PORTFOLIO MANAGEMENT
OF LISTED COMMERCIAL BANKS IN NEPAL
(With Special Reference to EBL, SBL and NSBL)

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RECOMMENDATION

This is to certify that the thesis

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DECLARATION

I hereby declare that the work reported in this thesis entitled **"PORTFOLIO MANAGEMENT OF LISTED COMMERCIAL BANKS IN NEPAL" (With Special Reference to EBL, SBL and NSBL)** submitted to Office of the Dean, Faculty of Management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirement for the Master's Degree in Business Studies (M.B.S.) under the supervision of my thesis supervisor Mr. Kailash Patendra Amatya of Shanker Dev Campus.

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ABBREVIATIONS

AGM	=	Annual General Meeting
APT	=	Arbitrage Pricing Theory
ATM	=	Automated Teller Machine
C.V.	=	Coefficient of Variation
CAPM	=	Capital Assets Pricing Model
CB	=	Commercial Bank
CS	=	Common stock
DPS	=	Dividend per Share
EBL	=	Everest Bank Limited
EPS	=	Earnings Per Share
FY	=	Fiscal Year
HPR	=	Holding Period Return
i.e.	=	That is
M.B.S.	=	Master of Business Studies
MIS	=	Management Information System
MPS	=	Market per Share
NSBL	=	Nepal SBI Bank Limited
NRB	=	Nepal Rastra Bank
Rs.	=	Nepalese Rupee
SBL	=	Siddhartha Bank Limited
SD	=	Standard Deviation
T.U	=	Tribhuvan University
$\bar{X}$	=	Mean
σ (SD)	=	Standard Deviation
%	=	Percentage

CHAPTER-I
INTRODUCTION

1.1 General Background of the Study:

Generally, the term “Bank” refers to commercial banks. Commercial banks are the foundation of the national economy. They transfer monetary sources from savers to users. They involve in various functions like money creation, credit facilitating, foreign trade facilitating, safe keeping etc. Commercial banks have their own roles and contributions in the economic development. They are sources of economic development and they maintain economic confidence of various segments and extend credits to the people. Thus, activities of commercial banks are to eliminate poverty, reduce unemployment problems and increase economic growth. The main objectives of the bank are collection of amount from public in a form of saving and providing loan (for the development of industry, trade, and business) to the ones who need. The development of country's economy is impossible without expansion of banking function in both rural and urban area of the country. Development of trade and industry is dependent upon the development of banking facilities. So it is said that the bank is backbone of economic development in modern society.

"The term 'portfolio' simply means collection of investment for an investor through the stock exchange; the portfolio will be a collection of shareholdings in different companies. For a property investor has portfolio will be collection of buildings. To a financial manager within an industrial company has portfolio will be a collection of a 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" *(Brookingston; 1990:124).* It is the process of selecting a bundle of securities that provides the investing person or organization a maximum yield for a given level of risk. It can be also taken as risk and return management. It aims to determine an appropriate assets mix which attains optimal level of risk and return.

Investment means the sacrifice of current money to increase future money. Generally when cash is needed, investment can be retired. In investment, two attributes are

generally involved i.e. time and risk. Risk is the fluctuation of actual returns and expected return. The sacrifice takes place in the present and is certain. The reward comes later and is uncertain. Investor always tries to minimize the risk by investing two or more securities. A set of two or more security is called portfolio. *(Thapa and Rana; 2011:5)*

Portfolio investment refers to an investment that combines several securities. It is the collection of security. Nobody is ready to bear risk without any return but to have return, one must ready to face some risk. To minimize the risk at given rate of return, the concept of portfolio diversification is necessary. It is one such tool that helps for proper utilization of resources. Investor always tries to achieve their investment goal. To fulfill the goal they gathered different security. These securities diversify the risk. Most investors hope that if they have several securities then even one goes bad, the others will provide protection from loss. "A portfolio simply represents the practice among the investor of having their fund in more than one asset. The combination of investment assets is called portfolio."*(Weston & Brigham; 1992)*

"A systematic investment process should be followed to win the stock market. Investment process describes how an investor should go about making decision with regard to what marketable to invest in, how extensive the investment should be and when the investors should be made. A five step procedure for making these decision forms the basis of investment process:

1. Set investment policy
2. Perform security analysis
3. Construct a portfolio
4. Revise the portfolio
5. Evaluate the performance of portfolio." *(Sharpe, Gordon & Bailey; 1995:56)*

Among these investment processes the study is focused on security analysis and portfolio selection. Security analysis involves examining of individual securities or group of securities within the broad categories of financial assets. Portfolio construction identifies those specific assets in which to invest determining the proportion of investor's wealth. Diversification should be done to minimize the risk and maximize the return. Portfolio performance involves determining periodically

how the portfolio performs in terms of not only the return earned, but also the risk experienced by the investor.

The commercial banks are those banks which pool together the savings of the community and arrange them for the productive use. Commercial banks transfer monetary sources from the savers to the users. They accept deposits from the public on the condition that they will be repayable. They provide loans and advances from the money, which they receive through deposits. Apart from financing, they also render services like collection of bills and cheques, safekeeping of the valuable, financing advising etc to their customer.

The development of the country is based on the how much money is invested. For the investment purpose the capital formation is essential. However, it is not possible to finance the whole investment by the investors on their own. Thus, in such situations the commercial banks pull the funds from surplus groups and provide them to the deficit group. Although, the commercial banks are truly inspired by profit making objectives, their functions and roles contributes a lot for the overall development off the country.

The evolution of the organized financial system in Nepal has a more recent history than in other developing and developed countries. Banking history of Nepal is nearly of seven decades. In Nepalese context, the history of development of banking system started with the establishment of "Nepal Bank Ltd." in 1937 AD(1994 B.S.) with authorized capital of Rs.10 million and paid capital of Rs.0.842 million. The government owned 51% equity and remaining 49% equity owned by general public.

Due to the political instability in the country, the economic and industrial development had been nearly stopped. Then the government felt the requirement of a central bank and established "Nepal Rastra Bank (NRB)" in 1956 AD (2013 B.S.) with the initial purpose of replacing the Indian currency with Nepalese currency and removing the dual monetary system existing in the country. Likewise, the rising of banking function got popular, it became more complicated which further suggested NRB for the establishment of another commercial bank and in 1966 AD (2022B.S.), "Rastriya Banijya Bank" was established as a fully government owned commercial bank. This further enhanced the economic activities of the nation. Agriculture

Development Bank was also established by the government in 1968 AD (2024 B.S.) as a development bank with the objective of increasing the life standard of the people involved in agriculture. However, this bank now can perform all the commercial banking functions and the government has placed it in the category of commercial banks.

Today in Nepal, the performance of all the economic sectors is less than the average. However, the case of financial institutions is little bit different. The Nepalese financial sector has seen many ups and downs and it has been able to overcome them to a large extent. The financial sector of Nepal is composed of banking and non-banking sector. Banking sector comprises Nepal Rastra Bank and commercial banks whereas the non banking sector includes development banks, finance companies, micro credit development banks, co-operative financial institutions, non-government organizations performing limited banking services. Even though there are various financial institutions functioning in Nepal, the role and importance of the commercial banks has been increasing day by day. The reason behind this may be the performance, credibility, and trustworthiness of the banks. Similarly, the commercial banks are also performing the major role of supporter for the government in the field of economic and infrastructural development of the country.

The commercial banks are increasing in numbers with a goal to get succeed creating intense competitive environment. To cope with the competitive situations, the banks should increase their financial strength by increasing the investments considering various factors associated with it. Investment in the broadest sense means sacrificing the current income for future reward. Thus, every investment posses return as well as risk. All the investors want to maximize the return and minimize the risk involved in it. Investment in a single asset/security may not satisfy the investor's need for optimum return because risk cannot be reduced in single investment. Since, the diversification helps to reduce the risk; the investment in two or more assets/securities is desirable. This forms the group of assets/securities invested which is termed as investment portfolio

1.2 Statement of the Problems

"An investment is a commitment of funds made in the expectation of some positive rate of return. If the investment is properly undertaken, the return will be commensurate with the risk the investor assumes". *(Donald E. Fisher and Roland Jordan)*

Nepalese investors seem to invest their money in capital market in share and debentures because of lower interest rate provided by the banks and finance companies. Nepal Stock Exchange (NEPSE) is organized stock exchange and this is the one stock exchange of Nepal. Many companies which have listed their shares do not want to furnish sufficient information to the existing investors. There are no specialized investment analyses rendering profession services to the investor. It arises a question whether Nepalese investors make their investment by studying the market and risk return status of the securities they choose or just they gamble to make the profit.

The investment planning of the commercial banks and financial companies in Nepal heavily depend upon the rules and regulation provided by the Center Bank, NRB. The composition of asset portfolio of the commercial banks and finance companies is influenced by the policy of the Central Bank. The competition is burning issues in the country due to emergence of many commercial banks. It has also warned the commercial banks and finance companies to improve their productivity.

These are the key issues in investment decisions of commercial banks and finance companies. Hence, this deals with those problems in terms of risk and return characteristics and portfolio concept. In such situations, therefore, the following issues have been raised to address in this study.

- The study has examined about the condition of portfolio management in financial institutions but whether the institutions have maintained portfolio management or not?
- What is the rate of risk in their institutions and their associated risk of the securities listed in NEPSE?
- But if the institutions are careless about the portfolio management, by how much profit they are having and how they are maintaining their earning?

- What is the different between the earning per share (EPS) of the institutions that portfolio management and do not have portfolio management.
- The study also tried to find out the relationship between earning per share (EPS) and market price per share (MPS) of financial institutions and which is the optimum portfolio in NEPSE to invest?

1.3 Focus of the Study:

Harry M. Markowitz originally proposed portfolio theory in 1952. Markowitz diversification is the combining of assets, which are less then perfectly correlated in order to reduce portfolio's risk. It can sometimes reduce risk below the un diversifiable level. Markowitz diversification is more analytical than simple diversification and considers assets correlation. Risk adverse investors selects efficient portfolio that maximizes return at a given level of risk or minimizes risk at a given level of return. With the collection of those efficient portfolios the optimal portfolios can be obtained for given investors. By combining securities of low risk with securities of high risk, success can be achieved by an investor in making a choice of investment outlets.

It is common problem of investment manager how to maximize the expected return of the portfolio subject to some target level of volatility. That is investment weights are done to have best performance for an expected level of standard deviation. The target standard deviation is determined by the investor's tolerance for risk, expected return depends upon the firm’s life cycle and returns of mature firms with those of growth firms. Time variation can play an important role in determining expected returns of mature firms than of growth firms. Effective risk and return management strategy should be applied in order to manage portfolio risk and return.

The study focuses on the empirical study of those stocks trading at Nepal Stock Exchange, which is secondary market in Nepal. This study mainly tries to find out a profitable portfolio alternative with the effective use of available liquidity of public. People have liquidity but they are unproductive. So they try to find out available best alternative and best portfolio, which will increase wealth position of the investor and indirectly contribute to the economic growth of the nation.

1.4 Brief Introduction of Sample Banks

There are 32 commercial banks in Nepal but it is not possible to cover all the banks in the study. So only three commercial banks are chosen which will represent all the commercial banks of Nepal. So the study will analyze financial statement of the chosen banks. The selected banks for the study are as follows:

1.4.1 Everest Bank Limited (EBL)

Everest bank limited started in 1994 with a view and objective of extending professionalized and efficient and efficient banking services to various segment of the society. EBL joined hands with Punjab national bank (PBN) India as its joint venture partner in 1997. PBN is the latest nationalized bank in India having 110 years of banking with more than 4500 office all over India. In this bank 50% share holding by Nepali promoters and 30 % by general by general public and 20 % by Punjab National bank. 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.

1.4.2 Siddhartha Bank Limited (SBL)

Siddhartha Bank Limited (SBL) commenced on operation in 2002 A.D. The Bank is promoted by a group of highly reputed Nepalese dignitaries having wide commercial experience. SBL is providing a full range of commercial banking services through its thirty-five branches established in the Kathmandu valley and the famous and most potential cities of the nations. The bank already has some 14000 depositors and 2500 borrowing customers in the relatively short period of commencing business. And the

Bank has its own motto or slogan i.e. "Our business is to understand your business" and the bank is heading to achieve its mission by strictly following the above stated slogan. The corporate office of the Bank is at teen Dhara road, Kamaladi, Kathmandu. SBL's vision is to be financially sound, operationally efficient and keep abreast with technological developments. The bank firmly believes that customer focus is core value, shareholders prosperity is priority, employees' growth is commitment and overall economic welfare is of sincerely concern.

In addition to the core banking products in deposits and corporate financing the bank has the whole range of personal detail products for home, auto, education and mortgage loan for the miscellaneous requirements. The other services offered to the valued customers are trade finance, treasury, Siddhartha remit for remittance, cash management service for speedy collection of receivables, a network of ATMs and internet banking services.

1.4.3 Nepal SBI Bank Limited

Nepal SBI Bank Limited (NSBL) is the first Indo-Nepal joint venture in the financial sector sponsored by three institutional promoters, namely State Bank of India (SBI), Employee Provident Fund (EPF) and Agriculture Development Bank Limited (ADBL) through a Memorandum of Understanding signed on 17th July1992. NSBL commenced operation with effect from July 7, 1993. 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. 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. The services provided by Nepal SBI Bank Limited include deposits, remittances, various types of loan facilities, letter of credit, bank guarantees, retail financing (house loans, vehicle loans and education loan), ATM facility, 365 days banking etc.

1.5 Objectives of the Study

Every study is conducted with some objectives. The main objectives of the study are to analyze the current status of portfolio management of listed commercial banks in Nepal. However, to achieve the main objectives, the following specific objectives are put forward.

- To analyze the risk and return of the commercial banks
- To calculate portfolio of the selected commercial banks.
- To analyze the portfolio return and risk of the selected commercial banks.
- To assess the present status of portfolio management of selected commercial banks.

1.6 Significance of the Study:

Nepal being listed among least developed countries, the commercial banks and other financial institution plays vital economic development of the country. The main objective of commercial banks is to earn profit by proper mobilization of resources. The research actually held in the fact of today's situation of Nepal. People are looking for investment alternatives. In Nepalese commercial banks, they do not have clear vision towards effective investment. They are found to be making investment only on short-term basis. There is hesitation to invest in long-term projects because they are much more safety minded. Even there are various ways to minimize risk, they are not aware and do not take any attention towards such field i.e. they do not think about portfolio management. Hence the main significance of this study of investment portfolio analysis of Nepalese commercial banks is to help how to minimize risk on investment and maximize return through portfolio analysis.

This study is important to acknowledge them how important risk and return calculation and motivate them for rational investment. They can compare market risk and individual risk to conclusion whether the security is as risky as market risk and individual risk to conclusion whether the security is as risky as market or not. This type of research provides filtered information. This research will inform them about valuation of stock is over-priced or under-priced. So this research helps to increase analytical skill, communicative skill and decision-making on investment and suggestions for its improvement.

1.7 Limitations of the Study

The scope of the study is subjected to various limitations, which are as follows

- Among 32 commercial banks, only 3 banks are chosen for the study. Thus, the finding could not be extensively generalized to all the existing commercial banks of the country.
- The study will cover only a period of 5 fiscal years i.e. 2006/07 to 2010/11 for the further calculations.
- Mostly, the secondary data are used for the analysis purpose. So, the accuracy and reliability of the data may be the part of argument. However primary data is also used to consider the views of investors.
- Time constraints could limit the details and depth of the study.
- The interest incomes from the flow of loans, advances and overdraft are considered as the loan return whereas the overall market interest rates of commercial banks is averaged to get the market return.
- The dividend incomes from the investment of shares in other companies are considered as the stock return and NEPSE index is considered for the calculation of the market return.

1.8 Organization of the Study

This study has been broadly divided into five chapters, which are as follows:

Chapter 1: Introduction

This chapter includes the background of the study, statement of the problems, focus of the study, brief introduction of sample banks, objectives of the study, significance of the study, limitation of the study and organization of the study.

Chapter 2: Review of Literature

This chapter includes the reviews of the relevant previous writing and the studies to find the existing gaps. So, the past studies in relation to the concerned topic are going to be reviewed to examine what new can be contributed to make the study more

relevant. Reviews of the journals, books, newspapers, annual reports are also going to be included.

Chapter 3: Research Methodology

This chapter deals with the methodology used in the study. It briefly explains about the statistical tools which will be used to evaluate the trend analysis for the concerned topic. It consists of the research design, population and sample, sources of the data collection, various tools and techniques for analysis, methods of analysis and limitations of the study.

Chapter 4: Data Presentation and Analysis

This chapter comprises the main part of the study. It deals with the presentation and analysis of the data and information collected from primary as well as secondary sources and scoring the empirical findings of the study through definite course of the research methodology.

Chapter 5: Summary, Conclusion and Recommendation

This chapter covers the summary of the whole study. It is followed by the basic conclusions of the study based on the fourth chapter and lastly, the recommendations have also been presented for considerations on the basis of the conclusions.

Recommendation sheet, Viva-Voce sheet, Declaration, Acknowledgement, Table of contents, List of table, List of figure, Abbreviation has been included at the beginning of this report where as bibliography and appendixes have been included at the end.

CHAPTER II
REVIEW OF LITERATURE

Review of literature is the study of the past research studies and relevant materials. It is advancement of existing knowledge and in depth study of subject matter. In literature review, researcher takes hints from past dissertation but he or she should take need of replication. This chapter also gives the conceptual framework on common stock, return of common stock, holding period return, required rate of return, expected rate of return, risk on common stock, range, standard deviation, coefficient of variation, portfolio, systematic risk and unsystematic risk etc. Literature review means reviewing research studies and other pertinent prepositions in the related areas of study so that all the past studies, their conclusions and further research takes place. It is a vital and mandatory process on research works. During the review of research, in depth-study and theoretical investigation regarding portfolios aspects and their present application and potentialities made. Simply the term portfolio implies combination of securities for investment with objective of reducing risk. This research will deal the security market and availability of opportunity for investment.

The term investment can be defined as employing the fund out of our saving to have some return in the future. In other words investment is the sacrifice of current consumption to have the better consumption in future. Two different attributes are generally involved in investment, they are time and risk.

2.1 Conceptual Review

2.1.1 Investment

Investment may be defined as a sacrifice of current rupees for future rupees. Two different attributes are generally involved in investment i.e. time and risk factor. The sacrifice takes place in the present and is certain. The reward comes later if at all, and all the magnitudes is generally uncertain. An investment is the commitment of funds made in the expectation of some positive rate of return. We have heard the word "investment" because it has become a household word and is very popular with people from all walks of life. While investing future return one should forget the amount he/she investing i.e. capital, a collective form of surplus. The surplus is that part of

money deducting all the expenses from income. A person spends his/her years in capital formation process. That is why each one should be rational while investing since most of the investors are risk averters they require additional unit of returns for bearing one more level of risk. People always tries to reduce risk factor common definitions says that contribution of present values for future is investment or it is a research of certainty within uncertainty.

"Investment in its broadest sense means that sacrifice of current dollars for future dollars. Two different attributes are generally involved in time risk. The sacrifice takes s place in present and is certain. The reward comes later, if at all, and the magnitude is generally uncertain"*(Sharpe, Alexander & Bailey: 2003:512).*

There are many sources available for investment opportunities such sources may be securities, real estate business and so on. However, in the sense of finance, the term investment is to make investment in securities. The securities may be equity share, preference share, bond debenture, option, treasury bills or whatever the form of security. Investor should have sound knowledge about the trading market of security making investment on securities. The market trading of securities takes place is called security market. Based on the types of assets invested there are two types of investment. They are as follows.

i) Real Investment

An investment made in real or tangible assets such as land, building, furniture & fixtures, precious metals, collectibles, vehicles etc. is called real investment. Real assets have productive capacity. The capital formation is the direct outcome of this productive investment. Nepalese middle class family is more attracted in real investment, due to degrading economic condition they prefer future safety.

ii) Financial Investment

Investment in Financial assets like common stock, bond etc. is called financial investments. Financial assets represent financial claims. It is assets that are usually documented by some form of legal representation. Although the financial assets are typically represented by tangible certificates of ownership. The financial assets itself is intangible. They are also called securities. This research is more concerned with

financial investment. The real and financial investments are complementary with each other. They are not competitive.

2.1.2 Investment Process

The investment process describes how an investor makes decisions what securities to invest in, how extensive investment should be, and when they should be made. There are five steps involve in investment process.

a) Set Investment Policy

It is the first step of investment policy where the plans are made for where, when and how to make investment. A policy refers to the guidelines of activities to be done and the objective to be achieved. By the term investment policy we understand that setting proper investment objective such as how much money to be invested, for much period to be invested, what is degree of risk tolerance?

b) Perform Security Analysis:

After setting the proper investment policy we have to select the security that matches his/her objective, for that there is a need of analyzing the available security. Analysis can be done in two ways:

i) Technical Analysis:

When security market price is analyzed and investment decision is taking accordingly, it is called technical analysis. The person who involve in such work of technical analysis is called technician. The technician prepares bars and chart of stocks pricing over the time. He /she may also find average and moving average price of securities. So, he/she is rightly called "chartists".

ii) Fundamental Analysis:

Under this analysis investor analyzes or analyzed fundamental variables of securities such as EPS, DPS, Growth Rate etc. and takes decisions accordingly. The analyst compute a "justifiable value" or intrinsic value of security at a point of time or compute it with existing market price, whether they are overpriced or under priced.

c) Construction of Portfolio

Simply the term portfolio implies combination of securities for investment with an objective of reducing risk. If the fund is invested more than a single security, the risk can be diluted or spread. There is a saying "Don't Put All The Eggs In A Single Basket (Security)."Portfolio combination is based on the same philosophy. Therefore once an investor analyses the same security, he or she should maintain (construct) an investment portfolio.

d) Revised the Portfolio:

An investment portfolio set at a point of time in a context may not be appropriate forever. There is need to revised it in due course of time. Revising the portfolio means the inefficient security and buying other efficient securities to include in our portfolio.

e) Evaluate the Portfolio

The portfolio constructed or revised should be evaluate in terms of its risk and return. There are different techniques available for evaluation but directly or indirectly all the techniques are based on risk and return step (4) and (5) can be interchange.

2.1.3 Investment Alternatives

There are various alternatives of investment. They are as follows:

a) Preferred Stocks:

It is the fixed income security. Company pays dividend at predetermined rate to preference shareholders. Preference shareholders have priority in dividend distribution and liquidation. Preferred stock is a hybrid security because preferred stock has fusion qualities of bond and equity. A preference shareholder does not have voting right. It is suitable for those investors who does not want to bear high risk but wants fixed return.

b) Treasury Bills:

Treasury bills are an obligation issued by government, sold at a discount from face value. Treasury bills issued for 91 days except in some exceptional case. In Nepal, Nepal Rastra Bank issues treasury bills on behalf of government. Government issues treasury bills to decrease liquidity from market.

c) Bond:

Bond is also a fixed income security. Company pays interest to bond at predetermined rate to holders. The contract paper of bond is debenture. Debenture holders do not have owner rights and voting rights. It is also suit for that investor who does not want to bear high risk and fixed return on their investments. There are different varieties of bond.

i) Corporate Bond:

Debt obligations issued by corporations are called corporate bonds. Many types of corporate bond exist; they differ in the way the principal and interest payments are made in the collateral used to back. They have strong legal provisions in the liquidation of the company.

ii) Government Bond:

Government bonds are the fixed income securities issued by government. These securities are among the safest of all investments and provide nominal interest. NRB issues government securities on behalf of government in Nepal. Saving bonds, Citizen saving bonds and treasury bonds are example of government bonds in Nepal.

iii) Municipal Bonds:

Municipal bonds are debt obligations issued by state or local governments and agencies. Revenue bonds and general obligation bonds are the example of such bonds. In Nepal, municipal bonds are not in practice, however it is a good investment alternative.

d) Derivative Securities:

Securities that derive their value from the value of an underlying asset are called derivative securities. Options, commodity futures, financial futures, warrants, rights, etc are the examples of such securities. These securities are the good investment alternatives in the developed stock market but in Nepal they are not in practice.

e) International Investments:

International investment is the investment by individual in debt or equity securities issued by organizations outside the country of residence of the investors.

Multinational organizations, foreign stocks traded on a local exchange etc. are its examples.

f) Common Stocks:

The common stock entitles its holders as an owner of the company. Common stock represents owner position in the corporation. It has a residual claim, in the sense that creditors and preference shareholders can receive payments only after the payment of all other claims with preferential basis. Common stock shareholders bear high risk but limited liability. In bankruptcy common stock holders are in the principal entitled only to any value remaining after all prior claims have been satisfied.

"All the shares, with the exception of preference shares, are regarded as equity shares (common stock) ". In Nepal as the provision of Nepal Company Act 2053, the par value of share should be Rs. 10 or Rs. 100. The issuance trend of common stock in Nepalese company is Rs.100 per share.

The market value of common stock is the value determined by demand and supply of the market. Market value fluctuates regularly by the influence of the investment environments. The value of the common stock includes amount retained, intrinsic values of the shares and amount of profit gained after the payment of dividend and other non-operating income.

i) Return on Common Stock

Return is the reward for waiting and risk bearing. Each and every investor invests their funds in long-term securities for the future returns for long run. So, return is most important outcome from an investment.

- **Holding Period Return:**

The holding period returns refer to the return from holding and investment over some period as cash payment received due to ownership and the change in the market derived by beginning price. If an investor purchases a stock of any company and holds it for certain period, he/she can get return in two ways one is increase in the value of that stock as compared to initial one and another is direct cash payment. The

length of period over which an investor assumed to hold the investment during that period is holding period rate of return. The rate of return involves the both capital gain and dividend gain within that holding period return. In general we calculate HPR for the period for the period of one year or that is one accounting period. It represents a rate of return for specific period. It is not necessary that holding period must be one year it is general practice only.

- **Required Rate of Return:**

Required rate of return refers to the minimum return that an investor expects at least to suffer from loss. If investor postponed his satisfaction for uncertain future investment should compensate his satisfaction. The compensation, he demands on behalf of future uncertainty over the risk free rate, is the required rate of return. The capital markets determined this rate based upon the supply of money to be invested related to the demand for borrowed money.

- **Expected Rate of Return:**

Expected rate of return is the return that the investor expects from his investment in future. The expected rate of return should be higher than that of required rate of return. The expected rate of return is based upon the expected cash receipts over the holding period and expected year-end selling price of the securities. The expected rate of return can be estimated by analyzing the trend of return of previous period and by using probability distribution of returns. Expected rate of rate are based on probabilities and theoretical data's.

ii) Risk on Common Stock

Generally the risk can be defined as the probability of the occurrence of unfavorable outcomes or bad occurrence of unfavorable outcomes or bad occurrence. Risk is always associates with the investment. Many investor considers, risk as a chance of happening some unfavorable event of danger of losing some value. Risk is the product of uncertainty; it depends upon the variability in the cash flow. Although risk from uncertainty its magnitude depends upon the degree of variability in uncertain cash flow and it is measured in terms of standard deviation & variance. The most common

measure of risk is variance. Standard deviation and variance are equally and conceptually equivalent quantitative measure of asset's total risk.

A portfolio is a bundle of combination of individual assets or securities (*Pandey, 1997:329*). If investor holds a well diversified portfolio, then his concern should be the expected return and risk of portfolio rather than individual assets or securities. The portfolio theory provides a normative approach to the investors' decision to investment in assets or securities under risk. Portfolio expected return is a weighted average of the expected return of individual securities but the portfolio is sharp contrast, can be something less than a weighted average of variance. As a result an investor can something reduce portfolio risk by adding another security with greater individual risk than any other securities in the portfolio. The seemingly curious result occur because risk greater on the covariance among the return of individual securities.

Portfolio analysis is to develop a portfolio that has the maximum return at whatever level of risk the investor deems appropriate. A portfolio is a collection of investment securities (*Weston & Brigham, 1982:123*). The portfolio of asset usually offers advantages of reduction risk through diversification. A stock or securities held, as part of a portfolio is less risky than the same stock held in isolation. The objective of portfolio analysis is to develop a portfolio that has the maximum return at whatever level of risk the investor deems appropriate.

Most financial assets are not held in isolation, rather they are held as pars of portfolios. Portfolio theory deals with selection of optimal portfolios i.e. portfolios that provide the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return (*Weston & Copeland, 1996:357-623)*.

Portfolio management is the process of selecting a bundle of securities that provides the investing organization a maximum yield for a given level of risk or alternatively ensuring minimum level of risk for a given level of return. It can be also taken as risk and return management. Its aims to determine an appropriate asset mix which attains optimal level of risk and return. The objective of portfolio management is to analyze different individual assets and delineate efficient portfolios. The group of all efficient portfolios will be called the efficient set of portfolios. The efficient set of portfolios

comprises the “efficient frontier”. The efficient frontier is the locus of points in risk – return space having the maximum return at each risk class. The efficient frontier dominates all other investments.

Portfolio theory was originally proposed by Harry M. Markowitz in 1952 A.D. (*Cheney & Moses, 1992: 5-54,647-707*). The theory is concerned with selection of an optimal portfolio by a risk averse investor. A risk adverse investor is an investor who selects a portfolio that maximizes expected return for any given level of risk or minimizes risk for any given level of expected returns. A risk adverse investor will select only efficient portfolios. Portfolio theory can be used to determine the combination of these securities that will create the set of efficient portfolios. The selection of the optimal portfolio depends on the investor’s performance for risk and return.

2.1.4 Portfolio Return and Risk

A major purpose of investment is to get a return or income on the funds invested. Each assets expected return and risk, along with the expected return and risk for other assets and their inter relationships, are important inputs in portfolio selection. In order to construct efficient portfolios the investor must be able to quantity the portfolio's expected return and risk.

2.1.4.1 Portfolio Return

Return is reward for investment. A major purpose of investment is to get a return or income on the invested. On a bond an investor expect to receive interest and on a stock dividends may be anticipated. So return from investment has different meaning to different investors. Some companies seek near term cash inflow and give less value to more distant returns. Other investors are concerned primarily with growth. Still others measure return using financial ratios. They might seek to invest in a company that has a high return on investment.

All the investor wants to maximize expected returns subject to their tolerance for risk. Return is the motivating force and it is the key method available to investors in comparing alternative investments. Realized return and expected returns are two terms which is often used in the language of investment. Realized return is after the

fact return, return that was earned or it is history. Expected return is the return from an asset that investor will earn over some future period. It is a predicted return, which may not occur. The expected return on the portfolio is simply a weighted average of the expected return of the individual security that they are included in the portfolio. The weight must sum to hundred percent or one. The general formula for expected return of a portfolio, $\mathbf{R_p}$ is as follows:

$$\mathbf{R_p} = \sum \boldsymbol{W_J R_J}$$

Where,

W_J = Proportion or weight of total fund invested in security j

R_J = Expected return for security j

n =Total number of different securities in the portfolio

For The investment on two assets the formula will be as follows.

$$\mathbf{R_p = W_A R_A + W_B R_B}$$

Where,

R_p = Portfolio Expected Returns

R_A = Expected Return on Security A

R_B = Expected Return on Security B

W_A = Weight on Security A

W_B = Weight on Security B

2.1.4.2 Portfolio Risk:

Risk and uncertainty are real in life. Everyone encounters uncertainty in every day's life. Risk and uncertainty are an integral part of an investment decision. Risk can be defined as a situation where the possible consequence of the decision that is to be taken is known 'Uncertainty' is generally defined to apply to situations where the probabilities cannot be estimated. *(Cheney and Moses, 1992)*

Risk is uncertainty of whether the money investors lend will be returned. They have regarded such risk as bankruptcy risk. They said that stockholders of the firm should not only consider bankruptcy risk but also the risk that the firm will yield a rate of return below some targeted rate. They have given range, variance, standard deviation, coefficient of variation and beta as parameters for the measurement of risk. They describes beta as a parameter for the measurement of the systematic risk. Systematic

risk has been defined as un-diversifiable risk, which is beyond the control of the organization. Apart from this they describe unsystematic risk as diversifiable risk, which can be reduced through the portfolio effect. Further beta values for assets generally range between +0.5 and 2.0.

Risk of portfolio is not the weighted average of the standard deviation of specific securities composing that portfolio. It rather depends upon the co-movement (interactive risk) among the security as well. Portfolio risk can be measure in terms of standard deviation and variance.
Mathematically,

$$\sigma_p = \sqrt{\sum W_j W_k \, Cov_{jk}}$$

Where,
n = Total number of different securities in portfolio
W_j = Proportion of Total Funds invested in security J
W_k = Proportion Of total funds invested in security K
Cov_{jk} = Covariance between the possible return of security J and K

The covariance of the possible return of two securities is the measure of the extent to which they are expected to very together rather than independently of each other. The covariance term in the above formula can be written as follows.

$$\mathbf{COV_{jk} = p_{jk}\, \sigma_j\, \sigma_k}$$

Where,
$\mathbf{p_{jk}}$ = The correlation coefficient between possible return for security j and k
$\boldsymbol{\sigma_j}$ = S.D. Of security j
$\boldsymbol{\sigma_k}$ = S.D. Of security k

The correlation coefficient that is significant in portfolio construction is standardized statistical measure of the linear relationship between two variables. Its range wills be -1 to +1 (Perfectly negative correlation to perfectly positive correlation.).The positive correlation coefficient shows that he returns from two securities generally moves in

the same direction and zero correlation coefficient shows that he returns from two securities are uncorrelated. They show no tendency to very together in either a positive or negative in linear equation.

❖ **Segregation of Risk**

i) Systematic Risk

Systematic risk is that part of total risk, which cannot be eliminated. Systematic risk or un-diversifiable risk is a function of its covariance with market portfolio of all assets divided by the variance of the market portfolio. The portions of the total risk of an individual security caused by market factors simultaneously affect the prices of all securities. It can't be diversified away. Systematic risk is the market risk, which could not be avoidable. It is also called market risk or unavoidable or non-diversifiable risk or beta risk. The beta of the stocks is the slope of the characteristics line between return for the stock and those for the market. Beta depicts the sensitivity of the security's excess return to that of the market portfolio. This type of stock often called aggressive stock and slope less than 1 called defensive stock. Thus un-diversifiable risk is caused by such factors, which systematically affect all firms such as:

- War
- Inflation
- Recession
- Interest rates policy
- Corporate tax rate policy

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

ii) Unsystematic risk

The portions of the total risk that can be diversify away. It is also called non-market risk or avoidable or company-specific risk or diversifiable risk. Such unsystematic risk can be totally reduced through costless diversification. This risk is related at a decreasing rate toward zero as more randomly selected securities are added to the portfolio. Various studies suggest that 15-20 stocks selected randomly are sufficient to

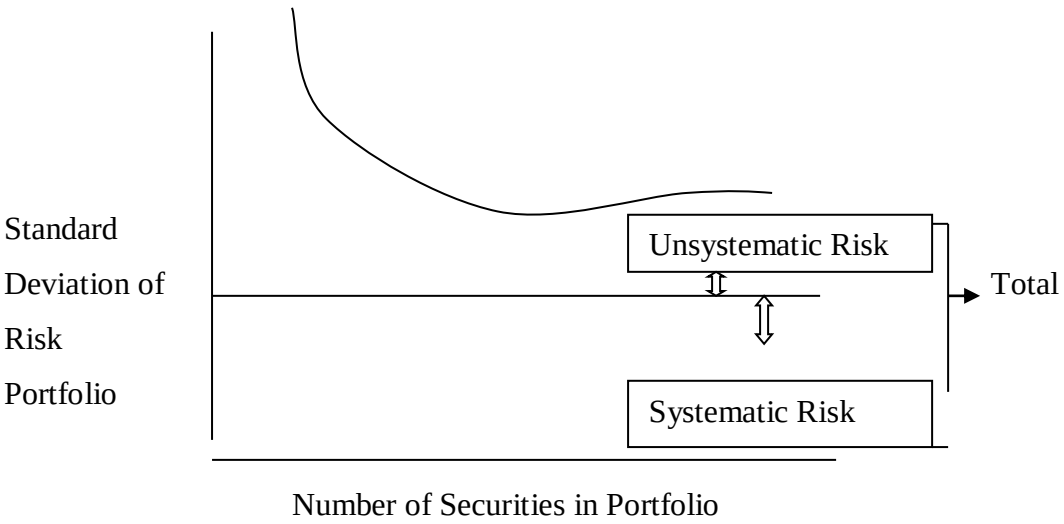
eliminate most of the unsystematic risk of portfolio *(Van Horne, 2002).* It is caused by events particular to the firm. Event such as labor strikes, management errors, inventories, advertising campaigns, shift in consumer taste and lawsuits cause unsystematic variability in the value of market assets. Since unsystematic changes affect one form, or at most few firm, they must be forecasted separately for each firm and for each individual incident. Unsystematic security prices movement are statistically dependent from each other.

Some sources of unsystematic risk are:

- Labor strike
- Management errors
- Inventions
- Advertising campaigns
- Shift in consumer taste
- Successful and unsuccessful marketing programs
- The winning and losing of major contracts
- Other events those are unique to a particular firm.

Figure 2.1

The Relationship between Systematic Risk and Unsystematic Risk



Since these events are essentially random, their effects on a portfolio can be eliminated by diversification i.e. bad events in one firm will be offset by good events in another.

❖ **Measurement of Risk**

i) Standard Deviation: Standard deviation is a statistically concept and is widely used to measure risk from holding a single assets. A high standard deviation represents a large dispersion of return and is a high risk. A low deviation is a small dispersion and represents low risk. It provides more information about the risk of the assets.

ii) Coefficient of variation: Risk is measured by the standard deviation, and then risk per unit of expected return can be measured by the coefficient of variation (C.V.). High C.V. represents the higher risk of the investment. The C.V. shows the risk per unit of return and it provides a more meaningful basis for comparison when the expected return and risk on two alternatives is not the same. *(Weston and Brigham; 1999:356)*

iii) Beta: "The beta is simply the slope of the characteristic line. It depicts the sensitivity of the security's excess return to that of the marker portfolio if the slope is one, it means that excess return for the stock vary proportionally with excess return for the market portfolio. In other words, the stock has the same unavoidable or systematic risk as the market as a whole. *(Van Horne 1997:254)*

"Beta measures non diversifiable risk. Beta shows how the price of a security responds to market forces. In effect, the more responsive the price of a security is to changes in the market, the higher will be its beta is calculated by relating the returns on a security with the returns for the market. Beta can be positive or negative. But nearby all betas are positive". *(Fisher and Jordan; 2004:158)*

2.1.5 Portfolio Performance Evaluation

Investors are always interested in evaluating the performance of their investment portfolio. Simply speaking, the portfolio performance evaluation is one of the

important aspect of the investment decision making in which the analysis of historical or ex-post performance of the portfolio is done in a systematic manner.
For the purpose of portfolio ranking, returns must be adjusted for risk before they can be compared meaningfully. The simplest and most popular way to adjust returns for portfolio risk is to compare rates of return with those of other investment funds with similar risk characteristics. Thus, the comparison of performance with other similar investment is a useful step in evaluating performance. However, such rankings can be misleading as some managers may concentrate on high beta or aggressive growth stock where as other in reverse one. Thus, these all considerations suggest that a more precise means for risk adjustment is desirable.

Methods of risk adjusted performance evaluation using mean-variance criteria came on stage simultaneously with Capital Asset Pricing Model. Three great scholars/academicians namely William Sharpe, Jack Treynor and Michael Jensen recognized immediately the implication of the CAPM for rating the performance of the investment portfolio. Hence, some risk adjusted performance measures can be listed as:

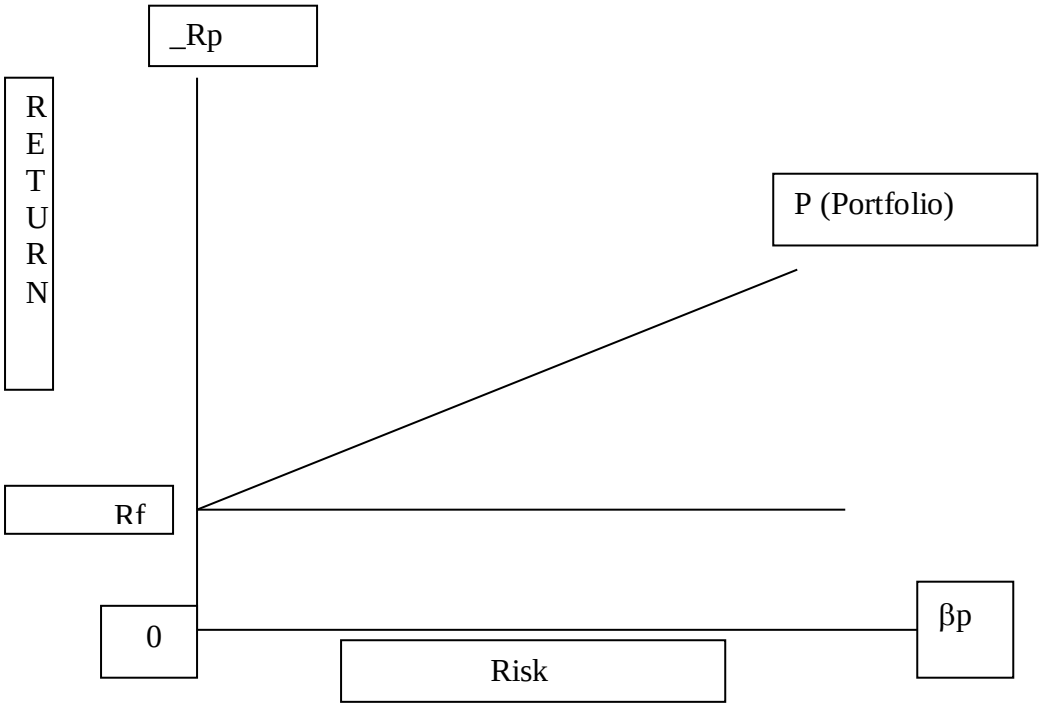
2.1.5.1 Treynor's Portfolio Performance Measure

In an article in Harvard Business Review in 1965 A.D., Jack L. Treynor presented the first composite measure of portfolio performance that combined risk and returns in single performance measure.

Treynor was interested in a measure of performance that would apply to all investors regardless of their risk preferences. Building on developments in capital market theory, he introduced a risk-free asset that could be combined with different portfolios to form a straight portfolio possibility line. He showed that rational risk average investors would always prefer portfolio possibility lines with larger slopes because such high slope lines would place investor on higher indifferences curves. The slope of this portfolio possibility line is the Treynor's portfolio performance measure. *(Reilly and Brown, 2006:1045)*

Figure 2.2

Graphical Representation of the Treynor Index

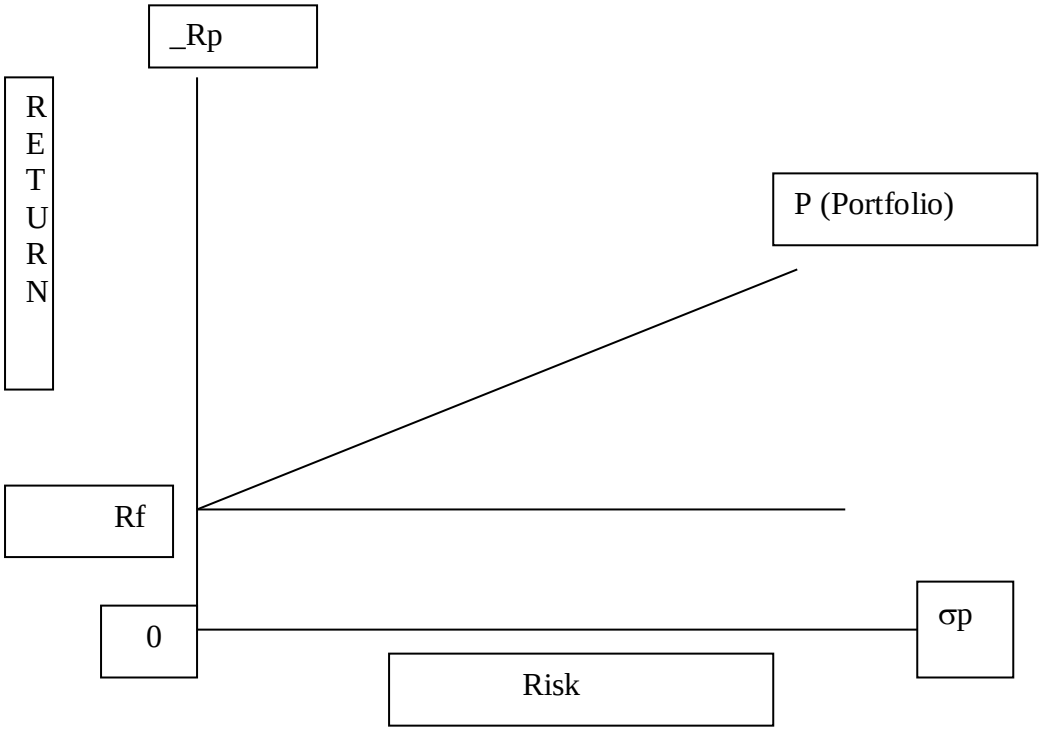


2.1.5.2 Sharpe's Portfolio Performance Measure

William F. Sharpe, one of the contributors to the development of the CAPM, introduced an alternative measure of portfolio performance evaluation in 1966 A.D. In the measure Sharpe used the total risk indicated by standard deviation as the appropriate measure of risk. The only difference in two measures developed by Treynor and Sharpe is the use of risk measure whereas both used the risk premium of the portfolio which is the return of portfolio over the risk-free return. However, the use of total risk as risk measure by the Sharpe was seen as surprise because he was one of the contributors to the development of CAPM, which describes the importance and usefulness of beta as a risk measure.

Figure 2.3

Graphical Representation of the Sharpe Index



2.1.5.3 Jensen's Portfolio Performance Measure

Jensen's measure (αp) represents how much of the rate of return on the portfolio is greater than the average returns adjusted for risk (or average return assigned by CAPM). A positive αp indicates the superior portfolio performance or selecting undervalued portfolios.

The Jensen's measure of portfolio performance has advantages over the Treynor and Sharpe. First, it is easier to interpret in that in that an alpha value of 0.02 indicates that he portfolio generated a return of 2% per period more than what was expected given the portfolio's risk level. Second, it assists to know whether an asset is over or under valued.

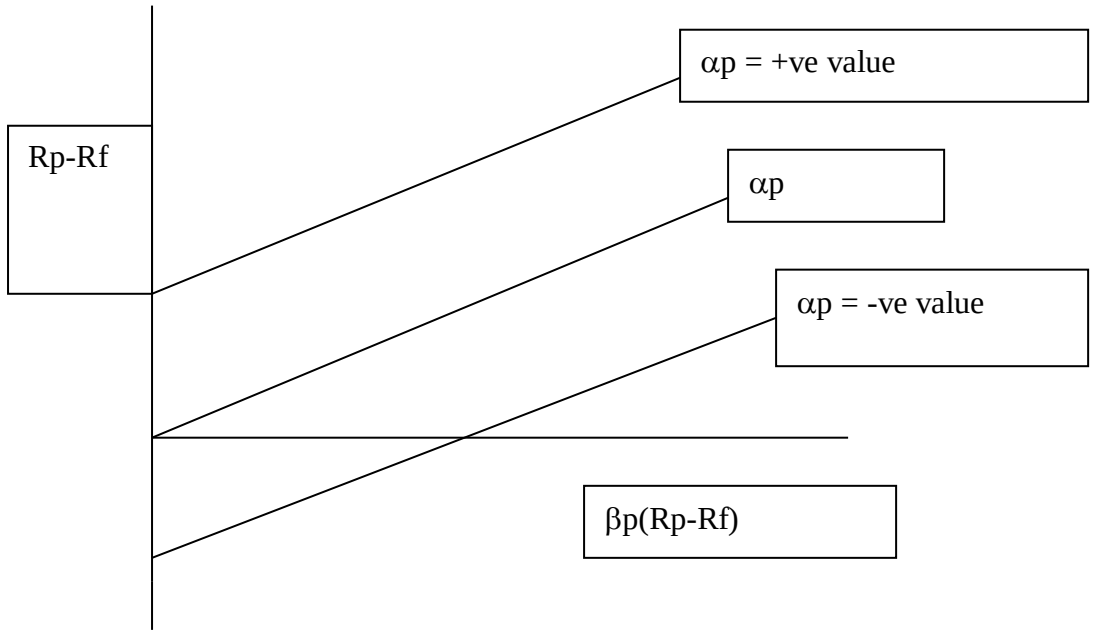
If αp is positive, asset (portfolio) is undervalued.

If αp is negative, asset (portfolio) is overvalued.

For ranking the portfolio according to their performance, it is advisable to divide the αp by βp so as to achieve a relative measure relative measure and provide a reliable rank.

Figure 2.4

Graphical Representation of Jensen Model of Management Ability



2.1.6 Under and Over Valuation

Here, the term under and over valuation means the price of stock is low or high as per their return. In market equilibrium, the CAPM implies and expected return and risk combinations that places it above the security line, it will undervalue in the market. It provides an expected return in the excess of that required by the market for the systematic risk involved. As a result the security will be attractive to the investors. According to the theory, the increase demand will cause the price to rise until the expected return declines sufficiently for the security to lie in the security market line and there by an overvalued security characterized by an expected return risk combination that places it below the security market line. This security is unattractive, holding will sell it, and those not holding it will avoid it. The price will fall and expected return will rise until there is consistency with the security line and with equilibrium pricing.

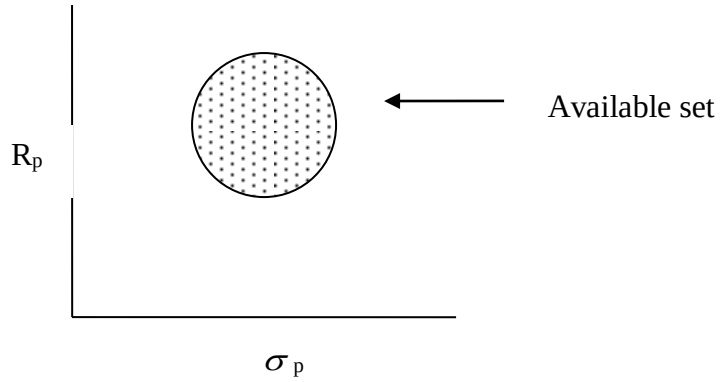
2.1.7 Portfolio Selection

There are three steps to select a portfolio by an investor.

1) Determination of Portfolio Opportunities or Attainable Set of Portfolio.

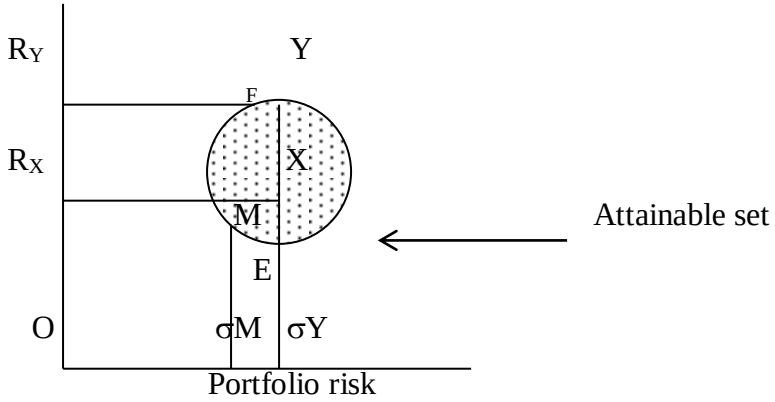
It is the first step to select the optimum portfolio. From the various securities we can combine limitless no. of portfolios. Each possible portfolio will have an expected rate of return and risk.

The hypothetical set of all possible portfolios called the portfolio opportunity set or attainable set.



2) Determination of Efficient Set

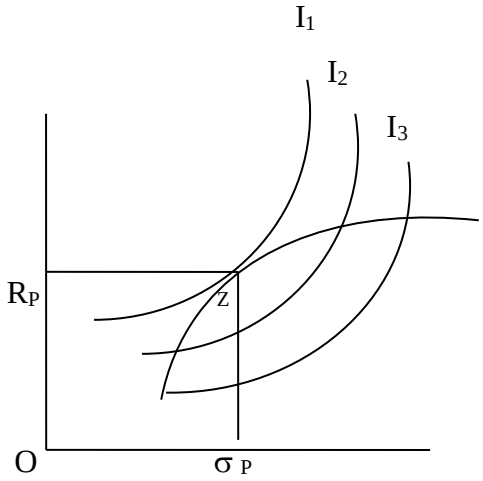
Efficient set is the collective form or set of portfolio. Efficient set theorem explains low investor will choose their portfolios from the set of efficient portfolio. If we consider the infinite number of portfolios that could be formed from two or more securities and plotted portfolios expected return and risk, we would create a graph like the one in the figure. The efficient frontier is represented by the line from E to F. Portfolios along curve. EF dominates all other investment possibilities.



An efficient frontier or portfolio is a portfolio that provides the highest possible expected return for varying level of risk or the lowest possible degree of risk for varying level of expected return. Portfolio to the left of the efficient frontier are not possible, they lie outside the attainable set. Portfolios to the right of the efficient frontier are inefficient because some other portfolio could provide either a higher return with same degree of risk or a lower risk for the same rate of return. In figure x is a portfolio which provides R_x return with σ_Y risk and y is the portfolio which provides R_Y return with same level of risk of σ_Y and portfolio M provides same return of R_x as portfolio x with less than that of portfolio x. Because of both portfolios Y and M lies in efficient frontier.

3) Selection of optimal portfolio

After finding the efficient frontier, select the optimal portfolio, which maximizes the utility of investors with the help of indifference curve.



In the above figure, Indifference curve I_1 has higher utility than that of I_2 and I_3. An investor selects that portfolio which lies in the efficient frontier of the opportunity set which is tangent to the indifference curve of the investor and the portfolio becomes optimal for him. The indifference curve I_1 is tangent with efficient frontier at the point Z. Here investor's optimal portfolio is Z. Therefore, this point Z makes a higher level of satisfaction that an investor can achieve.

2.1.8 - Review of popular Model of Portfolio:

2.1.8.1-Harry M. Markowitz and portfolio selection Model

Harry M. Markowitz originally proposed portfolio theory "portfolio selection" in 1952. Markowitz diversification is the combining of assets, which are less then perfectly correlated in order to reduce portfolio's risk. It can sometimes reduce risk below the un-diversifiable level. Markowitz diversification is more analytical than simple diversification and considers assets correlation. Risk averse investors selects efficient portfolio that maximizes return at a given level of risk or minimizes risk at a given level of return. With the collection of those efficient portfolios the optimal portfolios can be obtained for given investors. A theory, which evolved into a foundation for further research in financial economics Markowitz, showed that under certain given conditions, an investor's portfolio choice reduced to balancing two dimensions, i.e. the expected return of the portfolio and its variance. Portfolio is the combination of the various securities. To choose the combination of the securities, it is really a challenge to the investor to choose the combination. By combining securities of low risk with securities of high risk, success can be achieved by an investor in making a choice of investment outlets.

Markowitz diversification may be defined as combining assets, which are less than perfectly correlated in order to reduce portfolio risk without sacrificing portfolio return. It is more analytical than simple diversification and considers assets correlation or covariance in portfolio formation it shows that lower the correlation between assets. More no. of security will be able to reduce the portfolio risk. Markowitz used the variance of return as the measure of risk. The portfolio model developed by Markowitz is based on the following assumption:

- This theory assumes for the same holding period return for all securities.
- The risk of an individual assets or portfolio is based in the variability of returns.
- Investor prefers high return to lower return for a given level of risk. Similarly, for a given level of expected return, investor prefers less risk. *(Cheney and Moses, 1999:346)*
- Investor makes investment rationally.

2.1.8.2-Capital Assets Pricing Model

The relevant risk for an individual asset is systematic risk because undiversifiable risk can be eliminated by diversification. The relationship between an assets return and its systematic risk can be expressed by the CAPM, which is also called the security market lime (SML). "It is the model that describes the relationship between risk and expected return. The CAPM provides a framework for basis risk and return offs in portfolio management. It explains the behavior of security prices and provides a mechanism to assess the impact a proposed security investment on investor's overall portfolio risk and return. It enables drawing certain implications about risk and the size of risk premium necessary to compensate for bearing risk. *(Khan and Jain, 1992:258)*

The equation for the CAPM is

$E(R_j) = R_f + [\ E(R_m) - R_f\ ]\ \beta_j$

Where,

$E(R_j)$ = the expected return on the J^{th} risky assets.

R_f = the rate of return on a risk less assets.

$E(R_m)$ = the expected return on the market portfolio.

β_j = $\text{cov}(R_j, R_m) / \text{var}\ R_m$

The CAPM based on the following assumption:

- Individuals are risk reverse.
- Individuals have homogeneous expectations; they have identical subjective estimates of the means, variance, and covariance among the returns.
- Individual can borrow and lend freely at a risk less rate of interest.
- The market is perfect there are no taxes; there are no transaction costs; securities are completely divisible; the market is competetive.
- The quantity of risky securities in the market is given.

2.1.8.3 The Single Index Model

The simplification of Markowitz model has come to be known as the market model of single index model (Valla, 1994). The single index model provides that the desirability of any stock is directly related to its excess return to beta ratio. Single index model for optimal portfolio enable to find out the no. of security to be in

optimal portfolio. In this case the desirability of including a stock directly related to its excess return to beta ratio. If stocks ranked by excess return to beta for highest to lowest, the ranking represents the desirability of any stocks inclusion in a portfolio. The number of stocks with selected depends on a unique cut of rate such that all stocks with higher ratios will be included and all stocks with lower ratios excluded.

The beta of security represents the market linearity of the stock. The market influences each stock. Negative beta defines that security is not linear to market. The security having negative beta coefficient is rejected as investment alternatives. In the same way security that provides lower rate of return than risk free rate of return rejected as investment alternatives. To determine which securities are to be included in the optimum portfolio, investors have to find out cut off rate. We can calculate c_j using following formula:-

$$C_j = \frac{\sigma_m^2 \sum_{j=1}^{j} \frac{(R - R_f)\beta_j}{\sigma_{ei}^2}}{1 + \sigma_m^2 \sum_{j=1}^{j} \frac{\beta_j^2}{\sigma_{ei}^2}}$$

Where,

σ_m^2 = Variance of the market index.

R_j = Expected return of stock j.

R_f = Risk free rate of return.

σ_{ei}^2 = Unsystematic risk of stock j

Bj = Beta of stock j.

Investor selects highest C_j value; that is C* (selected cut of rate). The value of C* is used in calculation of Z_j .

Weight of security (Z) $= \frac{Z_j}{N}$

Where, (Z) $= \frac{\beta}{\sigma_{ei}} \left(\frac{R_j - R_f}{\beta_j} - C^* \right)$

Where,

C* = Selected Cut of rate.

R_j = Expected return of Stock J

R_f = Risk free rate of Return.

β_j = Beta of stock J.

σ_{ei} = Unsystematic risk of stock J.

2.2 Review of Related studies:

2.2.1 Review of Articles and Journals:

Mahat (2006) has published an article entitled on *"Effective Banking"* which explained that the efficient of banks could be measured using different parameters. The concept of productivity and profitability can be applies while evaluating efficiency of banks. The term productivity refers to the relationship between the quality of inputs employed and the quality of outputs produced. An increase in productivity means that more output can be produced from the same inputs or the same outputs can be produced from the less inputs. Interest expenses to interest income ratio shows the efficiency of banks in mobilizing resources at lower cost and investing in high yielding assets. In other words, if reflects the efficiency in the use of funds. The operating profit to total income ratio helps in assessing whether bank are doing the right things internally. According to Mr. Mahat the analysis of operational efficiency of banks will help one in understanding the extent of exposure of banks under the changed scenario and in deciding when to back upon. This may also help the inefficient bank to upgrade their efficiency and be wire in the situation developing due to slowdown in the economy. The regulation should also be concerned on the fact that the banks with unfavorable ratio may bring catastrophe in the banking industry.

Brendan and Cao (2008) have published an article entitled on *"International portfolio investment flows"*. This article develops a model of International equity portfolio investment flows based on differences in informational endowments between foreign and domestic investors. It is shown that when domestic investors possess a cumulative information advantage over investors about their domestic market, investors tend to purchase foreign assets in periods when the return on foreign assets is high and to sell when the return is low.

Followings are the conclusions from the article:

- The article has developed a model of international equity portfolio flows that relies on informational differences between foreign and domestic investors.
- The model predicts that if foreign and domestic investors are differentially informed then portfolio flows between two countries will be a linear function of the contemporaneous returns on all national market indices: and if domestic investors have a cumulative information advantage over foreign investors about
- Domestic securities, the co-efficient of the host market return will be positive.
- Portfolio flows are associated with returns on national market indices as the symmetric information hypothesis implies.
- The examination of U.S. portfolio investment in emerging markets shows the strong evidence that U.S. purchases are positively associated with local market returns in many countries.
- This model is able to explain only a small proportion of the variance of international equity portfolio flows.

Koehn and Santomero (2011) has published an article entitled on *"Regulations of Bank Capital and Portfolio Risk"* to examined the portfolio allocation that flows from the portfolio decision of the firm and the effects on bank portfolio risk of a regulatory increase in the minimum capital assets ratio that is acceptable to the supervisory agency. The allocation across assets becomes the choice variable deriving the optimal mean rate of return per unit of the capital and the variance of that return. Therefore, the analysis will be developed in terms of risk and return per unit of capital with no loss in generality. According to them, an explicit relationship between the risk of the bank portfolio, the amount of bank capital held and the chance of bankruptcy must, therefore, be obtained to evaluate the result of bank capital regulation.

Shrestha (2012) has published an article entitled on *"Portfolio management in commercial bank, theory and practice"*. According to him, 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 select mix of investment assets subject to following aspects:

- Higher return which is comparable with alternative opportunities available according to the risk class of investors.
- Certain capital gain.
- Flexible investment.
- Good liquidity with adequate safety of investment.
- Maximum tax concession.
- Economic, efficient & effective investment mix.

Following findings have been point out from the research:

- To find out the investible assets having some for better returns depending upon individual characteristics like age, health, need, disposition etc.
- To find out the risk of the securities depending upon the attitude of investors towards risk.
- To develop alternative investment strategies for selecting a better portfolio.
- To identify securities for investment to refuse volatility of return and risk.

2.2.2 Review of Thesis

The thesis related with the portfolio of stocks as well as the portfolio of various investment and assets, are reviewed as reference which have made this study easier. The thesis/studies reviewed are presented below in conclusive manner.

Shrestha (2006) has conducted a study on the title *"Portfolio Analysis of Common Stock of Commercial Banks in Nepal"*. The main objective of the study is to find out level of portfolio risk and return on stock of commercial bank investment. The other specific objectives are;

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

Major findings of the study are:

- Expected return of HBL stock is highest i.e. 53.68% and NABIL is lowest i.e. 32.72% among the banks. NBBL and SCBL have expected return of 47.05% and 39.02% respectively. The risks of NBBL is highest i.e. 93% and SCBL

has a lowest risk i.e. 55.42% HBL and NABIL have a risk of 84.98% and 60.86% respectively.

- The correlation of stock, return and market shows that all of the banks stock are highly positive correlated with the market. The correlation values of common stock of all bank with the markets is nearly equal +1. Stock of NBBL is highest positive correlation which has values of +O.918 and HBL is lowest positive correlated which has a value of +0.82.
- All of banks beta of common stock is greater than 1. Beta greater than 1 implies that stocks are more volatile than market or said to be aggressive stock. NBBL has the highest beta i.e. 2.1785 and SCBL has the lowest beta i.e. 1.2142. All of the stocks are aggressive.
- NBBL has highest portfolio return i.e. 7.98% and highest portfolio risk i.e. 21.70%. NBBL has invested its more funds on risky assets and fewer funds on risk free assets. So there exist highest risks as well as return. The principle "higher the risk higher the return" is applied for it. Likewise, HBL has the lowest portfolio return i.e. 5.33% and portfolio risk 0.35%. It has invested more of its fund in on risk free assets and least fund in risky market. The principle "no risk no gain" is applied for it.
- The performance measure shows the ranking stock by different method. The Sharpe's performance shows that performance of stock of SCBL is 1st and HBL is 4th. The Treynor's performance measure shows that performance of stock of NBBL is 1st and HBL is 4th. Likewise Jenson's performance measure shows the performance of stock of SCBL is 1st and NBBL is 4th among the banks.
- Among four banks optimal portfolio return and risk shows that return NBBL is highest i.e. 32.7% and return of HBL is lowest i.e. 24.9% and HBL has a highest portfolio risk of i.e. 61% and SCBL has a lowest portfolio risk of 34.8%.

Poudyal (2008) has conducted a study on the title *"Formation of optimum investment portfolio in Grade A Companies, listed in the Nepal Stock Exchange".* The main objective of this study is to analyze the risk return characteristics of the securities with a view to form an optimum investment portfolio among the securities of the

companies listed in NEPSE under Grade 'A', on the basis of monthly data from mid July 2004 to mid March 2007. The other specific objectives are;

- To measure monthly return and risk of the securities of the sample companies.
- To provide suggestions based on the analysis of data.
- To select securities to be included in the portfolio.
- To form optimum investment portfolio.

Major findings of the study are:

- The study shows that the stocks of Nepal Bangladesh Bank Ltd is being ignored for the investment because the stocks are with negative return within the period of the study and at the same time, on the basis of return characteristics, the stock of Nabil Bank Ltd. is the best one for investment.
- The stocks of one industry (i.e. banks) are positively correlated, which will not reduce the level of risk as expected. So, it is felt necessary to perform the study across industries such banks, financial institutions, insurance and on its basis it is found that the stocks selected for portfolio purpose are negatively correlated. Therefore, it would be beneficial to construct investment portfolio among the stocks of different industries rather than limiting within one industry.
- On the basis of the analysis of the portfolio return, portfolio standard deviation and coefficient of variation, the formation of the portfolio with the stocks of Nabil with 50%, NBL with 20% and EBL 25% investment proved to be the optimum in one industry whereas 50% Nabil, 25% NMBFL and 25% HGCIL proved to be the even better investment portfolio because of the spread across industries and the stocks being negatively correlated. Depending upon the Sharpe Single Index Model, it is observed that 16.25% investment in HGCIL, 25% in NMBFL, 30% in NIBL, 20% in EBL and 8.7%in Nabil would be the optimum investment portfolio investment portfolio.

Khanal (2009) has conducted a study entitled *"An investment Portfolio Analysis of Joint Venture Banks in Nepal*". The study is based only to the portfolio analysis between banking sector and other sector. The main objective of this study is to identify the situation of portfolio management of commercial bank of Nepal and

portfolio analysis between banking sector and other sector. The specific objectives of the study are as follows:

- To examine risk and return of commercial banks.
- To analyze market sensitivity.
- To know about systematic, unsystematic risk and analyze them in portfolio construction process.
- To analyze portfolio return and risk.

Major findings of the study are:

- SCBL Stock has the highest expected return i.e. 20.486% and HBL has the lowest expected return i.e. 3.48% NIBL and SBIBL stock have the expected return is 11.63%. The risk (S.D) of SBIBL is the highest i.e. 62.22% and SCBL has the lowest risk i.e. 33.10%. HBL and NIBL have a risk of 37.24% and 37%, respectively. The market risk (Market S.D) is 36.40%. So it shows that SCBL has higher the return lower level risk.
- All the returns of commercial banks are positively correlated with returns of market because all values are nearly equal to +1. SBIBL stocks return are the highest positively correlated and SCBL stocks returns are lease positively correlated with return of market. All banks have a beta less than 1 except SBIBL. SBIBL has highest beta i.e. 1.63 and SCBL has the lowest beta i.e. 0.77. So stock returns of SBIBL are more volatile and stock returns of SCBL is less volatile among four commercial banks.
- Total risk of SBIBL stock is highest and total risk of SCBL stock is lowest among four banks. SBIBL stock has 91% of un-diversifiable risk only 9% of its risk on total risk is diversifiable risk. HBL has 84.5% of un-diversifiable risk and remaining 16.5% diversifiable risk on total risk. NIBL and SCBL have an 85.5% and 72% of un-diversifiable risk and 14.5% and 28% risk and diversifiable risk respectively.
- The required rate of return of SBIBL is the highest i.e. 16.34% and SCBL stock is the lowest i.e. 9.9%. Other bank HBL and NIBL have a required rate of return of 11.18% and 11.18% respectively. SCBL stocks required rate of return is less than expected return, so the stock's price is under priced. But

other banks stock required rate of return is greater than expected return so the stock price is one Priced.

- NIBL has the highest portfolio return i.e. 8.2643 and it has the highest portfolio risk i.e. 20.03%. HBL has the lowest portfolio return i.e. 4.2447% and it has the lowest portfolio risk i.e. 0.4831%. SCBL and SBIBL have a portfolio return of 6.1683% and portfolio risk of 9.8134% and 0.6145% respectively.
- The performance measure shows that the stock of NIBL is the highest i.e. 4.118, stock of HBL is lowest i.e. 0.0984. Sock of SCBL is second higher i.e. 0.2055 and stock of SBIBL is in third position among banks.

B. C. (2010) has conducted a study on *"Investment portfolio of commercial banks in Nepal."* The study is based only on those factors, which are related with investment portfolio analysis, on secondary data published by and collected from selected banks and from the journals and unpublished articles and thesis, only five commercial banks are taken under study. The study covers a period of eight fiscal years which are tabulated and processed for drawing conclusion.

The main objective of the study is to identify the current situation of investment portfolio of commercial bank in Nepal. The specific objectives are as follows:-

- To emphasize the concept of investment and loans and advance portfolio.
- To assess the financial performance of commercial banks in term of investment approach.
- To analyze the risk and return ratio of commercial banks.
- To provide useful information based on the analysis of the data.

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

- In investment portfolio, the industry average investment on government securities is 84.33%, among the CBS, EBL has invested the highest amount of funds on govt. securities i.e. 98.58% and NIBL has invested lowest 55.84% other banks SCBL.

- NABIL and EBL have been investing highest amount of funds on share and debenture among CBS and EBL have invested lowest amount of funds on saving and deposit.
- NABIL and HBL have invested lower than industry average and the industry average on which NIBL has invested higher than industry average.
- There is positive Correlation coefficient between return on investment made by CBs in Govt. Securities loan and advance i.e. 0.613. And there is low positive correlation coefficient between return on investment made by CBs in Govt. Securities and saving & deposit and loan & advance and saving & deposit i.e. 0.032 and 0.207 respectively.
- Portfolio return is lesser than the individual return of saving & deposit and loan & advance but higher than individual return of Govt. Securities. And portfolio risk is less than the individual risk of loan & advance and Govt. securities but very lower risk than individual risk of saving & deposit this is due to low correlation between assets which shows the portfolio reduces risk.

Shrestha (2010) has conducted a study on the title *"Portfolio Management Practice and Portfolio Risk and Return Analysis of the Joint Venture Commercial Banks of Nepal".* The main objective of the research is to analyze and compute portfolio risk and return. Beside of the main objective, there is other objective to analyze the holding period return of the joint venture sector. Risk analysis have significance effect on the portfolio analysis, therefore risk diversification is the objective of the study. The other specific objectives are;

- To analyze and compute holding period return of joint venture commercial banks.
- To analyze the portfolio risk and return between or among joint venture commercial banks
- To distinguish the diversifiable and non diversifiable risk of joint venture commercial banks.

Major findings of the study are:

- The expected rate of return of EBL is the highest among Nabil Bank, HBL and SCBNL. So, it can be concluded that EBL has good performance.

- CV is a measure of dispersion, which is useful in comparing the risk of assets with the expected return. CV of HBL is the lowest among the sample banks. Therefore, it is good to invest in HBL as compare to other sample banks.
- EBL has the highest diversifiable risk, which is totally removed or minimized by using portfolio methods. But Nabil Bank has the highest non diversifiable risk, which is minimized up to certain level but cannot be removed. The investors should bear this risk.
- Beta coefficient measure the systematic risk that exists in the individual assets. The value of beta less than +1 is defensive security and greater than +1 is aggressive security. Nabil Bank has the highest beta coefficient (i.e. 1.5) among other sample banks' assets. Therefore, Nabil Bank's asset is more aggressive and highly volatile in nature. Similarly, the beta coefficient of HBL is 0.75, less than +1, so the stock of HBL is defensive and exist low systematic risk.
- In the context of portfolio risk and return of Nepalese joint venture banks' stocks, they took higher portfolio risk to increase little bit portfolio return, which is the sign of unstable economy.
- The investors cannot take appropriate measures and tools to select portfolio securities for investment. The portfolio investment is heavily influenced by signaling effect in market.

Bhatta (2011) has conducted a study on the title *"Portfolio Management of Listed Finance Companies in Nepal".* The main objective of the study was to identify the present situation of portfolio management of finance company in Nepal with the help of risk–return and other relevant variables which conclude that the most of the finance companies have enough unsystematic risk that means there is not effective portfolio management of listed finance companies. In the context of portfolio risk and return of Nepalese finance companies, investor has to bear a higher portfolio risk to increase little bit of portfolio return.

The major problem to manage the portfolio is volatility of different securities in Nepalese capital market. For the selection of the portfolio in Nepal, technical analysis does not work effectively but fundamental analysis work effectively. In Nepalese

stock market, passive strategy is more suitable than active strategy to achieve better result. Corporate investor think portfolio evaluation is necessary but due to lack of specific knowledge, they depend on conventional method.

Rijal (2011) has conducted a study on the title *"Portfolio Analysis of Investment Pattern of Commercial Banks in Nepal".* The main objective of the study is to analyze the existing situation of the investment pattern of the commercial banks as well as the present situation of the portfolio performance. Similarly, there are other specific objectives also which has undertaken for the study.

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

Major findings of the study are:

- In investment portfolio, the industry average investment on government securities is 73.75%, among the commercial banks, EBL has invested the highest amount of funds on government securities i.e. 96.28% and NIBL has invested lowest 49.55%, other banks SCBL, NABIL and HBL have invested highest amount of funds on government securities among commercial banks i.e. 73.83%, 78.82% and 80.27% respectively and EBL has invested lowest amount of funds on share and debenture i.e.3.72%. NABIL and HBL have invested lower than industry average and the industry average in this case is 24.25%, on which SCBL and NIBL is invested higher than industry average i.e. 26.17% and 50.45% respectively. In case of NRB bonds no banks are investing. There is zero amount of investment.
- There is positive correlation coefficient between return on investment made by commercial banks in government securities and loan and advance i.e. 0.733 and there is negative correlation coefficient between return on investment

made by commercial banks in government securities and share and debenture and loan and advance and share and debenture i.e. -0.143 and -0.476 respectively. This shows the low degree of negative relationship between assets. Such assets are very useful to make portfolio combination, So that the risk of the portfolio will be significantly reduced.

- There is positive covariance between the returns on investment made by banks in securities and loan and advances which shows better utilizations of deposits.
- The total investment to total deposits ratio of selected commercial banks shows that SCBL is the most successful in utilizing its resources on investment than others commercial banks. The mean ratio and Coefficient of Variation also reveals that NABIL and HBL are moderate in utilizing its resources on investment. While NIBL and EBL are not so successful in better utilizing their total deposits on investment of various assets.
- The loan and advance to total deposit ratio of selected commercial banks shows that EBL is the most successful in utilizing its resources on loan and advance than other commercial banks. The mean ratio and Coefficient of Variation also reveals that NIBL and NABIL are moderate in utilizing its resources on loan and advance while SCBL and HBL are not so successful in better utilizing their total deposits on loan and advance.
- The total investment, total deposit and investment on share and debenture, loan and advance and government securities of commercial banks are increasing per year. In trend analysis, the investment of commercial banks on share and debenture is increasing more rapidly than government securities and government securities is increasing more rapidly than loan and advance during the period of the study.

2.3 Research Gap

In Nepal, there have been no up-to-date studies carrying out regarding portfolio management of investment in the securities issued by listed commercial banks. Independent studies regarding the analysis of stocks have not yet been found. It is found that only master's degree students have been carrying out thesis works in such topics. Nevertheless, these studies are concentrated on portfolio analysis of commercial banks. No study has been carried out regarding securities portfolio

consisting of the stocks of listed commercial banks. Most of the studies are concentrated on the risk and return analysis of stocks of listed companies. Keeping in view the above facts and situation, different sets of portfolios between the stocks of listed commercial banks have been created using different weights. Optimum portfolio of three assets has also been chosen based on the maximum return and minimum risk from the created sets of portfolios. Hence, this study has attempted to introduce new model for creating the best portfolio and assigning weights between the stocks of commercial banks available in Nepalese stock market.

CHAPTER-III
RESEARCH METHODOLOGY

Research methodology is the process of arriving to the solution of the problem through planned and systematic dealing with the collection analysis and interpretation of fact and figure. Research is a systematic method of finding out solution to a problem where as research methodology refers to the various sequential steps to adopt by a researcher in studying problems with certain objectives in view. To find out such solution of problems various statistical and financial tools and techniques are applied according to the nature of phenomena.

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done systematically. In it we study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them (Kothari; 1990).

3.1 Research Design

Research design is a conceptual framework within which a researcher conducted. Research design is plan for the collection and analysis of data. It presents the series of guide posts enable the researcher to progress in the right direction in order to achieve the goal. The design may be a specific presentation of the various steps in the research process. These steps include the selection of a research problem, presentation of the problem, formulation of hypothesis, conceptual clarity and methodology, survey of literature and documentation, bibliography, data collection, testing of hypothesis, interpretation, presentation and report writing. Generally, a common research design possesses the five basic elements viz. (i) selection of problem (ii) methodology are used (iii) data gathering (iv) data analysis and (v) report writing. *(Joshi; 2007:52)*

This analysis is based on certain research design keeping on objectives of the study in mind. This research design is guideline studying profound way for research ability. This study is based on recent historical data of last five years. The study range is from 2006/07 to 2010/11. The study is mainly focused on expected risk and return and

portfolio risk and return management of the listed commercial banks. To achieve objective of the study, descriptive analytical research design has been adopted.

3.2 Population and Sample Selection

Population refers to the entire group of people, events or things of interest that a researcher wishes to investigate. As this study is about portfolio management of commercial banks, all 32 Commercial banks of Nepal are taken into account as population. Out of the total population i.e. 32 commercial banks, 3 commercial banks are taken for this study. These three banks are the samples selected by using judgmental sample methods for this research. The selected sample banks with the selected fiscal year are:

Bank	Fiscal Year	Period	% of cover
EBL	2006/07 - 2010/11	5	33.33
SBL	2006/07 - 2010/11	5	33.33
NSBl	2006/07 - 2010/11	5	33.33
Total		15	100

3.3 Nature and Sources of Data

The researcher can use two methods of data collection i.e. Primary and Secondary data. Primary data are the data collected directly from the site. It can be called as first hand data. Those data are very reliable if researcher can reach the correct destination with required tools. Secondary data are second hand data collected from different other sources such as magazines, newspapers, journals, second persons, etc. Here both the primary and secondary data are used for the study. With the list of questionnaire, commercial banks its shareholders and other related personals are visited and data are collected from there. Some data are again collected from the respective commercial banks annual reports especially from profit and loss accounts, balance sheet and other publications made by the banks, which are the secondary data. Likewise, some other related information is gathered from related banks and related agencies like Nepal Rastra Bank, Nepal Stock Exchange Limited.

3.4 Data Processing Techniques

After the necessary data has been collected, relevant facts and figure have to be tabulated under the different headings. Such tables and formats are to be interpreted and explained as required. Different tools and techniques are used to interpret and explain the data. Scientific calculator and simple microcomputer has been used to compute data.

3.5 Tools of Analysis

Various statistical and financial tools are used in this study. Wide varieties of methodology have been applied according to the reliability and consistency of data. Before using the analytical tools to compare the result, the data containing in the financial statements have been grouped and rear ranged so as to make comparison easy. For the purpose of analysis the data of five years were taken as sample from 06/07 to 10/11. The data are analyzed financially and statistically. The calculated results are also tabulated under different heading for ease of reading, and then they are compared with each other to interpret results.

3.5.1 Financial Tools

To evaluate the financial position and performance of any firm ratio is used as a key tool of financial analysis. “Financial analysis is the process of identifying the financial strength and weakness of the firm by properly establishing relationship between the items of the balance sheet and profit and loss account”. Financial analysis is the use of financial statements to analyze a company's financial position and performance and to assess future financial performance. The financial tools used in this study are briefly presented below:

Market Price of Stock (MPS):

There are mainly three types of MPS available in NEPSE annual report. They are high MPS, low MPS and closing MPS. Closing MPS is not an average price of high and low MPS but rather it is calculated by considering the whole years MPS. For the closing MPS trading report is followed.

Dividend (D):

Dividend can be given in the form of cash or shares. If the company declare dividend in cash then there is no difficulty in calculation. But if the company declares stock dividend or bonus share then shareholders get shares as dividend instead of cash. So there is a little difficult to calculate the exact amount in cash. In case of stock dividend the formula for total dividend amount is considered as follows:

Total dividend = DPS + next year's closing price × stock dividend%

Single Period Rate of Return(R):

This is the annual realized return received on an investment and any change in market price, usually expressed in a percent at the beginning price of the investment. It is the summation of the dividend yield and the capital gain yield.

Symbolically,

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

Where,

R= Actual realized return on common stock at time t.

D_t = Cash dividend received at time t.

P_t = Price of a stock at time t.

P_{t-1}= Price of stock at time (t-1).

Expected rate of return on common stock:

Expected return is simply arithmetic mean of the past years return. This is an average return on common stock.

Symbolically,

$$\overline{R} = \frac{\sum R_j}{N}$$

Where,

(R_j) = Expected rate of return on stock j.

N = No. of years.

Beta coefficient (β_j):

Beta is an index of systematic risk. It measures how much systematic risk a stock j has relative to market portfolio.

Symbolically,

$$\beta = \frac{Cov(R_j, R_m)}{Var(R_m)}$$

Where,

β_j =Beta coefficient of stock j.

$Cov(R_j, R_m)$ = covariance between stock j and market return.

Beta of market return equals to 1. If beta is greater than 1, then the assets is more volatile then market and is called aggressive beta. If the beta is less than 1, the asset is called defensive beta and its price fluctuation is less volatile then market.

Capital Assets Pricing Model (CAPM):

Capital assets pricing model describes the relationship between risk and required return. A security's expected return is the risk free rate plus a premium based on the systematic risk of the security.

Symbolically,

$$(\overline{R}_J) = R_f + [(R_m) - R_f]\ \beta_j$$

Where,

R_f = the rate of return on a risk less assets.

R_m = the expected return on the market portfolio.

β_j = cov (R_j , R_m) / Var R_m

Systematic Risk:

Systematic risk is known as the un-diversifiable risk. This risk is those portions of total variability in return caused by market factor that simultaneously affect the price of all securities.

Symbolically,

Systematic risk = $\rho_{jm} \times \sigma_j$

Where,

ρ_{jm} = Correlation between security and market.

σ_j = Variance of market.

Unsystematic Risk:

Unsystematic risk is also called diversifiable. This type of risk is unique to an organization and can be largely eliminated by holding a diversified portfolio of investment.

Symbolically,

Unsystematic risk = Total risk – Systematic risk

i.e. Unsystematic risk $= \sigma_j - \rho_{jm} \times \sigma_j$

Portfolio Return (R_P)

It is the weighted average returns of the stocks in the portfolio of two or more securities.

Symbolically,

$R_p = W_1 \overline{R}_1 + W_2 \overline{R}_2 \ldots\ldots\ldots\ldots\ldots + W_n \overline{R}_n$

Where,

$\overline{R}$ = return of the portfolio

W_1 = weight of stock 1

$\overline{R1}$ = Expected return of stock 1

W_n = weight of stock n

R_n = expected return of stock n.

Portfolio Standard Deviation (σ_p)

It is the combined standard deviation of the individual stocks return in the portfolio of two or more securities.

Symbolically, (For two Assets)

$$\sigma_p^2 = (W_1^2\sigma_1^2 + W_2^2\sigma_2^2 + 2W_1W_2Cov_{12})$$

Where,

σ_p^2 = variance of the portfolio returns of stock.

W_1^2 = weight of return of stock 1.

σ_1^2 = variance of return of stock 1.

W_2^2 = weight of return of stock 2.

σ_2^2 = variance of return of stock.

Cov_{12} = covariance between returns of stock 1 and 2.

3.5.2 Statistical Tools

Statistical tools are the mathematical techniques used to analyze and interpret performance. It is used to describe the relationship between variables and interpret the result. Statistics is also used to test the hypothesis that is set to know the information of population.

Mean ($\overline{X}$)

The arithmetic mean or average is the sum of total values to the number of observations in the sample. It represents the entire data which lies almost between the two extremes i.e. the largest and the smallest item. For this reason an average is frequently referred to as a measure of central tendency. In this study it is used in data related to dividend of sample banks over five years. It is calculated as:

$$\text{Mean } (\overline{X}) = \frac{\sum X}{N}$$

Where,

$\sum X$= Sum of total values

N = Number of observation

Standard Deviation (σ): Standard Deviation is a statistical measure and is widely used to measure risk from holding a single asset. The standard deviation represents a large dispersion of return and is a high risk and vice versa.

Symbolically,

$$\sigma_j = \sqrt{\frac{\sum (R_j - \overline{R}_j)^2}{n}}$$

Coefficient of Variation (C.V.):

Coefficient of variation is the ratio of the standard deviation of a distribution to the mean of that distribution. It is a measure of relative risk.

Symbolically,

Coefficient of variance (C.V.) = $\frac{\sigma}{\overline{R}}$

Covariance (COV):

Covariance is the joint variance of two securities. It measures how two random variables, such as the return on security A and B move together. A positive value of covariance indicates that the securities returns tend to move in the same direction. A negative value of covariance indicates the return of securities move in the opposite direction and the zero value of covariance indicates no relationship between the securities return. It is the product of two different deviation divided by the number of observations.

Symbolically,

$$COV_{jm} = \frac{(R_j - \overline{R}_j) \times (R_m - \overline{R}_m)}{n}$$

Where,

COV_{jm}=covariance between security j and m.

Correlation Coefficient

Correlation coefficient is a measure of the relative association between two variables; it describes how much linear co-movement exits between two variables. Correlation between stock j and the market is computes as:

$$\rho_{jm} = \frac{COV_{jm}}{\sigma_j \times \sigma_m}$$

Symbolically,

Where,

COV_{jm}=covariance between security j and m.

σ_j=Standard Deviation of Security j

σ_m=Standard Deviation of market

Decision Parameter

- If Correlation j & m is positive, the return on security j and market tend to be large at the same time and small at the same time.
- If Correlation j & m is negative, relative large return of security j and associated with relative small return of market.
- If Correlation j & m is zero, the return on security j uncorrelated to the return on market. Movement in the return of security j appear unrelated to movement in the return of market.

CHAPTER – IV

PRESENTATION AND ANALYSIS OF DATA

This chapter deals with the presentation and analysis of the returns and risks of common stocks of three commercial banks named EBL, SBL, and NSBL. Basically, this chapter is based on presentation and analysis of data and interpretation on major findings of the study. Risk-return characteristics of common stocks of the above mentioned commercial banks have been analyzed and interpreted on the basis of secondary data. Return and risk characteristics of the two assets and three assets portfolio have been formed from and have also been analyzed on behalf of the individual investors. Side by side, situation of the price of the common stocks of each bank has been calculated to indicate whether they are overpriced or under priced. In addition, the unsystematic and systematic risk of each commercial bank has also been calculated, and individual stock's sensitivity with the market has also been calculated. Tables, diagrams and charts have been used to reveal the information precisely as demanded by the analysis.

4.1 Risk and Return of Common Stocks

The return on common stock is the percentage increase/decrease in share price and any cash receipts such as dividends (cash and valuation of stock dividend) over a specific period of time. Holding period of return of sample banks are presented in table 4.1:

Table 4.1

Holding Period Return

Year	EBL	SBL	NSBL
2006/07	145.08	161.75	180.63
2007/08	60.02	59.48	28.49
2008/09	-5.04	-2.07	45.47
2009/10	-20.24	-54.60	-57.02
2010/11	-23.10	-34.48	-13.55

Source: Appendix ii

The table 4.1 presents the holding period return of sample banks at different fiscal years, which shows that the return is higher in the beginning fiscal years of the sample banks than that at the ending fiscal years, i.e the return is going to be in negative in the ending fiscal years. This is due to the more changes in capital gain. Capital gain in the beginning years is positive, so return is also in positive, whereas the capital gain is negative in the ending fiscal years, so return is also going to be negative. Average rate of returns, standard deviations and coefficient of variation are presented table 4.2.

Table 4.2

Average Rates of Return, SD and CV of Sample Banks

Commercial Banks	$\overline{R_j}$	σ_j	CV (%)
EBL	31.34	64.35	205.33
SBL	26.02	78.09	300.12
NSBL	36.81	80.21	217.90

Sources: Appendix ii

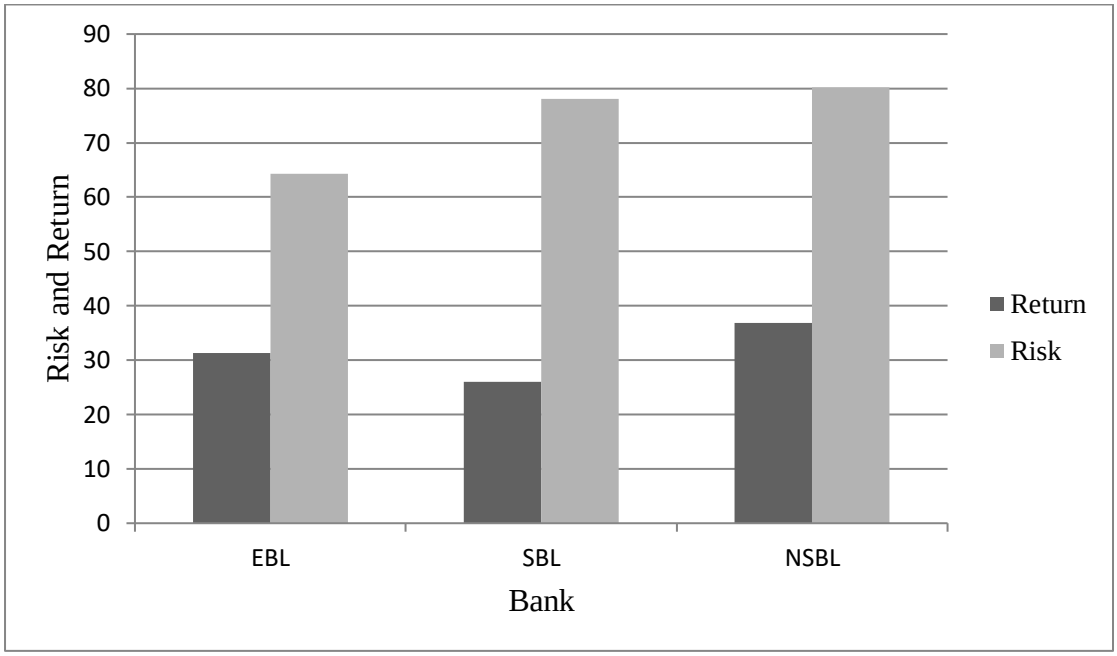
The Table 4.2 depicts that the average or mean return of the EBL was 31.34% over the five years period starting from 2006 to 2011 with standard deviation of 64.35%. The coefficient of variation obtained by dividing the standard deviation of returns by the mean returns was obtained as 205.33% for the bank.

Similarly, the mean return for the SBL was obtained as 26.02% with the standard deviation of 78.09%. The coefficient of variation for the bank was calculated to be 300.12%. Likewise, the average or mean return of NSBL was found to be 36.81% for the past five years with standard deviation of 80.21%. The coefficient of variation for the bank was thus obtained as 217.90%.

On the basis of table depicted above, NSBL had the highest expected return with the higher standard deviation than that the others sample banks. Higher the coefficient of variation of NSBL shows higher fluctuation on return than that of others banks. Higher the standard deviation than that of the return on all the sample banks shows that the banks should bear greater risk that of the return. This can also be shown on figure 4.1 as:

Figure 4.1

Average Rates of Return and Risk of Commercial Banks



4.2 Market Sensitivity of Stocks

Covariance measures how the returns on common stock of individual companies and market co-vary. It measures the absolute association between tow variables. Likewise, the correlation coefficient measures the relative association between tow variables. The correlation between two variables always lies within the limit of -1 to +1.

The return on the market has been calculated by using the closing NEPSE index. The variability of security's return with the return of the overall market, return is called systematic risk and cannot be avoided. It is un-avoided risk and is measured by beta coefficient. Beta depicts the sensitivity of the security's excess returns to that of the market portfolio. The calculated covariance, correlation and beta coefficients of the stocks of commercial banks are presented in Table 4.2.

Table 4.3

Covariance and Beta Coefficients

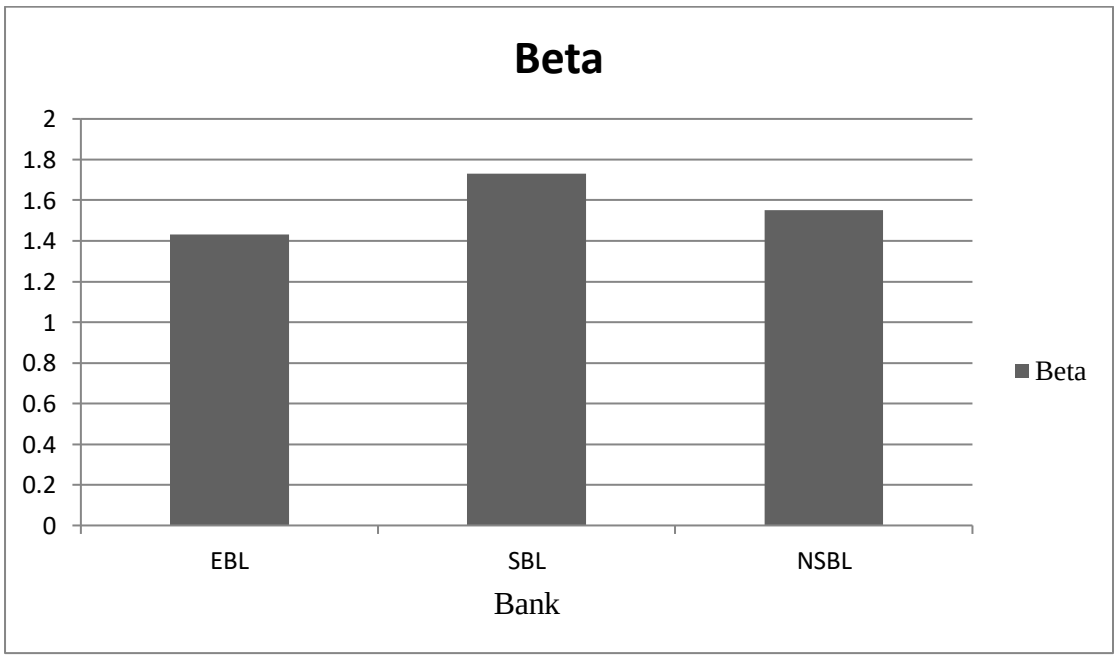
Banks	Cov (R_j, R_m)	β_j	Remarks
EBL	2778.99	1.43	Aggressive Stock
SBL	3358.60	1.73	Aggressive Stock
NSBL	3026.21	1.55	Aggressive Stock

Sources: Appendix

The Table 4.3 depicted above reveals the covariance of returns on stocks of respective banks with the return on market, and the respective beta coefficients. On due course, the beta coefficient of EBL was found to be 1.43, which indicates that the stock of EBL is highly volatile as compared to the change in market circumstances and hence is an aggressive stock. Similarly, the stock of SBL is also considered as an aggressive stock as given by the beta coefficient higher than one, i.e. 1.73. Likewise, the beta coefficient of NSBL is found to be 1.55 and therefore is also considered as the aggressive stock. Hence from the table, we concluded the all the sample banks has higher risk due to the greatest beta, and among them SBL has higher and EBL has quiet lower beta, i.e. systematic risk. This also can be shown on the figure 4.2 as:

Figure 4.2

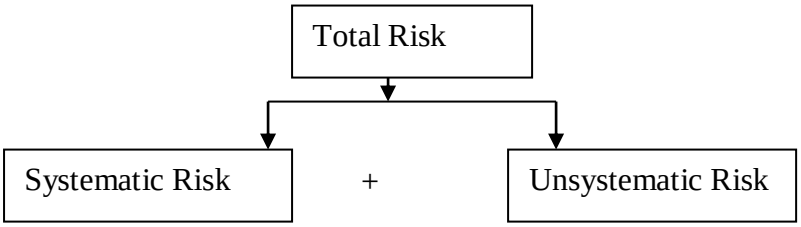
Beta Coefficients



4.3 Systematic and Unsystematic Risk

Total risk is measured by the variance of returns and can be partitioned into systematic and unsystematic risk. Systematic risk is also known as unavoidable or un-diversifiable risk. It is caused by market factors. Changes in the economic, political and sociological environment that affect securities markets are sources of systematic risk.

Partition of Total Risk



The systematic risk is computed as:

Systematic Risk

The percentage of systematic risk, also called proportion is measured by coefficient of determination. Proportion of systematic risk is calculated by:

$$\text{Proportion of Systematic Risk} = \frac{\text{Systematic risk}}{\text{Total risk}}$$

Similarly, unsystematic risk is known as avoidable or diversifiable risk or market non-specific risk or company specific risk. It is caused due to internal factors such as negligence of management, lockouts, strikes called by unions, etc. It is calculated as:

Unsystematic Risk = Total Risk – Systematic Risk

Total, systematic and unsystematic risk and their proportions of the stocks of the sample banks are presented in Table 4.4.

Table 4.4

Total, Systematic and Unsystematic Risk of Sample Banks With their Proportion

Companies	Total Risk (%)	Systematic Risk (%)	Prop. of systematic Risk (%)	Unsystematic Risk (%)	Prop. of Unsystematic Risk (%)
EBL	64.35	63.06	98	1.29	2
SBL	78.09	75.75	97	2.34	3
NSBL	80.21	68.98	86	11.23	14

Source: Appendix

The statistical results depicted in Table 4.4 segregates the total risks of the respective three banks into systematic and unsystematic proportion. The stocks of EBL, SBL and NSBL have the systematic risks of 63.06%, 75.75% and 68.98% respectively. As compared to three banks, the shares of SBL has the highest systematic risk where as the share of EBL has the lowest systematic risk. On the basis of systematic risk, the stock of the EBL is more attractive than others. The stocks of SBL appear most risky.

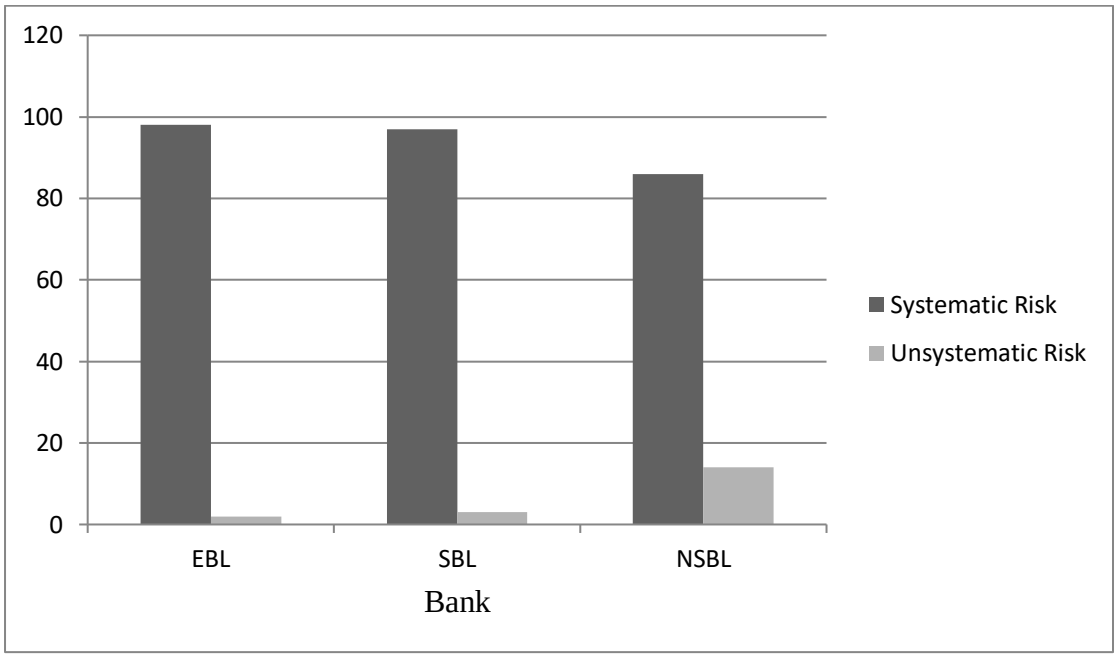
Out of total risk of individual stocks' return, the proportion of systematic risks of EBL SBL and NSBL are 98%, 97% and 86% respectively. It seems that 98%% variability of returns of the common stocks of EBL is systematic or is caused by market factors and hence cannot be diversified by forming efficient portfolio. Likewise, 97% risk of SBL is caused due to factors or forces in the market. Similarly, 86% of NSBL are caused due to market factors. These cannot be reduced or diversified away.

Considering the unsystematic risks, the unsystematic risks of EBL, SBL and NSBL are 1.29%, 2.34% and 11.23% respectively. Among them, the stock of NSBL has the greatest unsystematic risk and EBL has the least unsystematic risk. Out of total risks of EBL, SBL and NIBL, the respective proportions of unsystematic risk or company specific risk over total risk are 2%, 3% and 14%, which can be diversified away with an optimal portfolio construction.

The table 4.4 depicts that all the sample banks have higher the systematic risk than that of the unsystematic risk out of the total risk. Hence, it concluded that the sample banks have highly suffered from the market forces or from the external factors and only few from the internal factors. The figure 4.3 segregates the total risk on systematic and unsystematic risk as:

Figure 4.3

Proportion of Systematic and Unsystematic Risk



4.4 Portfolio Analysis

4.4.1 CAPM Equation/SML

Using CAPM the investor can estimate the required rate of return for the stock. The intrinsic value of stock is inversely related to required rate of return. If other things remaining the same, the higher required rate of return will lower the intrinsic value of stock. CAPM theory helps for pricing implication of common stocks.

The relationship between an asset returns and its systematic risk can be expressed by the CAPM, which is also called security market line. SML is the line showing the relationship between the systematic risk index (beta) and required rate of return. The equation for the CAPM or SML is;

Required Rate of Return (R_j) = R_f + (R_m - R_f) β_j

Where,

R_f = Risk free rate of return

R_m = Expected return on market portfolio

B = Beta or Systematic risk index of assets j

Calculation of required rate of return and comparing with expected rate of return are shown on table.

Table 4.5

Pricing Situation of the Stocks of the Commercial Banks

Banks	$\overline{R}_F$	$\overline{R}_m$	Beta Coefficient	Required Rate of Return	Average Rate of Return	Price Situations
EBL	3.50%	7.03%	1.43	8.55	31.34%	Under priced
SBL	3.50%	7.03%	1.73	9.61	26.02%	Under priced
NSBL	3.50%	7.03%	1.55	8.97	36.81%	Under priced

Sources: Appendix

The table 4.5 shows that the average risk free rate of five years as given by the interest rate on short-term government treasury bills is 3.50% *(annex)*. Similarly, the required rate of return on the market is just 7.03% which is calculated by the ending and beginning price of NEPSE index *(annex)*. Thus the calculated required rates of returns on stocks as given by the table are 8.55%, 9.61% and 8.97% for the EBL, SBL and NSBL respectively. The required rate of return on stock comprises of risk free rate of return (guaranteed rate of return) plus extra return (premium) for bearing risk. However, for all commercial banks, the average or mean rate of return obtained from its investment is found very high as compared to the rate of return required using Capital assets pricing model (CAPM) approach. This reveals that the stocks of all the three sampled banks are severely under priced. And hence they should be bought and not sold short. Thus, an investor can invest in all or either of these stocks as the prices of the banks' stocks is growing in the future.

4.4.2 Portfolio Risk and Return

Portfolio analysis of risk and return are based on the investment on single assets. The analysis of risk and return made up was only as a point of view of individual investors that if he should invest in which banks securities. Which banks securities is more risky to comparing with each other. Construction of portfolio or making an investment in more than one asset which are negative correlated can reduce unsystematic risk without losing any return.

This attempt is to make which of the commercial bank among the simple bank has constructing a portfolio to reduce risk and increase its return. The analysis is based on two assets portfolio risk free assets (i.e. government securities) and risky asset (i.e. share and debenture). Risk free assets are denoted by (f) and risky assets are denoted by (m). Portfolio of risky assets is also known as market portfolio.

Table 4.6

Portfolio Risk and Return of Sample Banks

Banks	Risk Free Rate (R_f) (%)	(R_m) (%)	W_f	W_m	R_p (%)	σ_p (%)
EBL	3.50	7.03	0.910	0.090	3.82	3.97
SBL	3.50	7.03	0.710	0.290	4.52	12.78
NSBL	3.50	7.03	0.535	0.465	5.14	20.49

Sources: Annex

The above table 4.6 shows that portfolio of return and risk of commercial banks. Risk free rate of return for all commercial banks is 3.50%. The proportion of risk free assets and risky assets on the table shows that EBL invest highly on the risk free assets i.e. government securities and invest few only on the risky assets, i.e. EBL invest 91% in risk free assets and only 9% in risky assets. Whereas, SBL also invest quiet higher amount on the risk free assets and few only on the risky assets, i.e. SBL invest 71% in risk free assets and only in 29% in risky assets. NSBL invest moderately amount on risk free assets and on the risky assets, i.e. NSBL invest 53.5% in risk free assets and only 46.5% in risky assets.

NSBL has the highest portfolio return i.e. 5.14% with the highest portfolio standard deviation than that of others sample banks, and EBL has the lowest portfolio return i.e. 3.82% with the lowest portfolio standard deviation among three sample banks, So from above calculation it can be concluded that higher the investment in risk free assets (Government Securities) lower will be the risk and lower the return, but if higher the investment in risky assets (Share and Debenture) higher will be the risk and higher will be the return. But sometimes higher investment in risky assets took the company in negative portfolio.

4.5 Portfolio Performance Evaluation

Sharp's Portfolio Performance Measure

Portfolio performance evaluation on the basis of return only will be insufficient. Therefore, it is necessary to consider both risk and return. One performance measure that has been developed to evaluate a portfolio's performance considering both risk and return simultaneously is the Sharpe's index of portfolio performance. This measure is also known as e reward-to-variability ratio and is used to rank the performance of investment funds. Symbolically it is;

$$Sp = \frac{\text{Risk Premium}}{\text{Total Risk}} = \frac{r_p - r_f}{\sigma_p}$$

Where**,**

SP = Sharp index of portfolio performance of portfolio

$\bar{r}$ p = Average return on portfolio

rf = Risk free rate of return

σ p = Standard deviation of portfolio

$\left(\bar{r}_p - r_f\right)$ = Risk Premium for portfolio

Table 4.7

Portfolio Performance Measure using sharp's Measure

Banks	Risk Free Rate (R_f)	Average Return on Portfolio (R_p)	Standard Deviation of Portfolio (σ_p)	S_p	Ranking
EBL	3.50%	3.82	3.97	0.0806	1
SBL	3.50%	4.52	12.78	0.0798	3
NSBL	3.50%	5.14	20.49	0.0800	2

The above table 4.7 shows that Sharp measure of stock of all banks is positive.SBL has lowest positive Sp i.e. 0.0798 and EBL has highest positive Sp i.e. 0.0806 and NSBL has 0.0800. On the basis of Sharpe index, the portfolio of EBL is the best performer. Then after are NSBL and SBL respectively.

4.6 Primary Data Analysis

Questionnaire for the collection of primary data was distributed to 50 respondents from different fields. After the distribution of list of following questionnaires to different respondents, following result is achieved.

4.6.1 Investment strategies adopted by investors

In order to identify the investment strategies adopted by Nepalese investors, the respondents were asked what type of investment strategies they were adopting while investing in securities. The responses regarding this are presented in Table 4.2.5

Table 4.8

Investment strategies adopted by investors

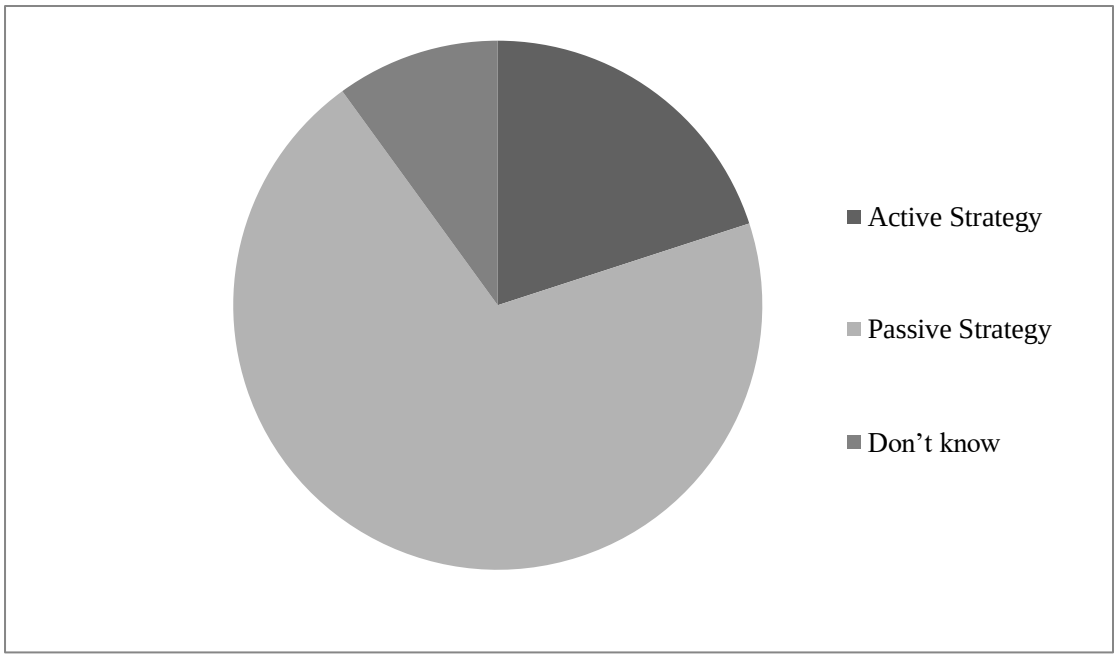
S. N.	Options	No. of Respondents	Percentage (%)
1.	Active Strategy (frequent transaction based on price situation)	10	20
2.	Passive Strategy (Just buy & hold)	35	70
3.	Don't know	5	10
	Total	50	100

Source: Field Survey

The table 4.8 depicts that out of the total of 50 respondents, 70% of the respondents replied in favors of passive strategy, 20% of the respondents replied in favor of passive strategy and only 10% respondents are not aware about it. The figure 4.4 gives more clearly about it.

Figure 4.4

Investment strategies adopted by investors



4.6.2 Preference of Investors

The investors were asked about their preference in sectors. The responses of them are presented in Table 4.2.1.

Table 4.9

Preference of Investors – Sector Wise

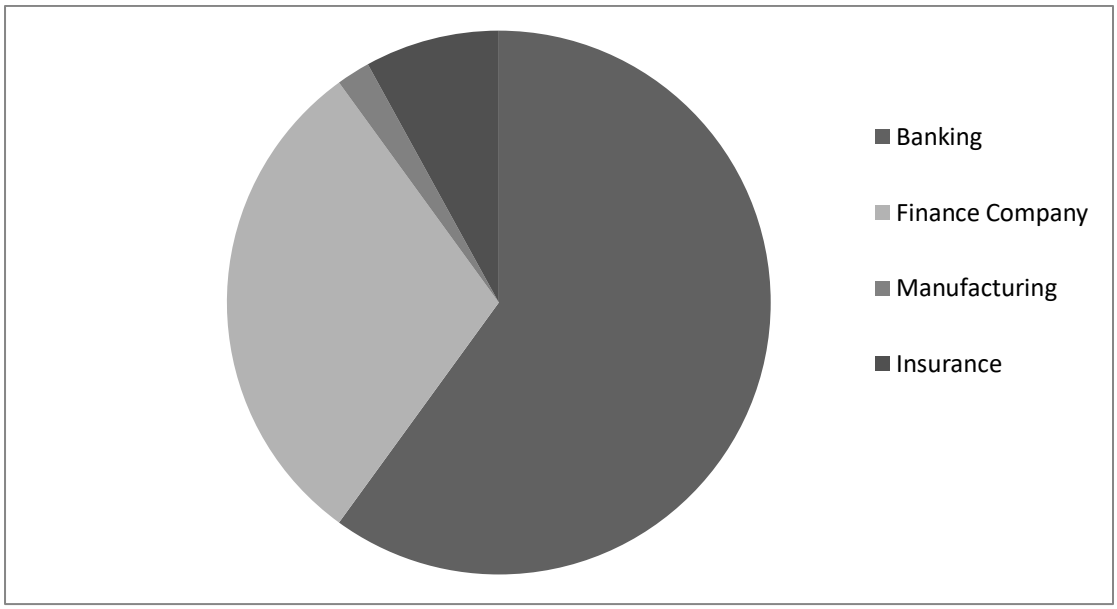
S. N.	Options	No. of Respondents	Percentage (%)
1.	Banking	30	60
2.	Finance Company	15	30
3.	Manufacturing	1	2
4.	Insurance	4	8
	Total	50	100

Source: Field Survey

The table 4.9 depicts that out of total respondents, 60% respondents replied that they make investment in banking sector, 30% in finance Companies, 2% in manufacturing and 8% in insurance companies. Larger numbers of investors have been found to be investing in financial sector and less in productive sectors. This is also presented in figure 4.5 as:

Figure 4.5

Preference of Investors – Sector Wise



4.6.3 Techniques for Diversification

In order to identify the diversification technique that Nepalese investors adopt, the respondents were asked what type of diversification techniques they were adopting in investing in securities. The responses regarding this are presented in Table 4.10.

Table 4.10

Techniques for Diversification

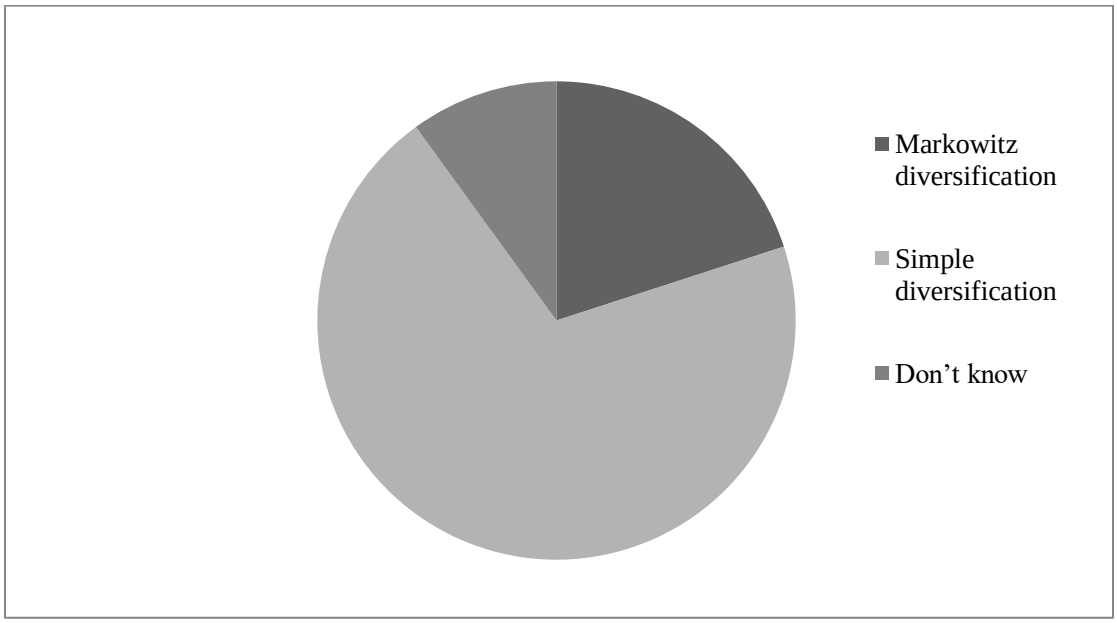
S. N.	Options	No. of Respondents	Percentage (%)
1.	Markowitz diversification	10	20
2.	Simple diversification	35	70
3.	Don't know	5	10
	Total	50	100

Source: Field Survey

The Table 4.10 depicts that out of the total respondents, 70% replied that they adopt simple diversification while making investments in securities. 20% respondents adopt Markowitz diversification and remaining 10% respondents replied that they don't know about it. This can also be shown in figure 4.6 as:

Figure 4.6

Techniques for Diversification



4.6.4 Behavior of Investors on Portfolio

In order to find out the behavior of investors on portfolio, the respondents were asked whether they create portfolio consisting of different stocks. The responses regarding this are presented in table 4.11.

Table 4.11

Behavior of Investors on Portfolio

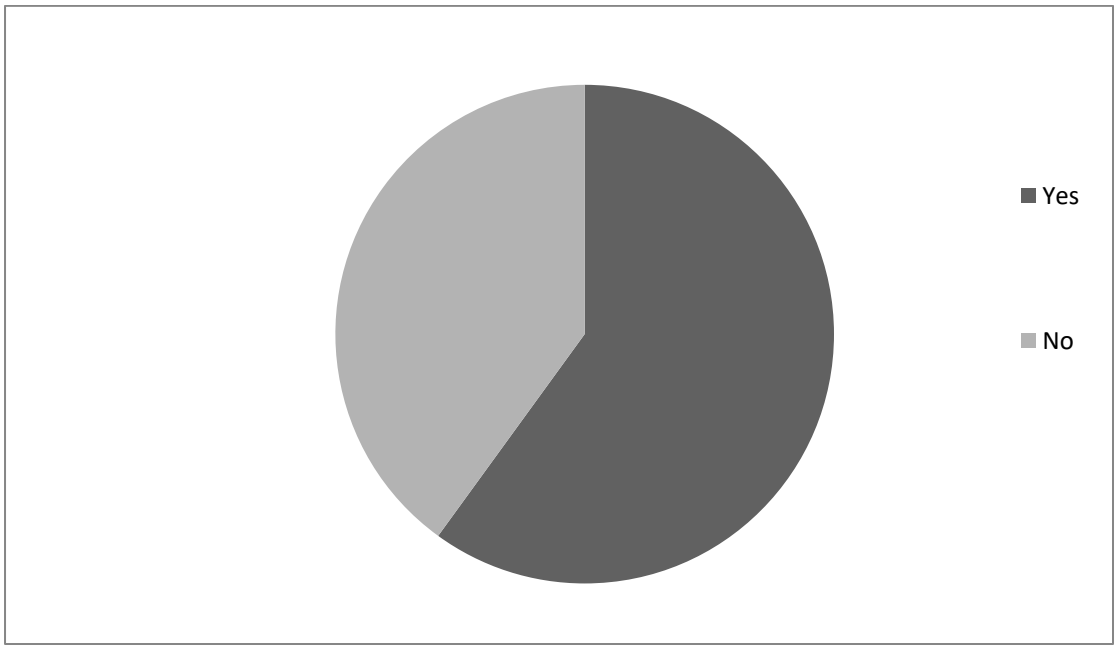
S. N.	Options	No. of Respondents	Percentage (%)
1.	Yes	30	60
2.	No	20	40
	Total	50	100

Source: Field Survey

The table 4.11 depicts that out of 50 respondents, 60% respondents replied that they create portfolio and remaining 40% replied that they do not create portfolio. It seems that most of the Nepalese investors create portfolio while investing large pool of funds. This can also be presented in figure 4.7 as:

Figure 4.7

Behavior of Investors on Portfolio



4.6.5 Objectives of portfolio

The respondents were asked about the objective of portfolio. The responses of them are presented in Table 4.12.

Table 4.12

Objectives of portfolio

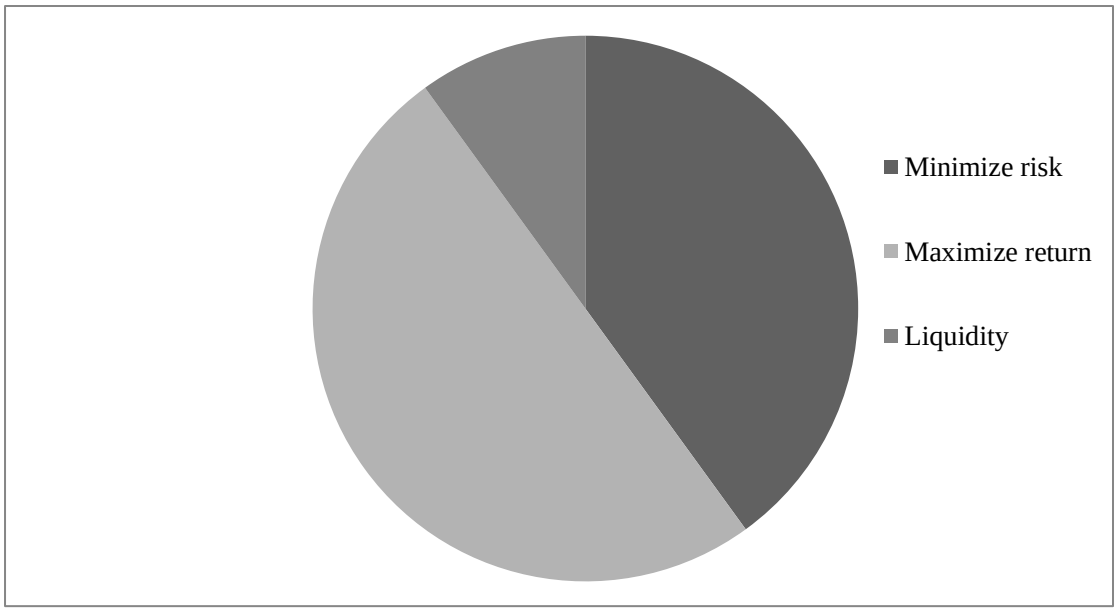
S. N.	Strategies	No. of Respondents	Percentage (%)
1.	Minimize risk	20	40
2.	Maximize return	25	50
3.	Liquidity	5	10
	Total	50	100

Source: Field Survey

The table 4.12 depicts that out of total respondents, 50% create portfolio to maximize return, 40% create portfolio to minimize risk and 10% create portfolio for liquidity. This is also shown on figure 4.8 as:

Figure 4.8

Objectives of portfolio



4.6.6 Basis of selecting securities in the portfolio

The respondents were further asked about the basis of selecting the portfolio while making the investment decision. The responses regarding this are presented in Table 4.13.

Table 4.13

Basis of Selecting Securities in the Portfolio

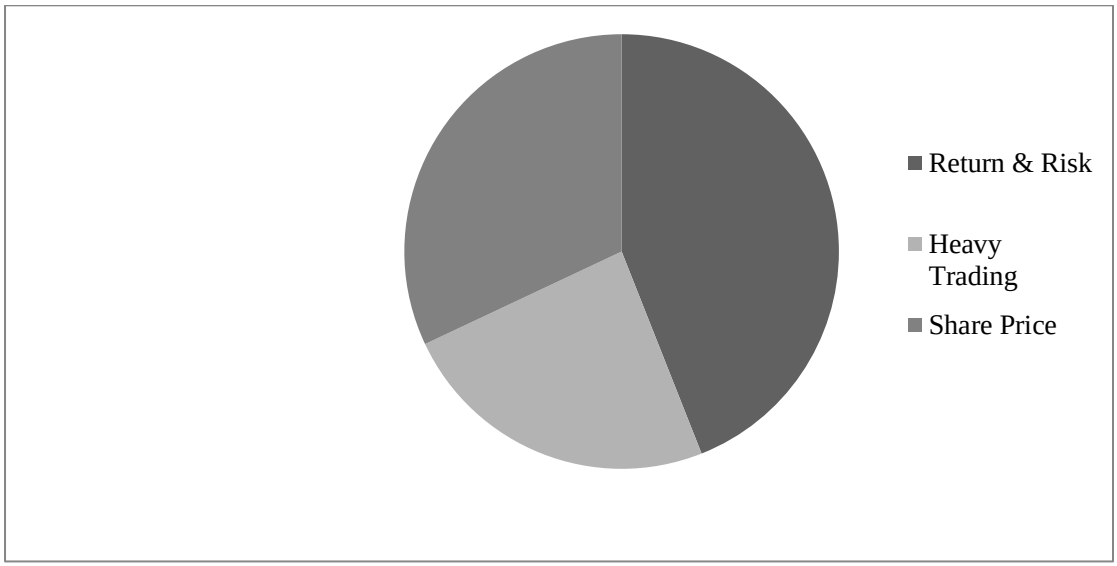
S. N.	Basis	No. of Respondents	Percentage (%)
1.	Return & Risk (Fundamental Analysis)	22	44
2.	Heavy Trading (Technical Analysis)	12	24
3.	Share Price (Higher/Lower)	16	32
	Total	3	100%

Source: Field Survey

From the table 4.2.3, it has been seen that out of total number of respondent creating portfolio, 24% respondents create portfolio on the basis of heavy trading of the stocks, 44% create portfolio on the basis of return and risk and rest i.e. 32% create the portfolio on the basis of the share price fluctuation only if the price of the share is in increasing trend.

Figure 4.9

Basis of selecting securities in the portfolio



4.6.7 What is the reason of investing more funds on Treasury bills than Company shares?

The respondents were asked to know the reason of investing more funds on Treasury bills than Company shares. The responses regarding this are presented in table 4.14 as:

Table 4.14

Reason for Investing More Funds on T-bills than Company Shares

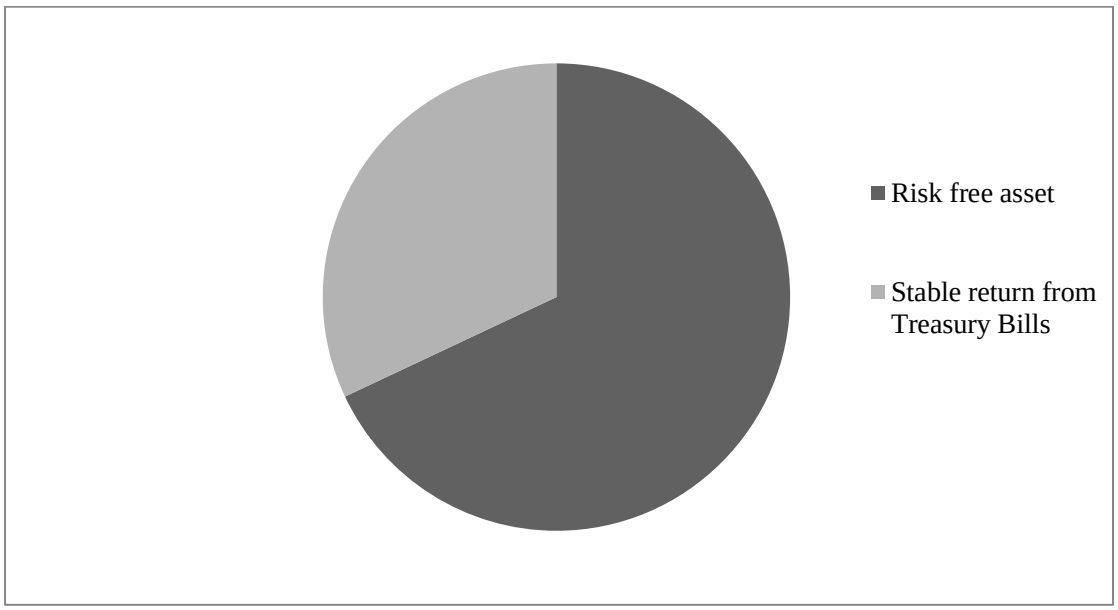
S. N.	Options	No. of Respondents	Percentage (%)
1.	Risk free asset	34	68
2.	Stable return from Treasury Bills	16	32
	Total	50	100

Source: Field Survey

The above table shows that out of the total respondents, 68% of responses have received for risk free asset, 32% for stable return from Treasury bills. So, most of the investors invest on T-bills for risk free assets. This is also presented in figure 4.10 as:

Figure 4.10

Reason for Investing More Funds on T-bills than Company Shares



4.6.8 Whether the Bank Considers Covariance Between two Assets before Investing?

The respondents were asked to know whether the bank considers covariance between two assets before investing or not. The responses regarding this are presented in table 4.15 as:

Table: 4.15

Whether the Bank Considers Covariance between two Assets before Investing

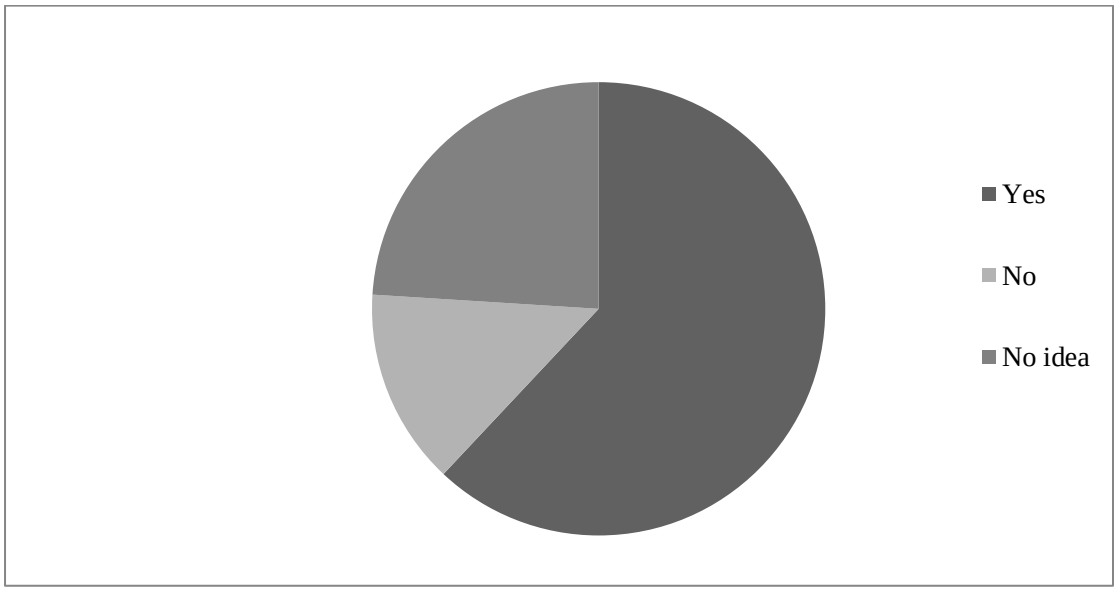
S.N.	Options	No. of Frequency	Percentage (%)
1.	Yes	31	62
2.	No	7	14
3.	No idea	12	24
	Total	50	100

Source: Field Survey

The above table shows 62% of the responses have received that the bank considers covariance between two assets before investing. 24% of the responses have received for no idea and 14% of the responses have received that the bank does not consider covariance between two assets before investing. This is also presented in figure 4.11 as:

Figure 4.11

Whether the Bank Considers Covariance between two Assets before Investing



4.7 Major Findings of the Study

4.7.1 Major Findings from the Secondary Data:

- Holding period return of sample banks at different fiscal years are higher in the beginning fiscal years of the sample banks than that at the ending fiscal years, i.e the return is going to be in negative in the ending fiscal years. This is due to the more changes in capital gain.
- The mean or average rate of return of EBL stock was found to be 31.34% with a standard deviation of returns of 64.35%. Similarly, the average rate of return on stocks of SBL and NSBL were obtained as 26.02%, and 36.81% with standard deviations of 78.09% and 80.21% respectively. Likewise, the coefficient of variation for EBL, SBL and NSBL were thus found to be 205.33%, 300.12% and 217.90 respectively. This indicates that the risk per unit of return of SBL is the highest of all banks.
- The average rate of return on market given by NEPSE index was just 7.03%. Similarly, the standard deviation of overall market returns was 44.06%. The calculated beta coefficients of the banks EBL, SBL and NSBL were 1.43, 1.73 and 1.55respectively. SBL stock is more sensitivity with the market than that of others sample banks due to its higher beta than that of others banks. The stocks of EBL, SBL and NSBL were aggressive as compared to the market having beta more than one.
- The total risk of the banks measured by the standard deviation has been partitioned into systematic and unsystematic components. The systematic risk for EBL, SBL and NSBL are 63.06%, 75.75% and 68.98% respectively. The unsystematic risks for the banks EBL, SBL and NSBL in absolute terms were 1.29%, 2.34% and 11.23% respectively. The proportions of systematic risk over total risk for the banks EBL, SBL and NSBL were 0.98, 0.97 and 0.86 respectively. That means EBL has the highest proportion of systematic risk in its total risk component. NSBL has higher proportion of unsystematic risk than that of others sample banks.
- The required rates of returns of three banks EBL, SBL and NSBL using CAPM approach were obtained as 8.55%, 9.61% and 8.97% respectively. Since the average rate of returns for the three banks were too much higher than the required or equilibrium rates of returns, the stocks of the three sampled commercial banks can be stated to be severely under-priced. The stocks of

these three banks are lucrative to buy. Hence, investment can be made on stocks of any one or all or either set of two or three banks.

- The Sharpe index portfolio performance measure of EBL, SBL and NSBL seemed 0.0806, 0.0798 and 0.0800 respectively. The portfolio performance measure index of EBL seemed highest and that of SBL seemed the lowest among all. On the basis of Sharpe index, the portfolio of EBL is the best performer. Then after are NSBL and SBL.
- NSBL has the highest portfolio return i.e. 5.14% with the highest portfolio standard deviation than that of others sample banks, and EBL has the lowest portfolio return i.e. 3.82% with the lowest portfolio standard deviation among three sample banks
- EBL invest highly on the risk free assets i.e. government securities and invest few only on the risky assets, i.e. EBL invest 91% in risk free assets and only 9% in risky assets. Whereas, SBL also invest quiet higher amount on the risk free assets and few only on the risky assets, i.e. SBL invest 71% in risk free assets and only in 29% in risky assets. NSBL invest moderately amount on risk free assets and on the risky assets, i.e. NSBL invest 53.5% in risk free assets and only 46.5% in risky assets.
- Higher the investment in risk free assets (Government Securities) lower will be the risk and lower the return, but if higher the investment in risky assets (Share and Debenture) higher will be the risk and higher will be the return. But sometimes higher investment in risky assets took the company in negative portfolio.

4.7.2 Major Findings from the Primary Data:

- Out of the total of 50 respondents, 70% of the respondents replied favors of passive strategy, 20% of the respondents replied in favor of passive strategy and only 10% respondents are not aware about it.
- Out of total respondents, 60% respondents replied that they make investment in banking sector, 30% in finance Companies, 2% in manufacturing and 8% in insurance companies. Larger numbers of investors have been found to be investing in financial sector and less in productive sectors.
- Most of the respondents replied that they adopt simple diversification while making investments in securities. 20% respondents adopt Markowitz

diversification and remaining 10% respondents replied that they don't know about it.

- Out of 50 respondents, 60% respondents replied that they create portfolio and remaining 40% replied that they do not create portfolio. It seems that most of the Nepalese investors create portfolio while investing large pool of funds.
- Out of total respondents, 50% create portfolio to maximize return, 40% create portfolio to minimize risk and 10% create portfolio for liquidity.
- It has been seen that out of total number of respondent creating portfolio, 24% respondents create portfolio on the basis of heavy trading of the stocks, 44% create portfolio on the basis of return and risk and rest i.e. 32% create the portfolio on the basis of the share price fluctuation only if the price of the share is in increasing trend.
- 68% of responses have received for risk free asset, 32% for stable return from Treasury bills. So, most of the investors invest on T-bills for risk free assets
- 62% of the responses have received that the bank considers covariance between two assets before investing. 24% of the responses have received for no idea and 14% of the responses have received that the bank does not consider covariance between two assets before investing.

CHAPTER V
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the summary of the previous chapters and conclusions drawn from the analysis the data. Based on the summary and conclusions, recommendations are suggested with a hope of improving the existing situations of the portfolio management of the sample commercial banks of Nepal undertaken for the study so that the banks can improve their investment and return on portfolio.

5.1 Summary

Both to, 32 commercial banks in operation and some more are in the offing. Although, the majority of the populations of Nepal are living in the rural areas, the majority of commercial banks are established in urban areas. This condition has really deprived most of the Nepalese people from the modern banking facilities. Similarly, due to the different situation, the banks are not able to invest their funds in remote areas and the major investments are city based. In the same way, due to the growing competition and limited investment opportunities, the return from the commercial banks is less than the satisfactory. Thus, the problem seems to be with both the risk and return.

In the present context, the performance of all the economic sectors is not that encouraging. However, the case of the financial institutions is little bit different. The reason may be the performance of the bank and its credibility in the mind of the people. But, are they really efficient in their performance? Which of the banks understudy are better off in terms of their performance? These are the questions whose answers are considered in the study.

Since, every investment possesses return as well as risk; better return with less risk is the indication of better performance. For the purpose of getting high return with less risk the portfolio investment i.e. investing in more assets is the only way out. The better portfolio performance leads to the overall better performance of the financial institution. Thus, it seems that the time to time evaluation of what the organization is

performing regarding its portfolio is the crucial aspect for the management as well as the other stakeholders.

In the course of the study, the review of various books of investments; relevant articles and journals; annual reports, magazines and directives published by various non-governmental and governmental organizations along with the selected three commercial banks and the unpublished Master's Degree thesis submitted to Tribhuvan University are done. The analysis and findings on those reviews have really contributed for the better understanding of the thesis. Annual reports of the selected commercial banks are the major source of the secondary data for the thesis. Various models and techniques along with the formula are used for the processing and analysis of the data collected.

Holding period return of sample banks at different fiscal years are higher in the beginning fiscal years of the sample banks than that at the ending fiscal years, i.e the return is going to be in negative in the ending fiscal years. This is due to the more changes in capital gain. The mean or average rate of return of EBL stock was found to be 31.34% with a standard deviation of returns of 64.35%. Similarly, the average rate of return on stocks of SBL and NSBL were obtained as 26.02%, and 36.81% with standard deviations of 78.09% and 80.21% respectively. Likewise, the coefficient of variation for EBL, SBL and NSBL were thus found to be 205.33%, 300.12% and 217.90 respectively. This indicates that the risk per unit of return of SBL is the highest of all banks. The average rate of return on market given by NEPSE index was just 7.03%. Similarly, the standard deviation of overall market returns was 44.06%. The stocks of EBL, SBL and NSBL were aggressive as compared to the market having beta more than one.

The proportions of systematic risk over total risk for the banks EBL, SBL and NSBL were 0.98, 0.97 and 0.86 respectively. That means EBL has the highest proportion of systematic risk in its total risk component. NSBL has higher proportion of unsystematic risk than that of others sample banks. The required rates of returns of three banks EBL, SBL and NSBL using CAPM approach were obtained as 8.55%, 9.61% and 8.97% respectively. Since the average rate of returns for the three banks were too much higher than the required or equilibrium rates of returns, the stocks of

the three sampled commercial banks can be stated to be severely under-priced. The stocks of these three banks are lucrative to buy. Hence, investment can be made on stocks of any one or all or either set of two or three banks.

The Sharpe index portfolio performance measure of EBL, SBL and NSBL seemed 0.0806, 0.0798 and 0.0800 respectively. The portfolio performance measure index of EBL seemed highest and that of SBL seemed the lowest among all. On the basis of Sharpe index, the portfolio of EBL is the best performer. EBL invest highly on the risk free assets i.e. government securities and invest few only on the risky assets, i.e. EBL invest 91% in risk free assets and only 9% in risky assets. Whereas, SBL also invest quiet higher amount on the risk free assets and few only on the risky assets, i.e. SBL invest 71% in risk free assets and only in 29% in risky assets. NSBL invest moderately amount on risk free assets and on the risky assets, i.e. NSBL invest 53.5% in risk free assets and only 46.5% in risky assets.

Higher the investment in risk free assets (Government Securities) lower will be the risk and lower the return, but if higher the investment in risky assets (Share and Debenture) higher will be the risk and higher will be the return. But sometimes higher investment in risky assets took the company in negative portfolio.

5.2 Conclusions

In the entire process of this study, various secondary as well as primary data concerning the portfolio performance of the six commercial banks are gathered and analyzed. Based on the findings of the study, the following major conclusions are drawn for the study.

- The commercial banks are investing highly amount of funds in the government Treasury bills i.e. risk free security. Among the three commercial banks EBL has the largest investment in the government T-bills i.e. 91%.
- The portfolio performance measure index of EBL seemed highest and that of SBL seemed the lowest among all. On the basis of Sharpe index, the portfolio of EBL is the best performer.

- Holding period return of sample banks at different fiscal years are higher in the beginning fiscal years of the sample banks than that at the ending fiscal years, i.e the return is going to be in negative in the ending fiscal years. This is due to the more changes in capital gain.
- Average rate of returns for the three banks were too much higher than the required or equilibrium rates of returns, the stocks of the three sampled commercial banks can be stated to be severely under-priced. The stocks of these three banks are lucrative to buy. Hence, investment can be made on stocks of any one or all or either set of two or three banks.
- SBL stock is more sensitivity with the market than that of others sample banks due to its higher beta than that of others banks. The stocks of EBL, SBL and NSBL were aggressive as compared to the market having beta more than one.
- Higher the investment in risk free assets (Government Securities) lower will be the risk and lower the return, but if higher the investment in risky assets (Share and Debenture) higher will be the risk and higher will be the return.
- EBL has the highest proportion of systematic risk in its total risk component. NSBL has higher proportion of unsystematic risk than that of others sample banks.

5.3 Recommendations

From conclusions drawn above the concerned commercial banks are offered the following suggestions for improving the performance of their portfolio management.

Efficient and effective investment strategies:

The commercial banks invest their funds according to the instructions and guidelines of NRB. They do not have their own clear vision towards investment portfolio. Thus, commercial banks should develop efficient and effective investment strategies with the help of portfolio experts.

Evaluation of risk free securities:

The ratio of the investment in risk free securities should be evaluated in a better way according to the need of the commercial banks, so that the optimum return from the portfolio can be obtained.

Remove clause of compulsory investment in financial institutions and government organization:

Since, the return from the company shares is quite low even though the stock market return is much higher. Thus, the commercial banks should invest those funds in the shares of blue-chip firms which give more return. In this regard NRB should remove the clause about the compulsory investment in the certain financial institutions and government organizations by the commercial banks.

Time to time evaluation of portfolio with the use of portfolio experts:

However, the trend of evaluating and revising the portfolio has been lacking in Nepalese commercial banks. This trend of investing without proper evaluation should be stopped. The performance of commercial banks can be more satisfying and optimized in the future if the time to time evaluation of the portfolio is done with the use of portfolio experts along with the long term plans on the portfolio investment.

Select investment alternative which minimize risk and maximize return:

Better return with minimized risk is the good sign for future prosperity of the commercial banks. The minimization of risk is possible only with the diversification of investment. Thus, not only the investment alternatives available now, the commercial banks should search and select other investment alternatives which could minimize the risk and maximizes the return from the portfolio.

Regular revision or the portfolio condition of bank:

The portfolio condition of a bank should be regularly revised from time to time. Basically portfolio management refers to the allocation of funds into the different small components of its assets having different degrees of risk, different rates of return in such a way that the goal of maximum yield minimum risk can be properly achieved. The bank should always try to make continuous efforts to explore competitive and highly yielding investment opportunities to optimize its investment portfolio.

Providing knowledge of portfolio:

Portfolio analysis only reduces diversifiable or unsystematic risk. The investors must change their desire level of return for bearing certain level of risk. The investors

change their attitude in investing in only one asset. For the change, the investors must have knowledge of portfolio which is the most crucial thing. All the investors have not sufficient knowledge regarding portfolio, therefore the financial institutions and the banks should provide the knowledge of the portfolios to the investors.

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Annex-I

Questionnaires

This questionnaire is a part of my research work entitled "A Portfolio Management of Listed Commercial Banks in Nepal (With Special Reference to EBL, SBL and NSBL)". I request you all to fill this questionnaire with sincerity. Your response will have direct impact on research outcome, so I request you to be an honest.

Personal Information:

Name: ……. Occupation: ……..

Age/Sex: ..... Education: ……Qualification.....

Address.…….

1. What type of investment strategies you are adopting while investing in securities?

a. Active Strategy (frequent transaction based on price situation)

b. Passive Strategy (Just buy & hold)

c. Don't know

2. What types of sector do you prefer?

a. Banking

b. Finance Company

c. Manufacturing

d. Insurance

3. What type of diversification techniques you are adopting in investing in securities?

a. Markowitz diversification

b. Simple diversification

c. Don't know

4. Whether you create portfolio consisting of different stocks?

a. Yes

b. No

5. What is the objective of portfolio?

a. Minimize risk

b. Maximize return

c. Liquidity

6. What is the basis of selecting the portfolio while making the investment decision?

a. Return & Risk (Fundamental Analysis)

b. Heavy Trading (Technical Analysis)

c. Share Price (Higher/Lower)

7. What is the reason of investing more funds on Treasury bills than Company shares?

a. Risk free asset

b. Stable return from Treasury Bills

8. Whether the Bank Considers Covariance Between two Assets before Investing?

a. Yes

b. No

c. No Idea

ANNEX - II

Calculation of Risk and Return of Sample Banks

Everest Bank Ltd.

Year	Price (P)	Cash Dividend (Rs.)	Stock Dividend (%)	Total Dividend (Rs.)	Return (R_j) (%)	$R_j - \bar{R}j$	$(R_j - \bar{R}j)^2$
2005/06	1379						
2006/07	2430	10	30	949.6	145.08	113.74	12936.79
2007/08	3132	20	30	756.5	60.02	28.68	822.54
2008/09	2455	30	30	519	-5.04	-36.38	1323.50
2009/10	1630	30	30	328.2	-20.24	-51.58	2660.50
2010/11	1094	50	10	159.4	-23.10	-54.44	2963.71
Total					156.72		20707.04

Average rate of return ($\bar{R}j$) = $\frac{\sum R_j}{n} = \frac{156.72}{5} = 31.34$

Standard Deviation (σ_j) = $\sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{n}} = \sqrt{\frac{20707.04}{5}} = 64..35$

Siddhartha Bank Ltd.

Year	Price (P)	Cash Dividend (Rs.)	Stock Dividend (%)	Total Dividend (Rs.)	Return (R_j)	$R_j - \bar{R}j$	$(R_j - \bar{R}j)^2$
2005/06	360						
2006/07	778	0.79	15	164.29	161.75	135.73	18422.63
2007/08	1090	0.79	15	150.79	59.48	33.46	1119.57
2008/09	1000	0.79	15	67.39	-2.07	-28.09	789.05
2009/10	444	10.03	-	10.03	-54.60	-80.62	6499.58
2010/11	270	12.79	3	20.89	-34.48	-60.5	3660.25
Total					130.08		30491.08

Average rate of return ($\bar{R}$) = $\frac{\sum R_j}{N} = \frac{130.08}{5} = 26.02$

Standard Deviation (σ_j) = $\sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{n}} = \sqrt{\frac{30491.08}{5}} = 78.09$

Nepal SBI Bank Ltd.

Year	Price (P)	Cash Dividend (Rs.)	Stock Dividend (%)	Total Dividend (Rs.)	Return (R_j) (%)	$R_j - \bar{R}j$	$(R_j - \bar{R}j)^2$
2005/06	612						
2006/07	1176	12.59	35	541.44	180.63	143.82	20684.19
2007/08	1511	-	-	-	28.49	-8.32	69.22
2008/09	1900	2.11	40	298.11	45.47	8.46	71.57
2009/10	741	5.00	12.50	75.625	-57.02	-93.83	8804.07
2010/11	565	5.00	12.50	75.625	-13.55	-50.36	2536.13
Total					184.07		32165.18

Average rate of return ($\bar{R}$) = $\frac{\sum R_j}{N} = \frac{184.07}{5} = 36.81$

Standard Deviation (σ_j) = $\sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{n}} = \sqrt{\frac{32165.18}{5}} = 80.21$

Total dividend is calculated as:

Total dividend= Cash DPS +Stock dividend % × Next Year's MPS

ANNEX - III

Risk and Return of Market (NEPSE Index)

Year	NEPSE Index (NI)	R_m	$R_m - \bar{R}m$	$(R_m - \bar{R}m)^2$
2005/06	386.83			
2006/07	683.95	76.81%	69.78%	4869.25
2007/08	963.36	40.85	33.82	1143.79
2008/09	749.1	-22.24	-29.27	856.73
2009/10	477.73	-36.23	-43.26	1871.43
2010/11	362.85	-24.05	-31.08	965.97
Total		35.14	Total	9707.17
Mean		7.03%	VAR	1941.43
			SD	44.06%
			CV	626.74%

$R_m = \frac{NI_{t+1} - NI_t}{NI_t}$ where, NI_{t+1} = NEPSE Index at year t+1, and NI_t = NEPSE Index at year t

$\bar{R}m = \frac{\sum R_m}{N} = 35.14\%/5 = 7.03\ \%$ Var $(R_m) = \frac{(Rm - \bar{R}m)2}{n} = 9707.17\%/5 =$ 1941.43 %

$\sigma_m = \sqrt{Var\,(R_m)} = \sqrt{1941.43\%} = 44.06\,\%$

ANNEX - IV

Covariance between the return of stocks and return of Market

EBL and Market

Year	R_j	$R_j - \bar{R}j$	R_m	$R_m - \bar{R}m$	$(R_j - \bar{R}j) \times (R_m - \bar{R}m)$
2006/07	145.08%	113.74	76.81%	69.78	7936.78
2007/08	60.02	28.68	40.85	33.82	969.96
2008/09	-5.04	-36.38	-22.24	-29.27	1064.84
2009/10	-20.24	-51.58	-36.23	-43.26	2231.35
2010/11	-23.10	-54.44	-24.05	-31.08	1692
Total	156.72		35.14	Total	13894.93
$\bar{R}j =$ 31.34%		$\bar{R}m =$ 7.03%		COV (R_j,R_m) = 2778.99	

Covariance is calculated as:

$$\text{COV}\left(R_j, R_m\right) = \frac{(R_j - \bar{R}j) \times (R_m - \bar{R}m)}{n}$$

SBL and Market

Year	R_j	$R_j - \bar{R}j$	R_m	$R_m - \bar{R}m$	$(R_j - \bar{R}j) \times (R_m - \bar{R}m)$
2006/07	161.75%	135.73	76.81%	69.78	9471.24
2007/08	59.48	33.46	40.85	33.82	1131.62
2008/09	-2.07	-28.09	-22.24	-29.27	822.19
2009/10	-54.60	-80.62	-36.23	-43.26	3487.62
2010/11	-34.48	-60.50	-24.05	-31.08	1880.34
Total	130.08		35.14	Total	16793.01
$\bar{R}j =$ 26.02%		$\bar{R}m =$ 7.03%		COV (R_j,R_m) = 3358.60	

NSBL and Market

Year	R_j	$R_j - \bar{R}j$	R_m	$R_m - \bar{R}m$	$(R_j - \bar{R}j) \times (R_m - \bar{R}m)$
2006/07	180.63%	143.82	76.81%	69.78	10035.76
2007/08	28.49	-8.32	40.85	33.82	-281.38
2008/09	45.47	8.46	-22.24	-29.27	-247.62
2009/10	-57.02	-93.83	-36.23	-43.26	4059.09
2010/11	-13.55	-50.36	-24.05	-31.08	1565.19
Total	184.07		35.14	Total	15131.04
$\bar{R}j =$ 36.81%		$\bar{R}m =$ 7.03%		COV (R_j,R_m) = 3026.21	

ANNEX - V

Calculation of Correlation and Beta Coefficients of different Companies

With Market Return

Banks	COV (R_j,R_m)	σ_j	σ_m	Corr. (R_j,R_m)	$(\sigma_m)^2$	Beta
EBL	2778.99	64.35%	44.06%	0.98	1941.28	1.43
SBL	3358.60	78.09%	44.06%	0.97	1941.28	1.73
NSBL	3026.21	80.21%	44.06%	0.86	1941.28	1.55

ANNEX - VI

Total, Systematic and Unsystematic Risk of Companies

Companies	Total Risk (%)	Systematic Risk (%)	Prop. of systematic Risk (%)	Unsystematic Risk (%)	Prop. of Unsystematic Risk (%)
EBL	64.35	63.06	98	1.29	2
SBL	78.09	75.75	97	2.34	3
NSBL	80.21	68.98	86	11.23	14

ANNEX - VII

Calculation of Risk-free Rate

Fiscal Year	**91 days T-bills Rate (%)**	**1 Year T-bills Rate (%)**
2006/07	3.59	3.64
2007/08	2.84	2.87
2008/09	2.42	2.44
2009/10	4.22	4.29
2010/11	4.14	4.20
		Total = 17.44%
		Average = 3.50%

(Source: www.nrb.org.np)

ANNEX- VIII

CALCULATION OF PROPORTION OF INVESTMENT OF SAMPLE BANKS

Everest Bank Limited

Fiscal Year	Investment on Risk free Assets (in millions)	Investment on Risky Assets (in millions)	Total Investment (in millions)	Proportion of Risk free Assets	Proportion of Risky Assets
2006/07	4705	280	4985	0.944	0.056
2007/08	4822	239	5061	0.953	0.047
2008/09	5146	8.4	5950	0.865	0.135
2009/10	4354	654	5008	0.870	0.131
2010/11	7144	601	7745	0.922	0.078
Average Proportion				0.910	0.090

Siddhartha Bank Limited

Fiscal Year	Investment on Risk free Assets (in millions)	Investment on Risky Assets (in millions)	Total Investment (in millions)	Proportion of Risk free Assets	Proportion of Risky Assets
2006/07	626	238	865	0.725	0.275
2007/08	884	266	1150	0.769	0.231
2008/09	1694	482	2176	0.778	0.222
2009/10	1402	1050	2452	0.572	0.428
2010/11	1795	743	2538	0.707	0.293
Average Proportion				0.710	0.290

Nepal SBI Bank Ltd.

Fiscal Year	Investment on Risk free Assets (in millions)	Investment on Risky Assets (in millions)	Total Investment (in millions)	Proportion of Risk free Assets	Proportion of Risky Assets
2006/07	2345	314	2659	0.882	0.118
2007/08	3036	53	3089	0.983	0.017
2008/09	3305	9981	13286	0.249	0.751
2009/10	4312	11996	16308	0.264	0.736
2010/11	5575	13336	18911	0.295	0.705
Average Proportion				0.535	0.465

ANNEX- IX

CALCULATION OF REQUIRED RATE OF RETURN

Companies	$\overline{R}_F$	$\overline{R}_m$	Beta Coefficient	Required Rate of Return $R_j = R_f + \beta (R_m - R_f)$
EBL	3.50%	7.03%	1.43	8.55
SBL	3.50%	7.03%	1.73	9.61
NSBL	3.50%	7.03%	1.55	8.97

ANNEX - X

Price Situation of Stocks

Stocks	Required Rate of Return	Average Rate of Return	Price Situations
EBL	8.55 %	31.34%	Under priced
SBL	9.61%	26.02%	Under priced
NSBL	8.97%	36.81%	Under priced