CHAPTER-1

INTRODUCTION

1.1 Background of Study

Economic development is the important factor for development of any country. The economy of nation depends on the uses of available resources in efficient way. The proper utilization of assets appreciates in wealth position of individual and country as well. To mobilize available recourses, there should be proper planning, efficient management, far sighting strategy, effective financial management and up to date information. Integrated and speedily development of the country is possible only when competitive banking and financial sector grow and reaches to the nook and corners of the country.

Simply Bank is a financial institution whose main function is to accept deposit and invest in different sectors in order to earn profit by rendering effective services to the general public in different packages and products. Banks collect money from the surplus sector in the form of different deposits and lend and invest that collected fund in different sectors that can generate profit to the bank. Banks collects deposits from the public and provides sound interest to them and it earns effectively by way of lending that fund in different sectors like manufacturing, trading, real estate's etc. It also plays a vital role in the development of deprived and rural sector of the nation by lending micro finance in very fine interest rates and without taking any collateral as well. Similarly, Bank also invests its fund in different assets and securities that can generate profits for the bank in short as well as long run. Banks invest in Treasury Bills, National Saving Bonds, Shares and Bonds of different organizations that can provide both revenue as well as capital yield to the bank. So we can say that the BFIs plays a vital role in mobilizing idle recourses of one sector in productive areas by collecting it from scattered sources and generating profit. BFIs play a vital role as intermediaries channeling between saving and investment and fulfill credit needs of customers as well as investment requirement of savers. It is very crucial that efficient and stable banking system is crucial for the economic development and growth of any country and the

world and the pace of development of the country largely depend upon the development of the financial and banking sector of that country.

In finance and business, an investment is an asset purchased for profit, whether via income, or capital appreciation, or some combination. An individual or an entity making the investment is an investor. The opposite of making an investment, or selling the asset, is divestment. Investment has a connotation of a long-term holding period, in contrast to speculation, which is the purchase of assets seeking profit from short-term price movements. In practice, no precise definition distinguishes between investment and speculation. The expected return on investment, or expected ROI, is a measure of the attractiveness of an investment, whether anticipated or realized. In economics, investment represents capital expenditure by companies in an economy or economic model. In this context, investment is distinct from consumer expenditure, government expenditure, and net exports.

Trade off between risk and reward while aiming for incremental gain and preservation of the invested amount (principal). In contrast, speculation aims at 'high gain or heavy loss,' and gambling at 'out of proportion gain or total loss.' Two main classes of investment are (1) Fixed income investment such as bonds, fixed deposits, preference shares, and (2) Variable income investment such as business ownership (equities), property ownership. In economics, investment means creation of capital or goods capable of producing other goods or services. Expenditure on education and health is recognized as an investment in human capital, and research and development in intellectual capital. Return on investment (ROI) is a key measure of a firm's performance.

Investment Portfolio
Pool of different investments by which an investor bets to make a profit (or income) while aiming to preserve the invested (principal) amount. These investments are chosen generally on the basis of different risk-reward combinations: from 'low risk, low yield' (gilt edged) to 'high risk, high yield' (junk bonds) ones; or different types of income streams: steady but fixed, or variable but with a potential for growth. Successfully formulation of investment policy and its proper utilization or

implementation is the prime requisite for the development and performance of banks and other financial institution. Effective investment policy can help a bank to earn profit and develop a bank in a fast pace and vice versa. So, a healthy development of any BFIs depends heavily upon its investment policy of the bank. A sound and viable investment policy is one of the major factors that can generate optimum earnings to the bank from the use of its funds. If the BFIs fails to invest its funds in an effective and efficient way that may lead the BFIs to the failure by creating extra cost of fund. Hence, it is very much essential to formulate an effective investment policy and implement that to achieve the targeted profit and profitability. The investment policy helps the bank to minimize risk, to earn optimum profit and profitability and increase efficiency in the operation. Investment portfolio is one of such tools that help for proper utilization of recourses. A portfolio is usually defined as a combination of assets and collection of securities. Portfolio means the list of holding in securities owned by an investor or institution. Portfolio theory deals with the selection of optimal portfolios. That is portfolio provides the highest possible return for any special degree of risk or the lowest risk for any specified return. Portfolio theory has been developed for the financial assets. Thus making investment from the selected optimal portfolio i.e. the portfolio that provides the highest rate of return with least possible amount of risk is the real investment portfolio.

Investment portfolio is one on which the income or profit of the bank depend upon directly. Commercial banks formulate sound investment policies, which helps to maximize quality and quantity of investment and eventually to the economic growth of a country. Investment policy of commercial banks is guided by the regulation of central bank in Nepal.

Portfolio Analysis

Portfolio analysis involves quantifying the operational and financial impact of the portfolio. It is vital to evaluate the functioning of investments and timing the returns effectively.

The analysis of a portfolio extends to all classes of investments such as bonds, equities, indexes, commodities, funds, options and securities. Portfolio analysis gains importance

because each asset class has peculiar risk factors and returns associated with it. Hence, the composition of a portfolio impacts the rate of return on the overall investment.

Portfolio Analysis Involves

Portfolio analysis is broadly carried out for each asset at two levels:

Risk aversion: This method analyzes the portfolio composition while considering the risk appetite of an investor. Some of the investors may prefer to play safe and accept low profits rather than invest in risky assets generating high returns. Analyzing returns: While performing portfolio analysis, prospective returns are calculated through the average and compound return methods. An average return is simply the arithmetic average of returns from individual assets. However, compound return is the arithmetic mean that considers the cumulative effect on overall returns.

The next step in portfolio analysis involves determining dispersion of returns. It is the measure of volatility or standard deviation of returns for a particular asset. Simply put, dispersion refers to the difference between the real interest rate and the calculated average return.

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

Development of Commercial Banks in Nepal.

The history of modern banking system is not so long in Nepal. In depth, evidence of money lending function was also found in practice before 8th century. In those days people use to borrow money from money lenders and paying some interest. In 14th century, Malla King, Jayasthithi Malla divided people in 64 categories as per working occupation. One amongst them was "Tanka Dhari" 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 rein, Prime Minister Ranodip established a financial institution "Tejarath Adda". Prior to establishment of Nepal Bank ltd., certain extent of banking needs of people was fulfilled by the institution that was to supply credit to government officials at 5% rate of interest, thereafter, they provided loan to general people against security of gold, silver & ornaments. Tejarath expanded the credit facilities by opening some branches.

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

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

To manage and control banking system development, monetary policy development, to regulate issuance of currency in the country and to mobilize capital for the economic development of the country Nepal Rostra Bank came into existence as central bank of Nepal in 1956 under Nepal Rastra Bank Act 2012 BS. After this, NRB diverted its attention towards development of banking system by formulating relevant policies & procedures. Prior to the establishment of NRB there was no such formal organization to control and regulate the monetary system in the country. NRB is the autonomous body and fully owned by the government of Nepal that works for the development of banking system in the country. NRB started issuing currency in 1959. To fulfill the growing credit requirement of the country Rastriya Banijya Bank was established in 1966 under RBB Act 1964 with fully government equity with authorized capital of Rs. 10 million and paid up capital of Rs 2.5million.

In 1980, the government introduced "Financial Reform" under which allowed entry of foreign banks in Nepal as joint venture bank entered to accelerate the economic development of nation and to service high banking system. Nabil is the first joint venture bank in Nepal that was established in 1984 as Nepal Arab Bank Ltd. The financial scenario has changed with the introduction of joint venture banks in 1984. Since then various financial institutions like JVBs, Domestic Commercial Banks, Development Banks, Finance Companies, Co-operatives came into existence to cater financial needs of the country and thereby assisting financial development of the country.

Taking an overview of financial institution providing banking facility in Nepal, there are 31 "A" class commercial banks, 83 "B" class Development banks, 79 "C" Class finance companies, 19 "D" class Micro Credit Development Banks, 16 Saving and Credit Co-operative Societies and 45 Finance Companies and Financial Intermediary (FINGOs) licensed by NRB as of Mid October 2010. Furthermore list of commercial Banks as of mid October 2010 is presented in Annexure 'T'

Commercial Banks

Generally the term bank is understood as commercial banks. Commercial banks are those banks which are involved in accepting deposits and advancing loans to different sectors of the economy. Their operations are mainly commercial in nature and they undertake numerous kinds of financial services. Commercial banks are understood as banks which involved in collecting other people's money and offering various financial solutions to the individual, businesses, and corporate houses and government in their need.

Concept of Joint Venture Banks:

The concept of joint venture bank is a new innovation in finance and it is growing mostly in the developing countries. Joint venture means "A business contract of management effort between two persons. 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 forces between two or more enterprises for the purpose of carrying out a specific operation (industrial or commercial investment, production or trade). In Nepal, there has been substantial growth in the number of joint venture banks since 1985. The main reason behind this is the government liberal policy of allowing foreign joint venture banks 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.

Role of Joint Venture Banks in Nepal:

In the year 1980, when the government introduced "Financial Sector Reform" program, Nepal allowed the entry of foreign banks as joint ventures with up to maximum 50% equity participation. A meaningful step towards financial liberalization was undertaken in the FY 1987/88 with the objective of expediting the process of economic development under structural adjustment program and 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 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 as below:
- Emergence of healthy competition
- Foreign Investment
- New Banking techniques
- Contribution to the national economy

There are 7 Joint venture banks in Nepal at present. These are registered under company Act 2053 and governed by Bank and Financial Instantiation Act 2063 and Nepal Rasra Bank Act 2058. Nepal Rastra Bank is the regulatory Body of all the banks

and financial institutions operating by getting license from NRB in Nepal. List is presented in Annexure 'U'

Commercial Banks and Investment Portfolio

Commercial bank is a corporation which accepts demand deposits subject to check and makes loans and advances to business enterprises, regardless of the scope of its other services.

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

A commercial bank can maximize its volume of wealth through maximization of return on their investments and lending. So, they must invest their funds where they gain maximum profit and minimize risk. Profit of commercial banks manly depends on the interest rate, volume of risk assets, and period of loan and nature of investment in different securities. A bank should not lay all its eggs in the same bank i.e a bank should spread risk in different sectors. Banks must not concentrate its lending in one sector rather it should lend to different sectors of the economy based on the effective credit risk management. Loan provided by commercial banks is guided by several principles such as: principal of safety and security, principal of liquidity, principle of risk diversification, principle of profitability, principal of loan purpose etc. The investment portfolio should be carefully analyzed so that the investment should ensure minimum risk and maximum profit. Commercial banks also incorporate several elements such as

national and international economic environment, central bank's regulation and bank's own vision, mission and strategy etc.

Profiles of the Banks under study:

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

Nepal SBI Bank Ltd.:

Nepal SBI Bank Ltd. (NSBI) is the first Indo-Nepal joint venture in the financial sector sponsored by three institutional promoters, namely State Bank of India (SBI), Employees Provident Fund (EPF) and Agricultural Development Bank Ltd. (ADBL) through a Memorandum of Understanding signed on 17th July 1992. NSBI was incorporated as a public limited company at the Office of the Company Registrar on April 28, 1993 under Regn. No. 17-049/50 with an Authorized Capital of Rs.12 Crores and was licensed by Nepal Rastra Bank on July 6, 1993 under license No. NRB/l.Pa./7/2049/50. NSBL commenced operation with effect from July 7, 1993 with one full-fledged office at Durbar Marg, Kathmandu with 18 staff members. The staff strength has since increased to 511. Under the Banks & Financial Institutions Act, 2063, Nepal Rastra Bank granted fresh license to NSBL classifying it as an "A" class licensed institution on April 26, 2006 under license No. NRB/I.Pra.Ka.7/062/63. The Authorized, Issued and Paid-Up Capitals have been increased to Rs. 200 Crores, Rs. 166.16 Crores and Rs. 165.36 Crores, respectively. In terms of the Technical Services Agreement concluded between SBI and the Bank, SBI provides management support to the bank through its 3 expatriate officers including Managing Director who is also the CEO of the Bank. A core management team viz. Central Management Committee (CENMAC) consisting of the Managing Director, Chief Operating Officer, Chief Financial Officer and Assistant General Manager(Credit) oversees the overall banking operations in the Bank. ADBL divested its stake in the Bank by selling its entire 5% promoter shares to SBI on 14th June, 2009. Consequently, the Bank's corporate status has undergone change from its previous status as a Joint-venture Bank to a Foreign Subsidiary Bank of SBI. Presently fifty five percent of the total share capital of the Bank is held by the SBI, fifteen percent is held by the EPF and thirty percent is held by the general public.

Capital structure of the bank as per audited financials of FYE 2009/10 is as follows:

Authorized Capital: 2 billion
Issued Capital: 1.661 billion
Paid up Capital: 1.653 billion

Capital Structure of the bank is follows:

State Bank of India: 55.02%
Employees Provident Fund: 15%
General Public Shareholders: 29.98%

As per the audited financials of FY 2009/10, SBI's total deposit is Rs 34.89bio, Net Risk Assets is Rs 17.96 bio and total balance sheet size of the bank is Rs 30.04 bio. The bank earned Rs 570M operating profit and Rs 391.7M net profit during the year. As of that date capital adequacy ratio of the bank stands at 12.25% against regulatory requirement of 10% and NPA is 1.48% also shows sound health of the bank. Principal Indicators for the 5 years are presented in Annexure 'V'

Everest Bank Ltd.

Everest Bank Limited (EBL) started its operations in 1994 with a view and objective of extending professionalized and efficient banking services to various segments of the society. The bank is providing customer-friendly services through its Branch Network. All the branches of the bank are connected through Anywhere Branch Banking System (ABBS), which enables customers for operational transactions from
any branches.

With an aim to help Nepalese citizens working abroad, the bank has entered into arrangements with banks and finance companies in different countries, which enable quick remittance of funds by the Nepalese citizens in countries like UAE,
Kuwait, Bahrain, Qatar, Saudi Arabia, Malaysia, Singapore and UK.

Bank has set up its representative offices at New Delhi (India) to support Nepalese
Citizen remitting money and advising banking related services.

Capital structure of the bank as per audited financials of FYE 2009/10 is as follows:

Authorized Capital   :   1.25 billion

Issued Capital   :   1.05 billion

Paid up Capital   :   1.03 billion

Capital Structure of the bank is follows:

Nepalese Promoters   :   50%

Punjab National Bank Ltd., India   :   20%

General Public Shareholders   :   20%

As per the audited financials of FY 2009/10, EBL's total deposit is Rs 36.93bio, Risk Assets is Rs 28.15bio and total balance sheet size of the bank is Rs 41.38bio. The bank earned Rs 1,402M operating profit and Rs 831.8m net profit during the year. As of that date capital adequacy ratio of the bank stands at 10.77% against regulatory requirement of 10% and NPA is 0.16 % also shows sound health of the bank. Principal Indicators for the 5years are presented in Annexure 'W' :

1.2 Statement of Problems

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 thereby contribute to the 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 bonds, shares and debentures etc. and can show the capability of investment in little high risk where is more profit. Due to the lack of portfolio management, joint venture banks have less considered about portfolio optimization that cause cannot 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 number of joint venture banks, commercial banks is 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 do not seem to have activated their role effectively in deposit mobilization and loan distribution. Unsecured loan and investment may cause risk of nonperforming assets, lower profitability, liquidity risk in short run and may ruin the overall performance of the bank in the long run. If the funds are wrongly invested without thinking any financial risk, business risk and other related facts, the bank cannot obtain profitable return. Credit Risk management, operation risk and liquidity risk management has becoming as the tough challenge for the commercial banks. Nepal Rastra bank has also played important role to make commercial banks to investment their funds in good sector. For this purpose NRB has imposed many rules and regulations so those banks can have sufficient liquidity and security. Banks should follow as per direction of NRB and also be make clear vision towards investment portfolio itself.

With prevailing economic condition of the country the investment in agriculture, manufacturing, industrial sectors has not grown satisfactorily. Hence, the joint venture banks and commercial banks are also not succeeding perfectly to shift the deposit in profitable sectors. Competitions being the burning issues at present in the country, joint venture banks and other financial institution mushroomed in a short time period but investment opportunity is not comparatively extended. It has threatened the entire banking system and also warned the commercial banks to improve and manage their productivity.

Through the flow of credit to priority and productive sector were increasing the major challenges to be faced by commercial banks is to contribute in the uplifting of the priority and productive sector to the highest extent possible. JVBs and commercial banks are directly affected by the economic turmoil and are facing difficulties in furnishing their loans and advances towards the profitable sectors. Investment policy may differ in different commercial banks but there is no optimum utilization of shareholders fund to have greater return in any financial institution. Under such situation the present study will try to analyze investment, portfolio management of

JVBs, return on various types of investment, portfolio risk and return and performance towards investment. Thus this study will deal with the following issues:

- What is the relationship of investment and loan and advance with total deposit and total net profit?
- Does the investment decision affect to the total earnings of the banks?
- How is the investment portfolio managed by the joint venture banks?
- How far JVBs have been able to mobilize and utilize their resources?
- Is JVBs effectively utilized portion concept in their investment directed towards objectives of maximize return?
- What is the trend of investment in different assets?

1.3 Objective of the study

The main objective of the study is to analyze, examine and interpret the investment and Risk Asset portfolio of JVBs. The specific objectives of this research are pointed as follows:

1. To highlight the objectives of the 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 banks on investment using portfolio concept.
4. To evaluate and interpret the financial performance of those banks in term of investment strategies.
5. To examine the trend of investment in different sector.
6. To suggest & recommend some measure, on the basis of analyzing data and findings.

1.4 Need, Scope & Significance of the study

At present, joint venture banks are going a wide popularity through the efficient management and professional services and playing eminent role in the economy. Regarding the economic structure of the country, the banks do not have sufficient investment opportunities. Rapidly, increasing financial institutions are creating threats to the joint venture banks. The main objective of commercial banks is to earn more profit by proper mobilization of funds. They provide different banking facilities to the

banking customers. 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 the investment policy is the prime requisite for the successful performance of the 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 JVBs for especially for sampled 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:

- Importance to policy formulators and also useful for teachers, students of the subject, particularly those in commerce, chartered accountancy and institutional finance.
- Importance to shareholders and other stakeholders
- Importance to management bodies of these banks for the evaluation of the performance of their banks and in comparison with other banks.
- Interested outside parties such as investors, customers, competitors, and personnel of the banks, stockholders, dealers and market makers.

1.5 Limitation of the study

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

1. The study is covered only of two banks i.e Nepal SBI Bank Ltd. and Everest Bank Ltd.
2. Nepal Bangladesh Bank is not included under the study as the bank had negative net worth and had been declared as the bank in problem.
3. This study is based on secondary data, the calculation and conclusion of the study is fully depended on the accuracy of data available from various sources and concern organization.

4. The analysis period of research covers only four years i.e. FYE 2006/07 to FYE 2009/10.

5. There are many factors that affect investment decision and valuation of the firm. However, only on those factors, which are related with investment portfolio analysis will be considered in the study.

6. Due to the wide range of data deficiencies only simple techniques have been used in analysis and certain ratios related with investment are selected.

7. The limitations of this study are time constraints, limited budget, lack of experience, lack of up to date information.

8. It focuses on investment performance and doesn't cover other aspects and in this study only selected financial and statistical tools and techniques are used.

1.6 Organization of the study

The study is divided into 5 chapters.

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

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

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

Chapter 4: Data Presentation and Analysis: It analyzes the data and interpret the results using different financial and statistical tools.

Chapter 5: Summary, Conclusion and Recommendation: It summarizes the result of analysis and suggestive framework.

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

CHAPTER -2
REVIEW OF LITERATURE

Review of Literature is the study of past research studies and relevant materials. It is an advancement of existing knowledge and in-depth study of subject materials. It deals with the theoretical aspect of the topic on Investment Portfolio in more detail and descriptive manner. Review of literature means reviewing research studies or other relevant prepositions 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 in the review of literature relevant to the investment portfolio of joint venture banks. For this study, different journals, articles, books, annual reports and some research paper related with this study have been reviewed. Therefore, this chapter arranged as follows:

- Review of supportive text
- Review of relevant studies
- Review of reports and articles
- Review of relevant thesis works
- Review of rules /provisions

2.1 Review of Supportive text

Review of supportive text highlights and the relevant literature provides conceptual framework and foundation to present study. In this connection, the concepts related to investment portfolio are reviewed in light of research perspectives, various books, articles etc.

2.1.1 Concept of Investment

Generally, investment is the application of money for earning more money. According to economics, investment is the utilization of resources in order to increase income or production output in the future. Investment refers to any physical or tangible asset, for example, a building or machinery and equipment.

An amount deposited into a bank or machinery that is purchased in anticipation of earning income in the long run is both examples of investments. Although there is a general broad definition to the term investment, it carries slightly different meanings to different industrial sectors.

On the other hand, finance professionals define an investment as money utilized for buying financial assets, for example stocks, bonds, bullion, real properties, and precious items.

According to finance, the practice of investment refers to the buying of a financial product or any valued item with anticipation that positive returns will be received in the future. The most important feature of financial investments is that they carry high market liquidity. The method used for evaluating the value of a financial investment is known as valuation.

According to business theories, investment is that activity in which a manufacturer buys a physical asset, for example, stock or production equipment, in expectation that this will help the business to prosper in the long run. Money committed or property acquired for future income is treated as investment.

In investment tradeoff between risk and reward while aiming for incremental gain and preservation of the invested amount (principal) . In contrast, speculation aims at 'high gain or heavy loss,' and gambling at 'out of proportion gain or total loss.' Two main classes of investment are (1) Fixed income investment such as bonds, fixed deposits, preference shares, and (2) Variable income investment such as business ownership (equities), property ownership. In economics, investment means creation of capital or goods capable of producing other goods or services. Expenditure on education and health is recognized as an investment in human capital, and research and development in intellectual capital. Return on investment (ROI) is a key measure of a firm's performance.

The simplest meaning of the investment is to employ available funds to generate more money in future. An investment involves the sacrifice of current rupee for future wealth.

The sacrifice takes place in the present and it is certain. The reward comes later which is uncertain. Investment generally involves real assets or financial assets. Real assets are tangible, material things such as buildings, 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 saver or put away from current consumption in the hope that same benefits will accrue in future. Investment involves long term commitment and waiting for reward. The investment brings fourth visions of profit, risk, speculation and wealth.

According to Sharpe and Alexander, "Investment in its broadest sense, means, the sacrifice of certain present value for (possible uncertain) future values."

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

Frank and Reilly has defined investment in such way "An investment may be defined as the current commitment of funds for a period of time to derive a future flow of funds that will compensate the investing unit for the time funds are committed for the expected rate of inflation and also for the uncertainty involved in the future flow of the funds.

In the words of Gitman and Joehnk, "Investment is any vehicle into which funds can be placed 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."

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

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

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

1. Set investment policy
2. Perform Security analysis
3. Construct a portfolio
4. Review the portfolio
5. Evaluate the performance of the portfolio

2.1.2 Investment Alternative

There are various alternative for investors:

1.	Equity Securities	a.	Common Stock		
		b.	Preferred Stock		
2.	Short Term Debt Securities	a.	Negotiable certificates of deposit		
		b.	Commercial Paper		
		c.	Bankers acceptances		
		d.	Treasury bills		
3.	Intermediate and Long- Term Debt Securities	a.	Government Securities	i. ii. iii.	Treasury Notes Treasury Bonds Saving Bonds
		b.	Agency Securities		
		c.	Municipal Securities	i. ii.	Revenue bonds General Obligation bonds
		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.	Rights
		f.	Warrants
6.	Real Assets	a.	Precious Metal
		b.	Real Estate
		c.	Collectibles
7.	International Investment	a.	Multinational corporations
		b.	Foreign Stocks Traded on a local exchange
		c.	American Depository Receipts
8.	Other Investment Alternatives	a.	Pension Funds
		b.	Mutual Funds
		c.	Closed –end companies

2.1.3 Sources of Investment Uncertainty (Risk)

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

(i) **Interest Rate Risk**

Interest rate is defined as the potential variability of return caused by changes in the market interest rates. In more general terms, if market interest rates rise, then investments 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 prices of bonds, stocks, real estate, gold, puts, future contacts, and other investment as well.

(ii) **Purchasing Power Risk**

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

Rate of Inflation in the CPI in period t = $\dfrac{CPI_t - CPI_{t-1}}{CPI_{t-1}}$

(iii)   Bull-Bear Market Risk

Bull-Bear Market Risk arises from the variability in market returns resulting from alternating bull and bear market forces. When a security index rises fairly consistently from a low point, called a through, from 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 through is called a bear market.

(iv)   Default Risk

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

(v)   Liquidity Risk

Liquidity is that portion of an asset's total variability of return which results from price discounts given or sales commissions paid in order to sell the assets without delay. Perfectly liquid assets are highly marketable and no liquidation costs. Liquid assets are readily marketable –either price discounts must given or sales commissions must be paid, or both of these costs must be incurred by the seller. Hence, the more liquid as asset is the larger the price discount/or commissions which must be given up by the seller in order to affect the quick sale.

(vi)   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 call-ability risk. Call-ability risk commands a risk premium that comes in

the form of a slightly higher average rate of return. This additional return should increase as the risk that the issue will be called increases.

(vii) Convertibility risk

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

(viii) Political Risk:

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

(ix) Industry Risk

An industry may be viewed as a group of companies that complete with each other to market 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. The stage of the industry's life cycle, international tariffs and/or quotas on the products produced by an industry, product or industry related taxes, industry wide labor union problems, environmental restrictions, raw material availability, and similar factors interact and affect all the firms in an industry simultaneously. As a result of these commonalities, the prices of the securities issued by competing firms tend to rise and fall together.

2.1.4 Introduction to Investment Portfolio

A portfolio is usually defined as a combination of investment assets or collection or a group of assets. The portfolio is the holding of securities and investment in financial assets i.e bond, stock. A portfolio is a collection of investment securities. Portfolio theory deals with selection of optimal portfolios i.e the portfolio that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. Thus making investment from the selected optimal portfolio i.e

portfolio provides the highest return with least possible amount of risk is the real investment portfolio.

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

According to Raymond Brockington, "The term "portfolio" simply means collection of investments. For and 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 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 theory was originally proposed by Harry M. Markowitz in 1952. The theory is concerned with the selection of an optimal portfolio by a risk-averse investor. Once an 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 portfolios. 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 a better understanding of how risk is measured in a portfolio context and the relationship between return and risk.

2.1.5 Introduction to Portfolio Management

The art and science of making decisions about investment mix and policy, matching investments to objectives, asset allocation for individuals and institutions, and balancing risk against performance.

Portfolio management is all about strengths, weaknesses, opportunities and threats in the choice of debt vs. equity, domestic vs. international, growth vs. safety, and many other tradeoffs encountered in the attempt to maximize return at a given appetite for risk.

In the case of mutual and exchange-traded funds (ETFs), there are two forms of portfolio management: passive and active. Passive management simply tracks a market index, commonly referred to as indexing or index investing. Active management involves a single manager, co-managers, or a team of managers who attempt to beat the market return by actively managing a fund's portfolio through investment decisions based on research and decisions on individual holdings. Closed-end funds are generally actively managed.

Portfolio Management is used to select a portfolio of new product development projects to achieve the following goals:

- Maximize the profitability or value of the portfolio
- Provide balance
- Support the strategy of the enterprise

A logical starting point is to create a product strategy - markets, customers, products, strategy approach, competitive emphasis, etc. The second step is to understand the budget or resources available to balance the portfolio against. Third, each project must be assessed for profitability (rewards), investment requirements (resources), risks, and other appropriate factors

Portfolio management is basically concerned with efficient management of portfolio investment in financial assets, including shares and debentures of companies. Portfolio management assumes periodic supervision of the security in the portfolio. Buy and hold philosophy, in present competitive society and in view of the fluctuations of the stock is not a very prudent, conservative, or rational plan of action for sound portfolio management. A portfolio of an individual or corporate unit is the holding of securities and investment in financial assets. These holdings are the result of individual preferences and decision regarding risk and return. The process of portfolio management is closely and directly links with the process of decision making the correctness of which cannot be ensured in all cases.

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

According to Cohen, Zingbarg & Zeikel, "Portfolio management is the art of handling a pool of funds so that it not only preserves 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 itself with selecting 'good' stocks or a bond is fading.

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

a. Safety of funds
b. Stability of Prices
c. Liquidity
d. Return
e. Marketability
f. Capital Growth

2.1.6 Diversification and portfolio Analysis

Investment positions are undertaken with the goal of earning some from efficient investment because it can reduce the variability of returns around the expected return. Diversification is the one important means that control portfolio risk. Investments are made in a wide variety of assets so the risk of any particular security is limited. By placing one's eggs in many baskets, overall portfolio risk actually may be less than the risk of any component security considered in isolation.

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

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

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

(i) **Simple Diversification**

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

(ii) **Diversification across Industries**

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

(iii) **Superfluous Diversification**

Large number of assets spreading of the portfolio's assets is superfluous diversification. It refers to the investor spreading himself in so many investments on his portfolio. Superfluous diversification will usually result in the following portfolio management problems:

a. Impossibility of good portfolio management: If the portfolio contains dozens of different assets, the portfolio management cannot consider the status of all of them simultaneously.

b. Purchase of lackluster performers: The search for numerous different assets to buy will ultimately lead to the ill-informed purchase of investments that will not yield an adequate rate of return for the risk they near.

c. High search costs: As the number of candidate securities for a portfolio increases, it will be more costly to do the necessary security analysis.

d. High transaction costs: Frequent purchases of small quantities of shares will result in larger broker's commission.

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

(iv) Simple Diversification across Quality Rating Categories

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

(v) Markowitz Diversification

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

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

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

2.1.7 Capital Assets Pricing Model

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

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

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

Assumptions

- Investors are rational and risk averse
- Investors aim to maximize economic utilities
- Investors are price takers, i.e., they cannot influence prices

- Individuals can borrow and lend unlimited under risk free rate of interest.
- Individuals have homogeneous expectations regarding risk and returns of securities.
- The market is perfect and competitive
- There are no transaction costs and taxes
- Securities are divisible

The CAPM equation is written as follows:

$$E(R_i) = R_f + \beta_i(E(R_m) - R_f)$$

Where:

- $E(R_i)$ is the expected return on the capital asset
- R_f is the risk-free rate of interest such as interest arising from government bonds
- β_i (the _beta_) is the sensitivity of the expected excess asset returns to the expected excess market returns, or also $\beta_i = \dfrac{\mathrm{Cov}(R_i, R_m)}{\mathrm{Var}(R_m)}$,
- $E(R_m)$ is the expected return of the market
- $E(R_m) - R_f$ is sometimes known as the _market premium_ or _risk premium_ (the difference between the expected market rate of return and the risk-free rate of return).

Total Risk

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

- Market risk or un-diversifiable risk or systematic risk measured by its beta and
- Company risk or diversifiable risk or unsystematic risk

According to CAMP, total risk is divided into two parts. They are unsystematic and systematic risk.

Total Risk= Systematic Risk + Unsystematic Risk

Systematic Risk

The risk inherent to the entire market and market segment is known as systematic risk. Interest rates, recession and wars all represent sources of systematic risk because they affect the entire market and cannot be avoided through diversification. Whereas this type of risk affects a broad range of securities, unsystematic risk affects a very specific group of securities or an individual security. Systematic risk can be mitigated only by being hedged. Systematic risk is also known as un-diversifiable risk" or "market risk."

Systematic Risk is that portion of the total variability in return caused by market factors that simultaneously affect the prices of all securities. The systematic nature of these price changes makes them immune to much of the risk reduction effects of diversification. Thus, systematic risk is also called un-diversifiable risk. It is also called market risk or unavoidable risk or non-diversifiable risk or beta risk. Change in the economic, political and sociological environment that affect securities market are sources of systematic risk. Systematic variability of return is found in nearly all securities to varying degrees because most securities tend to move together in a systematic manner. Un-diversifiable risk is a function of its covariance with the market portfolio of all assets, divided by the variance of market portfolio.

Un-diversifiable risk can be measured by beta coefficient (β_i). Mathematically the systematic risk beta is measured as the covariance of the stock returns with the market returns expressed per unit of market variance as follows.

$$\beta_i = \frac{\text{Cov}(R_i, R_m)}{\text{Var}(R_m)}$$

The beta coefficient is an index of systematic risk. Betas can be used for an ordinal ranking of the systematic risk of assets. The un-diversifiable is caused by such factors which systematically affect all firms, such as war, inflation, high interest rate, depressions and long term changes in consumption of economy.

Unsystematic Risk

Company or industry specific risk that is inherent in each investment. The amount of unsystematic risk can be reduced through appropriate diversification. Unsystematic risk is also known as "specific risk", "diversifiable risk" or "residual risk".

The portion of the risk that can be diversified away is called unsystematic risk. It is also called non-market risk or avoidable risk or company risk or diversifiable risk. It is the portion of the total risk which is unique to the firm that issued to securities. Even such as labor striker, management errors, inventions, advertising campaigns, shifts in consumer taste and lawsuits cause unsystematic variability in the value of market assets.

2.1.8 Portfolio Risk and Return

Each asset's expected return and risk, along with expected return and risk for other assets and their interrelationship, are important inputs in portfolio selection. In order to construct efficient portfolio, the investor must be able to quantify the portfolios expected return and risk.

From an investor's standpoint the fact that a particular stock goes up or down is not very important what is important is the return on his or her portfolio, and the portfolio risk. Logically, then, the risk and return characteristics of an investment should not be evaluated in isolation rather, the risk and return of an individual security should be analyzed in terms of how the security affects the risk and return of the portfolio in which it is held.

(i) Portfolio Return

The monetary return experienced by a holder of a portfolio. Portfolio returns can be calculated on a daily or long-term basis to serve as a method of assessing a particular investment strategy. Dividends and capital appreciation are the main components of portfolio returns.

The expected return of a portfolio is the weighted average of the expected returns of the individual assets in the portfolio. The weights are the proportion

of the investors' wealth invested in each asset and the sum of the weights must equal to one.

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

The portfolio expected return is defined in equation as follows:

$$E(R_p) = \sum_i w_i E(R_i)$$

Where:

R_p is the return on the portfolio,

R_i is the return on asset i

w_i is the weighting of component asset i (that is, the share of asset i in the portfolio).

For a two asset portfolio:

- Portfolio return:

$$E(R_p) = w_A E(R_A) + w_B E(R_B) = w_A E(R_A) + (1 - w_A)E(R_B).$$

where:

R_p is the return on the portfolio,

wA= Weight of asset A in the portfolio

E(RA) is the expected return on asset A

wB= Weight of asset B in the portfolio

E(RB) is the expected return on asset B

(ii) Portfolio Risk

The calculation of a portfolio risk is not as straightforward as the calculation of a portfolio expected return. In order to calculate the risk of a portfolio consideration must be given not only to the risk of the individual assets in the portfolio and their relative weight but also to the extent to which the assets returns move together. We measure the risk of an individual asset by the variance of returns or its square root, the standard deviation. The degree to which the asset's return move together is measured by the covariance or correlation of coefficient. By combining the measures of individual asset risk

(variance or standard deviation), relative asset weights, and the co-movement of assets' return (co-variance or correlation), the risk of the portfolio can be estimated.

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

$$\sigma_p^2 = \sum_i w_i^2 \sigma_i^2 + \sum_i \sum_{j \neq i} w_i w_j \sigma_i \sigma_j \rho_{ij},$$

Where:

ρ_{ij} is the correlation coefficient between the returns on assets i and j.

Standard deviation of a portfolio

$$\sigma_p = \sqrt{\sigma_p^2}$$

For a two asset portfolio:

Portfolio variance: $\sigma_p^2 = w_A^2 \sigma_A^2 + w_B^2 \sigma_B^2 + 2 w_A w_B \sigma_A \sigma_B \rho_{AB}$

2.1.9 Covariance, Correlation Coefficient and Portfolio Risk

(i) Covariance and Correlation

A measure of the degree to which returns on two risky assets move in tandem. A positive covariance means that asset returns move together. A negative covariance means returns move inversely. Covariance is a measure of how much two variables change together. Covariance provides a measure of the strength of the correlation between two or more sets of random variates

One method of calculating covariance is by looking at return surprises (deviations from expected return) in each scenario. Another method is to multiply the correlation between the two variables by the standard deviation of each variable.

Possessing financial assets that provide returns and have a high covariance with each other will not provide very much diversification. If an investor wants a portfolio whose

assets have diversified earnings, he or she should pick financial assets that have low covariance to each other.

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

$$cov(X, Y) = \sum_{i=1}^{N} \frac{(x_i - \bar{x})(y_i - \bar{y})}{N}.$$

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

(ii)   Correlation Coefficient and Portfolio Risk

The relationship between two variables is called correlation and the correlation coefficient. The correlation coefficient is a relative number that measures the degree to which returns on two assets move together. The correlation coefficient can take range of value between +1 and -1. Perfectly positive correlation, +1 indicates that the returns on two assets move together perfectly i.e. as one asset returns move above(below) its mean, the second asset's return below (above) its mean in the same proportion. If the returns on two assets are perfectly negatively correlated, -1, then as one asset's return moves above (below) its mean, the returns of then second asset move below(above) its mean. A correlation statistic of 0 indicates that there is no consistent relationship between the movements of the two assets return.

A coefficient of correlation is a mathematical measure of how much one number (such as a share price) can expected to be influenced by changes in another (such as an index). It is closely related to covariance. A correlation coefficient of 1 means that the two

numbers are perfectly correlated: if one grows so does the other, and the change in one is a multiple of the change in the other.

A correlation coefficient of -1 means that the numbers are perfectly inversely correlated. If one grows the other falls. The growth in one is a negative multiple of the growth in the other.

A correlation coefficient of zero means that the two numbers are not related.
A non-zero correlation coefficient means that the numbers are related, but unless the coefficient is either 1 or -1 there are other influences and the relationship between the two numbers is not fixed. So if you know one number you can estimate the other, but not with certainty. The closer the correlation coefficient is to zero the greater the uncertainty, and low correlation coefficients means that the relationship is not certain enough to be useful.

The description above is of is a relationship between two variables. It is also possible to calculate correlations between many variables. Adding more variables should increase the correlation; any variables that do not significantly improve the correlation should be excluded.

Now we're ready to compute the correlation value. The formula for the correlation is:

$$r = \frac{N\Sigma xy - (\Sigma x)(\Sigma y)}{\sqrt{[N\Sigma x^2 - (\Sigma x)^2][N\Sigma y^2 - (\Sigma y)^2]}}$$

Where:

N	=	number of pairs of scores
Σxy	=	sum of the products of paired scores
Σx	=	sum of x scores
Σy	=	sum of y scores
Σx^2	=	sum of squared x scores
Σy^2	=	sum of squared y scores

The correlation of x_1 and x_2 is:

$(cov(x_1,x_2))/(\sigma_1\sigma_2)$

where $cov(x_1,x_2)$ is the covariance of x_1 and x_2

σ_1 is the standard deviation of x_1 and

σ_2 is the standard deviation of x_2.

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

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

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

(d) When the correlation between assets is perfectly positive it is possible to create a portfolio with zero risk.

2.1.10 Market Portfolio

A market portfolio is a theoretical portfolio in which every available type of asset is included at a level proportional to its market value. Described as a group of investments, a portfolio is owned by one individual or organization. The typical investment portfolio may include a variety of assets, but usually does not include all asset types. However, a market portfolio literally includes every asset that exists in the market.

The market value of an investment is described as its current price on the market. The term is also used to refer to the amount for which an asset could presumably be resold. In a market portfolio, investments are held in proportion to their market values in relation to the full value of all included assets.

Often, the concept of a market portfolio is discussed in theoretical terms only. For investment purposes, a true market portfolio would need to include every conceivable asset. As such, the market for such a portfolio would be the world market. The market portfolio concept is important in a variety of financial theories, including Modern Portfolio Theory (MPT). According to the MPT, investors should concentrate on choosing portfolios based on overall risk-reward concepts, rather than focusing on the attractiveness of individual securities.

MPT involves the concept of the efficient frontier on which the market portfolio sits. Introduced by Harry Markowitz, the pioneer of MPT, the efficient frontier is a group of optimal portfolios that serve to maximize expected return for a given level of risk. The Sharpe ratio is a term used to indicate the level of additional return offered by a portfolio, relative to the level of risk it entails. The market portfolio, also called the super-efficient portfolio, has the highest Sharpe ratio on the efficient frontier.

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

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

2.1.11 Features of Sound Lending and Investment Policy

The income and profit of the bank depends upon its lending procedures, lending policy and investment of its funds in different securities. A sound lending and investment policy is not only the prerequisite for bank's profitability, but also crucially significant for the promotion of commercial savings. Some necessities for sound lending and investment policies that most of the banks must consider explained as follows:

(i) Safety and Security

This principle is based on the assumption that the bankers should lend their fund in such area where there is least probabilities of default. And banks also should accept those securities which are commercial, durable, marketable and of the high market value. The banks should develop an appropriate mechanism of credit appraisal system and good credit policy. While giving a loan, banks must carefully examine the economic, financial and commercial viability of the business, strength and quality of its management, its past record and creditworthiness of the customer.

(ii) Profitability

One of the major objectives of commercial bank is to earn profit. Profit is necessary for the bank's sustainability and growth. They need to pay adequate returns to its shareholders and also has to maximize the banks' wealth for the smooth functioning and long term sustainability. Therefore, there must be a tradeoff between risk and return while making any lending decision. While making any lending and investment decision banks should measures the risk they are taking and return they are getting from those investments. Those portfolios where banks can minimize risk and optimize returns should be preferred.

(iii) Liquidity

Liquidity is the ability of a firm to repay the money whenever they are due and needed to be repaid off. Banks collects deposits from different areas and invests those funds in other different sectors to make profit. But Banks also should always be in the ready position to give the deposit whenever the deposit holders come to withdraw their money. Therefore, banks should have best mechanism to manage the assets and liabilities. They have to attune the maturities of their assets (loans) with the maturities of their liabilities (deposits). Banks should not delay or default making payments to its depositors or other liabilities as this would be the result of losing trust and faith of customers. Bank must comply the various regulatory requirement regarding liquidity like Cash Reserve Ratio (CRR) and Statutory Liquidity Ratio (SLR).

(iv)   Diversification

This principal is based on the proverb "Do not put all eggs in a single basket". So concentration risk should be monitored and managed through credit diversification. The credit risk can be minimized through diversification of credit portfolio that means prevention from excessive concentration of loans into few borrowers and industries.

(v)   Legality

While making any lending and investment it is also very important to check that whether that decision is in line with the law and regulation. Banks cannot make any policy that contradicts with the law and must follow all the rules and regulations of Central Bank as well.

2.2 Review of Relevant Studies

2.2.1 The Markowitz's Study

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

(i) The expected return from the portfolio

(ii) Level of risk exposure associated with the portfolio

So as to find to efficient set of portfolio & select the most efficient one, the portfolio manager will need to know the expected returns and the risk of these for the individual securities. The portfolio model developed by Markowitz is based on the following reasonable assumption:

(i)   The expected return from an asset is the mean value of a probability distribution of future returns over some holding period.

(ii) The risk of an individual solely on their estimates of return and risk in making their investment decision. This means that an investor's utility (indifference) curves are only a function of expected return and risk.

(iii) Investors adhere to the dominance principle. That is for any given level of risk, investors prefer assets with a higher expected return to assets with lower expected return; for assets with the same expected return, investor prefer lower to higher risk.

According to the 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 defined as the portion of the investor's wealth invested in a particular asset.

The theory developed by Harry Markowitz and published under the title "Portfolio Selection" in the 1952 *Journal of Finance is known as the* **Modern Portfolio Theory.** Modern Portfolio Theory says that it is not enough to look at the expected <u>risk and return</u> of one particular stock. By investing in more than one stock, an investor can reap the benefits of <u>diversification</u> - chief among them, a reduction in the riskiness of the portfolio. MPT quantifies the benefits of diversification, also known as not putting all of your eggs in one basket.

For most investors, the risk they take when they buy a stock is that the return will be lower than expected. In other words, it is the deviation from the average return. Each stock has its own <u>standard deviation</u> from the <u>mean</u>, which MPT calls "risk".

The risk in a portfolio of diverse individual stocks will be less than the risk inherent in holding any one of the individual stocks (provided the risks of the various stocks are not directly related). Consider a portfolio that holds two risky stocks: one that pays off when it rains and another that pays off when it doesn't rain. A portfolio that contains both assets will always pay off, regardless of whether it rains or shines. Adding one risky asset to another can reduce the overall risk of an all-weather portfolio.

In other words, Markowitz showed that investment is not just about picking stocks, but about choosing the right combination of stocks among which to distribute one's <u>nest egg</u>. (To learn more, see *Introduction to Diversification* and *The Importance of Diversification*.)

Two kinds of Risk

Modern portfolio theory states that the risk for individual stock returns has two components:

Systematic Risk - These are market risks that cannot be diversified away. Interest Rates, Recessions and wars are examples of systematic risks.

Unsystematic Risk - Also known as "specific risk", this risk is specific to individual stocks and can be diversified away as you increase the number of stocks in your portfolio (see Figure 1). It represents the component of a stock's return that is Not correlated with general market moves.

For a well-diversified portfolio, the risk - or average deviation from the mean - of each stock contributes little to portfolio risk. Instead, it is the difference - or <u>covariance</u> - between individual stock's levels of risk that determines overall portfolio risk. As a result, investors benefit from holding diversified portfolios instead of individual stocks.
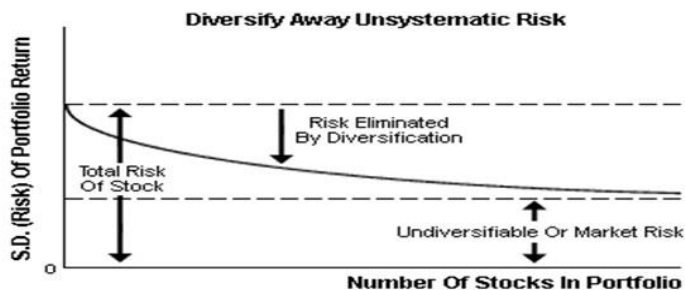
The Efficient Frontier

Now that we understand the benefits of diversification, the question of how to identify the best level of diversification arises. Enter the <u>efficient frontier</u>.

For every level of return, there is one portfolio that offers the lowest possible risk, and for every level of risk, there is a portfolio that offers the highest return. These combinations can be plotted on a graph, and the resulting line is the efficient frontier. Figure 2 shows the efficient frontier for just two stocks - a high risk/high return technology stock (Google) and a low risk/low return consumer products stock (Coca Cola).
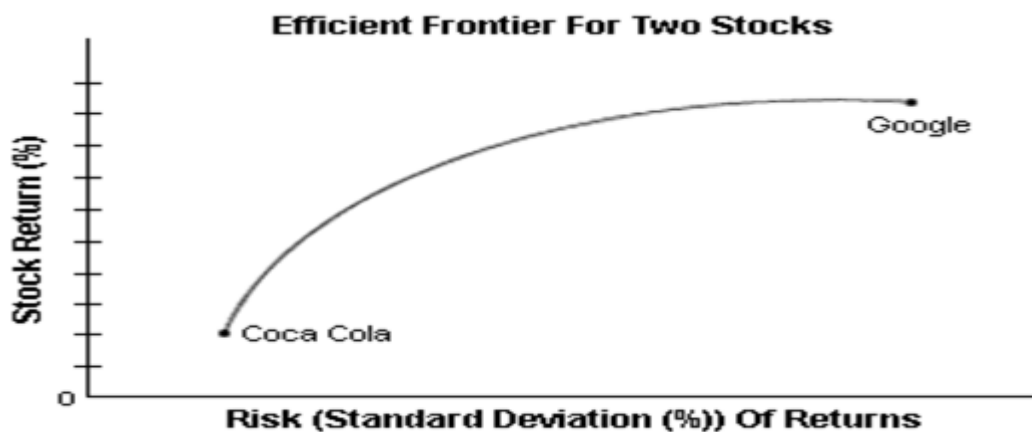
Any portfolio that lies on the upper part of the curve is efficient: it gives the maximum expected return for a given level of risk. A rational investor will only ever hold a portfolio that lies somewhere on the efficient frontier. The maximum level of risk that the investor will take on determines the position of the portfolio on the line.

Modern portfolio theory takes this idea even further. It suggests that combining a stock portfolio that sits on the efficient frontier with a risk-free asset, the purchase of which is funded by borrowing, can actually increase returns beyond the efficient frontier. In other words, if you were to borrow to acquire a risk-free stock, then the remaining stock portfolio could have a riskier profile and, therefore, a higher return
Than you might otherwise choose.

The gist of MPT is that the market is hard to beat and that the people who beat the market are those who take above-average risk. It is also implied that these risk takers will get their comeuppance when markets turn down.

2.2.2 The Sharpe's Study

In finance, the **capital asset pricing model (CAPM)** is used to determine a theoretically appropriate required rate of return of an asset, if that asset is to be added to an already well-diversified portfolio, given that asset's non-diversifiable risk. The model takes into account the asset's sensitivity to non-diversifiable risk (also known as systematic risk or market risk), often represented by the quantity beta (β) in the financial industry, as well as the expected return of the market and the expected return of a theoretical risk-free asset.

The model was introduced by Jack Treynor (1961, 1962), William Sharpe (1964), John Lintner (1965a,b) and Jan Mossin (1966) independently, building on the earlier work of Harry Markowitz on diversification and modern portfolio theory. Sharpe, Markowitz and Merton Miller jointly received the Nobel Memorial Prize in Economics for this contribution to the field of financial economics.

William F. Sharp published a model simplifying the mathematical calculation required by the Markowitz model. However, conceptually, its application remained several limitations. Sharpe assumes that for the sake of simplicity, the return of a security could be regarded as being linearly related to a single index like the market index. The mathematical complexity of the Markowitz portfolio model kept both practioners and academics away from adopting the concept for practical use. As a result, what is referred to as the Capital Asset Pricing Model (CAPM) was developed.

The **Sharpe ratio** or **Sharpe index** or **Sharpe measure** or **reward-to-variability ratio** is a measure of the excess return (or risk premium) per unit of risk in an investment asset or a trading strategy, named after William Forsyth Sharpe. Since its revision by the original author in 1994, it is defined as:

$$S = \frac{R - R_f}{\sigma} = \frac{E[R - R_f]}{\sqrt{\operatorname{var}[R - R_f]}},$$

where R is the asset return, R_f is the return on a benchmark asset, such as the risk free rate of return, $E[R - R_f]$ is the expected value of the excess of the asset return over the benchmark return, and σ is the standard deviation of the excess of the asset return.

(This is often confused with the excess return over the benchmark return; the Sharpe ratio utilizes the asset standard deviation whereas the information ratio utilizes standard deviation of excess return over the benchmark, i.e. the tracking error, as the denominator.) Note, if R_f is a constant risk free return throughout the period,

$$\sqrt{\mathrm{var}[R - R_f]} = \sqrt{\mathrm{var}[R]}.$$

The Sharpe ratio is used to characterize how well the return of an asset compensates the investor for the risk taken, the higher the Sharpe ratio number the better. When comparing two assets each with the expected return $E[R]$ against the same benchmark with return R_f, the asset with the higher Sharpe ratio gives more return for the same risk. Investors are often advised to pick investments with high Sharpe ratios. However like any mathematical model it relies on the data being correct. Pyramid schemes with a long duration of operation would typically provide a high Sharpe ratio when derived from reported returns but the inputs are false. When examining the investment performance of assets with smoothing of returns (such as with-profits funds) the Sharpe ratio should be derived from the performance of the underlying assets rather than the fund returns.

Sharpe ratios, along with Treynor ratios and Jensen's alphas, are often used to rank the performance of portfolio or mutual fund managers.

2.3 Review of Rules Provision

In this section, some rules which are related to the operation of commercial banks are reviewed. Rules and regulations have significant impact on the commercial bank's establishment, their mobilization and utilization of resources. All the commercial banks have to confirm to legislative provisions of the country mainly specified in the Banks and Financial Institution Act 2063, Company Act 2053, Nepal Rastra Bank Act 2058 and the rules and regulations formulated to facilitate the smooth functioning of commercial banks as circulated as Nepal Rastra Bank Directives.

2.3.1 Rules for Fund Mobilization

To mobilize bank's deposit in different sectors of the different parts of the nation, Nepal Rastra Bank, the central bank of Nepal has formulated various rules and regulations that has direct and indirect impact in lending and investment policies of commercial banks. Here, efforts have been made to discuss those rules and regulations which have been formulated by NRB in terms of investment and credit to different sectors of national economy.

i) Provision for Investment in Deprived Sector

In order to develop the deprived sectors of the nation through providing easy bank financing in fine interest rates, NRB has made it mandatory to all commercial banks to lend at least 3% of their total Risk Assets portfolio to the deprived sectors of the nation. Commercial banks have to strictly comply with this regulation. While calculating required percentage, Risk Assets of preceding 6 months is taken as a base. If there is shortfall, there is a provision of penalty to levied to those commercial banks i.e. at the highest interest rate charged by the bank.

ii) Single Obligor Limit and Sectoral Concentration.

Commercial banks are allowed to supply their credit and facilities (fund based and non fund based) up to 25% of their core capital to a single borrower or a group.

Similarly, total risk assets in an economic sector shall not be more that 40% of total Risk Assets of the bank.

Real estate loans shall be made up to 25% of the total Risk assets including pure real estate loan extended for land purchase and plotting and any personal OD of Rs 5m and above. Whereas the cap on pure real estate loan is 10% of RA.

Similarly banks shall extend Margin Lending Loans maximum up to its core capital. Whereas they can extend only up to 25% of their core capital as Margin lending against the shares of one company.

iii) Capital Adequacy Ratio and Basel II

As per NRB directive Basel II framework shall be applicable to all "A" Class financial institutions licensed to conduct banking business in Nepal under the Bank and Financial Institution Act, 2063 by Mid July 2008 (Fiscal Year 2065/066). The main objective of this framework is to develop safe and sound financial system by way of

Sufficient amount of qualitative capital and risk management practices. This framework is intended to ensure that each commercial banks maintain a level of capital which,

a. Is adequate to protect its depositors and creditors.
b. Is commensurate with the risk associated activities and profile of the commercial bank.
c. Promotes public confidence in the banking system.
   Unless a higher minimum ratio has been set by Nepal Rastra Bank for an individual bank through a review process, every bank shall maintain at all times, the capital requirement set out below:
- A Tier 1 (core) capital of not less than 6 per cent of total risk weighted exposure;
- A total capital fund of not less than 10 per cent of its total risk weighted exposure.

iv) Provision regarding Investment

There is no any prohibition for licensed institution to make investment in government securities. However, banks must have their investment policy approved by its Board.

Licensed institutions are allowed to make investment on shares and debentures of the listed companies only. Total investment on shares and debentures of a licensed institution shall not be more than 25% of core capital of that licensed institution but investment on shares and debenture of one company shall not be more than 10% of the bank's core capital.

Licensed institution are not allowed to make investment on shares and debentures of another licensed institution of class "A", "B" and "C". However, they can invest on shares of "D" class licensed institution by taking approval of NRB.

2.4 Review of Reports and Articles

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

Mr. Shiva Raj Shrestha, Deputy Chief Officer of Nepal Rastra Bank, Banking Operation Department, has given a short glimps on the "Portfolio Management in Commercial Bank, Theory and Practice.

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

    a. Higher return which is comparable with alternative opportunities available according to the risk class of investors.

    b. Good liquidity with adequate safety of investment

    c. Certain capital gains

    d. Maximum tax concession

    e. Flexible investment

    f. Economic, efficient and effective investment mix

In view of above aspects, following strategies are adopted.

    a. Do not hold any single security i.e. try to have a portfolio of different securities.

    b. Do not put all the eggs in one basket i.e. to have a diversified investment, make investment in different sectors and securities.

    c. Choose such portfolio of securities which ensures maximum return with minimum risk or lower or return but with added 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 tradeoff between risk and return to attach the primary objective of wealth maximization at lowest risk.

d. To identify securities for investment to reuse volatility of return and risk.

Mr. Shrestha has expressed his view that the portfolio managemtn activities of Nepalese Commercial Bank at present are in nascent stage. However, on the other hand most of the banks are doing such activities so far because if the following reasons.

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

Regarding the joint venture commercial banks, they are very eager to provide such services but because of above mentioned problems, very limited opportunity are available to the banks for exercising the portfolio management. Even considering the attraction of deposit joint venture banks are facing problems since most investors have not developed full confidence of putting money in fixed time deposit certificated of various maturity and values

Mr. Shreshta has drawn following conclusion for smooth running and operation of banks and financial institutions.

- The Survival of the banks depends upon its own financial health and various activities.
- In order to develop and expand the portfolio management activated successfully the investment management methodology of a portfolio manager should reflect high standards and give their clients the benefits of global strengths, local insights and product philosophy.

- With the discipline and systematic approval to the selection of appropriate countries, financial assets and the management of various risks, the portfolio manager could enhance the opportunity for each investor to earn superior return overtimes.]

- The Nepalese Banks having greater network and access to national and international capital markets have to go for portfolio management activities for the increment of their fee based income as well as to enrich the client base and to contribute in national economy.

In this context, Mr. Shrestha has presented two types of investment analysis techniques i.e. fundamental analysis and technical analysis to consider any security such as equity, debenture or bond and other money and capital market instruments. He has also pointed out the required skill manpower research and analysis and proper Management Information System (MIS) in any type of commercial banks to get success in portfolio management and customers' confidence.

Dr. Sunity Shrestha, in her study "Portfolio Behavior of Commercial Banks in Nepal has made remarkable efforts to examine various portfolio behaviors of commercial banks in Nepal such as investment portfolio, liability portfolio, asset portfolio etc. According to her investment in commercial banks when analyzed individually it is observed that Nepalese domestic banks invest in government securities, national saving bonds, debentures and company's shares. On the basis of this she found that the supply of bank credit is expected to depend on total deposit, lending rate, bank rate, lagged variables and dummy variables. Similarly, demand of bank credit is assured to be affected by national income, lending rate, Treasury bill rate and other variables. The resources of commercial banks are expected to be related with variable like total deposit, cash reserve requirement, bank rate and lending rate. Conclusion of her study is as follows:

- The relationship of banks portfolio variables as found to be best explained by log-linear equations.
- Demand of deposit of commercial banks in Nepal is positively affected by the GDP from non agriculture, 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 ratio, Treasury bill rates and lending rates.
- The investment of commercial banks in shares and securities is normal and not found to have strategic decisions towards investment in shares and securities.
- The loan loss ratio has been found to increase with low recovery of loan.

Mr. Bodhi B. Bajracharya, in his article "Monetary Policy & Deposit Mobilization in Nepal" has concluded that mobilization of the domestic saving is one of the prime objective of the monetary policy in Nepal and commercial banks are the most active financial intermediary for generating resources in the form of deposit of private sector & providing credit to the investor in different sectors of the economy.

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

2.5 Review of Relevant Thesis

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

Mr. N.M. Pradhan, (1980) in his thesis, "A Study on Investment Policy of Nepal Bank Ltd." has emphasized that there is a greater relationship between deposits and loans and advances. He concluded that through loan and advances as well and deposits are in increasing trend, their increase is not in a proportionate manner. Immense increase in the deposits had leaded to little increase in loans to grant the loans and advances without its lengthy process. He has suggested enhancing banking transactions up to rural sector of the kingdom.

Restha Jha, (1998) in his thesis paper entitled, "Comparative Analysis of Financial Performance of the Selected Joint Venture Banks" has conclude the following points:

- General loan loss provision to total loans in case of NABIL has the highest among NABIL, NIBL, NGBL and HBL.
- Credit deposit ratio NIBL stood the highest at the end of FY 1996/97 amongst the selected banks.
- NIBL has been investing most of its deposits in foreign investments.

Mr. Satya Ram Kisi, (1999) in his thesis paper entitled, "Portfolio of Commercial Banks in Nepal" has made an effort to examine the concept of investment and 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 and made following conclusion:
- Commercial banks are investing considerably higher amount of their fund in government security
- Commercial banks are investing very low amount of their funds in shares of other companies i.e. less than 1% on average.
- Commercial banks are providing very high amount of their funds on private sector i.e. more that 82% on average.
- The joint venture banks have given the second priority to the foreign bills purchase and discount.
- The beta coefficient of commercial banks have higher than one, the commercial banks have some risky assets.

- The return of CBs lies above the security market line which indicates that commercial banks have some risky assets.
- The return of CBs 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.
- The financial performance of CBs, the joint venture banks are found to be performing better than the domestic Nepalese banks operating under the dame environment.

Kalpana Khaiya (Banjade) (2003) in her thesis entitled "Investment Portfolio Analysis of Joint Venture Banks" has drawn following conclusion:

- Most of the joint venture bank's investment is concentrated in to government securities.
- Increased portfolio weight on loans and advances portfolio to government enterprises and foreign bills purchase and discount decrease risk.
- While comparing the investment portfolio weight set up by the joint venture banks with directives given by the central bank, the banks have not followed the directives. Directives direct not to invest more than 50% in one sector but most of the banks have invested more or equal to 90% of their funds into one sector.

Mr. Prakash Shreshta, (2003) in his thesis entitled "Portfolio Analysis on Investment of Nepalese Commercial Banks" by using 8 years date i.e. form FY 1994/95 to 2001/02 has presented the following as a summary of major findings and conclusion:

- The total investment to total deposits ratio of selected CBs shown that SCBNL is the most successful in utilizing its resources in investment than other CBs.
- On the basis of return on total assets, SCBNL utilized its overall resources efficiently than other banks.
- Most of the CBs give first priority to invest their resources on loan and advances, second priority to government securities and third priority to shares and debentures.

- All commercial banks seem to be interested in using their deposits in purchasing government securities.
- Almost CBs want to invest in short term basis which return is not fixed, they make hesitation to invest in long term government securities that provide regular constant return.
- CBs do not use well scientific approach towards diversification of funds among various assets like shares and debenture, loan and advances, government securities etc.

Gautam, D.K. (2006) has conduct research on "*A Comparative study on financial performance of Standard Chartered Bank Limited and Nepal Bangladesh bank Limited*" Financial performance is analyzed with two important tools. The first most important tools are the financial tools, which includes ratio analysis and other is a statistical tools, which is bankruptcy score.

The objectives of his research are:

1. To study the existing capital structure of financial position of selected joint venture commercial banks and to analyze its impact on the profitability.
2. To access the debt servicing of the joint venture commercial bank.
3. To examine the correlation and the signification of their relationship between different ratios related to capital structure.
4. To provide suggestions and recommendations for the optimal capital structure of the joint venture commercial bank.
5. To obtained the objectives, some financial, statistical and accounting tools.

He has found his study were the joint venture banks are operating in Nepal as commercial merchant banks. The growth is still going on as so many new banks are coming into existence after this study. Therefore, JVB‟s are operating with higher technology and new efficient methods in banking sector. However, this study has been undertaking only three JVB‟s viz. SCBNL and NBBL to examine and evaluation the financial data.

The research findings of the study are as follows:

- The research sample JVB's have used high percentage of total debt in raising the assets. The higher ratio constitutes that the outsider's claim in total assets of the bank is owners claim.
- The on an average, NBBL bank constitutes 16.27 times of P/E ratio, which should be reduce as quickly as possible.
- The financial risk of the banks NBBL average degree of finance leverage constitutes 3.73 times which indicates the higher degree of financial risks 3.73 times which indicates the higher degree of financial risks.
- The average ROE of JVB"s i.e. SCBL and NBBL area 37.36% and 21.75% respectively.
- In Nepal many banks and other financial institution are functioning to collect deposits and invest money somewhere in the investable sectors. Therefore, efficiency has been increased since liberalization policy taken by the government. Heavy remittance has also helps to increase the amount of deposits in bank.

2.6 Research Gap:

In the previous studies of Kalpana Khaniya, Prakash Shreshta, Restha Jha portfolio analysis of JVBs has been done. Similarly, Mr. Satya Ram Kisi has examined the investment and loans and advances of the commercial banks. These all researchers have made effort to analyze to evaluate portfolio of the JVBs and Commercial banks. However, it is not clearly mentioned in those studies that what are the major factors that really affect the lending and investment of JVBs, what are the major risks that JVBs have to manage while making lending and investment decision and what are the emerging challenges and risk that have to be managed well for the long term survival of the banks.

The main objective of the study is to analyze, examine and interpret the investment and Risk Asset portfolio of JVBs in the current market scenario. In this study portfolio of JVBs is evaluated, trend of investment alternatives, deposit as well as net profit is

calculated taking reference of two joint venture banks - EBL and NSBI . In this study recent financial information of the selected two banks used and using different financial ratios and statistical tools the objective has been met.

Similarly in this study related provisions and guidelines of Nepal Rastra Bank have also been reviewed. And based on the findings, current market scenario, existing and emerging risk seen in the banking industry, recommendations have been suggested to JVBs for effective portfolio management in the bank. Therefore this study is different than those previous studies reviewed here in this study.

CHAPTER -3
RESEARCH METHODOLOGY

Research is a way of finding solutions of problems systematically. A research is in - depth study and advancement of knowledge about subject matter. It is a method of critical thinking by defining and redefining problems, formulating hypothesis or suggested solution, collecting, organizing and evaluating data making deduction and making conclusion to determine whether they fit the formulation of hypothesis. Thus the term "Research" refers to the critical, careful and exhaustive investigation, inquiry or examination or experimentation having the aim of revision of accepted conclusion in the light of newly discovered facts. Research Methodology is the process of arriving at the solution of the problem through planned and systematic dealing with the collection, analysis and interpretation of the facts and figures. In other words, research methodology describes the methods and process applied in the entire aspects of the study.

3.1 Research Design

Proper planning is essential to get success in every matter whatever in the battlefield or research will be. Research design is a strategic approach; proactively maintained possible cause and effects. A researcher also develops a plan and strategy to get solution of research problem. "Research design is a plan structure and strategy investigation conceived so as to obtain answer of research question and control variance." The research is acquainted to examine and find out the problem and possibility of generating the portfolio investment for the joint venture banks with special reference to selected banks. Regarding the nature of this research, this research is Historical, Descriptive as well as Analytical Research because this research is based on historical data, based on generalized theorems of financial management and investment analysis evaluating the data of reference organizations. Finally, research design is the plan, structure and strategy of investigations conceived so as to obtain answers to research questions and to control variances.

3.2 Data Collection Procedure

3.2.1 Population and Sample of Data

The term population of data denotes for 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 have been selected from the whole population in a few numbers. Random selected method is to be used while selecting sample organization for this study. The population data for this study comprises all joint venture banks which are currently operating in banking industry of Nepal. The sample consists of only four selected JVBs which are as follows:

- Nepal SBI Bank Ltd.
- Everest Bank Ltd.

3.2.2 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 some one else and used already and made available as published or unpublished statistics are known as secondary data. Mainly the study will be based on secondary data. Sources of secondary data will be published data like annual reports of banks, financial statements, reviews, reports, financial journals, articles from various magazines, statistical reports, previous thesis &dissertation, related text books and so on. Data and information collection is done as follows:

- Library research
- Internet
- Study of Articles, Journals and related materials from various sources
- Collection and study of reviews & reports of NRB and different commercial banks
- Discussion with stakeholders of selected banks under study, financial experts, seniors of my bank, professors and guides of my college e

3.3 Tools for Analysis

In order to ascertain investment analysis of any firm, various analytical tools can be used. According to the nature of statement of data, suitable or appropriate tools make

the analysis more effective and significant for achieving objective. Two tools; financial and statistical can be used in this study.

3.3.1 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 strengths and weakness of the investment policies and strategies. For this analysis, following various financial tools have been used.

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

3.3.1.1 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 stated as:

$$\text{Return on government secutities} = \frac{\text{Interest earned form Government Secutiries}}{\text{Total Investment on Government Securities}}$$

ii) Return on Risk Assets

The return on loan and advances is calculated by dividing interest earned from Risk Assets (loan and advances, Bills purchased & discounted) by total Risk Assets. This can be as follows:

$$\text{Return on Risk Assets} = \frac{\text{Interest earned form Risk Assets}}{\text{Total Risk Assets}}$$

iii) Average Rate of Return

In finance, rate of return (ROR), also known as return on investment (ROI), rate of profit or sometimes just return, is the ratio of money gained or lost (whether realized or unrealized) on an investment relative to the amount of money invested. The amount of money gained or lost may be referred to as interest, profit/loss, gain/loss, or net

income/loss. The money invested may be referred to as the asset, capital, principal, or the cost basis of the investment. ROI is usually expressed as a percentage. When historical returns are used, following formula is used to calculate an average rate of return:

The arithmetic average rate of return over n periods is defined as:

$$\bar{r}_{arithmetic} = \frac{1}{n} \sum_{i=1}^{n} r_{arith,i} = \frac{1}{n} \left(r_{arith,1} + \cdots + r_{arith,n} \right)$$

Rate of Return and Return on Investment indicate cash flow from an investment to the investor over a specified period of time, usually a year.

ROI is a measure of investment profitability, not a measure of investment size. While compound interest and dividend reinvestment can increase the size of the investment (thus potentially yielding a higher dollar return to the investor), Return on Investment is a percentage return based on capital invested.

In general, the higher the investment risk, the greater the potential investment return, and the greater the potential investment loss

iv) Risk on Individual Assets

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

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

Standard deviation (σ) = $\sqrt{\dfrac{\sum (r - \bar{r})^2}{n}}$

Where,

r = Rate of return on individual assets

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

n = Number of years or observation

v) Return on Portfolio

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

Return on portfolio (Rp) = $\Sigma X_i \times R_i$

Or, Rp = $R_1X_1 + R_2X_2 + R_3X_3 + ...+ R_nX_n$

Where,

Rp = Expected return of portfolio

Ri = Expected return of assets

Xi = Proportion of total portfolio invested in asset i

R_1 and R_2 = Expected return for asset 1 and 2

X_1 and X_2 = Weight for assets 1 and 2

vi) Risk on Portfolio

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

$$\sigma_p = \sqrt{W_x^2\sigma_x^2 + W_y^2\sigma_y^2 + 2W_XW_YCOV_{xy}}$$

Where,

σ_p = standard deviation of a portfolio

W_x = proportion (weight) of investment in security X

W_y = proportion (weight) of investment in security Y

COV_{xy} = Covariance of the returns between security x and y

n = Number of assets included in the portfolio

vii) Covariance

The covariance is a statistical measure of how the returns of two assets move together. The covariance is related to the correlation coefficient as shown in following equation:

$$COV_{AB} = \sigma_A \; X \; \sigma_B \; X \; r_{AB}$$

Where,

COV_{AB} = Covariance between assets A and B

σ_A and σ_B = Standard deviation of A and B

r_{AB} = Correlation coefficient for assets A and B

3.3.1.1 Financial Ratios:

i)   Return on Shareholder's Equity Ratio

ii)   Return on Total Assets Ratio

iii)   Total Investment to Total Deposit Ratio

iv)   Government Securities to Total Ratio

v)   Risk Assets to Total Deposit Ratio

vi)   Share and Debenture to Total Deposit Ratio

vii)   Net Profit to Total Deposit Ratio

viii)   Investment on Government Securities to Total Outside Investment

ix)   Loan and Advances to Total outside investment

x)   Investment on Share and Debenture to Total Outside Investment

i) Return of Shareholder's Equity Ratio

The return of common shareholders' equity, commonly called the "investor's ratio", has long been a recognized measure of the relative attractiveness of a share of the common stock as an investment. The common shareholders' equity is related equity in a corporation; net income after taxes is the residual income for the period. The investors' ratio logically measures the relationship between two, which finds expression in the formula.

$$\text{Retrun of Shareholder's Equity Ratio} = \frac{\text{Net Profit After Taxes}}{\text{Shareholder's Equity Ratio}}$$

ii) Return on Total Assets Ratio

The return on assets (ROA) percentage shows how profitable a company's assets are in generating revenue. Return on assets is an indicator of how profitable a company is before leverage, and is compared with companies in the same industry. Since the figure for total assets of the company depends on the carrying value of the assets, some caution is required for companies whose carrying value may not correspond to the actual market value. Return on assets is a common figure used for comparing performance of financial institutions (such as banks), because the majority of their assets will have a carrying value that is close to their actual market value. Return on assets is not useful for comparisons between industries because of factors of scale and peculiar capital requirements (such as reserve requirements in the insurance and banking industries).

This measures how efficiently profits are being generated from the assets employed in the business when compared with the ratios of firms in a similar business. A low ratio in comparison with industry averages indicates an inefficient use of business assets. The Return on Assets Ratio is calculated as follows:

iii) Total Investment to Total Deposit Ratio

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

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

iv) Government Securities to Total Deposit Ratio

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

$$\text{Government Securities to Total Deposit Ratio} = \frac{\text{Investment in Government Securities}}{\text{Total Depsoits}}$$

v) Risk Assets to Total Deposit Ratio

This ratio can be calculated by dividing Total Loan and Advances by total deposits. This can be stated as follows:

$$\text{Loan and Advances to Total deposit Ratio} = \frac{\text{Total Risk Assets}}{\text{Total Depsoits}}$$

vi) Share and Debenture to Total Deposit Ratio

This ratio can be calculated by dividing investment in Share and Debenture by total deposits. This can be stated as follows:

$$\text{Share and Debenture to Total Deposit Ratio} = \frac{\text{Investment on Share \& } debenture}{\text{Total Depsoits}}$$

vii) Net Profit to Total Deposit Ratio

This ratio can be calculated by dividing Net Profit by total deposits. This can be stated as follows:

$$\text{Net Profit to Total Deposit Ratio} = \frac{\text{Net Profit after Tax}}{\text{Total Deposits}}$$

viii) Investment on Government Securities to Total Outside Investment

This ratio can be calculated by dividing investment on government securities by Total Outside Investment. This can be stated as follows:

$$\text{Govt. Securities to Total Outside Investment Ratio} = \frac{\text{Investment on Govt. Securities}}{\text{Total Outside Investment}}$$

Where, Total Outside Investment = Total of Risk Assets and Investment

ix) Total Risk Assets to Total Outside Investment

This ratio can be calculated by dividing investment in Total Risk Assets by Total Risk Assets. This can be stated as follows:

$$\text{Risk Assets to Total Deposit Ratio} = \frac{\text{Total Risk Assets}}{\text{Total Outside Investment}}$$

x) Investment on Share and Debenture to total outside Investment

This ratio can be calculated by dividing investment in Share and Debenture by total outside investment. This can be stated as follows:

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

3.3.2 Statistical Tools

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

- Arithmetic Mean
- Coefficient of Variation (C.V.)
- Least Square linear trend
- Karl Person's Coefficient of Correlation
- Multiple Regression Analysis

I) Arithmetic Mean

Arithmetic mean is commonly referred to as "average" or simply as "mean". The **arithmetic mean** of a set of data is found by taking the sum of the data, and then dividing the sum by the total number of values in the set.

$$\bar{x} = \frac{1}{n} \cdot \sum_{i=1}^{n} x_i$$

Where,

$\overline{X}$ = Arithmetic Mean

$\sum X$ = Sum of observation

n = Number of observation

The mean is not necessarily the same as the middle value (median), or the most likely (mode). For example, mean income is skewed upwards by a small number of people with very large incomes, so that the majority has an income lower than the mean. By contrast, the median income is the level at which half the population is below and half is above. The mode income is the most likely income, and favors the larger number of people with lower incomes. The median or mode are often more intuitive measures of such data.

II) Coefficient of Variation (C.V.)

In [probability theory](#) and [statistics](#), the **coefficient of variation (CV)** is a [normalized](#) measure of [dispersion](#) of a [probability distribution](#). It is also known as **unitized risk** or the **variation coefficient.**

The coefficient of variation (CV) is defined as:

$$\frac{Risk}{\mathrm{Re}\,turn} = \frac{\sigma}{\bar{r}}$$

Where,

σ = Standard deviation of asset i

$\bar{r}$ = Average return

The coefficient of variation represents the ratio of the standard deviation to the mean, and it is a useful statistic for comparing the degree of variation from one data series to another, even if the means are drastically different from each other.

III) 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 best fit in the series. As per this method, the trend line between dependent variable Y and the independent variable x be represented by,

Y= a + bx

Where,

Y= Dependent variable

X= Independent variable i.e. time

a = Y – intercept

b= Slope of the trend line

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

$$\sum Y = na + b\sum X$$

$$\sum XY = a\sum X + b\sum X^2$$

Where,

   n= Number of years

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

Since Ex=0, then the value of a and b can be calculated by,

$$a = \frac{\sum Y}{n}$$

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

IV) Karl Person's Coefficient of Correlation

Pearson's correlation coefficient between two variables is defined as the covariance of the two variables divided by the product of their standard deviations:

$$\rho_{X,Y} = \frac{\text{cov}(X,Y)}{\sigma_X \sigma_Y} = \frac{E[(X-\mu_X)(Y-\mu_Y)]}{\sigma_X \sigma_Y},$$

The above formula defines the *population* correlation coefficient, commonly represented by the Greek letter ρ (rho). Substituting estimates of the covariance and variances based on a <u>sample</u> gives the *sample correlation coefficient*, commonly denoted *r* :

$$r = \frac{\sum_{i=1}^{n}(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^{n}(X_i - \bar{X})^2}\sqrt{\sum_{i=1}^{n}(Y_i - \bar{Y})^2}}.$$

The correlation coefficient ranges from −1 to 1. A value of 1 implies that a linear equation describes the relationship between X and Y perfectly, with all data points lying on a [line](#) for which Y increases as X increases. A value of −1 implies that all data points lie on a line for which Y decreases as X increases. A value of 0 implies that there is no linear correlation between the variables.

More generally, note that $(X_i − X)(Y_i − Y)$ is positive if and only if X_i and Y_i lie on the same side of their respective means. Thus the correlation coefficient is positive if X_i and Y_i tend to be simultaneously greater than, or simultaneously less than, their respective means. The correlation coefficient is negative if X_i and Y_i tend to lie on opposite sides of their respective means.

Probable error

Probable error of 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 coefficient denoted by P.E. (r) is obtained as:

$$P.E.\ (r) = 0.6754 \times \frac{1 - r^2}{\sqrt{n}}$$

Where,

r = Calculated correlation coefficient

n = Number of observations

If r<6×P.E. (r) , then the value of r is not at all significant

If r>6×P.E. (r), then r is definitely significant

V) Multiple Regression Analysis

Regression analysis applied to an equation with two or more independent variables. The relationship between a known variable and an unknown variable to estimate the unknown one is termed as regression analysis. Thus, correlation measures the degree of relationship between the variables while regression analysis shows how the variables are related. Regression and correlation analysis thus determines the nature and the

strength of relationship between two variables. Thus regression is the estimation of unknown values or prediction of one variable from known values of other variables.

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

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

The multiple regression equation describes the average relationship between one dependent variable and two independent variables and this relationship is very much useful for estimating or predicting the dependent variable. Thus, a multiple regression equation of X_1 and X_2 and X_3 is an equation for estimating a dependent variable X_1 from independent variable X_2 and X_3.

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

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

The values of the constants a1, b1 and b2 can be obtained by solving following three normal equations simultaneously obtained by the method of least squares.

$$\Sigma X_1 = na1 + b1\Sigma X_{2\ +b2} \Sigma X_3$$

$$\Sigma X_1 X_{2\ =\ a1}\Sigma X_2 + b1 \Sigma X_2^2 {}_{+\ b2} \Sigma X_2 X_3$$

$$\Sigma X_1 X_{3\ =\ a1}\Sigma X3 + b1\Sigma X_2 X_{3\ +b2}\Sigma X_3^2$$

3.4 Method of Analysis & Presentation

All data will be in readymade format or data obtained from various sources cannot be directly used in their original form. Data should be used and analyzed according to the need of the study. Data, information, figures and facts so obtained need to be checked, rechecked, edited and tabulated for computation. Required data are selected, classified and tabulated in such a way that they will represent some quantitative and qualitative results. Then only tabulated data will be used in the research. For the purpose of the study, collected and obtained data are scanned and tabulated under various heads. Selected suitable tools and proper analysis make use of the data effective. The various calculated results obtained through financial and statistical tools are tabulated under different heading. Then they are compared, analyzed with each other to interpret results**.**

CHAPTER-4
DATA PRESENTATION AND ANALYSIS

In this chapter, the data have been analyzed 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 have been shown in annexure. The results of the analysis have been compared with conventional standard with respect to ratio analysis, directives of NRB and other factors while using the tools. Furthermore, many suitable graphs, lines and diagrams have also been used to clarify the actual position of the banks. In this section the investment portfolio of joint venture banks is analyzed with the help of following tools.

- Risk & return on individual investment assets and investment portfolio
- Analysis of ratios
- Least square linear trend
- Correlation analysis
- Multiple regression analysis

4.1 Risk and Return on 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 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 the safest of all investments, as the government is unlikely to default on interest or in principal repayments. The risk and return in government securities such as treasury bills, development bond, national saving bond etc. can be calculated as follows:

The return in Government securities is compared by dividing interest income in government securities by total investment in government securities. i.e.

Return on government securities$= \dfrac{\text{Interest Income from Government Securities}}{\text{Total Investment in government Securities}}$

Average rate of Return in Government Securities $(\overline{R_g}) = \dfrac{\sum Rg}{n}$

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

$$\sigma_g = \sqrt{\dfrac{\sum (Rg - \overline{Rg})^2}{n}}$$

Coefficient of variation$= \dfrac{\sigma_g}{R_g}$

Where,

n= Number of historical years (period)

Table No 4.1
Calculation of Risk and Return on Government Securities

(In percentage)

FY	NSBI	EBL
2006/07	4.67	2.7
2007/08	3.07	3.7
2008/09	4.04	5.6
2009/10	4.87	5.5
Mean	**4.16**	**4.4**
S.D.	**0.7**	**1.2**
C.V.	**0.17**	**0.3**

Table No. 4.2
Calculation of Risk and Return on Government Securities of JVBs in Nepal
(Resin million)

FY	Interest Income on Government Securities	Investment on Government Securities	Return on Government Securities(in percentages) (R_g)	$R_g - \overline{R}_g$	$(R_g - R_g)^2$
2006/07	914.28	25,898.60	3.53	(0.81)	0.66
2007/08	1,017.61	28,888.74	3.52	(0.82)	0.67
2008/09	1,497.90	27,503.57	5.45	1.11	1.22
2009/10	1,500.50	31,204.34	4.81	0.47	0.22
Total	**4,930.28**	**113,495.25**	**17.31**		**2.77**

Source: Annexure 'A'

Here,

$\sum Rg = 17.38$

n = 4

$$\overline{R_g} = \frac{\sum R_g}{n}$$

$$\frac{17.31}{4}$$

= 4.32

We get,

$$S.D. = \sigma_g = \sqrt{\frac{\sum (Rg - \overline{Rg})^2}{n}}$$

$$= \sqrt{\frac{2.77}{4}}$$

= 0.83

Similarly,

Coefficient of variation $(CV_g) = \frac{\sigma_g}{Rg}$

= 0.19

Hence, from above calculation we get

Average return on government securities ($\overline{Rg}$)= 4.32

Standard deviation on return on government securities (σg) = 0.83

Coefficient of variation = 0.19

Figure no. 4.1
Return on Government Securities of Joint Venture Banks in Nepal
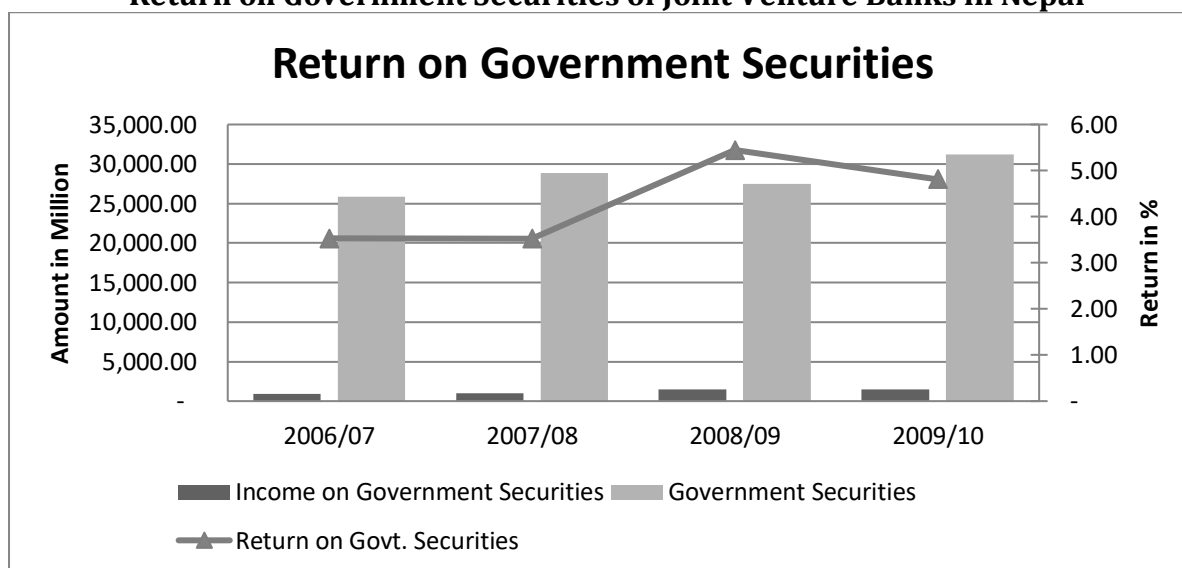
Table no 4.1 shows return of EBL and SBI on Investment on Government Securities. During the review period NSBI earned highest return of 4.87% from investment on Government securities in FY 2009/10. Return on treasury bills was 4.57% and return on other government securities was 6.1%. Whereas in FY 2007/08 NSBI earned the lowest return i.e 3.07%. In that FY return on treasury bills was 3.1% only.

Similarly return on government securities was lowest in FY 2006/07 i.e 2.7%. It was because the bank had invested on low rate government securities – return on other government securities was only 1.3% and treasury bills was 3.16%. Whereas, the bank earned highest return in FY 2008/09 i.e 5.6%. It's the result of return from treasury bills i.e 6% and return from other government securities i.e. 7.7%.

During the review period average return on government securities of NSBI is 4.16% and of EBL is 4.4%. EBL's return is higher than the average return of JVBs.

Table no 4.2 and Figure no 1 show the return and risk on government securities of joint venture banks in Nepal during the review period. The highest return is 5.45% in FY 2008/09 and lowest return is 3.52% in FY 2007/08. During the review period JVB's return was almost same in first two fiscal year, increased in 3rd FY and again reduced in FY 2009/10. There is no fixed trend of return during the review period. Average return of JVBs of review period was 4.32%.

Similarly, standard deviation and coefficient of variation are 0.83 and 0.19 respectively. The lower variability on return on government securities shows the lower risk on investment. It's all because of the proper investment on different securities like treasury bills and other government securities.

4.1.2 Risk and Return on Risk Assets

The major portion of short-term investment of commercial banks is the loan and advances provided to various sector of the market. It is the main sources of income for commercial banks. Joint venture banks provide different types of loans and advances to the various sectors like agriculture, industry, trade etc.

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

Return on Risk Assets $= \dfrac{\text{Interest Income from Loan and Advances}}{\text{Total Investment on Loan and Advances}}$

Average Rate of Return on Risk Assets (R_L) $= \dfrac{\sum RL}{n}$.

Risk on Risk Asset is denoted by σL and can be calculated by using following formula:

$$\sigma_L = \sqrt{\dfrac{\sum (RL - \overline{RL})^2}{n}}$$

Coefficient of variation (CV_L) $= \dfrac{\sigma_L}{R_L}$

Where,

n= Number of historical years (period)

Table No. 4.3
Calculation of Risk and Return on Risk Assets

FY	NSBI	EBL
2006/07	7.01	6.87
2007/08	6.75	7.06
2008/09	7.56	7.57
2009/10	9.80	9.95
Mean	**7.78**	**7.86**
S.D.	**1.20**	**1.23**
C.V.	**0.15**	**0.16**

Table No. 4.4
Calculation of Risk and Return on Risk Assets of JVBs in Nepal
Rs. in million

FY	Interest Income on Loan & Advances	Total Risk Assets	Return on Loan and Advances(in percentages) (Rl)	$R_g - R_g$	$(R_g - R_g)2$
2006/07	4,950.89	70,086.86	7.06	(0.73)	0.53
2007/08	6,151.74	89,495.64	6.87	(0.92)	0.84
2008/09	8,476.60	112,761.95	7.52	(0.27)	0.07
2009/10	12,871.40	132,382.49	9.72	1.93	3.74
Total			**31.18**		**5.18**
Mean			**7.79**		
S.D.			**1.14**		
C.V.			**0.15**		

Source Annexure B

Figure No 4.2
Return on Loan and Advances of Joint Venture Banks in Nepal
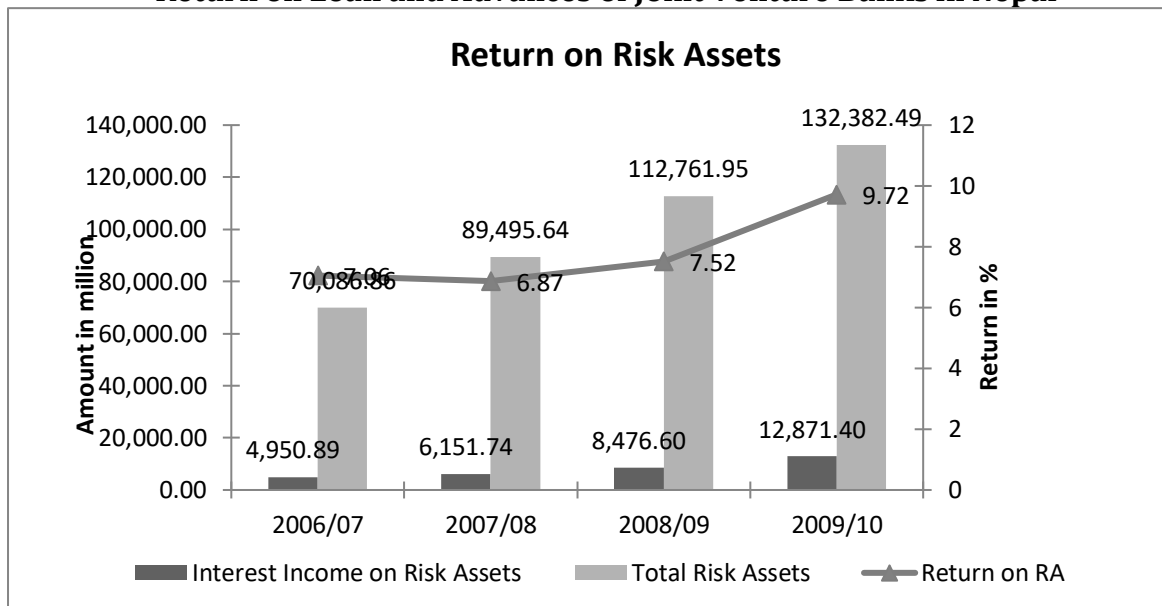
Table No 4.3 shows return on Risk Assets EBL and SBI. During the review period both of the banks earned highest return in FY 2009/10. Whereas NSBI earned lowest return on RA in FY 2007/08 and EBL earned lowest return on RA in FY 2006/07. Average return on RA of EBL is higher than of the NSBI i.e 7.86% > 7.78%.

The table no 4.4 and figure no 4.2 show the return and risk on RA of JVBs of Nepal during the review period. Return on RA of JVBs is highest in FY 2009/10 i.e. 9.72% and average return is 7.79%. RA is increasing over the last four years and return on RA is also increasing from last three years. Similarly, the standard deviation is 1.14 and coefficient of variation is 15% which show the riskiness of return on RA. If we compare figure 4.1 and 4.2, it is seen that return on RA is higher than the return on government securities and risk on RA is also more than the risk of Government securities.

4.1.3 Risk and Return on Other Investment

The risk and return on other investment of the joint venture banks can be calculated as follows:

Return on other investment $= \dfrac{\text{Earnings from other investment}}{\text{Total other investmen}}$

Average return on share (Ro) $= \dfrac{\sum Ro}{n}$

Risk on other investment (S.D) (σo) = $\sqrt{\dfrac{\sum (Ro - \overline{Ro})^2}{n}}$

Coefficient of variation (CVs) = $\dfrac{\sigma_0}{R_0}$

Where,

Ro = Return on other investment

n = Number of years

Table No 4.5
Calculation of Risk & Return on Other Investment

FY	NSBI	EBL
2006/07	0.06	2.12
2007/08	1.01	8.46
2008/09	0.05	3.49
2009/10	0.04	6.30
Mean	**0.29**	**5.09**
S.D.	**0.41**	**2.457**
C.V.	**1.43**	**0.48**

Annexure C

Table No 4.6
Calculation of Risk & Return on Other Investment of JVBs in Nepal

FY	Total Income from other investment	Total other Investments	Return on other investment (in percentages) (Ro)	$\bar{R}o - Ro$	$(Ro - \bar{R}o)^2$
2006/07	34.25	16,942.72	0.20	(0.15)	0.022001
2007/08	71.09	17,742.08	0.40	0.05	0.002518
2008/09	102.07	33,438.99	0.31	(0.05)	0.00205
2009/10	172.03	34,829.09	0.49	0.14	0.02057
Total	**379.44**	**102,952.89**	**1.40**		**0.05**
Mean			**0.35**		
Sc.D.		**0.108**			
C.V.			**0.31**		

Figure No 4.3
Return on other investment in Joint Venture banks in Nepal
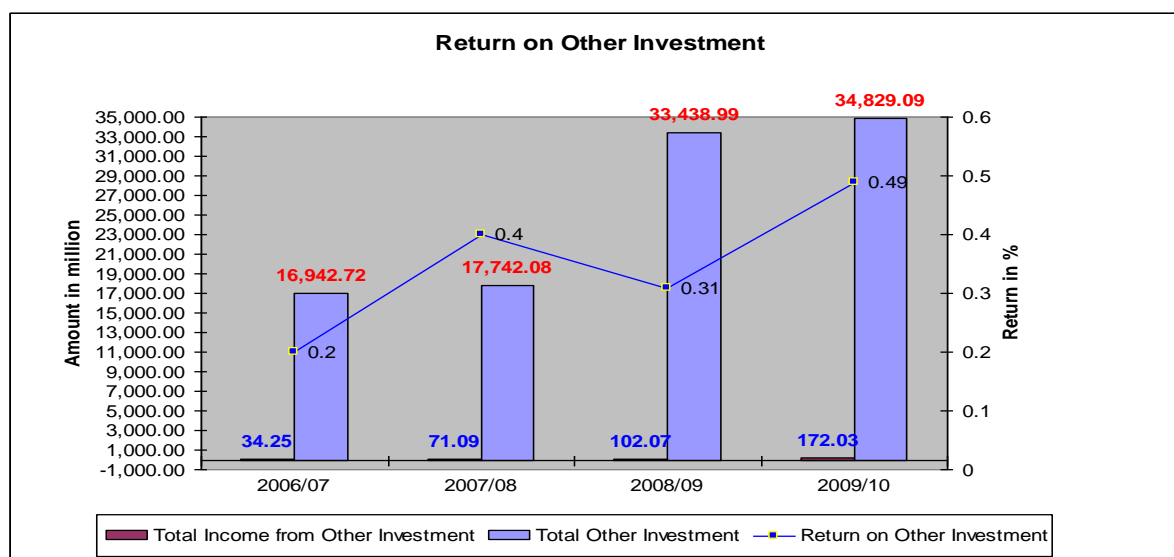
The table no 4.5 shows the return on other investment of EBL and NSBI. Other investment includes investment made in corporate shares and debentures and placement made in licensed institutes and foreign banks i.e. interbank lending. Return on other investment of NSBI is very low during the review period. In FY 2006/07 dividend was the only income earned from investment made in other securities of NSBI. And in last two FYs the bank has earned interest and dividend from those investments. EBL earned highest income in FY 2007/08 and lowest earning in FY 2006/07. EBL

earned good amount of interest from interbank lending in FY 2007/08. Average return of EBL is 5.09%.

The table no 4.6 and figure no 4.3 show the return on other investment of JVBs during the review period. Investment during the review period is in increasing trend during the review period. Whereas return on investment is seen in fluctuating trend. Average return of JVBs is only 0.35%. Similarly S.D. and C.V are 0.11 and 0.31 that shows less variability on return and less risk.

4.1.4 Risk and Return on Investment Portfolio

4.1.4.1 Portfolio Return on Investment

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

Table No. 4.7
Calculation of Weight of the investment on various assets

S.N.	Assets	Investment Amount Rs in million	Proportion Weight (x)	Average Rate of return ($\bar{R}$)
1	Government Securities	113,495.25	0.18	4.34
2	Loan and Advances	404,726.94	0.65	7.79
3	Other Investment	102,952.89	0.17	0.35
Total		621,175.07		

Portfolio Return (Rp)= Xg x R_g + X_L x R_L + Xo x Ro

= 0.18 x 4.34 + 0.65 x 7.79 + 0.17 x 0.35

= 5.93%

Table No 4.8
Calculation of Portfolio Return of joint Venture Banks

Fiscal year	Investment on Government securities	Proportion Weight (Xg)	Investment on Loan and Advances	Proportion Weight (Xl)	Investment on Other Investment	Proportion Weight (Xo)	Return on Government Securities (Rg)	Return on Loans and Advances (Rl)	Return on Other Investment (Ro)	Portfolio Return (Rp)
2006/07	25,899	0.23	70,087	0.62	16,943	0.15	3.53	7.06	0.20	5.22
2007/08	28,889	0.21	89,496	0.66	17,742	0.13	3.59	6.87	0.40	5.33
2008/09	27,504	0.16	112,762	0.65	33,439	0.19	5.45	7.52	0.31	5.80
2009/10	31,204	0.16	132,382	0.67	34,829	0.18	4.81	9.72	0.49	7.33
Total	113,495		404,727		102,953		17.38	31.18	1.40	23.69

Above tables show that return on portfolio of JVBs is in increasing trend over the review period. It is also found that Risk Assets has the highest weight in the portfolio of JVBs. Similarly return on RA is highest amongst the return of all other investment alternatives. Similarly, average expected rate of return on portfolio of JVBs is 5.93%

4.1.4.2 Portfolio Risk on Investment

Expected risk on a portfolio is a function of the proportion invested in the components, risk of the components and correlation of returns on the component securities. It is measured by the standard deviation. The portfolio risk is affected by the association of movement of returns of two securities. The degree to which the assets return move together is measured by the covariance. Hence, by combining the measures of individual asset risk, relative asset weights and co-movement of assets return, the risk of the portfolio can be estimated.

Table No 4.9

Calculation of Correlation Coefficient between Investment Securities of Joint venture Banks

Fiscal year	Return on Government Securities (Rg)	Return on Loans and Advances (RL)	Return on Other Investment (Ro)	RgR$_L$	RgRo	R$_L$Ro	Rg^2	RL^2	Ro^2
2006/07	3.53	7.06	0.20	24.94	0.71	1.43	12.46	49.90	10.09
2007/08	3.59	6.87	0.40	24.68	1.44	2.75	12.89	47.25	18.93
2008/09	5.45	7.52	0.31	40.94	1.66	2.29	29.66	56.51	17.25
2009/10	4.81	9.72	0.49	46.75	2.38	4.80	23.12	94.53	46.69
Total	17.38	31.18	1.40	137.31	6.19	11.28	78.13	248.19	92.96

Correlation between return on two securities be :

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

Here,

Correlation between return on government securities (Rg) and Return on Risk Assets (RL) be

r_{gL} =   0.5062

Similarly, correlation between return on government securities (Rg) and Other Investment (Ro) be,

r_{go} =   0.2813

Again, correlation between Return on Risk Assets (RL) and Other Investment (Ro) be,

R_{Lo} = 0.711

Calculation of covariance between different assets

Covariance between return on government securities (Rg) and return on Risk Assets (RL)

$COVg_L = r_{gL} \times \sigma_g \times \sigma_L$

          = 0.5062 x 0.9418 x 1.313

= 0.6263

Covariance between return on government securities (Rg) and return on Other Investment (Ro)

$COV_{go} = r_{go} \times \sigma_g \times \sigma_o$

= 0.033

Covariance between return on Risk Assets (RL) and Return on Other Investment

$COV_{Lo} = r_{Lo} \times \sigma_L \times \sigma_o$

= 0.117

Here we get,

$COVg_L$ =0.6263	r_{gL} = 0.5062	σ_g=0.9418	Wg=0.18
COVgo =0.033	r_{go} =0.2813	σo=0.1253	Wo=0.35
COV_{Lo} =0.117	r_{Lo} =0.7111	σ_L=1.313	W_L=0.65

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

$$(\sigma_p)= \sqrt{W_g{}^2\,\sigma_g{}^2 + W_L{}^2\,\sigma_L{}^2 + W_o{}^2\,\sigma_o{}^2 + 2\,W_g\,W_L\,COVg_L + 2\,W_L\,W_o\,COV_{Lo} + 2\,W_g\,W_o\,COVg_o}$$

= 0.8953

Coefficient of Variation $(CV_p)=\dfrac{\sigma p}{Rp}$

=   0.15

Hence, from above calculation we get,

Portfolio return on investment of JVBs (Rp) = 5.93%

Standard deviation of portfolio on investment of JVBs (σ_p)= 0.8953

Coefficient of variation (CV) = 0.15

From the above calculation, portfolio return on investment of JVBs is found as 5.93% and expected risk of the portfolio i.e. Standard deviation is 0.89% and coefficient of

variation is 0.15. Return on Government securities i.e 4.32%. Whereas return on RA is 7.8% that is higher than the portfolio return. And return on other investment is lowest amongst all i.e. 0.35%. Similarly, expected risk of investment on Government securities is lower than expected risk of the Risk Assets i .e 0.83%<1.14% and expected risk on other investment is lowest i.e. 0.11%.

It shows that both expected return and risk on Risk Assets is higher than the expected return and risk from other investments.

Similarly, return from government securities and Risk Assets are moderately correlated i.e. r_{GL} = 0.5. And return from Risk assets and other investment are highly correlated i.e. r_{LO} is 0.7. But there is less degree of positive correlation between return on government securities and return on other investment.

4.2 Analysis of Ratios

A study of the relationships between financial variables. Ratios of one firm are often compared with the same ratios of similar firms or of all firms in a single industry. This comparison indicates if a particular firm's financial statistics are suspect. Likewise, a particular ratio for a firm may be evaluated over a period of time to determine if any special trend exists. Compare trend analysis. See also horizontal analysis, vertical analysis.

The purpose of this chapter is to evaluate and analyze the financial position and performance of the different 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 Return on Shareholders' Equity Ratio

Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. Net income is for the full fiscal year (before dividends paid to common stock holders but after dividends to preferred stock.) Shareholder's equity does not include preferred shares.

Also known as "return on net worth" (RONW). The ROE is useful for comparing the profitability of a company to that of other firms in the same industry.

Of all the fundamental ratios that investors look at, one of the most important is return on equity. It's a basic test of how effectively a company's management uses investors' money - ROE shows whether management is growing the company's value at an acceptable rate. ROE is calculated as:

$$= \frac{\text{Net Profit after Tax}}{\text{Shareholders' Equity}}$$

Table No 4.10
Return on Shareholders' equity

(in percentage)

FY	EBL	NSBI	JVBS
2006/07	24.67	21.91	27.69
2007/08	23.49	17.51	26.00
2008/09	28.94	18.47	25.83
2009/10	30.15	15.99	23.31
Mean	**26.81**	**18.47**	**25.71**
S.D.	**2.80**	**2.18**	**1.57**
C.V.	**10.44**	**11.78**	**6.09**

Source: Annexure D
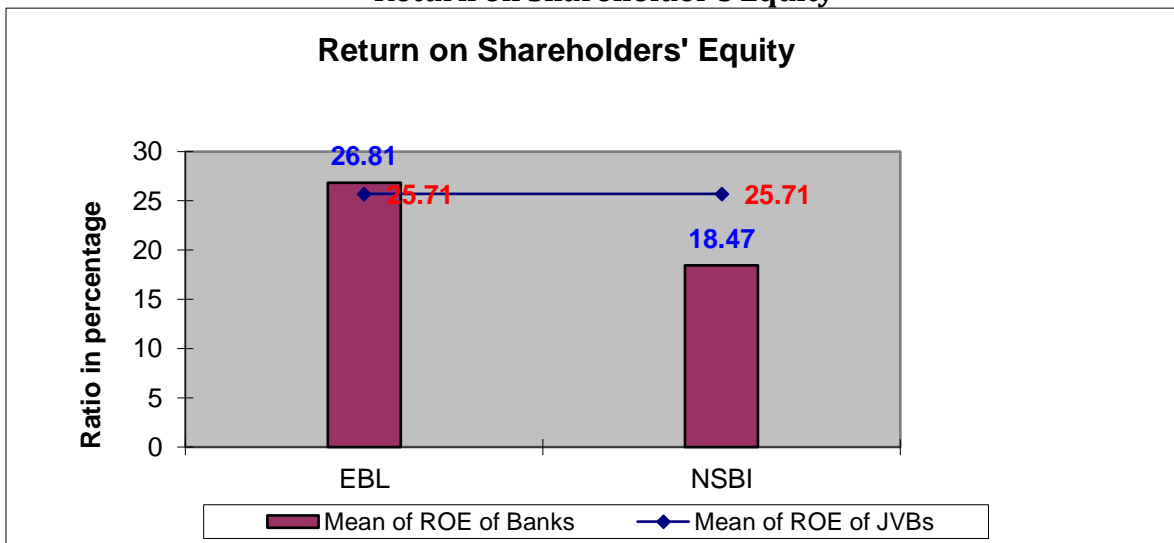
From the above table and figure it is found that EBL has higher return on shareholders' equity which is also higher than the average ROE of JVBs. i.e. 26.81% > 25.71%.

4.2.2. Return on Total Assets Ratio

An indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. Calculated by dividing a company's annual earnings by its total assets, ROA is displayed as a percentage. Sometimes this is referred to as "return on investment". ROA gives investors a reliable picture of management's ability to pull profits from the assets and projects into which it chooses to invest. The metric also provides a good line of sight into net margins and asset turnover - two key performance drivers. ROA makes the job of fundamental analysis easier, helping investors recognize good stock opportunities and minimizing the likelihood of unpleasant surprises.

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

Table No 4.11
Return on Total Assets Ratio

(in percentage)

FY	EBL	NSBI	JVBS
2006/07	1.38		1.92
2007/08	1.66	1.83	1.86
2008/09	1.73	1.02	1.85
2009/10	2.01	1.03	1.81
Mean	**1.70**	**1.33**	**1.86**
S.D.	**0.22**	**0.34**	**0.04**
C.V.	**13.14**	**25.19**	**2.23**

Source: Annexure E

Figure No 4.5
Return on Total Assets Ratio
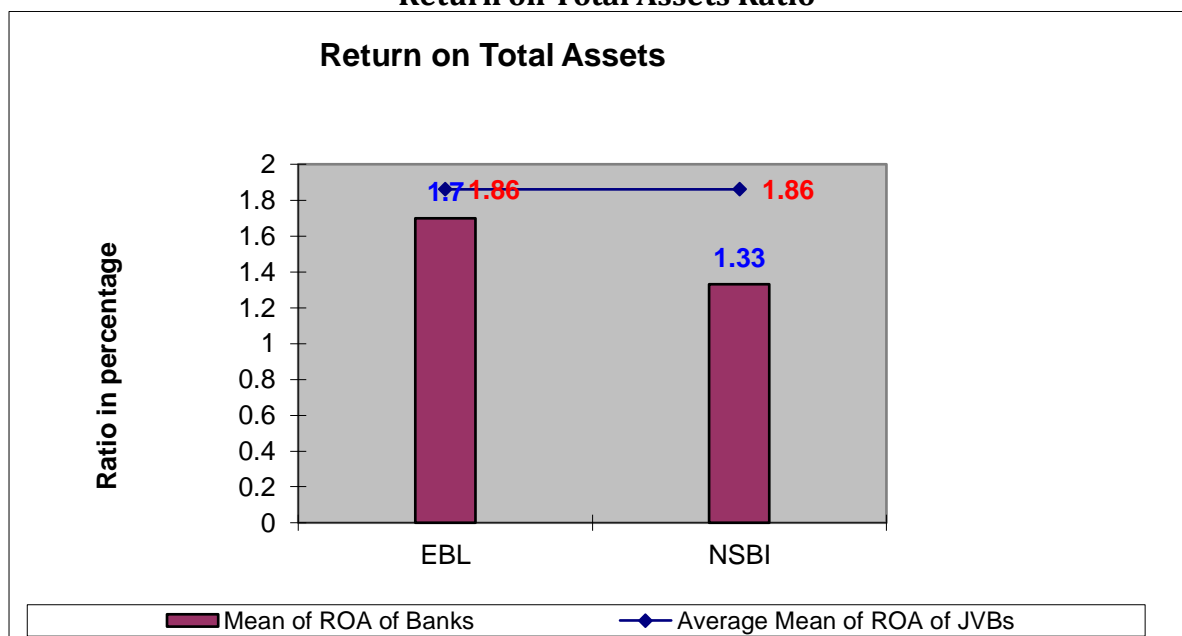
Above table and figure shows that EBL's ROA is higher than of NSBI's ROA i.e. 1.7% > 1.33%. During the review period ROA of JVBs in Nepal is 1.86%. It shows that ROA of both banks are less than the industry average which indicates that other joint venture banks have better ROA than EBL and NSBI during the review period.

The lower CV of EBL shows that the return on total assets of EBL is more consistent than that of the NSBI. But both of the banks studied here have higher S.D. and CV than of

the industry shows that ROA of these banks are more volatile than of the other JVBS of Nepal.

4.2.3 Total Investment on Total Deposit Ratio

Total Investment on Total Deposit Ratio measures the magnitude to which the banks are successful in mobilizing their deposits. It is calculated by dividing total investment by total deposits. In general high ratio indicates efficiency of the bank in mobilizing their funds to optimize the return. The formula is

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

Table No 4.12
Total Investment on Total Deposit Ratio

(in percentage)

FY	EBL	NSBI	JVBS
2006/07	27.41	23.24	39.32
2007/08	21.11	22.52	35.10
2008/09	17.86	47.52	34.61
2009/10	13.57	46.73	32.83
Mean	**19.98**	**35.00**	**35.46**
S.D.	**5.05**	**12.13**	**2.38**
C.V.	**25.28**	**34.65**	**6.71**

Source Annexure F

Figure No 4.6
Total Investment to Total Deposit Ratio
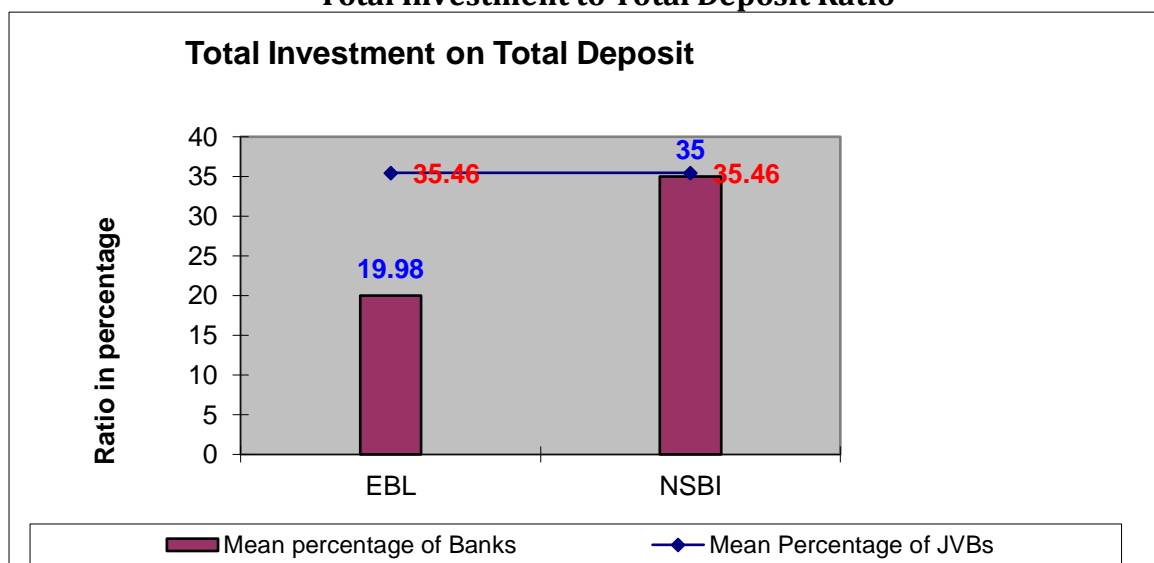
Above table shows that Investment to Total deposit of EBL is in reducing trend, similar to the trend of the JVBs during the review period. Whereas NSBI's investment to total deposit is in increased trend from FY 2008/09. The mean investment to total deposit of NSBI is higher than of the EBL i.e. 35> 19.9 and which is also near to industry average i.e. mean of JVBs is 35.46.

Similarly, C.V. in the ratio of NSBI is higher than of the EBL and industry's C.V. It shows that variability of ratio of NSBI is more.

4.2.4 Government Securities to Total Deposit Ratio

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

$$\text{Government Securities to Total Deposit Ratio} = \frac{\text{Investment in Government Securities}}{\text{Total Depsoits}}$$

Table No 4.13
Government Securities to Total Deposit Ratio

(in percentage)

FY	EBL	NSBI	JVBS
2006/07	25.87	20.49	23.77
2007/08	20.11	22.13	21.74
2008/09	15.44	11.83	15.62
2009/10	11.79	12.36	15.51
Mean	**18.30**	**16.70**	**19.16**
S.D.	**5.27**	**4.65**	**3.66**
C.V.	**28.80**	**27.84**	**19.13**

Source: Annexure G

Figure No 4.7
Government Securities to Total Deposit Ratio
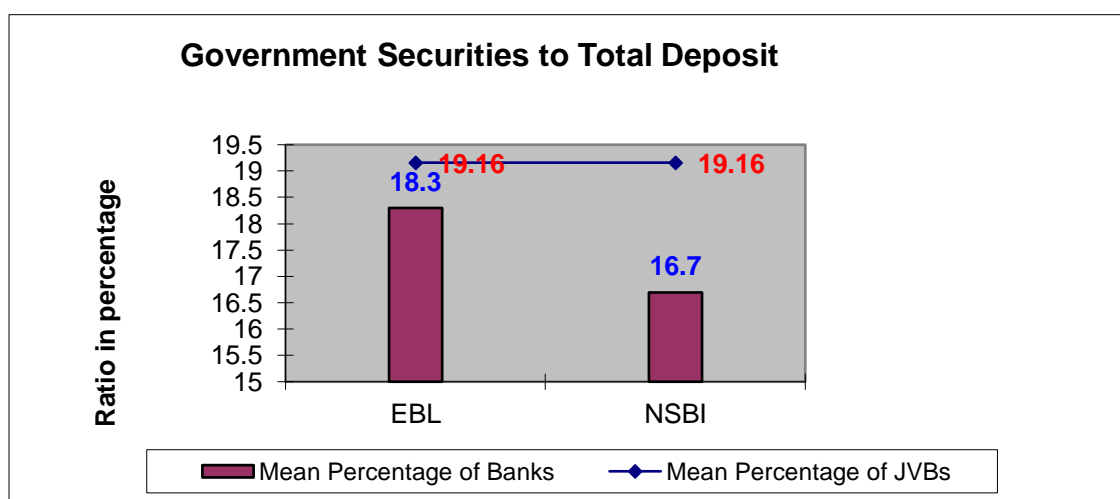
Above table shows the ratio of investment on government securities to total deposits of the selected banks and JVBs of Nepal. It is seen that Investment on government securities to Total Deposit of EBL is in reducing trend and NSBI's is in fluctuating trend. Mean ratio of both of the banks are lower than the mean ratio of JVBs but the C.V. of both of the banks are higher than of the C.V. of JVBs in Nepal. This shows that both of the banks invested less in government securities than of the other JVBs and their investment is more fluctuating than of the other JVBs.

4.2.5 Total Risk Assets to Total Deposit Ratio

Loan and Advances to t deposit ratio explains as to what extent the banks are able to mobilize their depositors' fund to earn profit by providing the funds to outsiders in the form of loans & advances. This ratio is calculated by dividing loan & advances by total deposit. The high ratio represents the efficiency of the firm in utilizing collected deposits to loan & advances and vice-versa. It is computed as:

$$\text{Risk assets to Total deposit Ratio} = \frac{\text{Total Risk Assets}}{\text{Total Depsoits}}$$

Table No 4.14
Total Risk Assets to Total Deposit Ratio
(in percentage)

FY	EBL	NSBI	JVBS
2006/07	77.44	87.94	64.32
2007/08	78.56	92.93	67.36
2008/09	73.43	55.84	64.05
2009/10	76.24	51.48	65.81
Mean	**76.42**	**72.05**	**65.39**
S.D.	**1.91**	**18.54**	**1.32**
C.V.	**2.50**	**25.73**	**2.03**

Source: Annexure H

Figure No 4.8
Risk Assets to Total Deposit Ratio

Risk Assets to Total Deposit
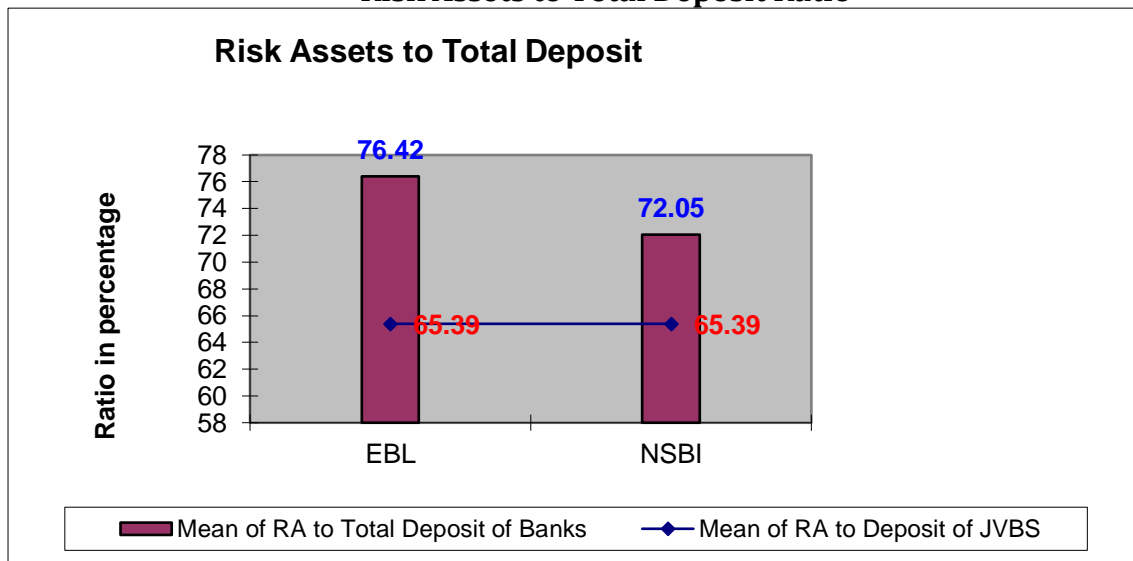
Above table shows the Total Risk Assets to Total Deposit Ratio i.e. also known as CD ratio.

Mean of the CD ratio of EBL is higher than of the average CD ratio of NSBI and it is not in any fixed trend. In the beginning it increased to 78.56% in FY 2007/08, reduced to 73.43% next year and again increased in FY 2009/10 to 76.24%. Similarly CD ratio of NSBI increased in beginning but later on it reduced to 52.48% in FY 2009/10 which is lower than the CD ratio of industry. Average CD ratio of JVBs is 65.39% during the review period. Higher C.V. of CD ratio of NSBI indicates CD ratio is highly variable during the review period.

4.2.6 Share and Debenture to Total Deposit Ratio

Investment on share and debenture to total deposit ratio shows that the portion of investment on shares and debenture from total deposit fund. It explains as to what extent banks have utilized their depositor's fund to invest in shares and debenture. This ratio is calculated by dividing investment on shares and debentures by total deposits. The high ratio represents the efficiency of firm in utilizing collected deposits in shares and debentures of different companies in compliance of NRB regulations as well. It is calculated as:

$$\text{Share and Debenture to Total Deposit Ratio} = \frac{\text{Investment in Share \& Debenture}}{\text{Total Depsoits}}$$

Table No 4.15
Shares and Debenture to Total Deposit Ratio

(In percentage)

FY	EBL	NSBI	JVBS
2006/07	0.11	0.28	0.44
2007/08	0.42	0.24	0.53
2008/09	0.31	0.12	0.42
2009/10	0.28	0.11	0.30
Mean	**0.28**	**0.19**	**0.42**
S.D.	**0.11**	**0.08**	**0.08**
C.V.	**40.13**	**40.44**	**19.27**

Source: Annexure I

Figure No. 4.9
Share and Debenture to Total Deposit Ratio
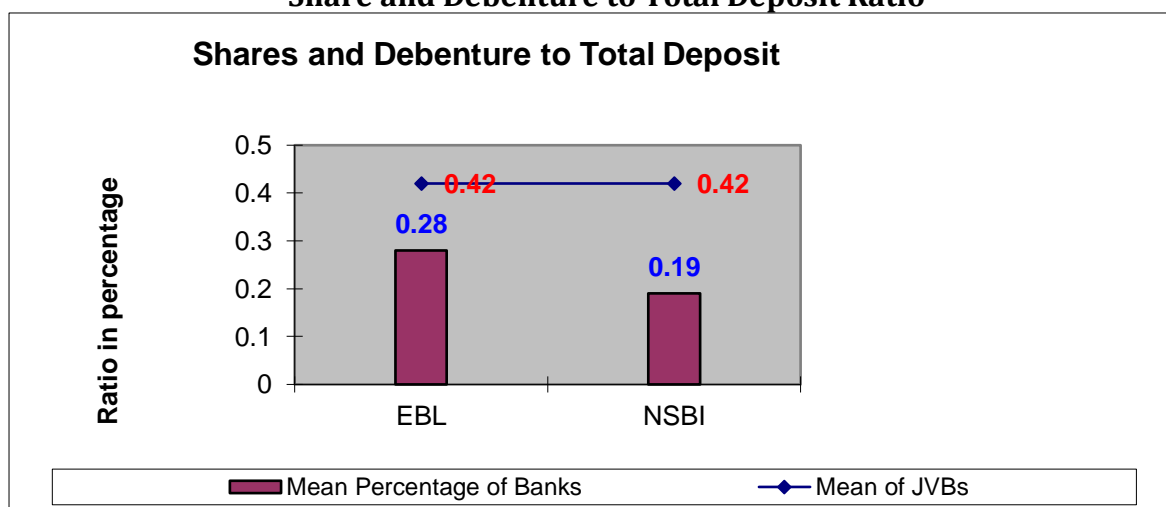
Above table shows that Investment on shares and debentures to Total deposit of selected banks as well as JVBs is in fluctuating trend during the review period. Average ratio of EBL is higher than of the NSBI's investment on shares and debentures to total deposit. But the C.V. in the ratio of NSBI is higher than of the EBL and industry's C.V. It shows that variability of ratio of NSBI is more.

4.2.7 Net Profit to Total Deposit Ratio

Net profit to total deposit ratio is profitability ratio that actually measure the extent to which the banks are successful to gain profit by mobilizing its depositors' 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 computed as:

$$\text{Net Profit to Total Deposit Ratio} = \frac{\text{Net Profit after Tax}}{\text{Total Deposits}}$$

Table No 4.16
Net Profit to Total Deposit Ratio

(in percentage)

FY	EBL	NSBI	JVBS
2006/07	1.63	2.23	2.28
2007/08	1.88	1.81	2.24
2008/09	1.91	1.13	2.17
2009/10	2.25	1.12	2.05
Mean	**1.92**	**1.57**	**2.18**
S.D.	**0.22**	**0.47**	**0.09**
C.V.	**11.53**	**29.84**	**4.03**

Source: Annexure 'J'

Figure No 4.10
Net Profit to Total Deposit Ratio
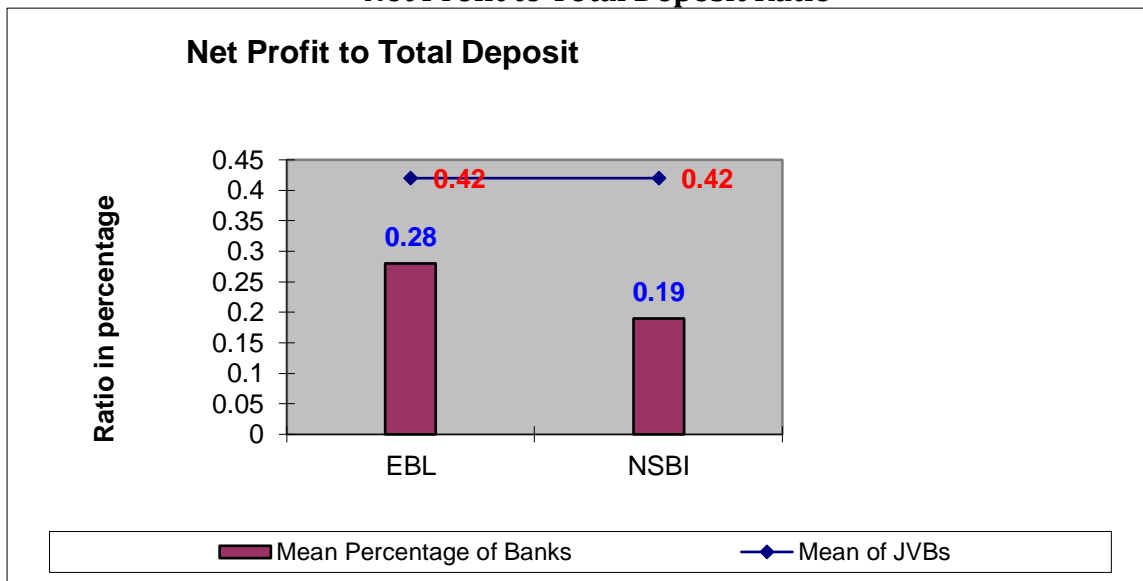
The above table shows that net profit to total deposit ratio of EBL is in increasing trend during the review period whereas NSBI's trend is of just opposite. Similarly net profit to total deposit of JVBs is also in reducing trend during the review period. Average ratio of both of these banks is lower than of the average ratio of the industry. And higher CV of ratio of the NSBI than the CV of industry indicates that net profit to total deposit ratio is more volatile during the review period.

4.2.8 Investment on Government Securities to Total Outside Investment Ratio

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

$$\text{Govt. Securities to Total Outside Investment Ratio} = \frac{\text{Investment in Govt. Securities}}{\text{Total Outside Investment}}$$

Where,

Total Outside Investment = Total Risk Assets + Total Investment

Table No 4.17
Investment on Government Securities to Total Outside Investment Ratio

(In percentage)

FY	EBL	NSBI	JVBS
2006/07	24.67	18.43	22.94
2007/08	20.18	19.17	21.23
2008/09	16.92	11.44	15.84
2009/10	13.13	12.59	15.74
Mean	**18.72**	**15.41**	**18.94**
S.D.	**4.24**	**3.43**	**3.21**
C.V.	**22.67**	**22.25**	**16.93**

Source: Annexure 'K'

The above table shows that investment on government securities to total outside investment of EBL is in decreasing trend. Whereas investment on government securities to total outside investment of NSBI is not in the fixed trend. Average ratio of EBL i.e. 18.72% is higher than the average ratio of NSBI and near to industry average i.e. 18.94%. Similarly CV of ratio of EBL is higher than of NSBI and CV of industry ratio.

4.2.9 Risk Assets to Total Outside Investment Ratio

This is calculated to show in total outside investment what percentage has been obtained by risk assets. Basically, commercial banks have booked more Risk Assets than they invest in other securities. It is calculated as follows:

$$\text{Risk Assets to Total Deposit Ratio} = \frac{\text{Total Risk Assets}}{\text{Total Investment}}$$

Table No. 4.18
Risk Assets to Total Outside Investment Ratio

in percentage

FY	EBL	NSBI	JVBS
2006/07	73.86	79.10	62.07
2007/08	78.83	80.49	65.77
2008/09	80.44	54.02	64.94
2009/10	84.90	52.42	66.76
Mean	**79.51**	**66.51**	**64.89**
S.D.	**3.95**	**13.31**	**1.75**
C.V.	**4.96**	**20.01**	**2.69**

Source: Annexure 'L'

The above table shows that Risk Asset to total outside investment of EBL is in increasing trend. Whereas Risk Assets to total outside investment of NSBI increased in the beginning but reduced later on. Average ratio of EBL i.e. 79.51% is higher than the average ratio of NSBI and industry average. Similarly CV of ratio of NSBI is higher than of EBL and CV of industry ratio.

4.2.10 Investment on Share and Debenture to Total Outside Investment Ratio

The ratio is measure that the extent on which the banks are successful to mobilize their total outside investment on purchase of shares and debentures of other companies. Thus, the high ratio indicates more portion of investment on shares and debenture out of total outside investment and vice-versa. It is computed as:

$$\text{Share and Debenture to Total Deposit Ratio} = \frac{\text{Investment in Share \& Debenture}}{\text{Total Outside Investment}}$$

Where, TOI= Loan & Advances+ Bill Purchased & Discounted +Investment

Table No. 4.19
Investment on Share and Debenture to Total Outside Investment Ratio

(in percentage)

FY	EBL	NSBI	JVBS
2006/07	0.10	0.25	0.42
2007/08	0.42	0.21	0.51
2008/09	0.34	0.11	0.43
2009/10	0.31	0.11	0.30
Mean	**0.29**	**0.17**	**0.42**
S.D.	**0.12**	**0.06**	**0.07**
C.V.	**39.92**	**35.92**	**18.00**

Source: Annexure 'M'

The above table shows that investment on shares and debentures to total outside investment of EBL is in increasing trend in first two FYs but in decreasing trend in rest two FYs of review period. Whereas investment on shares and debentures to total outside investment of NSBI is in decreasing trend. Average ratio of EBL i.e0.29% is higher than the average ratio of NSBI but lower than the industry average. Similarly CV of ratio of EBL is higher than of NSBI and CV of industry ratio.

4.2.11 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 what investment assets. Ratios made by total outside investment of joint venture banks with individual investment assets are tabulated below:

Table No 4.20
Individual Investment Assets to Total Outside Investment Ratio of Joint Venture Banks

(in percentage)

Fiscal year	Government Securities	Shares & Debentures	Other Investment (other than shares and debenture)	Total Risk Assets
2006/07	22.93	0.42	14.58	62.06
2007/08	21.22	0.51	12.52	65.74
2008/09	15.83	0.42	18.83	64.92
2009/10	15.73	0.30	17.25	66.72
Mean	18.93	0.42	15.79	64.86
S.D.	3.21	0.07	2.42	1.74
C.V.	16.94	18.00	15.35	2.68

Source: Annexure 'N'

Figure No. 4.11
Total Outside Investment Ratio
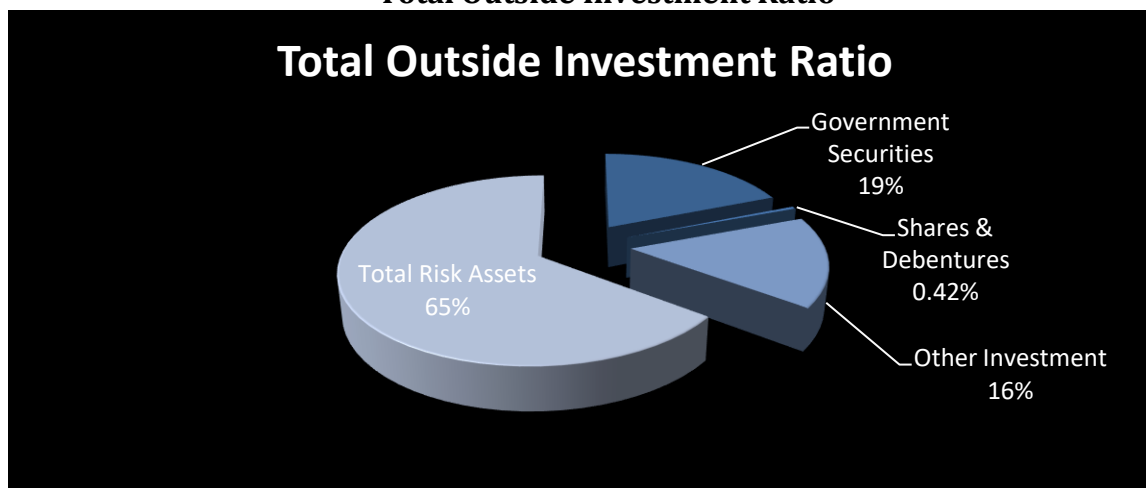
The above table shows the ratio of different securities of total outside investment of selected banks and JVBs during the review period. In the entire period JVBs have highest proportion of RA. Whereas in second rank there is investment on government securities in beginning two FYs but in last two FYS JVBs invested more in other investment than on government securities. And there is lowest investment made on shares and debenture by JVBs during the review period. In this way the average investment in the form of RA is 64.86%, average investment made by JVBS on government securities is 18.93%, on other investment is 15.79% and rest 0.42% on shares and debentures.

4.3 Least Square Linear Trend Analysis

Trend analysis is a mathematical method which is widely used to find out future tendencies based on past assumptions. Furthermore, it is applied for finding out trend line for those series which charge periodically in absolute amount. It is computed as follows:

Y = a + bx

Where,

a = y intercept

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

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

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

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

Here, trend analyses of the following variables have been done by using computer software.

- Total Deposits
- Total Investment
- Total Risk Assets
- Government Securities
- Net Profit

4.3.1 Least Square Linear Trend Analysis of Total Deposits

Under this topic, effort has been made to analyze the trend of total deposits of the joint venture banks based on the total deposits of review period. The following equation shows the trend values of total deposits of joint venture banks.

Y = 30,726X + 93,603

Where,

X is the independent variable i.e. time

Y is the dependent variable i.e. deposit.

It shows that a unit change in an independent variable i.e. X will bring a change of Rs 30,726 million in dependent variable i.e. Y.

Sources: Annexure 'O'

4.3.2 Least Square Linear Trend Analysis of Total Investment

In this section, trend of total investment of the joint venture banks have been analyzed based on the investment of four years of review period. The following equation shows the trend of the total investment of joint venture banks.

$$Y = 7730.67X + 38975.67$$

Where,

Y = Total Investment, dependent variable

X = Year, independent variable.

It shows that a unit change in an independent variable i.e. X will bring a change of Rs 7,730.67 million in dependent variable i.e. Y.

Sources: Annexure 'P'

4.3.3 Least Square linear Trend Analysis of individual Assets of JVBs

4.3.3.1 Least Square linear Trend Analysis of investment on government securities

In this section, trend of total investment on government securities of the joint venture banks have been analyzed based on the investment of four years of review period. The following equation shows the trend of the total investment of joint venture banks.

$$Y = 1768.67X + 25013.67$$

Where,

Y = Total Investment on government securities, dependent variable

X = Year, independent variable.

It shows that a unit change in an independent variable i.e. X will bring a change of Rs1768.67 million in dependent variable i.e. Y.

Sources: Annexure 'Q'

4.3.3.2 Least Square linear Trend Analysis of Risk Assets

In this section, trend of total Risk Assets of the joint venture banks have been analyzed based on the investment of four years of review period. The following equation shows the trend of the total investment of joint venture banks.

Y = 20765X + 59705.50

Where,

Y = Total Risk Assets, dependent variable

X = Year, independent variable.

It shows that a unit change in an independent variable i.e. X will bring a change of Rs 20765 million in dependent variable i.e. Y.

Sources: Annexure 'R'

4.3.4 Least Square Linear Trend Analysis of net Profit

Here, trend of net profit of the joint venture banks has been analyzed taking net profit of JVBs of review period. The following equation shows the trend values of net profit of joint venture banks.

Y = 544.33X + 2211.83

Where,

Y = Net Profit After Tax, dependent variable

X = Year, independent variable.

It shows that a unit change in an independent variable i.e. X will bring a change of Rs 544.33 million in dependent variable i.e. Y.

4.4 Correlation Analysis

It is a useful statistical tool for measuring the intensity of the magnitude of linear relationship between two series. Karl Person'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   = Number of observation in series X and Y

$\sum x$ = Sum of observation in series X

$\sum x$ = Sum of observation in series Y

$\sum xy$ = Sum of the product of observation in series X and Y

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

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

Interpretation of correlation of coefficient

i) When r=+1, it implies that two variables are positively perfectly correlated.

ii) When r=-1, it implies that two variables are negatively perfectly correlated.

iii) When r=0, there is no correlation

iv) When r lies between 0.7 to 0.99 (-0.7 to 0.99), there is high degree of positive (negative) correlation.

v) When r lies between 0.5 to 0.699, there is moderate degree of correlation.

vi) When r is less than 0.5, there is low degree of correlation.

Probable Error

Probable error is an old measure of ascertaining the reliability of the value of personian coefficient of correlation. Probable error of the coefficient of correlation can be calculated by the following formula:

P.E. (r) = 0.6754 X $\dfrac{1-r^2}{\sqrt{n}}$

Where,

r = Calculated correlation coefficient

n = Number of observations

P.E. (r) may be used to test if calculated value of sample correlation coefficient is significant. A few rules for the interpretation of the significance of correlation coefficient are as follows:

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

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

- Total deposit and total investment
- Total deposit and Loan & Advances
- Total deposit and government securities
- Total deposit and shares & debentures
- Total deposit and net profit

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

Fiscal Year	Total Deposits (X)	Total Investment (Y)	XY	X ^{2}	Y ^{2}
2005/06	108,966	42,841	4,668,165,147	11,873,513,380	1,835,325,834
2006/07	132,855	46,631	6,195,127,625	17,650,486,593	2,174,421,996
2007/08	176,059	60,942	10,729,475,130	30,996,911,139	3,713,971,242
2008/09	201,144	66,033	13,282,223,387	40,458,928,165	4,360,408,595
Total	619,024	216,447	34,874,991,290	100,979,839,277	12,084,127,667

Here,

∑x   = 619,024

$\sum y$ = 216,447

$\sum x\,y$ = 34,874,991,290

$\sum x^2$ = 100,979,839,277

$\sum y^2$ = 12,084,127,667

We get,

= 0.9931

$$P.E.\ (r) = 0.6754\ X\ \frac{1-r^2}{\sqrt{n}}$$

$$P.E.\ (r) = 0.6754\ X\ \frac{[1-(0.9931)]^2}{\sqrt{4}}$$

= 0.6754 x 0.0068

= 0.0046

Hence,

r = 0.99

P.E. (r) = 0.0046

Above calculation reveals that the correlation coefficient and probable error of coefficient between total deposit and total investment of JVBs are 0.99 and 0.0046 respectively. Here, correlation coefficient is greater than six times the probable error i.e. 0.99> 6x0.0046. It indicates that there is the positive correlation between total deposit and total investment with high degree at definitely significant level.

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 sampled period have been presented in following table no 4.28

Table No 4.28
Correlation Analysis between Total Deposit and Total Risk Assets

Fiscal Year	Total Deposits (X)	Total Risk Assets (Y)	XY	X²	Y²
2006/07	108,966	70,087	7,637,060,888	11,873,513,380	4,912,168,551
2007/08	132,855	89,496	11,889,955,029	17,650,486,593	8,009,469,305
2008/09	176,059	112,762	19,852,800,691	30,996,911,139	12,715,257,128
2009/10	201,144	132,382	26,627,949,227	40,458,928,165	17,525,122,691
Total	619,024	404,727	66,007,765,836	100,979,839,277	43,162,017,675

r = 0.9967

P.E. (r) = 0.0022

Hence,

r = 0.9967

P.E (r) = 0.0022

Above calculation reveals that the correlation coefficient and probable error of coefficient between total deposit and total Risk Assets of JVBs are 0.9967 and 0.0022 respectively. Here, correlation coefficient is greater than six times the probable error i.e. $0.99 > 6 \times 0.0022$. It indicates that there is the positive correlation between total deposit and total Risk Assets with high degree at definitely significant level.

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

Total deposit and total investment on government securities variables of joint venture banks for the different sampled period have been presented in following table:

Table No 4.29
Correlation Analysis between Total Deposit and Total Government Securities

Fiscal Year	Total Deposits (X)	Government Securities (Y)	XY	X ^{2}	Y ^{2}
2006/07	108,966	25,898	2,821,990,284	11,873,513,380	670,705,368
2007/08	132,855	28,889	3,838,000,813	17,650,486,593	834,552,077
2008/09	176,059	27,503	4,842,226,727	30,996,911,139	756,435,361
2009/10	201,144	31,204	6,276,559,226	40,458,928,165	973,708,338
Total	**619,024**	**113,494**	**17,778,777,050**	**100,979,839,277**	**3,235,401,145**

r = 0.7664

P.E. (r) = 0.1393

Above calculation reveals that the correlation coefficient and probable error of coefficient between total deposit and total investment on Government Securities of JVBs are 0.7664 and 0.1393 respectively. Here, correlation coefficient is less than six times the probable error i.e. 0.99< 6x0.0046. It indicates that there is the positive correlation between total deposit and total investment on government securities with high degree but not at significant level.

4.4.4 Correlation Analysis between Total Deposit and Total Investment on Shares and Debentures

Table No 4.30
Correlation Analysis between Total Deposit and Total Investment on Shares and Debentures

Fiscal Year	Total Deposits (X)	Investment in Shares & Debentures (Y)	XY	X ^{2}	Y ^{2}
2006/07	108,966	476	51,850,271	11,873,513,380	226,424
2007/08	132,855	700	93,002,322	17,650,486,593	490,039

2008/09	176,059	738	129,940,906	30,996,911,139	544,720
2009/10	201,144	602	121,099,169	40,458,928,165	362,467
Total	**619,024**	**2,516**	**395,892,668**	**100,979,839,277**	**1,623,650**

r = 0.4473

P.E. (r) =0.2701

Hence,

r = 0.4473

P.E. (r) = 0.2701

Above calculation reveals that the correlation coefficient and probable error of coefficient between total deposit and total investment on shares and debentures of JVBs are 0.4473 and 0.2701 respectively. Here, correlation coefficient is greater than six times the probable error i.e. 0.4473< 6x0.02701. It indicates that there is low degree of positive correlation between total deposit and total investment on shares and debentures but not at significant level.

4.4.5 Correlation Analysis between Total Risk Assets and Total Investment

Table No 4.31
Correlation Analysis between Total Risk Assets and Total Investment

Fiscal Year	Total Risk Assets (X)	Total Investment (Y)	XY	X ^{2}	Y ^{2}
2006/07	70,087	42,841	3,002,570,539	4,912,168,551	1,835,325,834
2007/08	89,496	46,631	4,173,244,090	8,009,469,305	2,174,421,996
2008/09	112,762	60,942	6,871,979,286	12,715,257,128	3,713,971,242
2009/10	132,382	66,033	8,741,664,350	17,525,122,691	4,360,408,595
Total	**404,727**	**216,447**	**22,789,458,265**	**43,162,017,675**	**12,084,127,667**

r = 0.9804

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P.E. (r) = 0.0131

Hence,

    r = 0.9804

    P.E.(r) = 0.0131

Above calculation reveals that the correlation coefficient and probable error of coefficient between total Risk Assets and total investment of JVBs are 0.9804 and 0.0131 respectively. Here, correlation coefficient is greater than six times the probable error i.e. 0.9804> 6x0.0131. It indicates that there is high degree of positive correlation between total Risk Assets and total investment at definitely significant level.

4.4.6 Correlation Analysis between Government Securities and Investment on Shares and Debentures

Table No 4.32
Correlation Analysis between Government Securities and Investment on Shares and Debentures

Fiscal Year	Government Securities (X)	Investment in Shares & Debentures (Y)	XY	X²	Y²
2006/07	25,898	476	12,323,308	670,705,368	226,424
2007/08	28,889	700	20,222,841	834,552,077	490,039
2008/09	27,503	738	20,298,904	756,435,361	544,720
2009/10	31,204	602	18,786,610	973,708,338	362,467
Total	**113,494**	**2,516**	**71,631,663**	**3,235,401,145**	**1,623,650**

r = 0.3097

P.E. (r) = 0.3053

Hence,

    r = 0.3097

    P.E. (r) = 0.3053

Above calculation reveals that the correlation coefficient and probable error of coefficient between total investment on government securities and total investment on shares and debentures of JVBs are 0.3097 and 0.3053 respectively. Here, correlation coefficient is greater than six times the probable error i.e. 0.3097< 6x0.3053 indicates that there is low degree of positive correlation between total investment on government securities and total investment on shares and debentures but not at significant level.

4.4.7 Correlation Analysis between Total Deposit and Net Profit

Table No.4.33
Correlation Analysis between Total Deposit and Net Profit

Rs in million

Fiscal Year	Total Deposit(X)	NPAT (Y)	XY	X²	Y²
2006/07	108,966	2,484	270,661,619	11,873,513,380	6,169,843
2007/08	132,855	2,973	394,987,524	17,650,486,593	8,839,141
2008/09	176,059	3,826	673,631,667	30,996,911,139	14,639,511
2009/10	201,144	4,117	828,139,721	40,458,928,165	16,950,904
Total	**619,024**	**13,400**	**2,167,420,532**	**100,979,839,277**	**46,599,399**

r = 0.9955

P.E. (r) = 0.0030

Hence,

r = 0.9955

P.E. (r) = 0.0030

Above calculation reveals that the correlation coefficient and probable error of coefficient between total deposit and Net Profit of JVBs are 0.9955 and 0.003 respectively. Here, correlation coefficient is greater than six times the probable error i.e. 0.99> 6x0.003. It indicates that there is high degree of positive correlation between total deposit and net profit at definitely significant level.

4.5 Multiple Regression Analysis

Regression is the estimation of unknown values or prediction of one variable from known values of other variables. Multiple regression analysis is a logical extension of

the simple linear regression analysis. In multiple regression analysis, instead of a single independent variable, two or more independent variables are used to estimate the unknown values of a dependent variable.

The multiple regression equation of dependent variable X1 on two independent variables X2 and X3 is given by

$$X1 = a_1 + b_1 X2 + b_2 X3$$

Regression Analysis of portfolio return on Total Deposit and Total Investment is as follows:

PR= -0.73300 + 0.000034 TD – 0.0000259 TI

Where,
PR = Portfolio return, dependent variable
TD = Total Deposits, independent variable
TI = Total Investments, independent variable

The above equation gives the result on Portfolio Return due to the joint effect on Total Deposit and Total Investment. Portfolio intercept equal to -0.733. It implies that when Total Deposit and Total Investment become zero, Portfolio Return is found to be negative, meaning that total deposit has no effect on Portfolio Return; coefficient of TD is 0.000034 meaning that when TD is increased by Rs. 1 Portfolio Return increases by Rs 0.000034. In the Same way coefficient of TI is -0.0000259, meaning that when TI increase or Decreases by Re. 1 Portfolio Return increase or decreases by Rs.0.0000259.

Source: Annexure 'S'

4.6 Major Findings of the Study

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

i) **Finding from Risk and Return Analysis**

Major findings from the risk and return on various investment assets in which the joint venture banks invest their funds and portfolio made from such investment assets can be summarized as follows:

Major Findings from Risk and Return Analysis

S.N.	Assets	Average Return	Standard Deviation	Coefficient of variation
1	Government Securities	4.32	0.83	0.19
2	Risk Assets	7.79	1.14	0.15
3	Other Investment	0.35	0.11	0.31
4	Investment Portfolio	5.93	0.89	0.15

Return on RA of JVBs is highest amongst all the other investment alternatives. Similarly highest S.D. indicates that there is high risk in RA. JVBs earn minimal from other investment as average return from other investment is lower than the return from all other assets. Similarly, JVBs average return on investment portfolio is 5.93%, Risk (S.D) = 0.89% and CV is 15%

ii) **Finding from Analysis of ratios**

From the analysis of ratios of different joint venture banks, major findings can be summarized as follows:

Major Findings from Analysis of Ratios

S.N.	Ratios		EBL	NSBI	JVBs
1	Return on Shareholders' Equity	Mean	**26.81**	18.47	25.71
		S.D.	2.80	2.18	1.57
		C.V.	10.44	**11.78**	6.09
2	Return on Total Assets	Mean	1.70	1.33	**1.86**
		S.D.	0.22	0.34	0.04
		C.V.	13.14	**25.19**	2.23
3	Total Investment on Total Deposits	Mean	19.98	35.00	35.46
		S.D.	5.05	12.13	2.38
		C.V.	25.28	34.65	6.71
4	Government Securities to Total Deposit	Mean	18.30	16.70	19.16
		S.D.	5.27	4.65	3.66
		C.V.	28.80	27.84	19.13
5	Total Risk Assets to Total Deposit	Mean	76.42	72.05	65.39
		S.D.	1.91	18.54	1.32
		C.V.	2.50	25.73	2.03
6	Investment on Share and Debenture to Total Deposit	Mean	0.28	0.19	0.42
		S.D.	0.11	0.08	0.08
		C.V.	40.13	40.44	19.27
7	Net Profit to Total Deposit	Mean	1.92	1.57	2.18
		S.D.	0.22	0.47	0.09
		C.V.	11.53	29.84	4.03
8	Investment on Government Securities to Total Outside Ratio	Mean	18.72	15.41	18.94
		S.D.	4.24	3.43	3.21
		C.V.	22.67	22.25	16.93

9	Total Risk Assets to Total Outside Investment	Mean	79.51	66.51	64.89
		S.D.	3.95	13.31	1.75
		C.V.	4.96	20.01	2.69
10	Investment on Share and Debenture to Total Outside Ratio	Mean	0.29	0.17	0.42
		S.D.	0.12	0.06	0.07
		C.V.	39.92	35.92	18.00

Both ROA and ROE of EBL are better than of NSBI that proves that EBL is better in using its resources. Better managerial competencies, technology, effective investment and credit polices, competent human resources, internal efficiency etc helps a bank to earn more profit and get better position in the banking industry.

It is also found that JVBs Risk ASSETS contains highest proportion in the total outside investment of the JVBs. Banks have been increasing lending every year . Banka get highest earning from loans and advances. They also expose with high risk when they lend their money to different sectors and borrowers. Where there is high risk gain is also high. EBL has high ratio than of NSBIL and industry.

Return from Government securities is lower than the return from risk assets. Government securities are considered to be less risky than other investment alternatives.

JVBs have lowest investment in other securities like shares and debentures and return from other investment is also lowest.

From above ratios it is found that EBL is better in terms of managing the portfolio.

iii) Findings from Least Square Linear Trend Analysis

Major Findings from Least Square Linear Trend Analysis

S.N.	Items	Slope of Trend Increasing/(Decreasing) per year
1	Total Deposit	Y = 30726X + 93603
2	Total Investment	Y = 7730.67X + 38975.67
3	Investment on Government Securities	Y = 1768.67X + 25013.67
4	Risk Assets	Y = 20765X + 59705.50
5	Net Profit	Y = 544.33X + 2211.83

From the above linear equations it is found that trend of Deposit, Risk Assets, Investment and Net profit of JVBs is increasing. Increasing trend of Deposit of JVBs is found to the highest than the increasing rate of other assets. When banks are able to collect more deposits and use that deposit to profitable investments they can earn higher earnings and therefore NPAT also increases with the increase in Investment.

iv) Finding from Correlation Analysis

S.N.	Variables	Correlation (r)	P.E. (r)
1	Total Deposit and Total Investment	0.9931	0.0046
2	Total Deposit and Total Risk Assets	0.9967	0.0022
3	Total Deposit and Total Investment on Government Securities	0.7664	0.1393
4	Total Deposit and Total Investment on Shares and Debentures	0.4473	0.2701
5	Total Risk Assets and Total Investment	0.9804	0.0131

6	Investment on Government Securities and Investment on Shares and Debentures	0.3097	0.3053
7	Total Deposit and Net Profit	0.9955	0.003

It is found that there is high degree of positive correlation between total deposit and total risk assets. Similarly Total Deposit and Total Investment of banks are found to be highly correlated. If banks do not have enough deposit and funds they can not make lending and investment as their desired level. However, there are other many factors that affect the lending and investment decision of a bank.

Similarly, it is found that there is low degree of positive correlation between the investment on government securities and Investment on shares and debentures. Also correlation between total deposit and investment on shares and debenture is found at lower degree. In general these two variables are non related as the investment made on shares and debentures by a bank is based on the investment policy of a bank and abide by the NRB rules and provisions regarding investment.

v) Finding from Regression Analysis

From regression analysis, required estimated regression equation of dependent variable- portfolio return (PR) on two independent variable –Total Deposit (TD) and Total investment (TI) is

PR= -0.73300 + 0.000034 TD – 0.0000259 TI

And the standard error of estimate of dependent variable – portfolio return on two independent variable- Total Deposit (TD) and Total investment (TI) is 0.36.

The above equation gives the result on Portfolio Return due to the joint effect on Total Deposit and Total Investment. Portfolio intercept equal to -0.733. It implies that when Total Deposit and Total Investment become zero, Portfolio Return is found to be negative, meaning that total deposit has no effect on Portfolio Return; coefficient of TD is 0.000034 meaning that when TD is increased by Rs. 1 Portfolio Return increases by Rs 0.000034. In the Same way coefficient of TI is -0.0000259, meaning that when TI increase or Decreases by Re. 1 Portfolio Return increase or decreases by Rs.0.0000259.

CHAPTER 5
SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter is a summary of the study and it released some suggestive packages. It contains summary, conclusion and recommendations. Summary is a brief introduction of the entire study. Conclusions are made on the basis of the analysis of the relevant data by using various statistical tools and financial ratios. Recommendations are presented in terms of suggestions which are prepared on the basis of findings and conclusion of the study.

5.1. Summary

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

Banks and financial institutions are the backbone of the Nepalese economy. An economy could not be even imagined to function in a proper way in the absence of BFIs in the present world. Therefore banking industry is considered as the heart throb of the financial system of a country. BFIs play a vital role in capital formulation, proper utilization of collected fund, providing various banking and financial services and that ultimately help to economic development of a country.

As per the "Banks and Financial Institution Act 2063" (BAFIA) of Nepal "bank" means a corporate body incorporated to carry on financial transactions as referred to in subsection (1) of section 47 of BFIA. Similarly, "Financial Institution" means a corporate body incorporated to carry on the transactions as referred to in sub-section (2), (3) or (4) of section 47 and this term also includes a development bank, finance company or micro finance development bank. There are four classifications of BFIs operating in the

banking industry of Nepal. Nepal Rastra Bank has classified the licensed institutions into "A", "B" "C" and "D" classes on the basis of the minimum paid-up capital required for the license to be issued pursuant to section 30 to carry on the financial transactions pursuant to section 47 of BAFIA. Class "A" licensed institution are named as commercial banks, class "B" as Development banks, "C class banks, as Finance companies and Micro Finance Development banks are categorized as "D" class. Joint venture banks are commercial banks formed by Investment of two or more enterprises.

The main function of the commercial banks is to mobilize the idle resources in the productive sectors by collecting it from scattered sources and generate profit from the optimum use of the fund. Banks plays a vital role as the intermediaries channeling between saving and investment and fulfils the credit needs of the people as well as investment requirement of the savers.

For last few years, many commercial activities have been significantly growing up especially in the financial sector of the country. There has been a remarkable growth in the banking industry of Nepal due to the establishment of many commercial banks, development banks, finance companies, insurance companies, cooperatives etc with in the short period of the time. Nepalese banking industry has been able to perform well consistently despite the long term Maoist insurgency and political instability in the country. It also remained least affected from the global crisis started from the US economy in past recent years. Nepalese banking industry has played a vital role in the development of trade and industry in the nation. Also it has contributed the nation interms of generating employment in the country. Nepal's banking history had begun with the establishment of Nepal Bank Ltd. in 1937 AD. Since, the year 1990s, Nepal has been adopting liberal policy, invited private sector (both domestic and foreign) in order to bring healthy completion in the financial sector. Since, then numbers of commercial banks, development banks, finance companies, cooperatives have been increasing. At present there are 31 commercial banks,. 83 "B" class Development banks, 79 "C" Class finance companies, 19 "D" class Micro Credit Development Banks, 16 Saving and Credit Co-operative Societies and 45 Finance Companies and Financial Intermediary (FINGOs) licensed by NRB operating in Nepal and playing a vital role in economic development of

the nation. Nepal Rasra Bank is the regulatory body of all the licensed institution operating in the banking industry of Nepal.

Successfully formulation of investment policy and its proper utilization or implementation is the prime requisite for the development and growth of a BFI. A bank can only achieve its objective and perform well when it gets success in optimum use of its resources and earn desirable profits. In this cut throat competition of the Nepalese Banking Ind., if a bank fails to invest its costly fund in an efficient way it is not at tall easy for the bank to run in the long run and bank may face insolvency also. Therefore, a bank must have such investment policy in place that could lead the bank to achieve optimum return. For this purpose a bank must have effective credit policy, investment policy, effective asset liability management, and operation system and sound corporate governance in place. In the present market there are various risk involved in the banking function. Major of them are credit risk, operation risk, liquidity risk and market risk. A bank that can have an effective risk management system could only achieve better profitability, internal efficiency and can survive for the long term with desirable growth. We have also had some examples of the failure of BFIs due to the lack of risk management and good corporate governance. For example, closure of Nepal Bikash Bank, Samjhana Finance, and suspension of Board of Gorkha Development Bank etc.

Investment portfolio is one of the major tools that help for the proper utilization of the resources. Portfolio theory deals with the selection of optimal portfolios that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified return. Investment decision is one of the major decision functions of financial management. Banks should accept that type of securities which are commercial, durable, marketable, stable, and liquid and provide higher return with lowest possible risk. A bank should not lay all its eggs on the same basket. In order to minimize the risk of investment the bank should diversify its investment in different sectors and in different securities. At present banks are taking very effective investment policies and therefore be able to grow their profits and performing well despite the very tough completion. At present, banks and financial institutions are the backbone of the Nepalese economy. It plays a vital role in the capital formulation, proper utilization of collected funds, providing various financial services required in the financial system.

Two joint venture banks – Everest Bank Ltd. and Nepal SBI Bank Ltd. are taken as reference to analyze the risk, return and investment portfolio of JVBs in Nepal. It is done by analyzing the Financials of those banks of four fiscal year i.e. from FY 2006/07 to FY 2009/10. During the research work a brief review of literature has been conducted. As this research is related to the analysis of investment portfolio, financial strength and weakness of JVBs also have also been measured on the basis of balance sheet, P/L a/c and financial performance analysis. In that course different tools have been used. Moreover, various textbooks, thesis and published journals have been reviewed. For analyzing financial data, the financial tools like ratio analysis, risk and return analysis, and statistical tools like arithmetic mean, coefficient of variance, Karl Pearson's coefficient of correlation, trend analysis and regression analysis have been extensively used. Tables, graphs and diagrams are used to present the data and results, secondary data are collected from the NRB, NEPSE and various JVBs.

As per the risk and return analysis return on other investment is low and also has lower risk. Similarly return on government securities is higher than the return on other investment but lower than the return from Risk Assets. Whereas return on Risk Assets is the highest amongst the all and risk on RA is also highest.

With respect to ratio analysis, different ratios related to investment portfolio have been used. EBL has utilized the overall recourses efficiently than NSBI. EBL is considered as the better bank in utilizing the resources. In the same way EBL is the better bank in relation to net profit to total deposit ratio. It means EBL has utilized its deposit efficiently than other JVBs. EBL gets higher ratio on investment on government securities than NSBI. Whereas return on other securities of JVBs are not at satisfactory level. The return on other investment of JVBs are very nominal.

As per trend analysis total deposit of JVBs are in increasing trend. Similarly, total investment of JVBs is also in increasing trend but increasing ratio of Investment is lower than the increasing ratio of Deposits. Also total Risk Assets of JVBs is in increasing trend. Lending of JVBs is more than the investment on different securities and return on RA is also more than the return from the investment on other securities.

Similarly, net profit of JVBS is also increasing though it is not increasing on the same ratio.

5.2 Conclusion

As per analysis and interpretation of data the following conclusions have been derived.

1. **Risk and Return Analysis**

   a. In general assumptions, there is little risk on investment on government securities. It is proved by the low risk on investment derived from the statistical tools. From the analysis, the average return on government securities is 4.32% and coefficient of variation (CV) is 19% which is the lower than the CVs of other investment. Proper investment on various securities such as treasury bills, Development Bonds having fixed income percentage help to reduce the variability of return. In comparison EBL has greater return on government securities than of NSBI. It proves that EBL is more successful in making effective investment on government securities also by complying with the regulatory provisions as per the NRB directives.

   b. The average return on Risk Assets is greater than the return on investment on other different securities. Similarly risk on Risk Assets is also higher than the risk on other different investments. It is all because the interest rates on loans and advances are higher than the other rates like interbank lending rate, interest rates on development bonds, Treasury bill rates etc. Banks provides different types of credit facilities as per the customers' needs. They are short term loans, overdrafts, trust receipt loans, fixed terms loans provided to the corporate houses and business units and consumer loans like Auto Loan, Home Loan, Education Loan, Personal loan etc. Interest rates vary based on the risk involved in such credits. Normally, interest rates on consumer loans are higher than the interest rates of business loans. Banks charges different rates of interest in commensurate with risk they are exposed with due to those credits. Banks lends money to different sectors of the economy as per the credit policy of the bank. They formulate credit policy in such a way that

they can utilize their funds in the best possible way i.e. They can lend their fund managing the credit risk and earn higher rate of return. Credit policy of the bank is made in line with NRB regulations. There are various internal as well as external factors that affect the credit decision of the bank. Credit decision of the bank is affected by the liquidity position of the banks as well as of the market, business opportunity available in the market and potential of the market to grow their risk assets, risk observing capacity of the bank etc. As bank use public money it must be very careful in lending its fund. Bank may suffer a huge loss if its borrowers fail to repay the loan within the agreed time frame. High nonperforming assets indicates the poor credit management of a bank and high nonperforming assets may lead to huge loss and poor performance of the bank and may lead a bank to solvency in long run. Therefore, Credit risk management is one of the most important functions of the Bank. From the analysis it is proved that bank earns highest return from the Risk Assets. It is also found that Risk Assets are high risk investment of a bank. Return on Risk Assets of JVBs is 7.8% which is greater than the return from all other investment alternatives. In comparison with two banks EBL has higher return than of NSBI. Similarly, risk on Risk Assets of EBL is higher that than the risk of NSBI.

c. The risk and return on other investment is very low as compared with the return from RA and Government securities. Other investment includes investment made on shares and debenture and lending made to other licensed institutions. JVBs have made investment on shares of micro finance development banks, insurance companies and other corporate houses. Dividend received from those investments is very small. Therefore the return on other investment is very low. Despite such lower return banks have investment in equity of such licensed institutions. It is also because as per NRB directives, such investment made in equity of micro finance institutions are also qualified as the deprived sector lending. As per NRB directive, commercial banks have to lend 3% of their total Risk Assets (of preceding 6 months) in Deprived Sector. Whereas

Banks are not allowed to invest in shares of other licensed institutions for trading purpose.

d. Portfolio return of JVBs is in increasing trend over the review period. Risk Assets contains the highest proportion in the portfolio and also has the highest return amongst the investment alternatives. Whereas Average rate of return from other investment is least. Hence, Portfolio return derived at 6% and standard deviation (S.D) came at 0.89.

(ii) Analysis of Ratios

a. The return on shareholders' equity ratio is affected by the investment portfolio of JVBs. The ratio of selected JVBs shows that EBL is more successful in utilizing their shareholders' equity. The mean ratio and CV also reveals that EBL is more efficient in utilizing shareholders' equity.

b. According to the ROA, EBL has more efficiently utilized their assets than NSBI as But both banks' ROA is less than the ROA of JVBs. Higher CV of NSBI shows that variability of ROA is more than of the EBL's,. If net profit of the bank increase with the same proportioned with the increase in total assets then the ROA can be consistent. When rate of NPAT increase is more than the rate of increase in total assets then the ROA can be in an increasing trend. But if the increase in NPAT is volatile then the ROA will also derived at fluctuating trend.

c. Out of the selected banks EBLs investment to Total Deposit ratio is in decreasing trend over the review period. It reveals that EBL has reduced the rate of investment as the ratio came down to 13.57 in FY 2009/10 from 27.41 in FY 2006/07. EBL has increased its RA more than its investment over the review period. Whereas NSBI has mobilized its deposit more towards investment in last two FYs over the review period. But investment to total deposit of JVBs is also in reducing trend over the review period. On an average 35% of total deposit of JVBs has been used to make investments in different securities.

d. On an average 19% of deposit has been used to make investment on government securities by JVBs over the review period. Whereas trend of making investment on government securities is decreasing over the review period. In FY 2006/07 the ratio was 24% and it reduced to 16% in FY 2009/10. Mean ratio of both of the banks are less than the industry average.

e. On an average 65% of deposit has been used to make investment as Risk Assets by JVBs over the review period. Whereas trend of lending is found to be fluctuating over 8the review period. It has increased to 67% in FY 2007/07 from 64% of previous FY again it reduced to 66% till FY 2009/10. Mean ratio of both of the banks are higher than the industry average. It shows that JVBs have mobilized their deposit more towards lending than investment.

f. JVB investment on shares and debenture is very low. On an average only 0.42% of the total deposit has been mobilized towards investment on shares and dentures.

g. In this way JVBs most of the deposit has been mobilized to make lending i.e. towards Risk Assets i.e. 65%, 19% to make investment on government securities, 16% for other investment and only 0.42% for investment on shares and debentures. JVBs have used their deposits more for lending than making investment on various securities. It is due to the higher rate of return on RA than the return from investment of different securities.

(iii) Least Square Trend Analysis
a. Total deposit of JVBs is in increasing trend. It is increasing per year by Rs 30,726 million. Increasing trend of deposit more than the increasing trend of investment and risk assets of JVBs.

b. Total investment of JVBs is also in increasing trend. It is increasing per year by Rs 7730.67 million. Increasing trend of investment is lower than the increasing trend of deposit and risk assets of JVBs.

c. Similarly investment on various securities like Investment on government securities, Risk Assets and other investment are also in increasing trend. Increasing trend of Risk Assets is more than the increasing trend of investment of JVBs.

d. Similarly, Net Profit of JVBs is also in increasing trend. It is increasing by Rs 544.33 per year.

(iv) Correlation Analysis

a. Correlation coefficient between total deposit and total investment is 0.9931 and its probable error is 0.0046. It indicates that there is high degree positive correlation between total deposit and total investment of the JVBs at significant level. Total investment of the JVBs move together with the total deposit.

b. Correlation coefficient between total deposit and total Risk Asset is 0.9967 and its probable error is 0.0022. It indicates that there is high degree positive correlation between total deposit and total investment of the JVBs at significant level. Total Risk Assets of the JVBs move together with the total deposit.

c. Correlation coefficient between total deposit and total investment on Government securities is 0.7664 and its probable error is 0.1393. It indicates that there is high degree positive correlation between total deposit and total investment on government securities of the JVBs but the degree of relationship between these two variables is less than that of the relationship degree between total deposit and RA.

d. Correlation coefficient between total deposit and total investment on shares and debentures is 0.4473 and its probable error is 0.2701. It indicates that

there is low degree of positive correlation between total deposit and total investment on shares and debentures of the JVBs at significant level.

e. Correlation coefficient between total Risk Assets and total investment is 0.9804 and its probable error is 0.0131. It indicates that there is high degree positive correlation between total Risk Assets and total investment of the JVBs at significant level. Total investment of the JVBs move together with the total Risk Assets.

f. Correlation coefficient between investment on government securities and investment on shares and debentures is 0.3097 and its probable error is 0.3053. It indicates that there is low degree positive correlation between investment on government securities and investment on shares and debenture of the JVBs.

Investment plan is very important and challenging function of JVBs that leads to the continuous success and long term survival of the banks. Therefore, effective formulation and successful implementation of investment policy is the prime requisite for the JVBs. Appropriate investment policy should be formulated based on the portfolio concept. That should take into consideration various factors and mainly the two major factors they are return and risk while making an investment decision. Similarly investment decision of a bank is affected by the provisions made by the Central Bank and other regulations prevailing in the country. Similarly, other various factors affect the investment of banks like economic status of the country, fiscal policy of the government, monetary policy of NRB, liquidity position of the market, country's budget, policitical situation, development of trade and industry, living standard of the people in the country, people's habit of using fanatical services, economic growth, economic exposure with the global market etc.

According to risk and return analysis it is found that the major of earning of JVBs come from the loan and advances. Banks earn highest earning as interest income from the Risk Assets amongst the other investment. Similarly, they earn various types of fees and commission form such loans and advances. Banks mobilizes their deposits to different

sectors in the form of credit and earn highly. Nepalese banks have mainly extended their credit to different economic sectors like agriculture, manufacturing, trading and other sectors like real estate, consumers' loans like home loans, Auto Loans, Margin Lending etc. If we see the sectoral exposure, banks have highest exposure in consumer loans. Similarly, credit extended to the big corporate houses has the highest segment in the total RA of these banks. But from last few years banks have been increasing their focus to the Small and medium Enterprises. As per NRB directive, banks can take exposure up to 40% of their RA in one economic sector. Similarly they cannot take exposure more than 25% of its core capital in a single borrowing unit or group. NRB has also circulated tight regulations in order to control the increasing exposure in real estate. It has imposed a cap i.e. total loan to real sector (Residential plus real estate) is restricted to only 25 % of its total RA whereas banks can be take total exposure up to only 10% in the pure real estate sector. Similarly, there is a ceiling imposed on margin lending also. In this way, banks have to take credit decision abiding with the NRB rules and regulations. They are not free to use their all funds to extend loans and advances though the return from loans and advances is highest amongst all the investment alternatives.

Similarly, banks make investment in various securities like treasury bills, national saving bonds, development bonds, shares and debentures etc in order to earn profit. Liquidity position of the bank, cost of fund, money market condition, interbank rates, regulatory requirement of maintaining Cash Reserve Ratio (CRR), Statutory Liquidity Ratio (SLR) and other NRB provisions etc. all plays a vital role while making investment policy by the banks.

Similarly, it is found that there is positive correlation between the total deposit and investments of the JVBs and total deposit and total Risk Assets are also highly positively correlated. When banks are able to collect more deposit it is oblivious that they will mobilize that deposit to different sectors in order to earn profit. Because banks cannot survive if they fail to earn profit by making effective use of their fund. When there is liquidity problem in the system, banks cannot increase their risk assets and investment. Nepalese banks have faced this problem recently. Due to the liquidity crunch, deposits rates have gone up and that lead to increase in the interest rates of loans and other

pricing, increase in interbank rates etc. But in reality, in Nepalese banking industry investment made in different securities by a bank may not be perfectly correlated with the deposit. Because investment is more affected by the NRB regulations, money market condition, cost of fund etc.

On the conclusion it can be concluded that JVBs have been utilizing their fund successfully in the form of investment in different securities. Portfolio of JVBs consists of Risk Asserts, investment on government securities, investment on shares and debentures and other investment. Amongst these alternatives, Risk Assets generates the highest return to the JVBs and risk is also high in comparison to the other investment alternatives. In comparison EBL is seen to be better in managing its portfolio over the review period.

5.3 Recommendations

On the basis of the analysis, findings and conclusions, the following recommendations can be forwarded for better management of portfolio by JVBs.

i. From the study it is found that portfolio return of JVBs is in increasing trend. So, it is recommended that JVBs should keep on investing their fund more in profitable sector and investment alternatives. They should increase the share of better investment alternative in their portfolio and reduce the share of less profitable alternative. They should increase their Risk Assets managing the inherent risk and at the same time they have to comply with the regulations and provisions of Government of Nepal and Nepal Rastra Bank. They must have maintained a sound risk management system and good corporate governance in the bank for the successful operation of the bank. Therefore, the banks have to formulate, evaluate and manage their portfolio in a very efficient way for the continuous growth in return, better profitability and performance of the bank. Between the two banks, EBL's portfolio management is found to be better than of the NSBI as it has higher return on investment alternatives that are near to the industry average. Therefore, it is recommended to NSBI to have better portfolio management in order to increase its profit and get better performance.

ii. Decreasing rate of ROA and ROE of JVBs indicates that banks are less efficient at using their assets and owners' fund to generate profit. Therefore, it is recommended to JVBs to have better efficiency in use of their assets so that they can generate optimum earning and enhance financial health. Both ROA and ROE of NSBI are below the industry average. It is recommended that the bank should grab the available opportunity in the market to increase its earnings. It should increase its competency to get better profitability and efficiency. In order to earn higher profit the bank should select those assets which gives higher return with acceptable level of risk. And it should take out those assets from its on investment portfolio which are not been able to generate expected level of risk but exposed to high risk only. In order to avoid losses and unpleasant surprises bank must have adopted better credit risk management, None performing Asset Management, operation risk management, liquidity risk management and market risk management system in the bank. Similarly, better technology, competent human resources, effective cost management system of the bank help the bank to generate more profit and profitability.

iii. Over the past few years cost of deposits and cost of funds of the banks have been increasing that leads to squeeze in the margin of the banks. On the other hand, banks have been also exposed more to the risk of liquidity, operation, market etc. Therefore, it is becoming very much challenging for the banks to grow their profitability. Therefore, it is recommended that banks should formulate very effective credit policies and investment policies and regularly review those policies to ensure higher return from the portfolio of the bank.

iv. With the increases in number of banks and financial institution, competition has become very tough in the banking industry. On the other hand, lending and investment opportunities are not growing at the required level. Political instability, slow growth in trade and industry in the country, low economic growth, high inflation etc all these factors have been contributing to lessen the investment opportunity for banks. And almost all banks have been competing to increase their share of market in the available market that may lead to unhealthy completion amongst the BFIs and expose the banks to various risks. Therefore, it

is recommended to the banks to enhance their competencies, internal efficiency in order to ensure better performance and better position in the banking industry.

v.   Banks are mostly concentrated their presence in the urban area of the county. They are facing tough completion in getting deposits and also are relying on limited business houses for extending credit and facilities. It is recommended that banks should explore new market for the deposit collection and lending. They should go to the virgin areas and diversify both of their credit and deposit portfolios to spread the risk and earn higher return.

vi.   Lending and Investment of banks bring higher return and helps to enhance the performance of a bank. Therefore, more investment and lending is preferred to achieve the objectives of a bank. However, lending and investment made without due assessment leads a bank towards many risk. Default in a loan may occur a heavy loss for a bank that may lead to the closure of the bank. Credit Crisis started from US economy in recent past years is the best example to prove this statement. That crisis has badly affected the global economy and occurred a huge loss to many investors and few of the banks and financial institutions were declared bankrupt. Therefore, in the present context it is recommended to the JVBs of Nepal to learn a lesson from such events and should adopt better risk management system in the bank for the long term survival of the bank. They should not be moved by the short term profits and profitability but should focus towards consistent growth and long term survival of the bank.

Vii.   Similarly, it is also recommended to JVBs to regularly review their investment policies in order to ensure effective portfolio management in the bank.

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Annexure 'O'

Model Description

Model Name		MOD_11
Series	1	Deposits
Holt's Model	Trend	Linear
	Seasonality	None

Applying the model specifications from MOD_11

Initial Smoothing State

	Deposits
Level	93603.00000
Trend	30726.00000

Annexure 'P'

Model Description

Model Name		MOD_5
Series	1	Investments
Holt's Model	Trend	Linear
	Seasonality	None

Applying the model specifications from MOD_5

Initial Smoothing State

	Investments
Constant	38975.66667
Trend	7730.66667

Smoothing Parameters

Series	Alpha (Level)	Gamma (Trend)	Sums of Squared Errors	df error
Investments	.10000	.10000	75583261.10975	2

Annexure 'Q'

Model Description

Model Name		MOD_6
Series	1	Invstmentingovnsedcurities
Holt's Model	Trend	Linear
	Seasonality	None

Applying the model specifications from MOD_6

Initial Smoothing State

	Invstmentingov nsedcurities
Level	25013.66667
Trend	1768.66667

Smoothing Parameters

Series	Alpha (Level)	Gamma (Trend)	Sums of Squared Errors	df error
Invstmentingov nsedcurities	.10000	.10000	8848937.88 094	2

Annexure 'R'

Model Description

Model Name		MOD_12
Series	1	RiskAssets
Holt's Model	Trend	Linear
	Seasonality	None

Applying the model specifications from MOD_12

Initial Smoothing State

	RiskAssets
Level	59704.50000
Trend	20765.00000