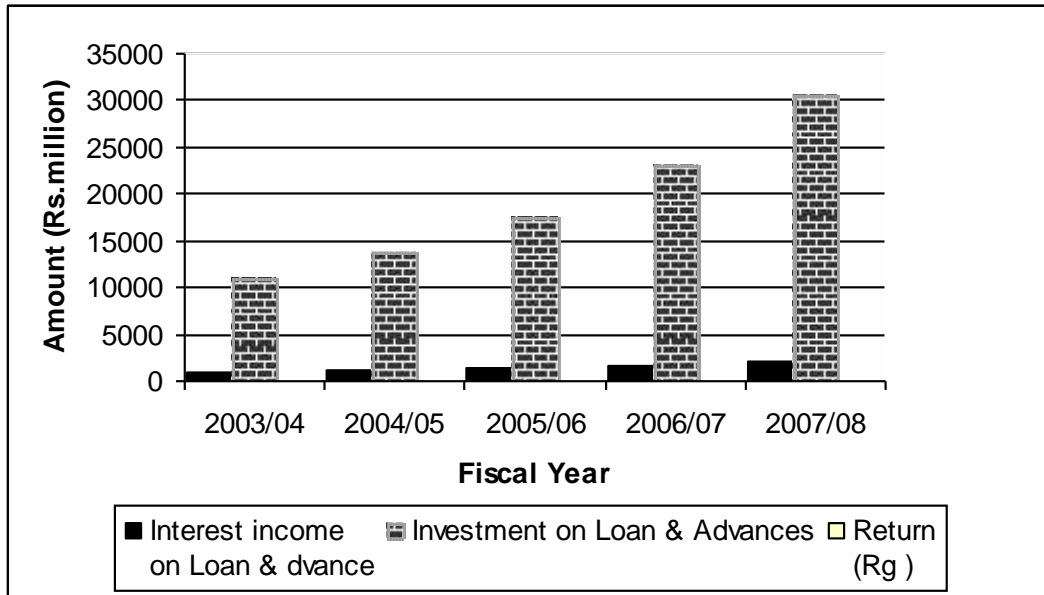
Calculation of Risk & Return on Loan & Advances of Joint Venture Banks

Fiscal Year	Interest income on Loan & advance	Investment on Loan & Advances	Return (R_g)	$R \bar{Z} \bar{R} \bar{L}$	$f_R \bar{Z} \bar{R} \bar{L} \bar{A}^2$
2003/04	1011.42	11027.785	9.17	1.20	1.44
2004/05	1154.06	13832.55	8.34	0.37	0.14
2005/06	1379.15	17428.04	7.91	-0.06	0.00
2006/07	1672.81	23124.53	7.23	-0.74	0.55
2007/08	2189.89	30452.78	7.19	-0.78	0.61
Total	7407.33	95865.685	39.84		2.74
Mean			7.97		
Standard Deviation			0.74		
Covariance			9.29%		

Source: From Table no 4.4 & 4.5

Figure No. 4.6

Risk & Return on Loan & Advances of Joint Venture Banks



Source: Table no. 4.6

From the above listed table no 4.6 shows the risk and Return on Loan and Advances of joint venture Banks in Nepal. The average return on Loan and Advances is 7.97%, Standard deviation is 0.74% and the coefficient of Variation is 9.29%.

4.1.3 Portfolio Return on investment

The expected return on a portfolio (r_p) is simply the weighed average of the expected returns on the individual assets in the portfolio with weight being the fraction of the total portfolio in each assets. In this study, investment portfolio is calculated by investment on government securities and Loan & Advances. The weight of the investment on various assets is calculated and average rate of return are presented as follows.

Table No 4.7

Calculation of weight of the investment on various Assets

Rs. in million

S.N.	Assets	Invest	Proportion weight (X)	Average Rate of Return \bar{r}
1	Government Securities	31209.23	0.25	3.074
2	Loan and Advance	95865.70	0.75	7.97

Here,

For two assets

$$\text{Portfolio Return } \bar{r}_P = X w_g \bar{r}_g + \Gamma w_L \bar{r}_L$$

$$= 0.25 \times 3.074 + 0.75 \times 7.97$$

$$= 6.746$$

... The portfolio return on investment of Joint Venture

$$\text{Banks } \bar{r}_P = 6.746\%$$

Table No 4.8

Calculation of portfolio Return of Joint venture Banks

(Investment on various Assets is in Rs. million and Return in %)

Fiscal Year	Investment on Gov. Securities	Proportion of Weight	Investment on Loan & Advance	Proportion of Weight	Return on Gov. Securities	Return on Loan & Advance	Portfolio Return
2003/04	4336.06	0.28	11027.79	0.72	3.03	9.17	7.36
2004/05	4688.43	0.25	13832.55	0.75	2.73	8.34	6.94
2005/06	7140.39	0.25	17428.04	0.75	2.64	7.91	6.6
2006/07	7167.19	0.24	23124.53	0.76	3.32	7.23	6.29
2007/08	7857.16	0.21	30452.78	0.79	3.65	7.19	6.45
Total	31189.23		95865.69		15.37	39.84	33.64

Table No 4.9

Calculation of Correlation coefficient between investment securities of JVBs

Fiscal Year	Return on Gov. Securities	Return on Loan & Advance	$r_g r_L$	r_g^2	r_L^2
2003/04	3.03	9.17	27.79	9.18	84.09
2004/05	2.73	8.34	22.77	7.45	69.56
2005/06	2.64	7.91	20.88	6.97	62.57
2006/07	3.32	7.23	24.00	11.02	52.27
2007/08	3.65	7.19	26.24	13.32	51.70
Total	15.37	39.84	121.68	47.95	320.18

Now,

Correlation between assets g & L will be

$$r_{gl} = \frac{\sum_{i=1}^n r_{gi} r_{Li}}{\sqrt{\sum_{i=1}^n r_{gi}^2} \sqrt{\sum_{i=1}^n r_{Li}^2}}$$

$$= \frac{5 | 121.68 | 15.37 | 39.84}{\sqrt{5 | 47.94 | 15.37^2} \sqrt{5 | 320.19 | 39.84^2}}$$

$$= -0.572$$

Table No 4.10

Calculation of the portfolio Standard deviation between investment Securities

	Weight	Standard
Government Security(g)	13.5	0.37
Loan and Advance (L)	0.75	0.74

Here,

Portfolio Standard deviation

$$\sigma_{P_{gL}} = \sqrt{w_g^2 \sigma_g^2 + w_L^2 \sigma_L^2 + 2r_{gL} w_g w_L \sigma_g \sigma_L}$$

$$= \sqrt{0.25^2 | 0.37^2 + 0.75^2 | 0.74^2 + 2(-0.572) | 0.37 | 0.74 | 0.25 | 0.75}$$

$$= 0.614\%$$

$$\begin{aligned} \text{Coefficient of Variation } f_{CV_P} &= \frac{\sigma_P}{r_P} \\ &= \frac{0.614}{6.746} \\ &= 9.10\% \end{aligned}$$

|... Portfolio Return on investment of Joint Venture Banks $\bar{r}_P = 6.746\%$

|... Standard Deviation of portfolio on investment of Joint venture Banks
 $\sigma_P = 0.614\%$

...Coefficient of variation $f_{CV_P} = .091$

From the above calculation, portfolio return on investment of joint venture Banks is found as 6.746% and expected risk of the portfolio is found as 0.614 which is considerably less than the expected risk of investment on loan and advances i.e. 0.614 Φ 0.74 and more than the expected risk investment on government securities i.e. 0.614 Ψ 0.37. Return of investment on loan and advances & Government securities is negatively correlated i.e. -0.572. Similarly, the expected return on portfolio i.e. 6.746% is less than the average rate of return on investment on loan and advances i.e. 6.746 Φ 7.97 but it is more than the average rate of return on investment on government securities i.e. 6.746 Ψ 3.074 .

The expected return on portfolio is less than that of average rate of return on investment on loan and advances. More than that of average rate of return on investment on government securities. From calculation, It is clear that investing the total fund in loan and advances is more risky than the investment government securities but average rate of return on loan and advances is more than the average rate of return on government securities.

4.2 Analysis of Ratios

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

4.2.1 Total investment to total Deposit Ratio

Total investment to total deposit ratio is calculated by dividing total investment by total deposit. In general, high ratio indicates high success to mobilize the funds of Banks as investment and vice - versa.

It is computed as:
$$\frac{\text{Total investment}}{\text{Total Deposit}}$$

Table No 4.11

Total investment to total Deposit Ratio

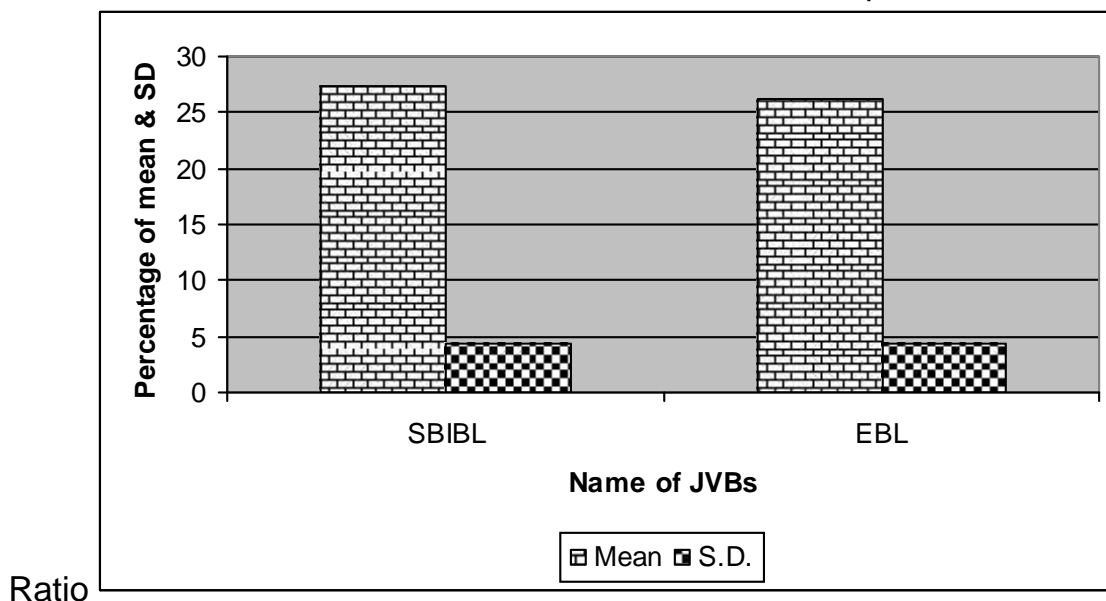
(in Percentage)

Fiscal Year	SBIBL	EBL	JVBS
2003/04	26.5	31.44	29.11
2004/05	30.13	21.08	25.26
2005/06	34.17	30.43	32.09
2006/07	23.24	27.41	25.80
2007/08	22.52	21.10	21.62
Mean	27.31	26.29	26.78
S.D.	4.36	4.45	3.56
C.V.	15.96	16.92	13.29

Source: Annex 'A'

Figure No 4 .7

Mean & S.D. of Total investment to total Deposit



Source: Table no 4.11

The comparative table 4.11 shows that the ratio of total investment to total deposit of joint venture Banks is in fluctuating trend through the fiscal year 2003/04 to 2007/08 but the ratio little increase in the fiscal year 2005/06 and again it decrease in the year 2006/07. It means that the ratio is not fixed. During the study period from 2003/04 to 2007/08 between two joint venture SBIBL and EBL, SBIBL has highest ratio of investment to total deposit i.e. 27.31% than the EBL i.e. 26.29 on the basis of average ratio. It can be said that the SBIBL's capacity to mobilize its deposit on investment is better than EBL.

Likewise, the coefficient of variation in the ratio of SBIBL is 15.96% and the EBL is 16.92%. It concludes that EBL is the more inconsistent than SBIBL.

From the above analysis, it is clear that SBIBL is more successful Bank in utilizing its resources on the investment than EBL.

4.2.2 Government Securities to total Deposit Ratio.

Government Securities to total deposit ratio is calculated by dividing total investment on government securities by total deposits. The high ratio

indicates the efficiency of the firm in utilizing collected deposits to government securities and vice-versa. This ratio explains as to what extent the Banks are able to invest their deposits fund on government securities. It is computed as:

$$X \frac{\text{Investment Government Securities}}{\text{Total Deposit}}$$

Table No. 4.12

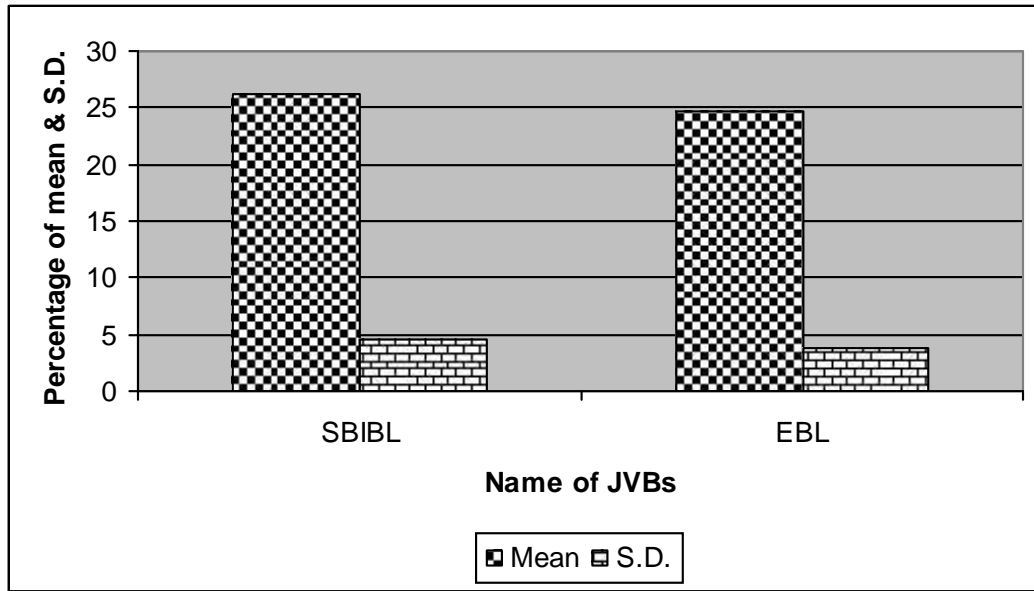
Government Securities to total Deposit Ratio

Fiscal Year	SBIBL	EBL	JVBs
2003/04	26.25	30.34	28.41
2004/05	29.9	20.8	25
2005/06	32.65	25.71	28.79
2006/07	20.49	26.51	24.19
2007/08	22.13	20.11	20.85
Mean	26.28	24.69	25.45
S.D.	4.57	3.8	2.93
C.V.	17.39%	15.39%	11.51%

Source: Annex 'B'

Figure No 4.8

Mean & S.D. of Government Securities to total Deposit



Source: Table no 4.12

From the above table no. 4.12 and figure no.4.8 . It can observe the ratio of investment on government securities to total deposit. Here, it is found the SBIBL has highest mean of government securities to total deposit than the EBL i.e. 26.28 Ψ 24.69 over the study period 2003/04 to 2007/08. The coefficient of variation of EBL is lower than the coefficient of Variation of SBIBL, i.e. 17.39 Ψ 15.39 show that the ratio is more consistent than the ratio of SBIBL. Similarly, highest Covariance of SBIBL show the ratio is more consistent than the ratio of EBL. From the above analysis it can be conclude that the EBL is more successful to utilize it's total deposit on invest to government securities than SBIBL.

4.2.3 Share and Debenture to total Deposit Ratio

Investment on share and Debenture to total deposit ratio shows that the portion of invest on share and debenture from total deposit fund. It explains as to utilize the depositors fund to earn profit by investment on share and debenture . This ratio is calculated by dividing investment on share and debenture by total deposit. The high ratio represents the

efficiency of the firm in utilizing collected deposit to share and debenture and vice-versa. It is computes as:-

$$\frac{\text{Investment on Share \& Debenture}}{\text{Total Deposit}}$$

Table No. 4.13

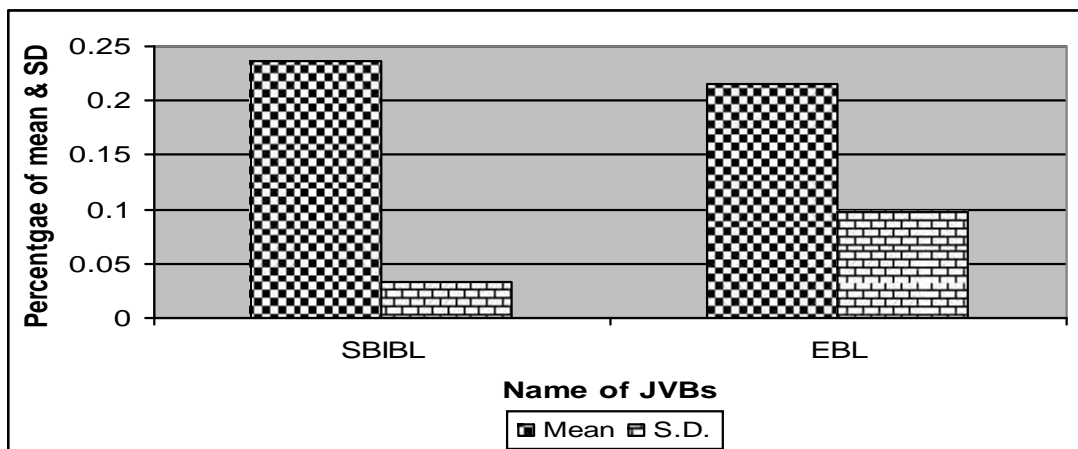
Share and Debenture to total Deposit Ratio (%)

Fiscal Year	SBIBL	EBL	JVBs
2003/04	0.25	0.21	0.23
2004/05	0.23	0.2	0.215
2005/06	0.18	0.14	0.16
2006/07	0.28	0.11	0.195
2007/08	0.24	0.42	0.33
Mean	0.236	0.216	0.226
S.D.	0.033	0.098	0.005
C.V.	13.98%	45.37%	22.11%

Source: Annex "C"

Figure No 4.9

Mean and S.D. of Total Investment to Total Deposit Ratio



Source: Table no 4.13

The comparative table listed above shows that the share and debenture to total deposit between two joint venture Banks SBIBL and EBL. SBIBL has highest mean ratio of share and debenture to total deposit i.e. 0.23 than EBL. It means that SBIBL is more successful to utilize its deposited funds on share and debenture than EBL. Similarly, between these two joint venture Banks SBIBL has lowest C.V. i.e. 13.98 % show that the ratio is more consistent. Similarly, the highest C.V. of EBL i.e. 45.37% shows that the ratio is least uniform.

From the above analysis, it can be conclude that SBIBL can utilize its fund on share and debenture.

4.2.4 Net Profit to total Deposit Ratio

Net profit to total deposit ratio is the profitability ratio that actually measure the extent to which the Banks are successful to gain profit by mobilizing its depositor's funds. It is also useful to analyze whether the Bank utilize its total deposit efficiently or not. The high ratio indicates the effective utilization of collected deposit in different assets and yields higher return for the Banks and vice-versa. It is computes as:

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

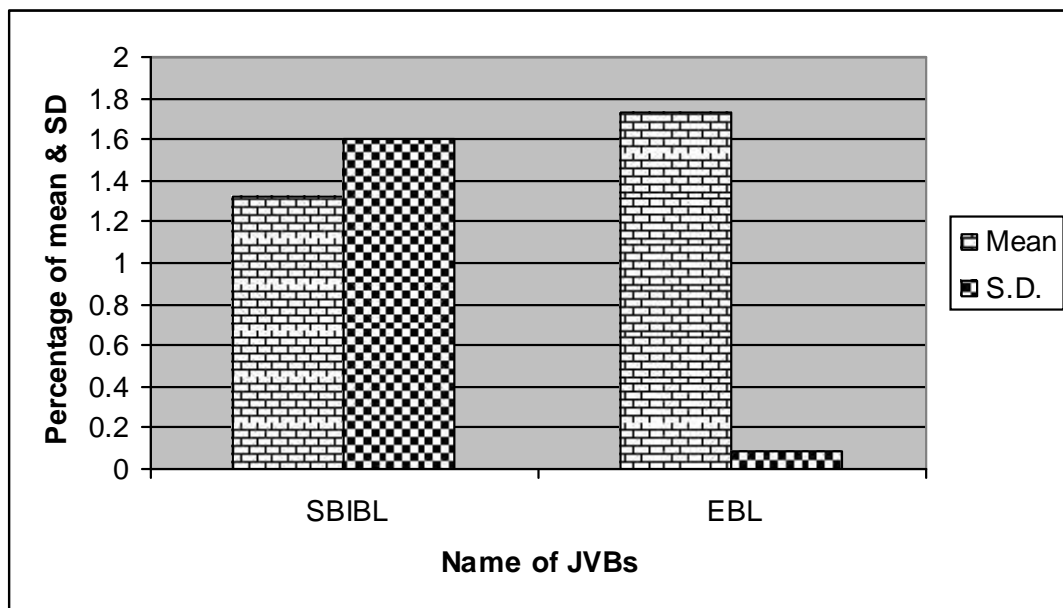
Table No. 4.14
Net profit to total Deposit Ratio

(in Percentage)

Fiscal Year	SBIBL	EBL	JVBs
2003/04	0.85	1.78	1.32
2004/05	0.66	1.67	1.17
2005/06	1.06	1.72	1.39
2006/07	2.23	1.63	1.93
2007/08	1.81	1.88	1.85
Mean	1.322	1.736	1.529
S.D.	1.6	0.086	0.27
C.V.	45.39%	34.56%	17.58%

Source: Annex " D "

Figure No 4.10
Mean & S.D. of Net Profit to Deposit Ratio



Source: Table no 4.14

From the above listed comparative table shows the ratio of net profit to total deposit. The ratio of joint venture Banks is not fixed through out the study period 2003/04 to year 2006/07 has highest ratio i.e. 2.23 and in the same fiscal year EBL has lowest ratio 1.63 the average mean ratio of SBIBL is highest i.e. 0.60 than tis of EBL i.e. 0.086 . It means that SBIBL is more successful to gain net profit by utilizing total deposit than EBL. Similarly, the average mean ratio of EBL is higher than the mean ratio of JVBs i.e. 1.736 Ψ 1.536 but the SBIBL has lower than JVBs i.e. 1.322Φ 1.536.

The coefficient of variation between EBL and SBIBL, EBL has lowest ratio i.e. 34.56% means that the variability of the ratio is most consistent than SBIBL. Similarly, the highest C.V. of SBIBL i.e. 45.39% show highly variable or more inconsistent than EBL.

From the above calculation it can be conclude that EBL is the best Bank in relation to net profit to total deposit ratio during the study period 2003/.4 to 2007/08.

4.2.5 Return on Total Assets Ratio

Return on total assets ratio is calculated by dividing net profit after tax by total assets of the firm. Thus, it measures the profitability of the Banks with respects to the total assets. The higher ratio indicates the effective utilization of resources and yields a higher return for the Banks. It is calculated as:

$$\frac{\text{Net Profit after tax}}{\text{Total deposit}}$$

Table No.4.15
Return on Total Assets Ratio

(in Percentage)

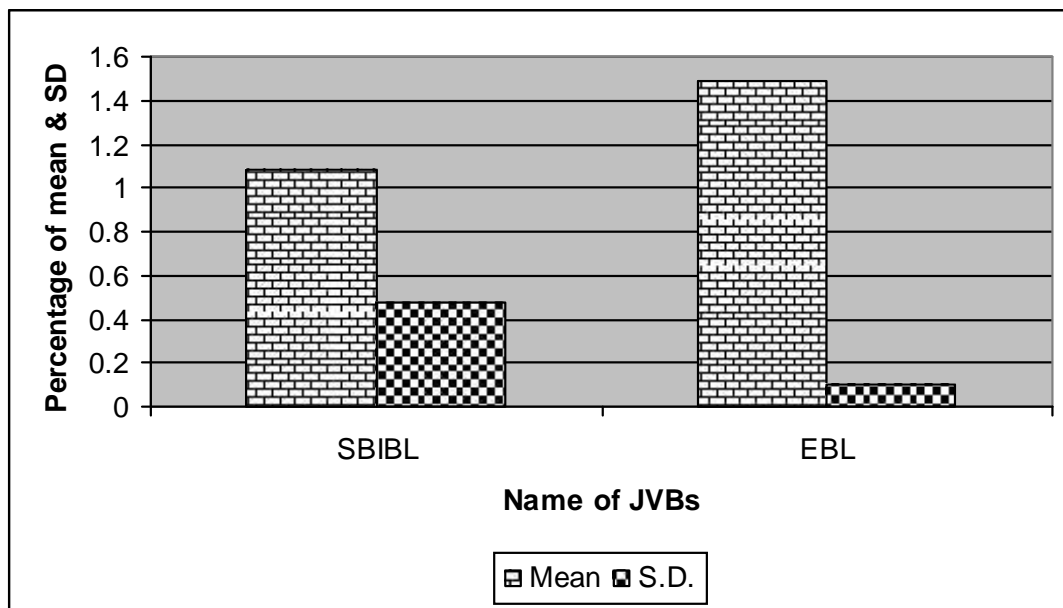
Fiscal Year	SBIBL	EBL	JVBs
2003/04	0.72	1.49	1.13
2004/05	0.55	1.44	1.02
2005/06	0.9	1.49	1.22
2006/07	1.83	1.35	1.54
2007/08	1.44	1.66	1.58
Mean	1.088	1.486	1.298
S.D.	0.48	0.1	0.23
C.V.	44.12%	6.73%	17.72%

Source: Annex " E "

The above listed table no. 4.15 shows the return on total assets ratio for the fiscal year 2003/04 to 2007/08. During the study period EBL has the highest ratio than SBIBL. Similarly, the coefficient of variation of EBL and SBIBL are 44.12% and 6.73% respectively.

The lowest C.V. of EBL i.e. 6.73% show that the return on total assets of EBL is more consistent than SBIBL. The highest C.V. of SBIBL shows that the return on total assets of SBIBL is highly variable than EBL. The high C.V. of SBIBL than EBL is due to the low return during the selection last five fiscal years.

Figure No 4.11
Mean & SD of Return on Total Assets Ratio



Source: Table no 4.15

4.2.6 Cash and Bank balance to total Deposit Ratio

Cash and Bank balance to total deposit ratio can be calculated by dividing cash and bank balance by total deposit. The high ratio indicates the efficiency of the firm in utilizing collected deposits to cash and Bank balance and vice-versa. It is calculated as:

$$\frac{\text{Cash and Bank balance}}{\text{Total Deposit}}$$

Table No.4.16

Cash and Bank balance to Total Deposit Ratio.

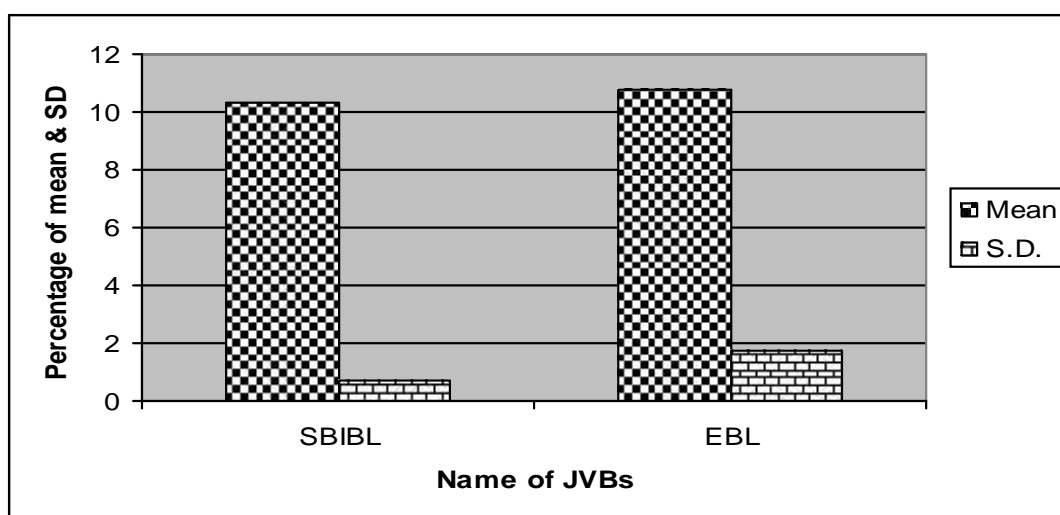
(in Percentage)

Fiscal Year	SBIBL	EBL	JVBs
2003/04	12.01	7.83	9.69
2004/05	9.79	10.4	10.12
2005/06	10.17	11.25	10.77
2006/07	9.81	13.15	11.86
2007/08	9.79	11.13	10.64
Mean	10.314	10.752	10.616
S.D.	0.74	1.73	0.73
C.V.	7.18%	16.09%	6.87%

Source: Annex " F"

Figure No 4.12

Mean & SD of Cash and Bank balance to Total Deposit



Source: Table no 4.16

From the above listed table no. 4.16 shows the cash and Bank balance to total deposit ratio for the fiscal year 2003/04 and 2007/08. During the study period the mean return of EBL is higher than the mean return of SBIBL i.e. 10.75% Ψ 10.31%. Similarly, the coefficient of variation of EBL is 16.09% and SBIBL is 7.18%. It shows the C.V. of EBL is higher than the C.V. of SBIBL. The lower C.V. of SBIBL shows that the cash and Bank balance to total ratio of SBIBL shows that the cash and Bank balance to total deposit ratio of SBIBL is more consistent than that it is more inconsistent than SBIBL.

From the above analysis it can be concluded that SBIBL utilizes its resources in cash and Bank balance more effectively.

4.2.7 Investment on Government Securities to Total outside Investment Ratio

Now a day commercial Banks are interested to invest on government securities such as treasury bills, development bonds, national saving bonds, special bond etc are highly liquid. Investment on government securities to total outside investment ratio is more useful to know the extent on which the Banks are successful in mobilizing their total investment on total different types of government securities. It is calculated by dividing investment on government securities by total outside investment. Thus, the high ratio indicates better mobilization of funds on government securities and vice-versa. It can be calculated as:

$$\frac{\text{Investment on government Securities}}{\text{Total Deposit}}$$

Where, TOI = Total investment + Loan and Advance and Bill purchase.

Table No. 4.17

Investment on Government Securities to total outside investment Ratio

(in percentage)

Fiscal Year	SBIBL	EBL	JVBs
2003/04	26.8	29.29	28.03
2004/05	29.34	21.56	25.25
2005/06	31.96	25.34	28.29
2006/07	19.35	25.86	23.29
2007/08	19.97	20.61	20.35
Mean	25.484	24.532	25.042
S.D.	5.03	3.14	2.99
C.V.	19.74%	12.80%	11.94%

Source: Annex " G"

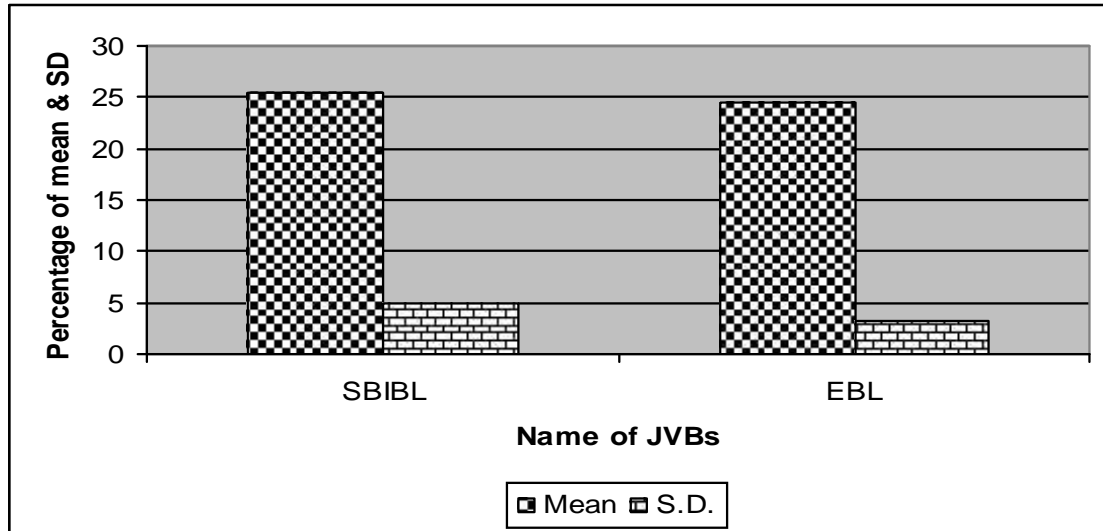
The above listed table reveals that the investment on government securities to total outside investment of joint venture Banks have mixed trend. Between two Banks EBL and SBIBL, SBIBL has invested higher amount i.e. 25.48% on government securities such as treasury bill, development bonds, national saving bonds etc. Similarly, EBL has invested lower amount on government securities than the SBIBL i.e. 24.53% if out side investment.

Likewise, the coefficient of variation of SBIBL is the higher EBL i.e.12.80 Φ 19.74. This shows that the variability of the ratios between investment on government securities and total outside investment of SBIBL is most uniform than EBL. The higher ratio of EBL shows that it has more variability in investment on government securities to total outside investment.

Lastly, it is clear that SBIBL invest highest part of total outside investment on government securities whose ratio is also most consistent.

Figure No 4.13

Mean & SD on Gov. Securities to total outside investment
Ratio



Source: Table no 4.17

4.2.8 Loan and Advances to total outside Investment Ratio.

This ratio is very useful to know the extent on which the Banks are successful in mobilizing their total outside investment on loan and advance. Basically, commercial Banks are invested more portion of total outside investment on loan and advance. The main source of profit of commercial Bank is a return of loan and advances. This ratio is calculated by dividing investment on loan and advances by total outside investment. Thus the high ratio indicates better mobilization of deposit fund on loan and advances and vice-versa. It is calculated as:

$$\frac{\text{Investment on Loan \& Advances}}{\text{Total Outside Investment}}$$

Table No. 4.18

Investment on Loan and Advances to total outside invest

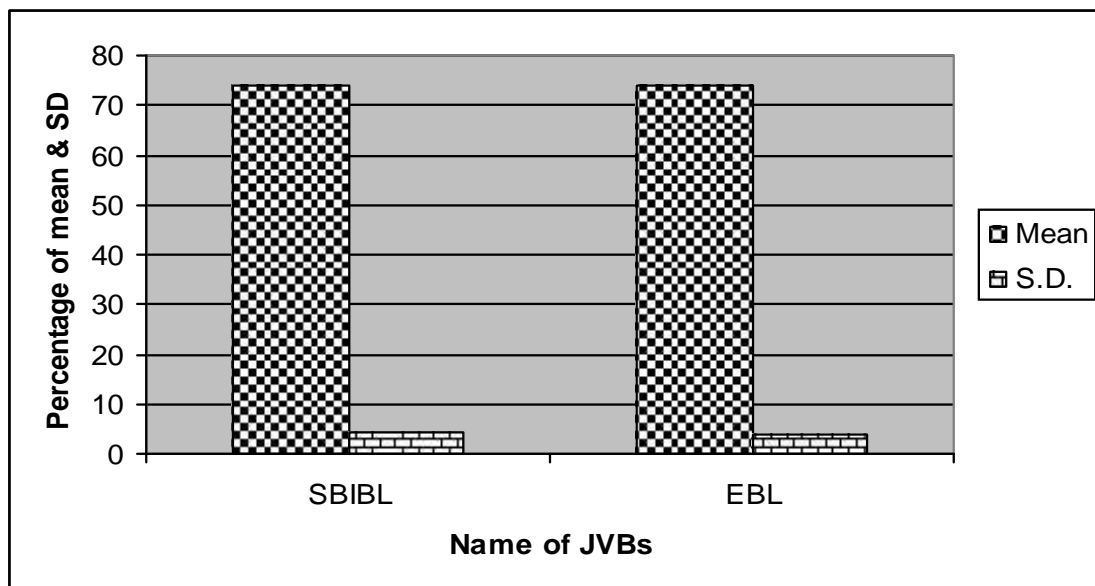
(in Percentage)

Fiscal Year	SBIBL	EBL	JVBs
2003/04	72.95	69.88	71.28
2004/05	70.44	78.16	74.49
2005/06	67.87	70.00	69.05
2006/07	78.06	73.27	75.16
2007/08	79.68	78.38	78.90
Mean	73.8	73.94	73.78
S.D.	4.47	3.74	3.38
C.V.	6.06%	5.06%	4.58%

Source: Annex " H "

Figure No 4.14

Mean & SD of Loan & Advance to total Outside investment Ratio



Source: Table no 4.18

The above comparative table no. 4.18 shows the investment on loan and advances to total outside investment ratio. Between two joint venture Banks (EBL and SBIBL). EBL has highest mean ratio i.e. 73.94 than SBIBL i.e.73.8. It means that between these two joint venture Banks utilize highest percentage of total outside investment on loan and advances.

The coefficient of variation of EBL is lower than that of SBIBL i.e.5.06 Φ 6.06 that predicates that the given ratio of EBL is stable or less variable than SBIBL While C.V. of SBIBL is highest shows that the ratio of SBIBL is less stable or more variable than EBL.

From the above analysis it is cleared that mobilization of total outside investment into loan and advances of EBL is higher and the ratio of the Bank is more uniform.

4.2.9 Investment on Share and Debenture to total outside Investment Ratio.

$$\frac{\text{Investment on Share and Debenture}}{\text{Total outside investment ratio}}$$

Table No. 4.19

Share and Debenture to total outside investment Ratio

(in Percentage)

Fiscal Year	SBIBL	EBL	JVBs
2003/04	0.25	0.20	0.23
2004/05	0.22	0.20	0.21
2005/06	0.17	0.14	0.16
2006/07	0.26	0.11	0.17
2007/08	0.22	0.43	0.35
Mean	0.22	0.22	0.22
S.D.	0.032	0.114	0.068
C.V.	14.55%	51.82%	30.90%

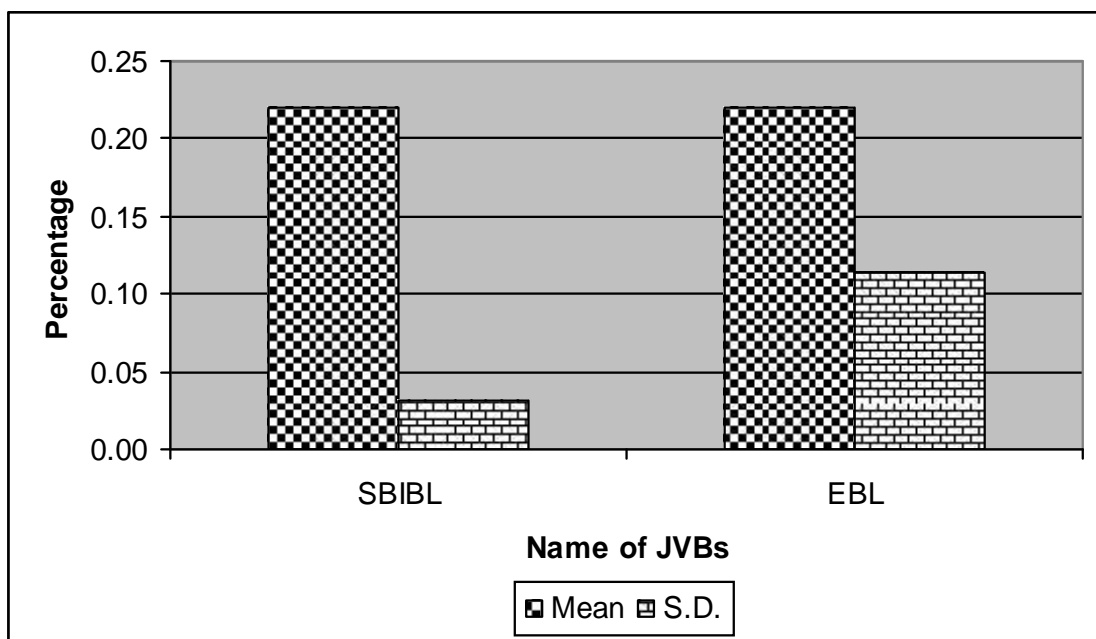
Source: Annex " I "

The above table no. 4.19 reveals that the portion of investment on share and debenture to total outside investment for the study period 2003/04 to 2007/08. It shows that joint venture Banks invest very low amount an share and debenture from total outside investment between two joint venture Bank SBIBL and EBL have same mean ratio of share and debenture to total outside investment i.e.0.22%. That means between these two Banks SBIBL and EBL utilize of total outside investment into share and debentures.

Similarly, Lower coefficient of variation of SBIBL i.e. 14.55% shows that the ratio of the Bank is more consistent and less variable likewise, highest C.V. of EBL i.e.51.82% shows that the ratio of the Bank is more in consistent than SBIBL over the study period.

Figure No 4.15

Mean & SD of Share & Debenture to Total Deposit Ratio



Source: Table no 4.19

4.2.10 Total outside investment of Joint Venture Banks

In this section, the ratio between various investment assets to total outside investment is calculated after the total outside investment of joint venture Bank is partitioned into different types of investment assets. In other words, in this

section, it is found that how many percentage of total outside investment is invested in which investment assets. Ratio made by total outside investment of joint venture Banks with individual investment assets are tabulated in below.

Table No. 4.20

Total outside investment of JVBs

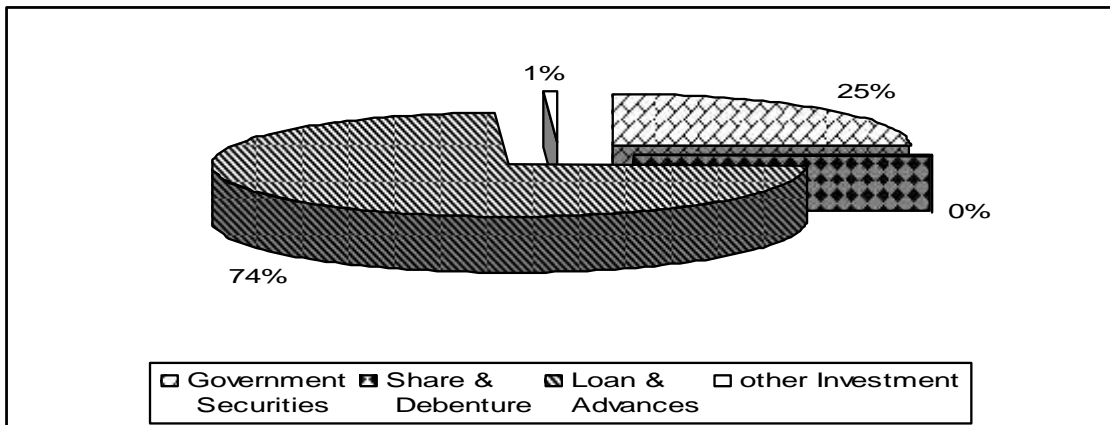
(in Percentage)

Fiscal Year	Government Securities	Share & Debenture	Loan & Advances	other Investment
2003/04	28.03	0.23	71.28	0.46
2004/05	25.25	0.21	74.49	0.05
2005/06	28.29	0.16	69.05	2.5
2006/07	23.29	0.17	75.16	1.38
2007/08	20.35	0.35	78.90	0.4
Mean	25.04	0.22	73.78	0.96
S.D.	2.99	0.114	3.38	0.89
C.V.	11.94%	51.82%	4.58%	92.71%

Source: Annex 'G', 'H' & 'I'

Figure No 4.16

Total outside investment



Source: Table no 4.20

From the above no. 4.20 it is shown that joint venture Banks have invested funds mainly on Loan and Advances. They have low invested on share and Debenture. As per above calculation joint venture Banks invested 73.78% on loan and advances, 0.22% on share and debenture, 25.04% on government securities and 0.96% of other out of total outside investment. The lowest C.V. of loan and advances is more consistent than on other securities.

Lastly, it can be said that joint venture Banks are mainly interested to invest on loan and advances which gives high return. They are not interested to invest on share and debenture which also give high return but also have risk on these types of securities. Joint venture Banks are also invested on government securities. More consistently which are less risk and low return.

4.3 Least Square Linear Trend Analysis

Trend analysis is a mathematical method which is widely used to find out future tendencies best on past assumptions. Furthermore, it is applied for finding out trend line for these series which change periodically in absolute amount. It is computed by using the following formula,

$$Y = a + bx$$

Where,

a = Y intercept

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

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

$$a = \frac{\sum Y}{n} \quad \text{and} \quad b = \frac{\sum XY}{\sum X^2}$$

Hence, future value for coming five years have been analyzed and forecasted with the help of trend analysis. There are,

- ❖ Total deposit
- ❖ Total investment

- ❖ Loan and advances
- ❖ Share and debenture
- ❖ Government securities
- ❖ Net profit

4.3.1 Least Square Trend analysis of Total deposits

Under the topic efforts have been made to analyzed trend of total deposits of the joint venture Banks for five years and forecast of the same for next five years. The following table shows the trend values of total deposits of joint venture Banks.

Table No. 4.21

Least square linear trend analysis of total Deposit

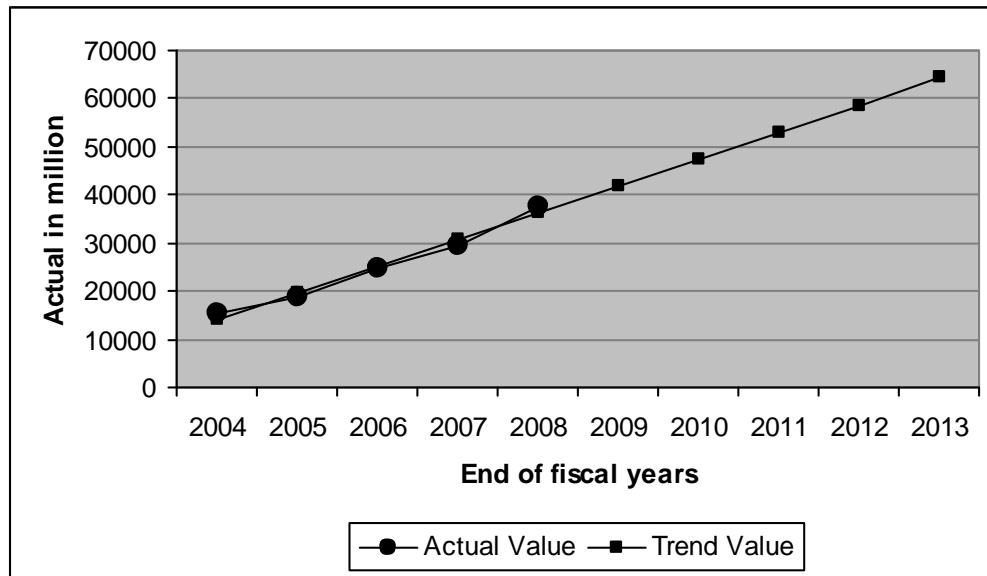
Rs. in million

End of fiscal year (t)	X=t-2006	Actual Value	Trend Value $Y_c = 25228.48 + 5573.8X$
2004	-2	15262.229	14080.88
2005	-1	18752.465	19654.68
2006	0	24804.485	25228.48
2007	1	29631.54	30802.28
2008	2	37691.694	36376.08
2009	3		41949.88
2010	4		47523.68
2011	5		53097.48
2012	6		58671.28
2013	7		64245.08

Source: Annex "J.1"

Figure No 4.17

Trend and Actual Value of Total Deposits of JVBs in Nepal



Source: From table no.4.21

From the above table no.4.21 shows that "a" i.e. Y- intercept and "b" i.e. slope of the trend line of total deposit of joint venture Banks are Rs.25228.48 and Rs.5573.8 millions respectively. It is also shows that the deposit of joint venture Banks is increasing by Rs.5573.8 per year. So, trend equation of total deposit is $Y_C = 25228.48 + 5573.8X$.

From the above equation forecasted total deposit for coming five years would be Rs. 41949.88, Rs.47523.68, Rs.53097.29, Rs. 58671.29 and Rs. 64245.08 millions respectively.

4.3.2 Least Square Linear Trend Analysis of Total investment

In this section, trend of total investment of the joint venture Banks has been analyzed for five years and forecast of the same for next five years. The following table shows the trend value of total investment of joint venture Banks.

Table No. 4.22

Least Square Linear Trend analysis of total investment

Rs. in million

End of fiscal year (t)	X=t-2006	Actual Value	Trend Value $Y_c = 6586.30 + 1031.77X$
2004	-2	4443.179	4522.76
2005	-1	4736.612	5554.53
2006	0	7959.49	6586.3
2007	1	7643.767	7618.07
2008	2	8148.445	8649.84
2009	3		9681.61
2010	4		10713.38
2011	5		11745.15
2012	6		12776.92
2013	7		13808.69

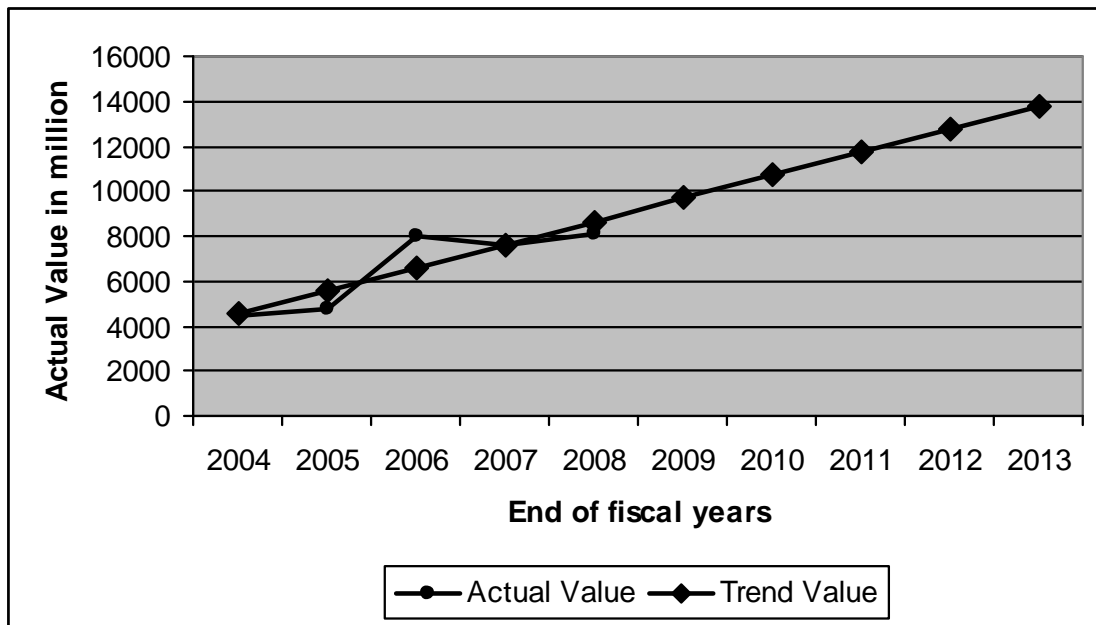
Source: Annex ' J.2'

The table no.4.22 shows that "a" i.e. Y- intercept "b" i.e. slope of the trend line of total investment of joint venture Banks are Rs. 6568.30 and Rs. 1031.77 millions respectively. From this it is clear that total investment of joint venture Banks is increasing by Rs.1031.77 million per years. So, trend equation of the total investment is $Y_c = 6568.30 + 1031.77X$

with regards this equation, forecasted total investment for coming five years would be Rs. 9681.61, Rs.10713.38, Rs.11745.15, Rs.12776.92 and Rs. 13808.69 respectively. During the study period, the amount of investment revealed gradually increasing trend. Following figure 4.18 shows that trend and actual value of total investment of joint venture Banks.

Figure No 4.18

Trend and Actual value of Total Investment



Source: Table no. 4.22

4.3.3 Least Square Linear Trend analysis of individual investment

In this section, an attempt is made to calculate the trend value of investment of the joint venture Banks on various assets. Here, three assets like government securities share & debenture and Loan & Advances are taken for analysis. The effort has been analyzed individual investment for five years from 2004 to 2013 of different investment assets of joint venture Banks are calculated individually on below.

Table No 4.23

Least Square Linear trend analysis of investment on Government securities of JVBs in Nepal

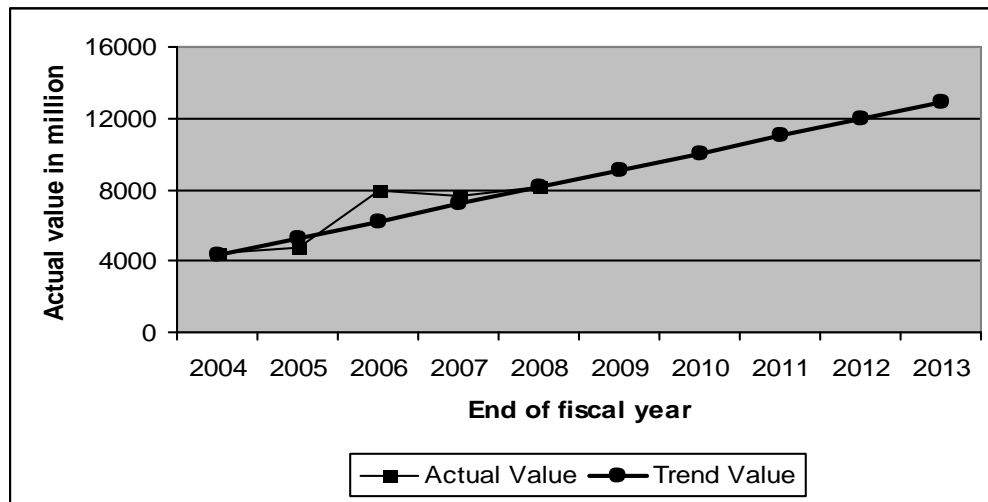
Rs. in million

End of fiscal year (t)	X=t-2006	Actual Value	Trend Value $Y_c = 6586.30 + 1031.77X$
2004	-2	4443.179	4333.662
2005	-1	4736.612	5285.756
2006	0	7959.49	6237.85
2007	1	7643.767	7189.944
2008	2	8148.445	8142.038
2009	3		9094.132
2010	4		10046.226
2011	5		10998.32
2012	6		11950.414
2013	7		12902.508

Source: Annex 'J.5'

Figure No 4.19

Trend and actual value of investment on Gov.securities of JVBs in Nepal



Source: Table no 4.23

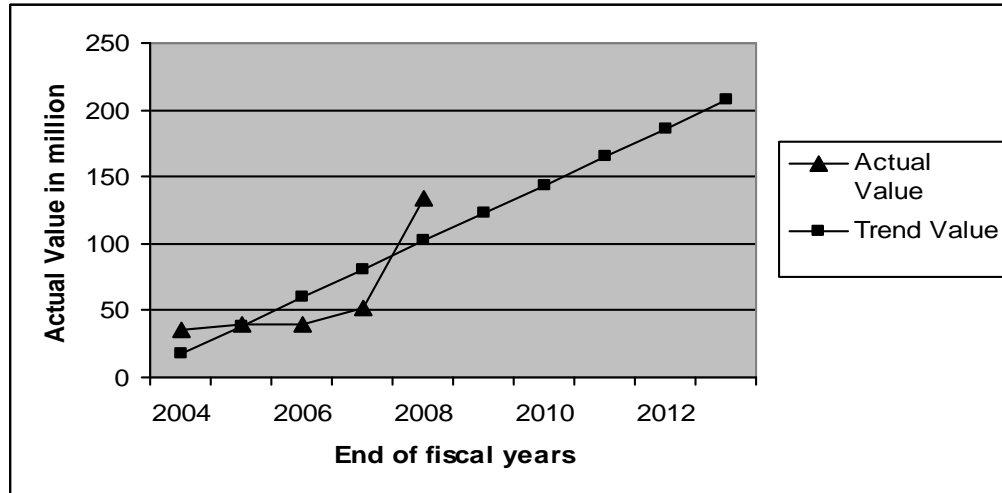
Table No 4.24

Least Square Linear Trend Analysis investment on share and debentures

End of fiscal year (t)	X=t-2006	Actual Value	Trend Value $Y_c = 59.93 + 21.04X$
2004	-2	35.00	17.85
2005	-1	39.43	38.89
2006	0	39.43	59.93
2007	1	51.83	80.97
2008	2	133.98	102.01
2009	3		123.05
2010	4		144.09
2011	5		165.13
2012	6		186.17
2013	7		207.21

Source: Annex 'J.6'

Figure No 4.20



Source: Table no 4.24

Table No 4.25

Least Square Linear analysis of investment on Loan and Advances of JVBs in Nepal

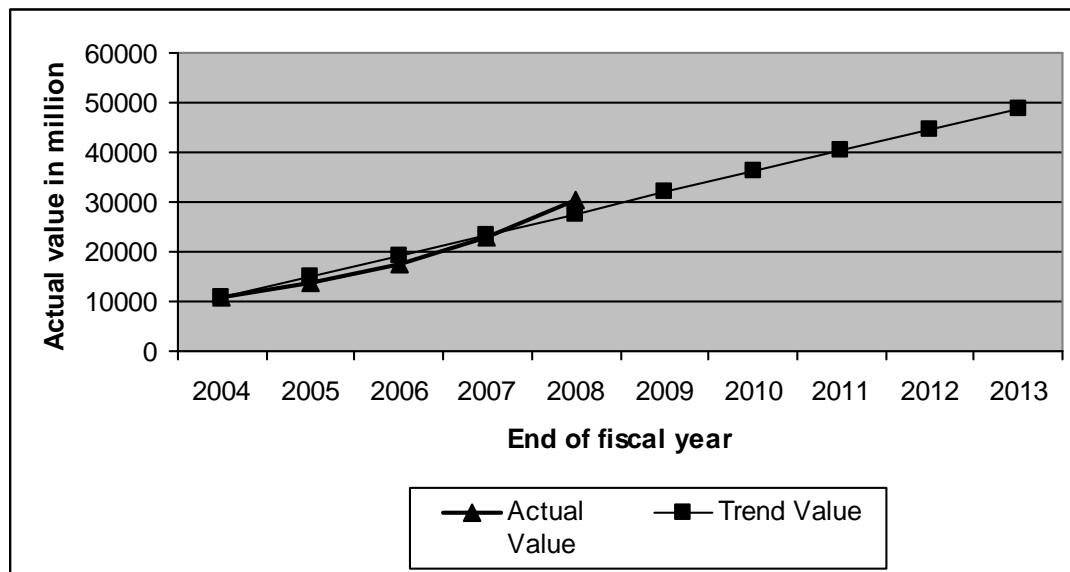
Rs. in million

End of fiscal year (t)	X=t-2006	Actual Value	Trend Value $Y_c = 19173.14 + 4244.55X$
2004	-2	11027.79	10684.04
2005	-1	13832.55	14928.59
2006	0	17428.04	19173.14
2007	1	23124.53	23417.69
2008	2	30452.78	27662.24
2009	3		31906.79
2010	4		36151.34
2011	5		40395.89
2012	6		44640.44
2013	7		48884.99

Source: Annex 'J.3.'

Figure No 4.21

Trend and Actual Value of Loan and Advances of JVBs in Nepal



Source: Table no 4.25

From the above table 4.23, 4.24, 4.25 and figure 4.19, 4.20, 4.21 show that the investment on government securities, share and debenture and Loan & Advances of joint venture Banks are in increasing trend. Above table no. 4.23, 4.24, 4.25 show that "a" i.e. Y- intercept and "b" i.e. slope of the trend line of government securities share and debenture and Loan and advances of joint venture Banks are Rs.6237.87 and Rs.952.094 million, Rs.59.93 and Rs.21.04 million and Rs.19173.14 and Rs.4244.55 million respectively. It is also shows that the investment on government securities of joint venture Banks is increasing by Rs.952.094 million per years. Similarly, investment on share & debenture and investment on Loan & Advances are increasing by Rs. 21.04 and Rs.4244.55 million per years respectively. So, trend equation of

Government securities is,

$$Y_C = 6237.89 + 952.094X$$

Share and debenture is,

$$Y_C = 59.93 + 21.04X$$

Loan and Advances is,

$$Y_C = 19173.14 - 4244.55X$$

On the above equation, forecasted investment on government securities for coming five years up to 2013 would be Rs.9094.13, Rs.10046.23, Rs.10998.32, Rs.11950.41 and 12902.51 millions respectively. Forecasted investment on share and debenture for coming five years up to 2013 would be Rs. 123.05, Rs.144.09, Rs.165.13, Rs.186.17 and 207.21 million respectively. Similarly, forecasted investment on loan and advances for coming five years up to 2013 would be Rs.31906.79, Rs.36151.54, Rs.40395.89, Rs.44640.44 & Rs.48884.99 million respectively.

Lastly, In comparison ratio of government securities (i.e. 12902.51/4333.66) 2.98 times is highest than share and debenture (i.e.207.21/17.85) 11.61 time and Loan & Advances (i.e.48884.99/10684.04) 4.58 times. It can be conclude that investment on government securities is decreasing more rapidly than investment on share and debenture and loan and advances during the period 2004 to 2013. Figure no.4.19, 4.20 and 4.21 show that trend and actual value of investment on government securities joint venture Banks respectively.

4.3.4 Least Square Linear Trend analysis of Net profit

Here, trend of net profit of the joint venture Banks has been analyzed for five years 2004 to 2008 and forecast of the same for next five years up to 2013. The following table shows the trend values of net profit of joint venture Banks.

Table No: 4.26

Least Square Linear Trend analysis of Net profit

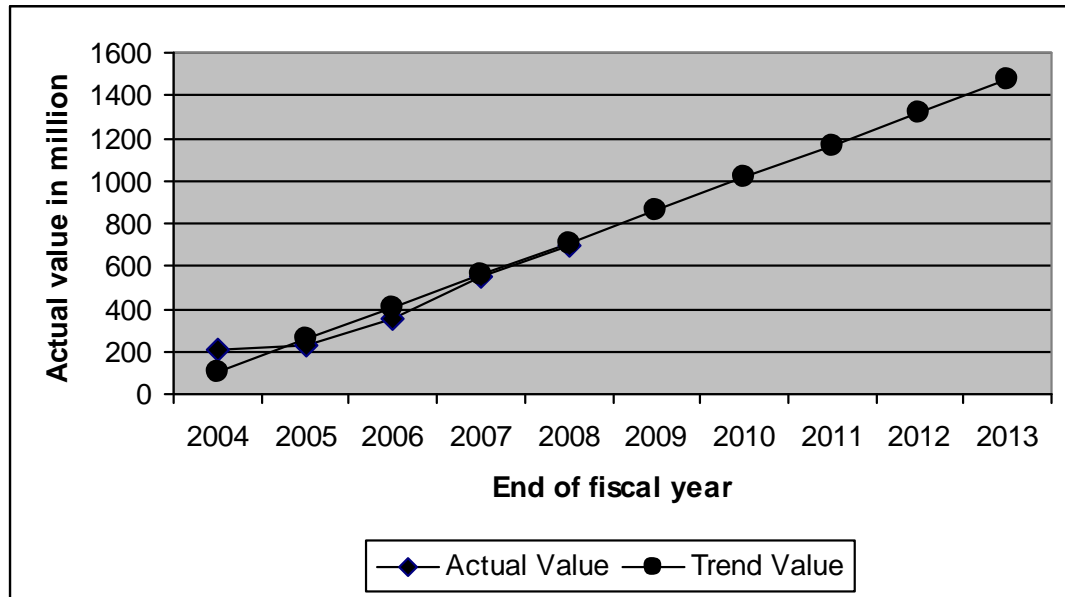
Rs. in million

End of fiscal year (t)	X=t-2006	Actual Value	Trend Value $Y_c = 406.92 + 151.93X$
2004	-2	204.42	103.60
2005	-1	225.60	254.99
2006	0	354.29	406.92
2007	1	551.32	558.85
2008	2	698.99	710.78
2009	3		862.71
2010	4		1014.64
2011	5		1166.57
2012	6		1318.5
2013	7		1470.43

Source: Annex 'J.4'

Figure No 4.22

Trend and Actual Value of Net Profit of JVBs in Nepal



Source: Table no 4.26

Table no.4.26 exhibits that 'a' i.e. Y- intercept and 'b' i.e. slope of the trend line of net profit of joint venture Banks remained Rs 406.92 and 151.93 millions respectively. During the study period, the amount of net profit revealed gradually increasing trend. On the average it is increasing by Rs.151.93 million per years. Therefore trend equation of the net profit.

$$Y_C = 406.92 + 151.93X$$

According to above trend equation forecasted value of net profit for the next five years would be Rs. and millions respectively. Figure 4.22 shows that the trend and actual values of net profit of joint ventures Banks.

4.4 Correlation Analysis

It is a useful statistical for measuring the intensity of the magnitude of linear relationship between two series. Karl Pearson's coefficient of correlation is most common and useful tool to measure the relationship between two variables in the bank. The correlation coefficient (r) between two variables X and Y can be obtained by using following formula:

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

Where,

r = Coefficient of Correlation

n = no. of observation in series X and Y

$\sum X$ = Sum of observations in series X

$\sum Y$ = Sum of observations in series Y

$\sum XY$ = Sum of observations in series X & Y

$\sum X^2$ = Sum of squared observations in series X

$\sum Y^2$ = Sum of squared observations in series Y

Interpretation of correlation coefficient

1. When $r = +1$ implies that two variables are positively perfectly correlated.
2. When $r = -1$ implies that two variable are negatively perfectly correlated.
3. When $r = 0$, there is no relation.
4. When r lies between 0.7 to 0.999 (-0.710-0.999), there is high degree of positive (negative) correlation=
5. When r lies between 0.6 0.699, there is Moderate degree of correlation.
6. When r is less then 0.5, there is low degree of correlation.\

Probable Error

Probable error of the coefficient of the significances of correlation coefficients is as follows,

1. If $r < 6 \text{ P.E. } (r)$, then r is definitely significant.
2. In other situation, nothing can be calculated with certainty.

4.4.1 Correlation Analysis between Total Deposit and Total Investment.

Total deposit and total investment variables of joint venture Banks for the different sampled period have been presented in table no. 4.27

Table No 4.27:

Correlation Analysis between Total deposit and total investment

Rs in
million

Fiscal Year	Total Deposit X	Total Investment Y	XY	X ²	Y ²
2003/04	15262.229	4443.179	67812815	232935634	19741840
2004/05	18752.465	4736.612	88823151	351654944	22435493
2005/06	24804.485	7959.49	197431050	615262476	63353481
2006/07	29631.54	7643.767	226496588	878028163	58427174
2007/08	37691.694	8148.445	307128696	1420663797	66397156
Total	126142.41	32931.493	887692300	3498545013	230355144

Here,

$$X = 126142.41$$

$$Y = 32931.493$$

$$XY = 887692299.5$$

$$X^2 = 3498545014$$

$$Y^2 = 230355143.8$$

We get,

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

$$= 0.099$$

Above calculation reveals that the correlation coefficient and probable error of coefficient between total deposit and total investment of joint venture banks i.e. 0.099 and 0.29 respectively. Here, correlation coefficient came greater than six times the probable error i.e. $0.099 < 6 \times 0.29$. It indicates that the positive correlation between total deposit and total investment is at a definitely significant level.

According to above analysis, it is cleared that there is low degree significant correlation between the total deposit and total investment. Therefore, Joint venture Banks can earn more profit by investing in profitable area.

4.4.2 Correlation Analysis between total Deposit and total Loan and Advances

Total deposit and total investment on loan and advances variables of joint venture Banks for the different sampled period have been presented in following table no. 4.28.

Table No 4.28

Correlation Analysis between total Deposit and total Loan and Advances

(Rs. in million)

Fiscal Year	Total Deposit X	Loan & Advance Y	XY	X ²	Y ²
2003/04	15262.229	11027.785	168308580	232935634	121612042
2004/05	18752.465	13832.55	259394410	351654944	191339439.5
2005/06	24804.485	17428.04	432293557	615262476	303736578.2
2006/07	29631.54	23124.53	685215436	878028163	534743887.7
2007/08	37691.694	30452.78	1147816865	1420663797	927371809.7
Total	126142.41	95865.685	2693028847	3498545013	2078803757

We get,

$$r = \frac{(5 \mid 2693028847) Z(126142.413 \mid 95865.685)}{\sqrt{5 \mid 3498545014 Z(126142.413)^2 \mid 5 \mid 2078803757 Z(95865.68)^2}}$$

$$= 0.999$$

$$P.E.(r) = 0.6745 \frac{1 \mid Z0.999^2}{\sqrt{5}}$$

$$= 0.0006$$

Above calculation shows that the correlation coefficient and probable error of coefficient between total deposit and total investment on loan and advances are 0.999 and 0.0006 respectively. Here, correlation coefficient came than six times the probable error i.e. $0.999 > 6 \times 0.0006$. It indicates that the correlation between total deposit and loan and advances are positively correlated and correlation of significant level.

According to above analysis, it is cleared that there is high degree correlation or perfectly correlation between total deposit and loan and advance.

4.4.3 Correlation Analysis between total deposit and total investment on Government Securities

Total deposits and total investment on government securities variables of joint venture Banks for the different sampled period have been presented in following table no 4.29

Table No 4.29

Correlation Analysis between total deposit and total investment on Government Securities

Rs in million

Fiscal Year	Total Deposit X	Government Securities Y	XY	X ²	Y ²
2003/04	15262.229	4336.064	66178001.7	232935634	18801451.01
2004/05	18752.465	4688.43	87919619.5	351654944	21981375.86
2005/06	24804.485	7140.39	177113697	615262476	50985169.35
2006/07	29631.54	7167.185	212374729	878028163	51368540.82
2007/08	37691.694	7857.159	296149633	1420663797	61734947.55
Total	126142.41	31189.228	839735680	3498545013	204871484.6

Here,

$$X = 126142.41$$

$$Y = 31189.228$$

$$XY = 839735680$$

$$X^2 = 3498545014$$

$$Y^2 = 204871484.6$$

We get,

$$r = \frac{(5 \mid 839735680) Z(126142.413 \mid 31189.228)}{\sqrt{5 \mid 3498545014} Z(126142.413)^2 \mid \sqrt{5 \mid 204871484.6} Z(31189.228)^2}$$

$$= 0.992$$

$$P.E.(r) \times 0.6745 \frac{1 - 0.992^2}{\sqrt{5}}$$

$$= 0.0048$$

Above calculation reveals that the correlation coefficient and probable error of coefficient between total deposit and total investment on government securities are 0.992 and 0.0048 respectively. Here, Correlation coefficient came greater than the six times the probable error i.e. $0.992 > 6 \times 0.0048$. It indicates that the correlation between total deposit and government securities are positively related and correlation is much significant.

According to above analysis, it is cleared that there is high degree correlation between total deposit and government securities.

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

Total deposit and total investment on share and debenture variables of joint venture Banks for the different sampled period have been presented in following table no 4.30.

Table No 4.30

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

Rs. in million

Fiscal Year	Total Deposit X	Share and Debenture Y	XY	X ²	Y ²
2003/04	15262.229	35	534178.015	232935634	1225
2004/05	18752.465	39.426	739334.685	351654944	1554.409476
2005/06	24804.485	39.426	977941.626	615262476	1554.409476
2006/07	29631.54	51.826	1535684.19	878028163	2685.934276
2007/08	37691.694	133.975	5049744.7	1420663797	17949.30063
Total	126142.41	299.653	8836883.22	3498545013	24969.05385

Here,

$$X = 126142.41$$

$$Y = 299.653$$

$$XY = 8836883.22$$

$$X^2 = 3498545014$$

$$Y^2 = 24969.05385$$

We get,

$$r = \frac{(5 \mid 8836883.22) Z(126142.413 \mid 299.653)}{\sqrt{5 \mid 3498545014} Z(126142.413)^2 \mid \sqrt{5 \mid 24969.05385} Z(299.653)^2}$$

$$= 0.95$$

$$P.E.(r) = 0.6745 \frac{1 Z 0.95^2}{\sqrt{5}}$$

$$= 0.029$$

Above calculation shows that the correlation coefficient and probable error of coefficient between total deposit and total investment on share and debenture are 0.95 & 0.029 respectively. Here, correlation coefficient came greater than six times of the probable error i.e. $0.96 > 6 \times 0.029$. It indicates that the correlation between total deposit and share and debenture is positively correlated and value of correlation is definitely significant.

According to above analysis, it is cleared that there is high degree correlation between total deposit and share and debenture.

4.4.5 Correlation Analysis between Total Deposit and Net Profit.

Total deposit and total net profit of joint venture Banks for the different sampled period have been presented in following table no 4.31.

Table No 4.31:

Correlation Analysis between Total Deposit and Net Profit

Rs. in million

Fiscal Year	Total Deposit X	Net Profit Y	XY	X ²	Y ²
2003/04	15262.229	204.419	3119889.59	232935634	41787.12756
2004/05	18752.465	255.602	4793167.56	351654944	65332.3824
2005/06	24804.485	354.293	8788055.4	615262476	125523.5298
2006/07	29631.54	551.318	16336401.4	878028163	303951.5371
2007/08	37691.694	698.99	26346117.2	1420663797	488587.0201
Total	126142.41	2064.622	59383631.1	3498545013	1025181.597

Here,

$$X = 126142.41$$

$$Y = 2064.622$$

$$XY = 59383631.1$$

$$X^2 = 3498545014$$

$$Y^2 = 1025181.597$$

We get,

$$r = \frac{(5 \mid 59383631.1) Z(126142.413 \mid 2064.622)}{\sqrt{5 \mid 3498545014 Z(126142.413)^2} \mid \sqrt{5 \mid 1025181.597 Z(2064.622)^2}}$$

$$= 0.992$$

$$P.E.(r) = 0.6745 \frac{1 - 0.992^2}{\sqrt{5}}$$

$$= 0.0048$$

Above calculation shows that the correlation coefficient and probable error of coefficient between total deposit and net profit are 0.992 & 0.0048 respectively. Here, correlation coefficient came greater than six times of the probable error i.e. $0.992 > 6 \times 0.0048$. It indicates that the correlation between total deposit and net profit is positively correlated and value of correlation is definitely significant.

According to above analysis, it is cleared that there is highly positive correlation between total deposit and net profit of joint venture Banks. Joint venture Banks showed successful performance in profit earning with respect to their income generating assets.

4.5 Multiple Regression Analysis.

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

The multiple regression equation of dependent variable X_1 or two independent variables X_2 & X_3 is given by

$$X_1 = a_1 + b_1 X_2 + b_2 X_3$$

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

$$X_1 = na_1 + b_1 \sum X_2 + b_2 \sum X_3$$

$$\sum X_1 X_2 = a_1 \sum X_2 + b_1 \sum X_2^2 + b_2 \sum X_2 X_3$$

$$\sum X_1 X_3 = a_1 \sum X_3 + b_1 \sum X_2 X_3 + b_2 \sum X_3^2$$

X_1 = Portfolio Return (Dependent variable)

X_2 = Total deposit (Independent variable)

X_3 = Total investment (Dependent variable)

Table No 4.32

Calculation of Regression Equation of X_1 on X_2 and X_3

Fiscal Year	Portfolio Return X_1	Total Deposit X_2	Total Investment X_3	X_1X_2	X_1X_3	X_2X_3	X_1^2	X_2^2	X_3^2
2003/04	7.36	15.262	4.443	112.32832	32.70048	67.81	54.17	232.9	19.74
2004/05	6.94	18.752	4.736	130.13888	32.86784	88.81	48.16	351.6	22.43
2005/06	6.6	24.804	7.959	163.7064	52.5294	197.4	43.56	615.2	63.35
2006/07	6.29	29.631	7.643	186.37899	48.07447	226.5	39.56	878	58.42
2007/08	6.45	37.691	8.148	243.10695	52.5546	307.1	41.6	1421	66.39
Total	33.64	126.14	32.929	835.65954	218.72679	887.6	227.1	3498	230.3

Here,

$$X_1 = 33.64$$

$$X_1X_2 = 835.658$$

$$X_1^2 = 4539.501$$

$$X_2 = 126.14$$

$$X_1X_3 = 218.726$$

$$X_2^2 = 3498.412$$

$$X_3 = 32.929$$

$$X_2X_3 = 887.608$$

$$X_3^2 = 230.321$$

Substituting the value in above three normal equation than we get,

$$5a_1 + 126.14b_1 + 32.929b_2 = 33.64$$

$$126.14a_1 + 3498.412b_1 + 887.608b_2 = 835.658$$

$$32.929a_1 + 887.608b_1 + 230.321b_2 = 218.726$$

Solving these three equations we get, the value of a_1, b_1 & b_2 . After solving the equations we get,

$$a_1 = 7.993$$

$$b_1 = -0.0448$$

$$b_2 = -0.0205$$

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

$$X_1 = 7.993$$

$$X_2 = -0.0448$$

$$X_3 = -0.0205$$

4.6 Major findings of the Study

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

Table No 4.33

I. Major findings from Risk and Return Analysis

S. N	Asset	Average Return \bar{R}	S.D. Risk(σ)	Coefficient of variation
1	Gov.Security	3.074	0.37%	0.1210
2	Loan & advances	7.97	0.74%	0.0929
3	Investment portfolio	6.746	0.614%	0.0910

Table No 4.34

II. Major findings from Analysis of Ratio

S.N	Ratio		SBIBL	EBL	JVBs
1	Total investment to total deposit Ratio	Mean	27.31	26.29	26.78
		S.D.	4.36	4.45	3.56
		C.V.	15.96	16.92	13.29
2	Government Securities to total deposit Ratio	Mean	26.28	24.69	25.45
		S.D.	4.57	3.8	2.93
		C.V.	17.39	15.39	11.51
3	Share and Debenture to total deposit Ratio	Mean	0.236	0.216	0.226
		S.D.	0.033	0.098	0.005
		C.V.	13.98	45.37	22.11
4	Net profit to total deposit Ratio	Mean	1.322	1.736	1.536
		S.D.	0.6	0.086	0.27
		C.V.	45.39	34.56	17.58
5	Return on total Assets Ratio	Mean	1.088	1.486	1.298
		S.D.	0.48	0.1	0.23
		C.V.	44.12	6.73	17.72
6	Cash at Bank balance to total deposit Ratio	Mean	10.31	10.75	17.72
		S.D.	0.74	1.73	10.62
		C.V.	7.18	16.09	0.73
7	Investment on Government Securities to total outside investment Ratio	Mean	25.48	24.53	25.04
		S.D.	5.03	3.14	2.99
		C.V.	19.74	12.8	11.94

8	Loan and Advances to total outside investment Ratio	Mean	73.8	73.94	73.78
		S.D.	4.47	3.74	3.38
		C.V.	6.06	5.06	4.58
9	Share and Debenture to total outside investment Ratio	Mean	0.22	0.22	0.22
		S.D.	0.032	0.114	0.068
		C.V.	14.55	51.82	30.9

Table No 4.35

III. Major findings from Least Square Linear Trend Analysis

S.N.	Items	Slope of Trend inc./Dec. per year
1	Total Deposit	5573.8
2	Total investment	1031.77
3	Investment on Government Securities	952.094
4	Investment on Share & Debenture	21.04
5	Investment on Loan & Advance	4244.55
6	Net Profit	151.93

IV. Major findings from Correlation Analysis

- a. The correlation coefficient between total deposit and total investment came greater than six times the probable error i.e. $0.099 < 6 \times 0.029$. It indicates that the high / low degree positive correlation between total deposit and total investment at definitely significant level. Therefore, Joint venture Banks can earn more profit by investing in profitable area.
- b. The correlation coefficient between total deposit and Loan and Advances came greater than the six times the probable error i.e. $0.99 > 6 \times 0.0006$. It indicates that the correlation between total

deposit and Loan & Advances are positively related and correlation is much significant. So, it is cleared that there is high degree correlation between total deposit and Loan and Advances.

- c. The correlation between total deposit and total investment on government securities are high degree positive related and correlation is much significant because the correlation coefficient came greater than six times the probable error i.e.0.0048.
- d. The correlation coefficient came greater than the six times of probable error i.e.0.029. It indicates that the correlation between total deposit and total investment Share & Debenture is positive correlated and value of correlation is definitely significant.
- e. The correlation coefficient came greater than six times of probable error i.e. 0.0048. It indicates that the correlation between total deposit and net profit are positively correlation and value of correlation is significant.

V. *Major findings from Regression Analysis.*

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

$$X_1 = 7.993 - 0.0448X_2 - 0.0205 X_3.$$

Chapter – V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter summarizes the whole study. Summary of the study has been mentioned in the first section. The second section reflects the conclusion drawn from the study. The third part is recommendation, to erase the weakness, draw backs of bands and portfolio investment of on the basis of finding and conclusion of the study.

5.1 Summary

This study is divided into five chapters. They are introduction, review of literature, research methodology, presentation and analysis of data and finally summary, conclusion and recommendation.

The first chapter covers generally background of the study, force of the study, statement of problem, objective of the study, need, scope and significance of the study, limitation of the study and organization of the study. The second chapter is review of literature and it gives the concept of the portfolio and it gives the concept of the portfolio investment. The third chapter consists of research methodology in which the research design, research procedure, population and sample, data analysis and the limitation of the methodology. The fourth chapter data analysis and presentation exist, in which risk and return, standard deviation, coefficient of variation, ratio analysis coefficient of correlation, multiple regression analysis portfolio return are used. Similarly, fifth chapter consist the summary of earlier chapter. Here, an attempt is made to after various suggestions and recommendation for the improvement of the further performance for portfolio investment analysis of the two joint venture banks.

The investment decision is one of the major functions of financial management. It depends upon two factors i.e. risk and return. Risk is the fluctuation of actual return and expected return.

-) Higher risk may have greater possible return
-) Investor attitude, perception and risk handling capacity also play essential role in rational investment decision. The risk is involved in every step of return. Every investor wants a maximum return from

minimum level of risk so as to minimize the risk investor should diversify their investment by the means of portfolio. The basic objective of portfolio management is to minimize risk at the given rate of return.

Portfolio management is one of the challenging tasks for every financial institution. Now a day there is very high competition in Banking industry but very less opportunity to make investment without effectively in market. Portfolio management at banks assets basically means components of banking assets having rates of return in such way that it can balance the conflicting good of maximum yield in minimum risk. Bank has to invest its resources in different productive sector of investment alternatives to earn profit. Uncertainty of profit creates risk to an investor, so every investor has to diversify their investment in different sector to minimize risk. Diversification of asst on different sectors lowers the risk of portfolio.

The main objective of the study is to identify the situation of portfolio investment analysis of joint venture banks. The study is focused on the portfolio analysis of listed two joint venture banks. While making an analysis and interpreting the data on portfolio, various financial tools like ratio analysis, statistical tools like mean, Standard Deviation, coefficient of variation, correlation of coefficient, least square trend analysis etc. have been used. The data which are used in this study are mainly of secondary nature. From this study it is found that these investors who had made diversification on their investment in different sector have got a better result rather than investing only one sector.

5.2 Conclusion

The analysis and interpretation of data, the following conclusion have been derived.

a) Risk and Return Analysis

In general assumption, there is little risk on investment of government securities. It is proved by the analysis that low risk on investment on government securities. From the analysis, the average return on government securities is 3.074% and coefficient of variation (CV) is 0.1210 which highest than other securities. Proper invesrment on various securities such as T-bills, national saving bonds, development bond etc. help to reduce the variability of return.

- b) The average return on loan and advances is greater than return on government securities and C.V. of loan and advances is less than C.V. of government securities i.e. $7.97 > 3.074$ and $0.1210 < 0.0929$ respectively. It is clear that government securities is more risky than the loan and advances.
- c) The correlation between return on government securities and loan and advances is moderate degree negative correlation i.e. $r_{gl} = -0.572$.
- d) The portfolio return is lower than return from loan and advance, higher than return from government securities.
- e) The portfolio return is decreasing every years, it is 7.36%, 6.94%, 6.6%, 6.29% and 6.45% in 2003/04 to 2007/08 respectively.

II. *Ratio Analysis Ratio*

The analysis of ratio, both joint venture Banks SBIBL and EBL are more interested to invest in the field of Loan and Advances. The Study shows that there is high range made on investment on different types of assets like loan and advances, Government securities & Share and Debenture.

- a. According to return on total assets ratio of selected JVBs, Everest is utilized its resources efficiently amount two joint venture Banks.
- b. Total investment to total deposit ratio in sampled joint venture Banks revealed fluctuating trend through the review period out of two JVBs, Everest is most successful in utilizing its deposit on investment.
- c. EBL is the Bank that mobilizes its total deposits more effectively on government Securities but mobilization of investment on Loan and advances.
- d. Loan and Advances to total deposit ratio is higher EBL than SBIBL.
- e. EBL is the best Bank in relation to net profit to total deposit ratio. It means EBL gets best return from mobilizes of depositors funds or it utilized it's deposit efficiently than SBIBL.
- f. Most of the joint venture Banks give first priority to invest their resources on Loan and Advances. So, they invest highest part of total outside investment on Loan and Advance. The JVBs give second priority to government security and last share and debenture.
- g. Joint venture banks invest very low portion of its total outside investment on Share and Debenture. Joint venture Banks are not successful to mobilize their resource in the field of Share and

debenture. They investment on share and debenture of other companies.

III. *Least Square linear Trend Analysis.*

- a. Total deposit of joint venture Banks is increasing trend. It is increasing per year.

IV. *Correlation Analysis*

- a. Correlation coefficient between total deposits and total investment is calculated as 0.099 and it's probable is 0.29 so, correlation coefficient came less than six times the probable error i.e. $0.099 < 6 \times 0.29$. It indicates that the low degree positive correlation between total deposit and total investment.
- b. The correlation coefficient between total deposit and loan and advance appeared than six times the probable error i.e. $0.999 > 6 \times 0.0006$. It indicates that the correlation between total deposit and loan and advances are high degree positive correlated and correlation.
- c. It is cleared that there is high degree correlation between total deposit and government securities because of $0.992 > 6 \times 0.0048$.
- d. Similarly, correlation coefficient came greater than six times of the probable error i.e. $0.95 > 6 \times 0.029$. It indicates that the correlation between total deposit and loan and advances is high positively correlated.
- e. Similarly, correlation coefficient between total deposit and net profit came greater than six time of probable error i.e. $0.992 > 6 \times 0.0048$. It indicates that the variables of net profit are highly correlated with income generating assets.

5.3 Recommendations:

The joint venture Banks in Nepal are not success to formulate the appropriate investment policy and implement it effectively. They are not considering about portfolio optimization. They are running by the instructions and direction of NRB and government. So, Joint venture Banks must analyze the investment areas and develop efficient and effective investment strategy and then take the investment decision.

Due to the lack of investment portfolio concept, Mostly Banks are interested to invest their funds in liquid able, Securable and less risky

assets. Generally, high risky assets give more profit and less risky assets give less profit. Even though, there is higher return as well as lower risk, Banks should not lay all its eggs on the same basket. Joint venture Banks should diversity their funds in various assets with suitable weight. Hence, JVBs can generate handsome profit with lower risk by portfolio diversification.

From the study, joint venture Banks are more interested to invest on Loan and Advances and then Government securities. Joint Venture Banks invest very low portion of its total outside investment and total deposit on share and debenture of other companies. They invested very normal percentage on share & debenture.

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

Portfolio condition of Banks should be regularly revised from time to time or it should be upgrading as per environment. It should always try to maintain the equilibrium in the portfolio condition of the Bank.

Lastly, it is also recommended to the both JVBs, it needs to identify the new investment sectors and make efficient investment to share holders will be increase.