

CHAPTER - I

INTRODUCTION

1.1 General Background

Development of economy is the backbone of any country. Primary need of each and every country is to boost up its economic condition to promote the welfare of the general people as well as the country. Economy is the indicator of measuring the country's development and progress. Hence the country should be economically developed. There should be proper investment in productive activities to enhance the country's economic status. For this banking institutions are very essential. Commercial banks and financial institutions are playing vital role in economic development through arrangement of capital for investing in productive sectors. It formulates large capital and utilizes in the proper place.

In context of Nepal, Banks and Financial Institution along with employment provident fund, citizen investment fund, insurance companies and etc are playing great role to boost up the economic condition of the nation by collecting small amount from the general public and formulating a big amount of capital and investing them in various productive sectors. Commercial banks are the major institutions to develop the Nepalese economy. They change and mobilize the domestic sources into productive line i.e. industry sector, housing sector, trade, hotel, tourism sector and business sector etc. Similarly joint venture banks are playing the leading role in the banking sector of Nepal. Their role is remarkable in capital formulation, foreign capital flows, transfer of technology, and enhancement in management skills, productivity and access in global market. This is the age of globalization. So, Nepal should exist with the global environment to make economic networking relationship through the joint venture banking system with the world.

1.2 Joint Venture Banks

1.2.1 Meaning of the Joint Venture Banks

A joint venture is the joining of force between two or more enterprise for the purpose of carrying out a specific operation i.e. industrial and commercial investment, production or trade. By this definition any agreement between two or more than two parties for specific purpose is called joint venture.

In global perspective, joint ventures are the modes of credit through partnership among and also form of negotiations between various groups of traders and industries to achieve mutual exchange of goods and services for sharing competitive advantages. In conclusion it is clear that a joint venture is a single business deal, which is jointly undertaken by two or more persons or parties with a view to making and sharing profit.

Joint Venture banking scenario in Nepalese Financial sector is not so long. After the establishment of democratically elected government, it introduced liberal and market oriented economic policy which facilitated the establishment of joint venture banks and pointed a new horizon to the financial sector of Nepal, Nepal Arab Bank Limited (NABIL Bank Ltd) is the first joint venture bank of Nepal.

1.2.2 Features of Joint Venture Banks

The specific features of joint Ventures are as follows:

- It is confined to a single deal.
- A joint venture is limited to single business adventure.
- Participants contribute capital for the joint venture and share profits and losses in proportion of their capital.
- The work of joint venture may do by all participants or by one of the participants.

1.2.3 Need of Joint Venture Banks

Joint venture banks in developing countries like Nepal have the greatest responsibility towards the economic development of the country. In the present day world in the developed and developing money economies, the vital process of production and consumption significantly affected by the aggregate money supply. The main objective of the banks is to maximize the surplus by the efficient use of its funds and resources. In spite of being a commercial institution, it too has responsibility to provide social service oriented contribution for the socio-economic enlistment to the by providing specially considered loans and advancement towards less privileged sectors. Other needs of Joint venture are listed below.

- Formation of Capital
- Availability of Credit

- Monetization of economy
- Promotion of Savings
- Transfer of Fund
- Price stability
- Control in interest rate
- Implementation of monetary policy
- Development of neglected and deprived sectors safe custody of wealth
- Exchange of foreign currencies
- Long term loan

1.2.4 Advantage of Joint Venture Banks

- Provide companies with the opportunity to gain new capacity and expertise knowledge.
- Allow companies to enter related businesses or new geographic markets or gain new technological knowledge.
- Access to greater resources, including specialized staff and technology.
- Sharing risks with a venture partner.

1.2.5 Limitations of Joint Venture Banks

- It takes time and effort to build the right relationship and partnering with another business can be challenging.
- Problems are likely to arise if: The objectives of the venture are not clear and adequately communicated to everyone involved.
- There is an imbalance in levels of expertise, investment or assets brought into the venture by the different partners.
- Different cultures and management styles result in poor integration and co-operation.

1.3 Focus of the Study

Investment decision depends upon two factors i.e. risk and return. The return is defined as the reward for bearing the risk. It is also known as the reward for sacrificing the liquidity of the owner. It is the most important outcome from an investment. Return from stock can be of holding period return, return from speculation or from short sell, capital gain dividend gain etc. But return from investor is ever followed by risk, which is known as the occurrence of unfavorable outcomes and it is ever harmful for the business.

Many times, investors blindly invest their fund with the hope of getting good return from their investment but due to many reasons they loose their earning while investment made without analyzing the risk and return involved in the stocks. In the other hand the increasing numbers of bank and financial institutions have created a competitive environment in financial sectors. Therefore to get the maximum return from the minimum level of risk, the investor should diversify its investment by the means of the portfolio analysis with risk and return. So our main focus of the study is to measure and analyze the financial performance of the joint venture banks their risk and return, and portfolio pattern and etc; to make a sound investment decision.

1.4 Statement of the Problem

The main focus of the propose study would be to analyze more specially the pros and cons of “Portfolio analysis on common stock investment in Nepalese joint venture banks”. The study is expected to give the knowledge for the people who want to invest in banks.

Every investor should make rational investment decision. For this purpose, knowledge of analyzing common stock with using risk, return and portfolio analysis tools are very essential. Risk, return and portfolio analysis is most important and essential tools in area of investment because by using risk, return and portfolio analysis, a rational investor can find the less risky and the higher profitable investment of the different investment alternatives from the security market. Similarly, investor’s attitude and perceptions are also play vital role for rational investment decision which is influenced by the knowledge and access to the data required for analysis. Whenever, the investor

cannot analyze risk, return and portfolio while making investment decision, they are not secured from the risk.

In the Nepalese context, many investors are interested to invest their valuable money on the common stock of financial institutions like commercial bank joint venture banks. But due to the lack of proper information about the norms of security market, process of selling & buying of stock, price fluctuation and risk & return analysis, the potential investors are manipulated or exploited by the financial institution and other intermediaries. Sometimes, they think that investing in common stock is more risky. Due to these reasons many investor afraid to invest into stocks. This is the main problem that doesn't allow gearing up the capital market of the nation. In Nepal, we see that the most of the people invest their fund in a single securities with own guess, hunches, following friends & relatives and on the basis of looking past trends of the price of stock which may create maximum risk and uncertainty for the investment. So each and every investor should have to diversify their investment in different sector like banks, manufacturing concern, hydropower, tourism etc. with estimating optimum portfolio to minimize the risk and to maximize the return. Without diversifying their investment into different sectors, they cannot make the regular income. The main problems of the general people are that they cannot perfectly analyze the risk, return and portfolio analysis of the stock of the various sectors.

1.5 Objectives of the Study

In Nepal, many investors are facing various problems in setting their investment policies, evaluating financial assets, constructing portfolio, analyzing their portfolio performance. Thus the key objectives of this study are to find out the condition of portfolio management and to estimate an optimal portfolio among the common stock investment of the joint venture banks. The objectives of my study are as follows:-

- To evaluate the common stock of joint venture banks in terms of risk and return.
- To estimate an optimal portfolio among common stock investment of joint venture banks and analyzes comparative risks and return position of these banks.
- To determine whether the share of joint venture banks in Nepal are overpriced, under priced or correctly valued by risk and return characteristic of the individual bank.

- To study general environmental factors in Nepalese capital market.
- To recommend and suggest for the future development of investment climate.

1.6 Significance of the Study

The investment analysis of any organization flashes its investment policy. The sound investment policies make good impact on the economy of each and every country. The success and prosperity of any investor rely heavily upon the successful investment policies. Available resources should optimally allocate in to the profitable sector to earn more. But due to lack of the knowledge investors are investing their funds through trial and error approach. So it is necessary to show clear picture about the return from investing in securities after portfolio investment. We see most of the investors are not well known about real financial strength and weakness of the financial institutions. They are not able to analyze and use financial tools to measure risk and return. They have still a lot of problems regarding investment decision. Therefore the limited funds are still in idle stage. Thus this study has tried to give clear cut vision to respected people for taking good investment decision as a ‘rational investor.’

1.7 Limitations of the Study

As every research has its own limitations and it is also not free from it. Basically, this study is done for the partial fulfillment of master in business studies, which has to finish within limited period. So it has some limitations which are as follows:-

- The study will mainly base on secondary data, which were published by joint venture banks.
- This study will cover only the period from 2004/05 to 2011/12

1.8 Organization of the Study

This research study will be formatted as follows:

Chapter – I Introduction

In this section general and historical background of the study, statement of the problem, objectives of the study, significant of the study, focus of the study, limitation of the study and organization of the study are considered.

Chapter – II Review of the Literature

This chapter deals with the theoretical aspect of the topic on risk return and portfolio analysis on common stock investment in comprehensive, detail and descriptive manner. For this purpose journal, articles, annual report and various research reports related to this topic will have reviewed.

Chapter – III Research Methodology

The systematic process adopting by the researcher to study the problem with certain objective in view is known as research methodology. Research methodology is the science of systematic and organized method, which probe into depth to the fact of the problem in order to discover new information and relationship. As most of data are quantitative, the research is based on scientific method where the both technical and logical aspects will compose. In study, all the observed historical data will analyze by using both financial and statistical tools. Result will be presented in simple way by using table, graph and diagram.

Chapter - IV Presentation and Analysis of Data

In this chapter all historical data will present in different table, diagram, trend line and pie chart. Data will analyze in a systematic manner and interpreting the true result.

Chapter – V Summary, Recommendation and Conclusion

In this chapter, based on the data presented summary, recommendation and conclusion will be written.

CHAPTER – II

REVIEW OF THE LITERATURE

This chapter deals with the theoretical aspect of the topic on risk, return and portfolio analysis on common stock investment in comprehensive, detail and descriptive manner. For this purpose Journals, articles, annual report and various research reports related with topic have been reviewed. Similarly, various books related with the topic, published within country and outside of country also have been considered as far as possible.

Research is continuous process which never ends. The continuity in research is ensured by linking the present study with the past research studies. It means research must be based on past knowledge. The main purpose of reviewing the literature is to develop some ideas for developing a research design. Thus, the previous study cannot be ignored because they are foundation to present study. Generally, review of literature is that chapter where the researcher reviews the books, journals, magazines and other types of study, which are related to this field of study.

There is no any special book and research work related to this topic has been published in Nepal. On other hand, Nepalese stock market is still in creeping stage. So, there are not sufficient materials that provided basic guidelines for this study. Some master degree theses that are available in TU which are related with this thesis have been reviewed. In additional, some independent studies carried out by well-known financial experts are taken in to consideration.

2.1 Conceptual Framework

Portfolio management is the process of selecting a bundle of securities that provides the investing the organization a maximum yield for a given level of risk or alternatively ensuring minimum level of risk for given level of return. It can be also taken as risk and return management. Its aims to determine an appropriate asset mix which attains optimal level of risk and return. Various books which are either dependent or independent deals with theoretical aspects of risk, return and portfolio

are taken into consideration in this chapter. Major focus is on the investment of common stock and its impact on individual risk, return and portfolio.

2.1.1 Common Stock

“Common stock is an ownership share in a corporation. Therefore the common stockholders are true owners of a corporation. Each share of common stock represents a fractional ownership interest in the firm. For example, One share of common stock in a corporation that has 100 shares outstanding would represent 1/1,000 ownership interest. The return on common investment comes from either of two sources-the periodic receipt of dividend and capital gains. Common stock holders enjoy a No. of rights such as is dividend right. Assets right, preemptive right, voting right etc. Common stock is the recipient of the residual income of the corporation. Common stock holders are an uncertain position about dividend .i.e. capital gain and residual claim. Therefore, common stock holder must bear greatest risk. Common stock is suitable for the investor who wants to take high risk and return for a long period too. Common stocks are traded in stock exchanges and over the counter market (OTC).

“Common stocks are easier to describe than fixed-income securities such as bonds, but they are harder to analyze. Fix-income almost always has a limited life and an upper dollar limit on cash payments to investors. Common stocks have neither. Although the basic principles of valuation apply to both, the role of uncertainty is larger for common stocks. So much so that often dominates all other elements in their valuation. The great advantage of the corporate form of organization is the Limited Liability of its owners. Common stocks are generally “fully paid and no assessable”, meaning that common stockholders may lose their initial investment but no more. That is, if the corporation fails to meet its obligations, the stockholders cannot be forced to give the corporation the funds that are needed to pay off the obligations. However, as a result of such a failure, it is possible that the value of a corporation’s shares will be negligible. This outcome will result in the stockholders’ having lost an amount equal to the price to buy the sharers.

“Common stock represents ownership of a firm. Owners of the common stock of a firm share in the company prospers, the investor receives high rates of return and can become wealthy. In contrast, the investor can lose money if the firm does not do well

or even goes bankrupt, as the once formidable K-Mart, Enron, W.T. Grant, and Interstate Department Stores all did. In these instances, the firm is forced to liquidate its assets and pay off all its creditors. Notably, the firm's preferred stockholders and common stocks all the advantages and disadvantages of ownership and is a relatively risky investment compare with fixed-income securities."

"Common stock has one important investment characteristics and one important speculative market polices tend increase irregularly but persistently over the decades as their net worth builds through the reinvestment of undistributed earning. However, most of the time common stocks are subject to irrational and excessive price function in both directions, as consequences of the ingrained tendency of most people to speculative or gamble, i.e. to give way to hope fear and greed.

"Common stock holders of corporation are its residual owners, their claim to income and assets comes after creditors and preferred stock holders have been paid in full. As a result, a stockholders return on investors is less certain than the return to lenders or to a preferred stock holder. On the other hand, the shares of a common stock can be authorized either with or without par value. The par value of a stock is merely a stated figure in the corporate charter and is of little economic significance. A company shouldn't issue stock at price less than par value because stock holders who bought stocks for less than par value would be liable to creditors for the difference between the below par price they paid and the par value.

2.1.2 The expected Rate of Return on Common Stock

"The expected rate of return for any asset is the weighted average rate of return, using probability of each rate of return as the weight. The expected rate of return is calculated by summing the products of the rates of return and their respective profanities. The expected rate return for any assist is the weighted average rate of return, using probability of each rate of return s the weight. The expected rate of return is calculated by summing the products of the rates of return and their respective probability.

$$\text{Expected value, } E(r) = \sum_{j=1}^n r_j P_j = r_1 p_1 + r_2 p_2 + \dots + r_n p_n \dots\dots\dots (4.2)$$

Where,

r_j = Rate of return on j th outcome or event.

P_j = Probability of occurrence of j th outcome or event.

When historical returns are used, the following formula is used to calculate and average return:

$$\text{Expected Value, } E(r) = \sum_{t=1}^n r_t \dots\dots\dots(4.3)$$

Where $E(r)$ is the average or mean return and n is the number of observed returns.”

“Investors main objective is to maximize concept of value by investing money in product and project. A Company creates value of if the expected return exceeds the return required by the financial market for the risk involved. If someone buy a bond, he expects to receive interest on the bond and those interest payments provides him with the rate of return on his investment. If we multiply each possible outcome and then sum these products, we have a weight average of outcomes. The weights are the probabilities and the weighted average is the expected rate of return.”

“The expected rate of return is the increase in t he expected after tax value of the initial investment over the holding period. The cash payoff to owners of common stock can be described as two type’s i.e.

- cash divided [dividend component]
- capital gain (loss) [capital appreciation]

Capital appreciation is the difference between ending and beginning value of investment. Returns are defined as the dividend yields plus capital gain/loss. Thus return comes from two sources, income and price appreciation. Return is t he main attraction for investors to invest. In a risky security as stock (equity share) accepting a varying degree of risk tolerance. “The return from holding an investment over some period, say a year is simply any cash payment received due to ownership plus the change in market price, derived by beginning price. From common stock we can define single period return as:

$$\text{Single Period Return (R)} = \frac{\text{Ending price}(P_t) - \text{Beginning price}(P_{t-1}) + \text{Dividend}(D_t)}{\text{Beginning price}(P_{t-1})}$$

This formula can be used to determine both actual one period return (when based on historical figure), as well as expected one period return (when based on expected dividend and prices). Also note that the term is parenthesis in the number of above equation represents the capital gain or loss during the year.

“Annualized rate of return over several periods can be calculated in two ways. The first one is simply to take the arithmetic average of the annual holding period return (HPR) over a gain period and the second one, which also takes in to account the compounding effects of cash receipts over different time intervals, is the geometric mean rate of return.

a) Simple Arithmetic Mean

$$\text{HPR} = \frac{\sum_{t=1}^n \text{HPR}_t}{n}$$

b) The geometric mean

$$\text{HPR}_g = \left(\prod_{t=1}^n (1 + \text{HPR}_t) \right)^{\frac{1}{n}}$$

Where, HPR (holding Period Return), n=No. of periods, HPR_g=Geometric mean holding period return.”

2.1.3 The Risk on Common Stock

“Risk is defined as the variability of the returns of a period. The one-period rate of return is the basic random variable used in measuring an investment’s risk. More the variability in the returns, more risk in the project.”

“Risk is defined in Webster’s dictionary as a ‘hazard: a peril: exposure to loss or journey’, thus for most, risk refers to the chance that some unfavorable event will occur. If u invest in speculative stock (or, really, any stock), you are taking a risk in the hope of making an appreciable return.”

“Although there is difference in the specific definitions of risk and uncertainty, for our purposes and in most financial literature the two terms are used interchangeably. In fact, one way to define risk is the uncertainty of future outcomes. And alternative definitions might be the probability of an adverse outcome. Subsequently, in our discussion of portfolio theory, we will consider several measures of risk that are used when developing the theory.

“The risk is defined in Webster’s Dictionary as a hazard: A peril: exposure to loss or injury; thus for most, risk refers to the chance that some unfavorable event will occur. If you invest in speculative stocks (or, really any stock), you are taking a risk in the hope of making an appreciable return.

“Risk defined as the variability of the returns of a period. The basic random variable that measures an investments risk is one period rate of return. More variability in the returns, more risk in the project and vice-versa. “Risk may be defined as the likelihood that the actual return from an investment will be less than the expected return. It refers to the chances that some unfavorable events will occur. Risk exists because of the inability of the decision-maker to make perfect forecast. Risk arises on investment evaluation because we can’t anticipate the occurrence of the possible future events with certainty, and consequently cannot make any correct predictions about the cash flow sequences.

“It is said that risk refers to the chance that some unfavorable event will occur. If someone invest in speculative stock (really, any stock), he/she is taking a risk in the hope of making an appreciable return. So if one is going to invest in common stock for future return. High return on common stock involves high risk and vice versa. “Risk defined more generally, is a probability the occurrence of unfavorable outcome. But risk has different meaning in different contexts. In our context two measures

developed from the probability distribution have been used as initial measures of return and risk. They are the mean and standard deviation of probability distribution.”

2.1.3.1 Standard Deviation

“Standard deviation is a statistical measure of the variability of a set of observations. It is the measure of total risk. The lower the variance, lower the risk of the stock and vice-versa. The risk or standard deviation is denoted by the symbol sigma (σ). The square root of the variance of the rate of return is called the standard deviation (σ) of the rate of return.”

”Standard deviation is another parameter of return distribution measurement. It measures the tightness or variability of set of outcomes. In another words, standard deviation measures the magnitude of the difference between best possible return and worst possible return. Thus, it measures the degree of risk of common stock. Because we have defined as the variability of returns, we can measure risk by examining the tightness of the probability distribution associated with possible outcomes. In general, the width of a probability distribution indicates the amount scatter, or variability, of possible outcomes. Therefore, the higher the probability distribution of expected returns, the less is its variability. Thus, the smaller the risk associated with the investment.”

“The measure we probability use most often is the standard deviation. The symbol for which is σ . To calculate the standard deviation, we proceed as shown in Table, taking the following steps:

We calculate the expected rate of return:

$$E(k) = Pr_1k_1 + Pr_2k_2 + \dots + Pr_nk_n = \sum_{i=1}^n Pr_i k_i$$

Where,

Pr = probability

k = expected rate of return

First, we subtract the expected rate of return [E(k)] from each possible outcome (ki) to obtain a set of deviations from (k):

$$\text{Deviation} = k_i - E(k)$$

Where,

$$E(k) = \text{expected rate of return}$$

Next, we square each deviation, multiply the result by the probability of occurrence for its related outcome, and then sum these products to obtain the variance of the probability distribution:

$$\sigma^2 = \sum_{i=1}^n [k_i - E(k)]^2 Pr_i$$

Where,

$$E(k) = \text{expected rate of return}$$

$$P(r) = \text{probability}$$

Finally, we take the square root of the variance to obtain the standard deviation:

$$\sigma = \sqrt{\sigma^2} = \sqrt{\sum_{i=1}^n [k_i - E(k)]^2 Pr_i}$$

Where,

$$E(k) = \text{expected rate of return}$$

$$P(r) = \text{probability}$$

$$\sigma = \text{Standard deviation}$$

Thus the standard deviation is a weighted average deviation from the expected value, and it gives an idea of how far above or below expected value and the actual value is likely to be.”

2.1.3.2 Systematic Risk and Unsystematic Risk

“Systematic risk is market related risk. It is also called market risk or undiversifiable risk. For example; inflation, interest rates, war etc. Unsystematic risk is non-market related risk. It is also called non-market risk or company unique risk or company specific risk or diversifiable risk. For example, winning a new contract, an industrial

dispute, and the discovery of a new technology, Labor strikes etc. The systematic risk is rewarded in the form of risk premium. The unsystematic risk is not rewarded because it can be reduced to zero.”

“Systematic risk has its source factors that affect all the marketable assets and thus can’t be diversified away. The sources of systematic risk are market- pervasive. The measure of systematic risk permits an investor to evaluate an asset required rate of return relative to systematic risk of the stock. Unsystematic (company specific/unique) risk can be reduced through diversification. The relationship among total risk, systematic risk and unsystematic risk are shown below:

$$\text{Total risk} = \text{Systematic Risk} + \text{Unsystematic Risk}$$

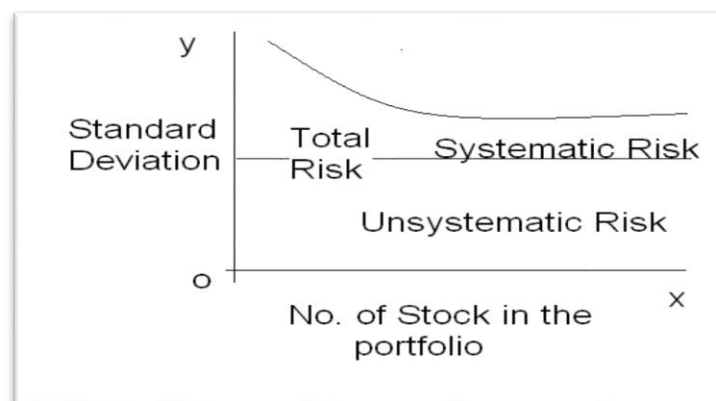
$$\text{While Systematic Risk} = (\sigma_j) (\rho_{jm}) \text{ and unsystematic Risk} = (\sigma_j) (1-\rho_{jm})$$

In this equation ρ_{jm} is the correlation between the return of given stock (i) and the return on market portfolio.”

The relationship between systematic risk and unsystematic risk are shown in given figure.

Figure: 2.1

Relation between S.D of Portfolio and Number of Securities in Portfolio



2.2 Portfolio

“An investor’s objective is to make maximum return from his/her fund at the lowest risk. By investing in a single asset, investor can not achieve his/her objective. But it is

only possible through portfolio. A portfolio is a combination of securities. By the help of portfolio, risk can be diversified. In this context, it can be cleared through a proverb “do not put all the eggs in one basket”. It means that one can lose all the eggs if some unlikely event occurs. So we can say that risk cannot be diversified by investing in a single asset. Obviously, risk can be diversified by forming portfolio. Thus, the objective of the portfolio analysis is to develop a portfolio that has the maximum return at whatever level of risk the investor’s deems appropriate.”

“Most financial assets neither are nor held in isolation; rather, they are held as parts of portfolios. Banks, pension funds, insurance companies, mutual funds, and other financial institutions are required by law to hold diversified portfolios. Even individual investors- at least those whose security holding constitute a significant part of their total wealth generally hold stock portfolios, not the stock of only one firm. This begin the case, from an investor’s standpoint the fact that a particular stock goes up or down is not very important; what is important is the return on his or her portfolio, and the portfolio’s risk. Logically, then, the risk and return of an individual security should be analyzed in terms of how that security affects the risk and return of the portfolio in which it is held.”

Portfolio is the combination on collection of assets. Portfolio investment is the investment in two or more than two assets. The primary objectives of portfolio are:

- To maximize risk.
- To maximize return

Whereas it’s secondary objectives are as follows:

- Regular income
- Price appreciation/capital gain
- Tax advantages
- Easy marketability
- Safely of investment etc.

Investor usually diversifies their portfolio in order to maximize their risk given the rate of return. To minimize the risk of portfolio and individual invest in securities with

different risk and return characteristics. This procedure is called diversification. The degree of diversification varies depending on how risk avert the investor is. This determines the level of risk and return of the portfolio. An efficient portfolio is that portfolio which maximizes return for given risk or minimizes risk for a given return. The efficient frontier may be defined as the collection of all possible portfolios that are not dominated or that have the maximum possible expected return, given a level of risk or standard deviation.

Portfolio can be classified as below:

- Growth oriented portfolio and
- Income oriented portfolio

Growth oriented portfolio is a part of portfolio whose primary objective is long-term price appreciation. Income oriented portfolio is a portfolio that stresses current dividends and interest return.

2.2.1 Portfolio Return

Expected return on portfolio is the summation of the weighted return of individual security. It is calculated by using probability of each return as weight and summing the products of the rates of return and their respected probabilities. “The expected return on a portfolio, $E(r_p)$ is simply the weighted average of the expected returns on the individual asset in the portfolio with the weights being the fraction of the total portfolio investment in each asset.

$$E(r_p) = \sum_{i=1}^n W_i E(r_i) \dots \dots \dots (5.1)$$

$$= W_1 E(r_1) + W_2 E(r_2) + \dots \dots \dots + W_n E(r_n) \dots \dots \dots (5.1a)$$

Where,

$E(r_p)$ = Expected rate of return of portfolio

W_i = The fraction of the total value of the portfolio
invested in the i th asset or stock

$E(r_i)$ = The expected return from the i th assets or stock”

2.2.2 Portfolio Risk

Portfolio risk is a function of the proportional invested in the components. The riskiness of the components is correlation of returns on the component securities. It is measured by standard deviation. The risk of a portfolio is not a simple weighted average of the standard deviation of the individual securities. It depends on the investment weight on individual security. Risk on individual security and correlation between given securities.

“Portfolio risk is measured by statistical tool standard deviation and variance. It is a function of the proportions invested in the components. The riskiness of the components and the correlation of returns on the components securities is portfolio risk. This risk is computed by using the following equations:

(a) If portfolio is formed by two securities A and B

$$\text{Var}(r_p) \text{ or } \sigma_p^2 = W_A^2\sigma_A^2 + W_B^2\sigma_B^2 + 2\text{COV}_{AB}W_AW_B \dots \dots \dots (5.3)$$

Where,

σ_p^2 = Variance of portfolio’s return

W_A = Proportion of investment in securities A

W_B = Proportion of investment in securities B

COV_{AB} = covariance of the return between securities A and B.

σ_A^2 = Variance of securities A

σ_B^2 = Variance of securities B

(b) If portfolio is formed by three assets A, B and C

$$\sigma_p^2 = W_A^2\sigma_A^2 + W_B^2\sigma_B^2 + W_C^2\sigma_C^2 + 2W_AW_B\text{COV}_{AB} + 2W_AW_C\text{COV}_{AC} + 2W_BW_C\text{COV}_{BC} \dots \dots \dots (5.4)$$

Where,

σ_p^2 = Variance of portfolio’s return

W_A = Proportion of investment in securities A

W_B = Proportion of investment in securities B

W_C = Proportion of investment in securities C

COV_{BC} = covariance of the return between securities B and C.

COV_{AB} = covariance of the return between securities A and B.

COV_{AC} = covariance of the return between securities A and C.

σ_A^2 = Variance of securities A

σ_B^2 = Variance of securities B

σ_C^2 = Variance of securities C

2.2.3. Optimum Portfolio Selection:

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

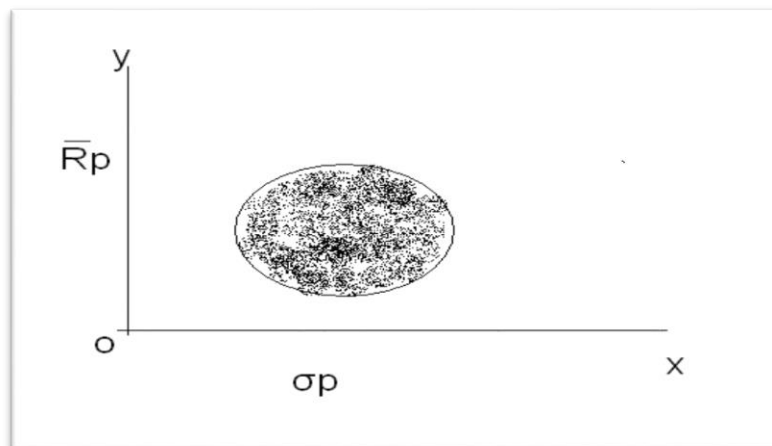
Step – I

Determination of Portfolio Opportunities or Attainable set of Portfolio

It is the first step to select the optimum portfolio selection. From n – assets, we can combine limitless number of portfolios. Each possible portfolio will have an expectation rate of return and risk. The hypothetical set of all possible portfolios called the portfolio opportunity set or attainable set.

Figure 2.2

Attainable Set of Portfolio



Step – II

Determination of Efficient Frontier

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 because they lie outside the attainable set whereas the right of the frontier are ineffective because some other portfolio could provide either a higher return with

The indifference curve of the investor and the portfolio becomes optimal for him. Indifference curve I1 tangent with efficient frontier at point Z. here investor's optimal portfolio is Z. that's why this point Z makes a highest level of satisfaction an investor can achieve.

2.2.4 Correlation Coefficient and Portfolio Risk

“The risk of the portfolio can be measured by using covariance of the returns of assets in the portfolio. The covariance's simply means the degree to which the returns of the two assets vary together. In other words its measures how two variables co-vary. A positive covariance indicates that the returns of two assets move in the same direction where as a negative covariance indicates that the return of two assets moves in opposite direction. If the covariance is zero, it means the rate of return on assets is independent. The correlation coefficient is the covariance divided by the product of the standard deviation for the investments.

$$\text{Correlation coefficient } (\rho_{ij}) = \frac{\text{cov}(r_i, r_j)}{\sigma_i \sigma_j}$$

Where,

ρ_{ij} = Correlation coefficient between assets i and j

σ_i = Standard deviations of return for asset i

σ_j = Standard deviation of return for asset j

The correlation coefficient between -1 and $+1$, if the value of correlation is 1 , it is perfectly positively correlated. It indicates that the return on two assets move together exactly the same way. In additional, the value of correlation -1 means perfectly negatively correlated which indicates that the return on two assets move together perfectly opposite way. If the value of correlation 0 means that, there is no relationship between two assets return.

2.2.5 Portfolio Performance Evaluation

Risk and return should be considered by giving important priority when considering a portfolio performance. Due to absence of either risk or return we can not measure their performance of portfolio effectively. There are various methods applied to measure the

portfolio performance. Among them, one of the important techniques that is Shape's Portfolio Performance Measure is considering here in this study:

2.2.5.1 Sharpe's Performance Measure

It was developed by William Sharpe. Sharpe's measure divides average portfolio excess return over the sample period by the standard deviation of return over that period.

The Sharpe's measure of portfolio performance (designated S_i) is stated as

$$S_i = \frac{\bar{r}_i - \bar{R}_f}{\sigma_i}$$

Where,

S_i = Sharpe's index of portfolio performance.

–

r_i = average return on portfolio 'i' during a specified time period.

–

R_f = average risk free rate during the same period.

σ_i = standard deviation of portfolio 'i'.

2.3 Capital Assets Pricing Model (CAPM)

“Capital assets pricing model (CAPM) is a model that indicates what should be the expected or required rate of return on risky assets. This transition is important because it helps you to evaluate an asset by providing an appropriate discount rate to use in any valuation model. Alternatively, if you have already estimated the rate of return that you think you will earn on an investment, you can compare this estimated rate of return to the required implied by the CAPM and determine whether the assets is undervalued, overvalued, or properly valued. To accomplish the foregoing, we demonstrate the creation of security market line (SML) that visually represents the relationship between risks and expected or the required rate of return on an asset. The equation of this SML, together with estimates for the return on risk-free asset and so on the market portfolio, can generate expected or required rate of return to any asset based on its systematic risk. You compare this required rate of return to the rate of return that you estimate that you will earn on investment to determine if the

investment is undervalued or overvalued. After demonstrating this procedure, we finish the section with demonstration of how to calculate the systematic risk variable for a risky asset.”

“The capital assets pricing model states that the expected risk premium on each investment is proportional to its beta. This means that each investment should lie on the sloping security market line connecting Treasury bills and Market Portfolio.

The capital assets pricing model (CAPM) specifies the relationship between risk and required rates of return on assets when they are held in well diversified.

Basic Assumptions of the CAPM

- All investors focus on a single holding, and they seek to maximize the expected utility of their wealth by choosing among alternative portfolios on the basis of each portfolio’s expected return and standard deviation.
- All investors can borrow and lend an unlimited amount at a given risk free rate of interest R_{RF} , and there are no restrictions on short sales of any assets.
- All investors have identical estimates of the expected returns, variances, and covariance among all assets; that is, investors have homogeneous expectations.
- All assets are perfectly divisible and perfectly liquid.
- There is no transaction cost.
- There is no taxes
- All investors are price takers (that is, all investors assume that their own buying and selling activity will not affect stock prices)
- The quantities of all assets are given and fixed.”

“CAPM is a model that describes the relationship between risk and expected return. In this model, a security’s expected return is the risk free rate plus a premium based on the systematic risk of the security. The SML equation as suggested for the computation of expected rate of return on common stock. This model is as under:

—

$$R_j = R_{f} + [E(R_m) - R_{f}] \beta_j$$

Where,

- R_j = required rate of return or equilibrium rate of return for stock j
- $E(R_m)$ = expected return for the market portfolio
- B_j = an index of systematic risk of stock j.

It means the sensitivity of a stock's return. It changes in returns on the market portfolio.

The beta of portfolio is simply a weighted average of the individual stock beta in the portfolio.”

“The major implication of the CAPM is that expected return of assets will be related at a measure of risk for that asset known as beta (β). The exact manner in which expected return and beta are related is specified by the CAPM. The model provides the intellectual basis for a number of the current practices in the investment industry.”

“CAPM is a model that describes the relationship between risk and return. In this model, a security's expected return is the risk free rate plus a premium based on the systematic risk of the security. The model is given below.

- $$R_j = R_f + (R_m - R_f) \beta_j$$

Where,

- R_j = required rate of return on stock j.
- R_f = The nominal risk free rate of return (the real risk free rate of return plus risk premium for inflation).

- (R_m) = The expected rate of return on the market portfolio.
- B_j = Beta coefficient of stock j.

Hence, beta is the index of systematic risk. It means the sensitivity of a stock return to change in returns on the market portfolio. The beta of a portfolio is simply weighted average of the individual stock betas in the portfolio.”

“Beta measures undiversifiable 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. Beta is calculated by relating the returns on a security with the returns for the market. Market return is measured by the average return of a large sample of stocks, such as the S & P 500 stock index.

The beta for the overall market is equal to 1.00 and other betas are viewed in relation to this value.” Betas can be positive or negative. However, nearly all betas are positive. Most betas lie between 4 and 1.9. “The CAPM provides a means by which one can estimate the required rate of return of a security. On the basis of price and dividend data, expected return can be calculated. By comparing two or more than two returns, investors can analyze whether the stocks are over-priced or under –priced. “The capital asset pricing model allows us to draw certain implications about the expected return of a specific security. The key assumptions in the model are that the perfect capital markets exist and that investors have homogeneous expectations.

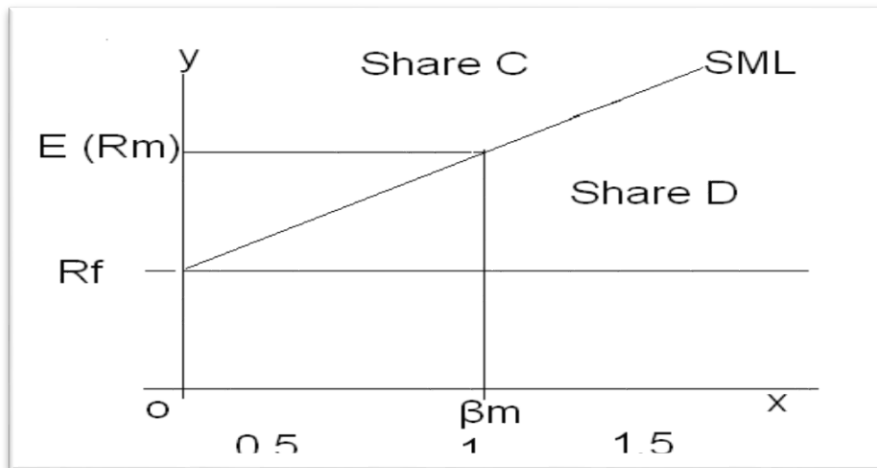
“... In market equilibrium, the required rate of return on stock equals its expected return.

That is all stocks will lie on the security market line, what happens when this is not so?

Suppose that in the given diagram the security market line is drawn on the basis of what investors as a whole know to be the approximate relationship between the required rate of return and systematic or unavoidable risk. For some reason, two stocks call them C and D is improperly priced. Stock C is under –Priced relative to the security market line, while stock D is over –priced.

Figure: 2.5

Movement of Stock



As a result, stock C is expected to provide a rate of return greater than that required based on its systematic risk. In contrast stock D is expected to provide a lower return than that required compensating for its systematic risk. Investors seeing the opportunity for superior returns by investing in stock C should rush to buy it. This action would drive the price up and the expected return down. How long would this continue? It would continue until the market price was seen. The expected return would now lie on the security market line. In the case of stock D, investors holding this stock would sell it, recognizing that they could obtain a higher return for the same amount of systematic risk with other stocks. This selling pressure would drive D's market price down and its expected return up until the expected return was on the SML. When the expected returns for those two stocks return to SML market equilibrium will again prevail.”

2.4 Arbitrage Pricing Theory (APT)

“Arbitrage is the process of earning risk less profits by taking advantage of differential pricing for the same physical asset or security. As a widely applied investment tactic, arbitrage typically entails the sale of security at a relatively high price and the simultaneous purchase of the same security (or its functional equivalent) at a relatively low price.

Arbitrage activity is a critical element of modern, efficient security markets. Because arbitrage profits are by definition risk less, all investors have an incentive to greater resources and inclination to engage in arbitrage than others. However, it takes few of

these active investors to exploit arbitrage situations and, by their buying and selling actions eliminate these profits opportunities.”

“The basis foundation of Arbitrage pricing theory is ‘Law of one price’ Law of one price states that two identical goods cannot be sold at different process there will be the presence of arbitrage opportunity. Arbitrage opportunity means zero additional investment, zero additional risk but presence of additional return.

“If two identical goods sold at differing prices anyone could engage in arbitrage by simultaneously buying at low price and selling high price and make risk less profit. Arbitrage also applies to financial assets. If two financial assets have the same risk they should have the same expected return. If they don’t have the same expected return, a risk less profit could be on by simultaneously issuing at low return and buying the high return assets. Arbitrage causes prices to be revised as suggested by the law of one price.”

Arbitrage pricing process can be shown as below: -

$$E(r_j) = \lambda_0 + \lambda_1 b_{j1} + \dots + \lambda_n b_{jn} \dots \dots \dots (5.35)$$

Where,

$E(r_i)$ = required rate of return on asset i or equilibrium rate of return.

λ_0 = risk free rate of return.

λ_1 = constant variable

b = systematic risk factor or independent variable”

“Arbitrage is the process of earning riskless profits by taking advantage of differential pricing for the same physical asset or security. As a widely applied investment tactic, arbitrage typically entails the sale of security at a relatively high price and the simultaneous purchase of the same security (or its functional equivalent) at a relatively low price. Arbitrage activity is a critical element of modern, efficient security markets. Because arbitrage profits are by definition risk less, all investors have an incentive to take advantage of the whenever they are discovered. Granted, some investors have greater resources and inclination to engage in arbitrage than others. However, it takes

relatively few of these active investors to exploit arbitrage situation and, by their buying and selling actions, eliminate these profit opportunities.”

2.5 Reviews of Journals and Articles

In the Nepalese context, there are very limited numbers of articles can be found relating to management of commercial banks of Nepal. Specially, it is rare in the case of this research topic. However, there are available some independent-studies which are related to the Nepalese Stock Market, Portfolio management and Shareholders democracy are summarized below in detail.

Pradhan, (2009), carried out a study on the topic of “*Stock Market Behavior in a Small Capital Market: a case in Nepal*” the study was based on the data collected for 17 enterprises from 2007 through 2009. One of the major objectives, which are related to this study, was “To access the stock market behavior in Nepal.”

Pradhan has summarized the following findings:

- Dividend per share and Market price per share was positively correlated.
- Higher the earning on stocks, larger the ratio of dividends per share to market price per share.
- There are positive relationship between dividend payment and liquidity.

Chopra, (2067), in his article “*The Role of Foreign Bank in Nepal*” conclude that the joint venture banks are already playing a dynamic and vital role in the economic development of the country and this will undoubtedly increase with time.

Shrestha, (2065) has given a short foretaste on the “*Portfolio Management in Commercial Bank, Theory and Practice*”. Shrestha has highlighted the following issues in his article.

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

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

- Good liquidity with adequate safety of investment.
- Certain capital gain.
- Maximum tax concession.
- Flexible investment.
- Economic, efficient and effective investment mix.

In view of above aspects, following strategies are adopted:

- Do not hold any single security i.e. try to have a portfolio of different securities.
- Do not put all the eggs in one basket i.e. to have a diversified investment (making investment in different sectors).
- Choose such a portfolio of securities, which ensures maximum return with minimum risk or lower of return but added objectives of wealth maximization. However, Shrestha also presented the following approaches to be adopted for designing a good portfolio and its investment:
 - To find out the invisible assets (generally securities) having scope for better returns depending upon individual characteristics like age, health, need, disposition, liquidity, tax liability etc.
 - To find out the risk of securities depending upon the attitude of investor toward risk.
 - To develop alternative investment strategies for selecting a better portfolio this will ensure a tradeoff between risk and return to attach the primary objective of wealth maximization at lowest risk.
 - To identify securities for investment to refuse volatility of return and risk.

In this study, Shrestha has presented two types of investment analysis techniques i.e. fundamental analysis and technical analysis to consider any securities such as equity, debentures bond and other money and capital market instruments. He has further suggested that the banks having been international net work can also offer access to global financial market. He has also point out the required skilled work force research and analysis and proper management information system in any type of commercial banks to get success in portfolio management and customer's confidence.

Bhandari, (2010) in his article "*Commercial Banks Comparative Performance Evaluation*" concluded that Joint venture banks in developing countries like Nepal

have the greatest responsibility towards the economic development of the country . In the present day world in the developed and developing money economies ,the vital process of production and consumption and significantly affected by the aggregate money supply consisting of the currency, demand and time deposit with banks. The main goal of the bankers as a commercial organization is to maximize the surplus by the efficient use of its funds and resources. In spite of being a commercial institution, it too has responsibility to provide social service oriented contribution for the socio-economic enlistment to the by providing specially considered loans and advancement towards less privileged sectors. The scope of this study lies mainly in filling a research gap on the study of the investment of the polycot joint venture banks of nepal.This study is basically confined to reviewing the investment policy of joint venture banks the five year period. This study may also be useful to the person who is the interested to do research in banking sector.

Standard Chartered Bank Nepal Limited has been in operation in Nepal when it was initially registered as a joint-venture operation. Today the Bank is an integral part of Standard Chartered Group having an ownership of in the company with shares owned by the Nepalese public. The Bank enjoys the status of the largest international bank currently operating in Nepal.Standard Chartered has a history of over years in banking and operates in many of the world's fastest-growing markets with an extensive global network of over branches (including subsidiaries, associates and joint ventures) in over countries in the Asia Pacific Region, South Asia, the Middle East, Africa, the United Kingdom and the Americas. As one of the world's most international banks, Standard Chartered employs almost people, representing over nationalities, worldwide. This diversity lies at the heart of the Bank's values and supports the Bank's growth as the world increasingly becomes one market. With of representation, ATMs across the country and with more than local staff, Standard Chartered Bank Nepal Ltd. is in a position to serve its customers through an extensive domestic network. In addition, the global network of Standard Chartered Group gives the Bank a unique opportunity to provide truly international banking services in Nepal. Standard Chartered Bank Nepal Limited offers a full range of banking products and services in Consumer banking, Wholesale and SME Banking catering to a wide range of customers encompassing individuals, mid-market local corporate, multinationals, large public sector companies, government corporations,

airlines, hotels as well as the DO segment comprising of embassies, aid agencies, NGOs and INGOs.

Nabil Bank Limited, the first foreign joint venture bank of Nepal, started operations July . Nabil was incorporated with the objective of extending international standard modern banking services to various sectors of the society. Pursuing its objective, Nabil provides a full range of commercial banking services through its points of representation across the kingdom and over reputed correspondent banks across the globe. Nabil, as a pioneer in introducing many innovative products and marketing concepts in the domestic banking sector, represents a milestone in the banking history of Nepal as it started an era of modern banking with customer satisfaction measured as a focal objective while doing business.

Operations of the bank including day-to-day operations and risk management are managed by highly qualified and experienced management team. Bank is fully equipped with modern technology which includes ATMs, credit cards, state-of-art, world-renowned software from Infosys Technologies System, Banglore, India, Internet banking system and Telebanking system. If you plan for new business or willing to build / expand your existing ones, we are always at your service to meet with your expectations and help you realize your financial aspirations. Our relationship managers are committed, accessible and responsive to all your business needs with our diverse and customized offers. We are not only one of the best in terms of service.

Everest Bank Limited (EBL) started its operations in with a view and objective of extending professionalized and efficient banking services to various segments of the society. The bank is providing customer-friendly services through its Branch Network. All the branches of the bank are connected through Anywhere Branch Banking System (ABBS), which enables customers for operational transactions from any branches. With an aim to help Nepalese citizens working abroad, the bank has entered into arrangements with banks and finance companies in different countries, which enable quick remittance of funds by the Nepalese citizens in countries like UAE, Kuwait, Bahrain, Qatar, Saudi Arabia, Malaysia, Singapore and U K. Bank has set up its representative offices at New Delhi (India) to support Nepalese citizen remitting money and advising banking related services. Joint Venture Partner Punjab National Bank (PNB), our joint venture partner is the largest nationalized bank

in India. With its presence virtually in all the important centers at India, Punjab National Bank offers a wide variety of banking services which include corporate and personal banking, industrial finance, agricultural finance, financing of trade and international banking. Among the clients of the Bank are Indian conglomerates, medium and small industrial units, exporters, non-resident Indians and multinational companies. The large presence and vast resource base have helped the Bank to build strong links with trade and industry.

2.6 Review of Thesis

In Nepal, some of the student has done independent study for the fulfillment of Master Degree in T.U. related to the topic “ Risk, Return and Portfolio Analysis on common stock investment” of Nepalese Joint Venture Banks. Some of the related studies are reviewed here:

Mainali, (2007) has performed another study entitled “*Risk and Return Analysis on Common Stock Investment*”. In his study, he has performed an analysis of risk and return on common stock investment with special reference to banking industry. In this study, He writes, the main objective of the study is to determine whether the shares of selected commercial banks are over-priced, under-priced or correctly valued by analyzing the risk and return. His others objectives are evaluate the common stock, to analyze the risk and return and to provide relevant suggestion to concerned authority based on analysis of data.

His major findings on his study are given below in details:

- Among the selected commercials banks, he writs that the SCBNL has highest (i.e.32%) market capitalization which indicates that the size of the stock market of SCBNL is grater one.
- Regarding the expected rate of return among the selected commercial banks, the highest expected rate of return of SBI is 19.9% and lowest expected return on common stock of NBBL is -27.99%. So, it indicates that the investment in SBI will earn best return.
- Among the selected banks, the highest C.V. on common stock of NABIL is 12.23 and lowest C.V. common stock of SCBNL is 3.0191. It indicates NABIL

stock is more risky and SCBNL stock is less risky than other. Similarly, bet coefficient of SBI is highest (i.e.3.30) and the NIBL has lowest beta coefficient (i.e.0.5831). So, it means C.S. of SBI is most aggressive stock and C.S. of NIBL is most defensive stock than other.

- At the last, he writes at major finding of his study that the correlation between NIBL and SBI is in negative. It indicates making portfolio investment in these two stocks will minimize risk without losing considerable return.

Sharma, (2009) in her thesis entitled “*Investment Portfolio Analysis of Joint Venture Banks*” has been done in 2007. The study based on five joint venture banks and they are: NABIL, SCBNL, HBL, NBBL & EBL. The general study of the present study is to identify the current situation of investment portfolio of joint venture banks in Nepal.

The major findings of her study are below:

- SCBNL and NABIL have better position. in the industry. But Nepal Bangladesh Bank has a very low position in the industry because of having lowest mean return on shareholders’ fund .
- SCBNL has the highest mean return and NBBL has the lowest return. Except NBBL, all other four banks i.e.; NABIL, SCBNL, HBL and EBL have good performance.
- Among other joint venture banks, SCBNL has the highest return . SCBNL and NABIL mobilizes the funds in investment title is higher than the standard ratio.
- NABIL, SCBNL & HBL are investing low amount of deposits on loans and advances which is lower than industry average and NBBL & EBL have invested a high amount of deposits to loans and advances title which is higher than industry average.
- SCBNL has the highest EPS and NBBL has the lowest EPS. Similarly, NABIL,HBL and EBL also have above mean EPS than industry average .
- Himalayan Bank has the lowest beta coefficient among the five joint venture banks which means that the systematic risk of Himalayan bank is the lowest among the JVBs.

Basnet, (2011) Thesis entitled “*Portfolio Management of Joint Venture Banks in Nepal*” is based on study of four joint venture banks. They are: Nepal Bangladesh

Bank Ltd., Standard Chartered Bank Ltd., Himalayan Bank Ltd. and Everest Bank Ltd. The general objective of this study is to identify the situation of portfolio management of joint venture banks in Nepal.

The major findings of this study are given below:

- Among the selected bank on ratios of Everest Bank Ltd. is more consistent among the four joint venture banks.
- NBBL is investing very high amount of its fund in government securities..
- SCBNL is providing very high amount of its loans & advances to the private sector.

It has also given the second priority to foreign bills purchase and discount. HBL is providing very high amount of its loans & advances to the private sector in increasing trends. It has also given the second priority to foreign bills purchase and discount. NBBL is providing very high amount of its loans & advances to the private sector. It has also given the second priority to government securities.

EBL is providing very high amount of its loans & advances to the private sector and has given the second priority to the foreign bills purchase and discount.

2.7 Research Gap

Risk, return and portfolio are the most important part of finance because they can strong impact on investment. Thus, it is not totally new concept. Many researchers have done research on this aspect. As long as researcher knows, no specific research has yet been able to go in-depth of the topic and has successfully accomplished the specified objectives of the research work. All of the previous research on this topic has been based on only showing the risk and return analysis of the stocks of commercial banks. Hence, this research will fulfill the prevailing research gap by calculating the portfolio risk, return and market price of different companies and estimating the optimal portfolio among the common stock on the basis of all relevant data and information of five Nepalese joint venture banks from 2002/03 to 2009/10, which are the major concern of public share holders and others stakeholders. Furthermore, the portfolio performance has also been evaluated with using Sharpe index of portfolio performance measure, which has not been calculated on other studies.

CHAPTER-III

RESEARCH METHODOLOGY

Research methodology is the science of systematic and organized method, which probes into depth the facts of the problem in order to discover new information or relationships and to expand, verify existing knowledge for some specific purpose. In other word, a systematic process adopting by the researcher to study problem with certain objective in view is known as research methodology. Research methodology includes all the method and procedures, from theoretical framework to the collection and analysis of the data with the purpose of finding answer to the problem. As most of data are quantitative, the research is based on scientific methods where the both parts of technical and logical aspects are composed. In this study, all the observed data, which are based on the historical data, are analyzed with using both financial and statistical tools. Results are presented in simple way using tables, graphs and diagrams. Detail research methods are described serially.

3.1 Research Design

Research design is the conceptual structure within which research is performed. Research design is an overall framework or plan, which specifies the sources and types of information relevant to the research problem. In this study, the research is based on recent historical data, which are collected from various secondary sources. The research study covers eight years of period from fiscal year 2004/05 to 2011/12 AD. It relates with the study of risk, return and portfolio analysis of JVBs on the basis of available information. This study is more analytical, empirical and less descriptive. Analytical in the sense that, all the available data are analyzed by using various statistical tools and techniques. Such as standard deviation, coefficient of variation and regression model etc. All the data used in this study have been taken from related sources. The study is purely empirical due to purely historically data. The Risk, return and portfolio are main subjects of the study that follow the numerical data. For explanation of result description has been also followed.

3.2 Source of Data

This research study is mainly based on secondary data. Published annual report of the

concern banks are taken as the basic source of data. Similarly, related books, magazine, journals, articles, reports and data from Nepal Stock Exchange, Directive issued by Nepal Rastra Bank and financial statistics and related website etc. Previous related studies to the subject are also counted as the source of information.

3.3 Population and Sample

At the present, there are twenty Commercial Banks and out of them there are six Joint Venture Banks. This study is based on the portfolio analysis on common stock investment of all the JVBs in NEPAL. Thus, this research work covers all the Joint Venture Banks. That's why it implies the study of 100% population out of total number of the Joint Venture Banks in Nepal. However, it becomes only 30% out of the total number of commercial banks in Nepal.

3.4 Data Collection Techniques

Almost the data, which are necessary for the research is, collected from secondary sources. However, during the study period, informal opening survey has also been taken with the individual investor, related bank officials, SEBO/N (Security Board of Nepal) and NEPSE (Nepal Stock Exchange) staffs. The information has also been collected by financial documents provided by commercial banks, NRB (Nepal Rastra Bank), trading manual published by NEPSE, NEPSE periodical articles, related Websites and previous research reports.

3.5 Tools for Data Analysis

3.5.1 Market Price of Stock (P)

Among the various major data of this study, market price of stock is the most important tools because without market price, we cannot further calculation. There are three types of prices of the share, i.e. High price, low price & closing price of each year, which are summarized and published by Nepal Stock Exchange. For the analysis, single one is needed. Therefore, two approach either average price (i.e. average of high and low price) or closing price can be used. It is denoted by symbol of "P". It may be very closer result if it is used average price that represents the price of whole year but it is very difficult to obtain the real average. To get the real average, volume and price of each transition of the stock and the duration of the time of each transaction in the whole year are necessary. But, it is very hard and difficult to include all the

information. In this regard, it is very difficult to use average price as a market price of stock. Thus, the closing price of each year is used as the market price of the stock (MPS).

3.5.2 Dividend (D)

Dividend is a portion of net earning which are paid out to the shareholders as a reward for their investment. Normally there are two types of dividend i.e. cash dividend and stock dividend. If a company declares only the cash dividend, it is easy to calculate dividend amount. But, if company declares the stock dividend (Bonus Share), it is difficult to obtain the amount that really shareholders have gained. In such condition, they get extra numbers of shares as a dividend and simultaneously the price of stock declines due to increased numbers of outstanding stocks. So to get the real amount of dividend, there is no model or formula developed yet. But in this study, model is used which has been developed by considering practical and theoretical aspect after several discussing with NEPSE staffs & investors.

In case of stock dividend;

Total dividend = cash dividend + stock dividend % x next year's MPS

Where,

MPS = Market Price per Share

It is denoted by symbol as "D"

3.5.3 Return on Common Stock Investment (R_j)

Return is the income received in an investment plus any change in market price, usually expressed as a % of the beginning market price of the investment. It is denoted by "R_j".

Symbolically,

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

Where,

R = Return on common stock investment.

D_t = Cash dividend received at 't' period.

P_t = Price of stock at 't' period.

P_{t-1} = Price of stock at 't-1' period.

3.5.4 Expected Return on Common Stock: $E(R_j)$

One of the main objectives of the study is to determine the expected return on common stock investment. Thus, Expected return is one of the main tools to measure the performance of the company.

Expected rate of return is the average rate of return on common stock, which is calculated by the arithmetic mean of historical returns.

Symbolically

$$E(R_j) = R_j = \frac{\sum R_j}{n}$$

Where,

R_j = Expected rate of return on stock 'j'.

n = Number of years that the return is taken.

Σ = Sign of summation.

3.5.5 Standard Deviation (σ)

Standard deviation is the statistical measurement of the variability of a distribution of return around its mean .it is the square root of the variance and measures the total risk on stock investment. It is denoted by sigma sign (σ).

Symbolically,

$$\sigma_j = \sqrt{\frac{\sum(R_j - R_j)^2}{n-1}}$$

Where,

σ_j = Standard deviation of returns on stock 'j' during the time period n.

3.5.6 Co-efficient of Variation (C.V.)

The Co-efficient of Variation is defined as the standard deviation divided by the mean of expected return. It is used to standardize the risk per unit of return. In other word, it

is the ratio of standard deviation of returns to the mean of that distribution. It gives the result regarding the unit of risk to bear for earning 1 unit of return.

Symbolically,

$$C.V. = \frac{\sigma_j}{R_j}$$

3.5.7 Beta (β)

Market sensitivity of stock is explained in terms of beta coefficient. Greater the beta, greater the sensitivity and reaction to the market movement. Logically, the systematic risk is covariance between the returns of an individual asset or portfolio and the returns of the market portfolio. The measure of systematic risk is represented by beta. It is an index of systematic risk, which cannot be eliminated through the means of diversification. It measures the sensitivity of a stock's return on the market portfolio.

Symbolically,

$$B_j = \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2}$$

Where,

β_j = Beta co-efficient for stock 'j'.

COV (R_j, R_m) = Covariance between returns on stock j return of market.

σ_m^2 = Variance of market return

If probability is not given, then

$$\text{Cov}(R_j, R_m) = \frac{\sum (R_j - \bar{R}_j) (R_m - \bar{R}_m)}{n}$$

If probability is given, then

$$\text{Cov}(R_j, R_m) = \sum (R_j - \bar{R}_j) (R_m - \bar{R}_m) \times P_s$$

An asset or a portfolio with a beta greater than 1 is considered to be aggressive (more risky than the market). An asset or portfolio with a beta less than 1 is considered to be defensive (less risky than the market). Beta coefficient of market is always equal to 1.

3.5.8 Correlation Co-efficient (ρ_{ij})

The correlation is also a measure of the relationship between two assets. It can be taken on a value ranging from -1 to $+1$. Correlation and co- variance are related by the following equation.

Symbolically,

$$\text{Cov}_{ij} = \sigma_i \cdot \sigma_j \cdot \rho_{ij}$$

Where,

σ_i and σ_j are standard deviations of returns for assets I and j.

ρ_{ij} = Correlation co-efficient of assets i and j.

There are various cases of correlation and risk conditions, which are presented as follows:

Perfectly positive correlation ($\rho_{ij} = +1$)

Return on two perfectly positive correlated stocks would move up and down together and a portfolio of two such stocks would be exactly as risky as the individual stocks. Thus, the diversification cannot reduce risk if the portfolio consists of perfectly positive correlated stocks.

Perfect negative correlation ($\rho_{ij} = -1$)

Returns on two perfectly negative correlated stocks would move perfectly together but in exactly opposite direction. In this condition, risk can be completely eliminated. Perfect negative correlation almost never found in the real world.

No relationship between return ($\rho_{ij} = 0$)

When the correlation between two stocks is exactly 0, there is no relationship between the returns of the two stocks. In such case, some risk can be reduced.

Intermediate risk ($\rho_{ij} = +0.5$)

Most stocks are positively correlated but not perfectly. On average the returns on two stocks would lie on the range of $+0.4$ and $+0.75$. Under this condition, combining stocks in portfolios reduces risk but does not eliminate it completely.

3.5.9 Portfolio Risk & Return

A portfolio is a combination of investment assets. Portfolio theory deals with the 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. Portfolio management is related to the efficient portfolio investment in financial assets.

3.5.9.1 Portfolio Return (R_p)

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

$$R_p = \sum_{i=1}^n W_i \times R_j$$

In case of two assets case

$$R_p = W_A \times R_A + W_B \times R_B$$

In case of three assets:

$$R_p = W_A \times R_A + W_B \times R_B + W_C \times R_C$$

Where,

R_p = Expected return on portfolio of stocks.

W_A , W_B , W_C are weight of stock A B and C respectively.

$W_A + W_B + W_C = 1$ (100%) always.

3.5.9.2 Portfolio Risk (σ_P)

Portfolio risk is measured by a statistical tool standard deviation. It is a function of the proportions invested in the components, the risk ness of the components and

correlation on the component securities. The portfolio risk is computed by using the following equations:

In case of two assets

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

In case of three Assets

$$\sigma_P = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B \text{Cov}(R_A, R_B) + W_C^2 \sigma_C^2 + 2W_A W_C \text{Cov}(R_A, R_C) + 2W_B W_C \text{Cov}(R_B, R_C)}$$

Where,

σ_P = Standard deviation of portfolio return of stock A B and C.

$\text{Cov}(R_A, R_B)$ = Equivalent representation for the covariance of returns between assets A & B.

$\text{Cov}(R_B, R_C)$ = Equivalent representation for the covariance of returns between assets B&C

$\text{Cov}(R_A, R_C)$ = Equivalent representation for the covariance of returns between assets A&C.

3.5.10 Risk minimizing Portfolio

It is the ratio of two assets, which minimize risk (σ_P):

Formula:

$$W_A = \{\sigma_B^2 - \text{Cov}(R_A, R_B)\} / \{\sigma_A^2 + \sigma_B^2 - \text{Cov}(R_A, R_B)\}$$

Or

$$W_A = \{\sigma_B^2 - \rho_{AB} \sigma_A \sigma_B\} / \{\sigma_A^2 + \sigma_B^2 - \rho_{AB} \sigma_A \sigma_B\}$$

Where,

W_A = weighted of stock A that minimize the portfolio risk of stock A&B.

σ_A = Standard deviation of stock A.

σ_B = Standard deviation of stock B.

3.5.11 Systematic Risk

Systematic risk refers to that portion of total variability in return caused by factors affecting the prices of all securities. Systematic risk is external to an industry and, of

business and is attributed to board forces out of the business. Unlike systematic risk it is the risk that can be diversify away. Due to this character of this risk it is said to be relevant risk to be concerned.

We can sort out systematic risk out of total risk by using this tool mentioned below:

Total risk = Systematic risk + Unsystematic.

$$\sigma_j^2 = \beta_j^2 \times \sigma_m^2 + \sigma_e^2$$

$$\begin{aligned} \text{Portion of systematic risk} &= \text{Systematic Risk} / \text{Total Risk} \\ &= \beta_j^2 \times \sigma_m^2 / \sigma_j^2 \end{aligned}$$

Where,

σ_j^2 = Variance of stock J.

σ_m^2 = Variance of market.

β_j^2 = Square of beta of stock J.

3.5.12 Unsystematic Risk

Portion of unsystematic risk will simply be (1- portion of systematic risk).

Or

$$\text{Unsystematic Risk} = 1 - \beta_j^2 \times \sigma_m^2 / \sigma_j^2$$

3.5.13 Sharpe's Portfolio Performance Measure (S_P)

It was derived by William Sharpe. Sharpe's measure divides average portfolio excess return over the sample period by the standard deviation of return over that period.

The Sharpe's measures of portfolio performance (designated S_i) is stated as

$$S_i = (r_i - R_f) / \sigma_i \dots\dots\dots(9.4)$$

Where,

S_i = Sharpe's Portfolio Performance Measure for portfolio 'i'

r_i = Average/ Expected return from portfolio 'j'

σ_i = Standard deviation of returns for portfolio 'i'

R_f = Risk free rate of return.

CHAPTER – IV

DATA PRESENTATION AND ANALYSIS

This chapter includes analysis of collected data from various sources and their presentation with interpretation to fulfill the objectives of the study mentioned in first chapter. This chapter is main body of the study. In this chapter, the effort has been made to analysis risk, return and portfolio behavior on the basis of common stock investment of joint venture banks of Nepal. The presentation and analysis of data consists of organizing, tabulating and accessing financial and statistical result. The detail data of market price per share (MPS), dividend per share (DPS) of each bank and NEPSE index of each sector with market is presented and their analysis and interpretation are included in this chapter. On the background of various reading and literature review, it is tried to analyze and diagnose the recent Nepal Stock Market movement with taking a special reference with Joint Venture Banks of Nepal. Different tables, diagrams, pie chart and trend line have drawn in separately for the same data to make simpler, readable and understandable.

4.1 Analysis of Individual Joint Venture Bank

As the study has been taken special reference to Joint Venture Banks, the common stock of each joint venture bank's which are listed in NEPSE are analyzed here individually. It is already known that there are 31 commercial banks and among them there are only six Joint Venture Banks till date. The names of JV Banks that are included under study are shown as follows in detail.

S. No.	Name of Bank	Established Date	Listing Date in NEPSE
1.	Nepal Arab Bank Ltd. (NABIL)	1984 A.D.	24/11/1985
2.	Standard Chartered Bank Ltd. (SCBL)	1985 A.D.	04/07/1988
3.	Himalayan Bank Ltd. (HBL)	1992 A.D.	05/07/1993
4.	Nepal SBI Bank Ltd.	1993 A.D.	17/01/1995
5.	Everest Bank Ltd. (EBL)	1992 A.D.	07/04/1996

4.1.1 Nepal Arab Bank Ltd.

4.1.1.1 Introduction

Nepal Arab Bank Limited (NABIL) is the first Joint Venture Bank of Nepal which was Incorporated in 1984 A.D. under the commercial bank Act 2031 (1974) and the company Act 2021 (1965) and it was listed in NEPSE in 1986 A.D. (08/09/2042, B.S.). Dubai Bank Ltd (DBL) was the initial foreign joint venture partner with 50 percent of equity share of NABIL. The shares owned by DBL were transferred to Emirates Bank International Ltd (EBIL), Dubai. Later on EBIL sold its entire 50% equity holding to National Bank Ltd. Bangladesh (NBLB). Now, NBLB is managing the bank in accordance with the technical service agreement signed between both banks on June 1991. Others information of NABIL is as follows:

Authorized Capital: Rs. 1,600,000,000.00

Paid up Capital: Rs. 1,449.120,000

Issued Capital: Rs. 1,449,120,000

Par value of share: Rs. 100

No. of shares:14,491,200

4.1.1.2 Data Analysis

Market price and dividend records of common stock of NABIL and EPS movement are shown in table 4.1. Closing MPS is taken into account for the purpose of calculating realized return for the years. Total dividend includes cash as well as stock (Bonus) dividend.

Table 4.1
MPS, EPS and Dividend Data of NABIL

Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend in %	Total Dividend	EPS
2004/05	740	50	-	50	84.66
2005/06	1000	65	-	65	92.61
2006/07	1505	70	-	70	105.49
2007/08	2240	85	-	85	129.21
2008/09	5050	100	40	2210	137.08
2009/10	5275	60	40	2019.60	108.31
2010/11	4899	35	50	1227	106.76
20011/12	2384	30	40	*670	78.61

Source: Annual Report of Nabil Bank of Nepal

Let's next year MPS is 1550*

For 2008/09

Total dividend = 100 + 40% of 5275 = 5280

For 2009/10

Total dividend = 60+ 40% of 4899 = 2019.60

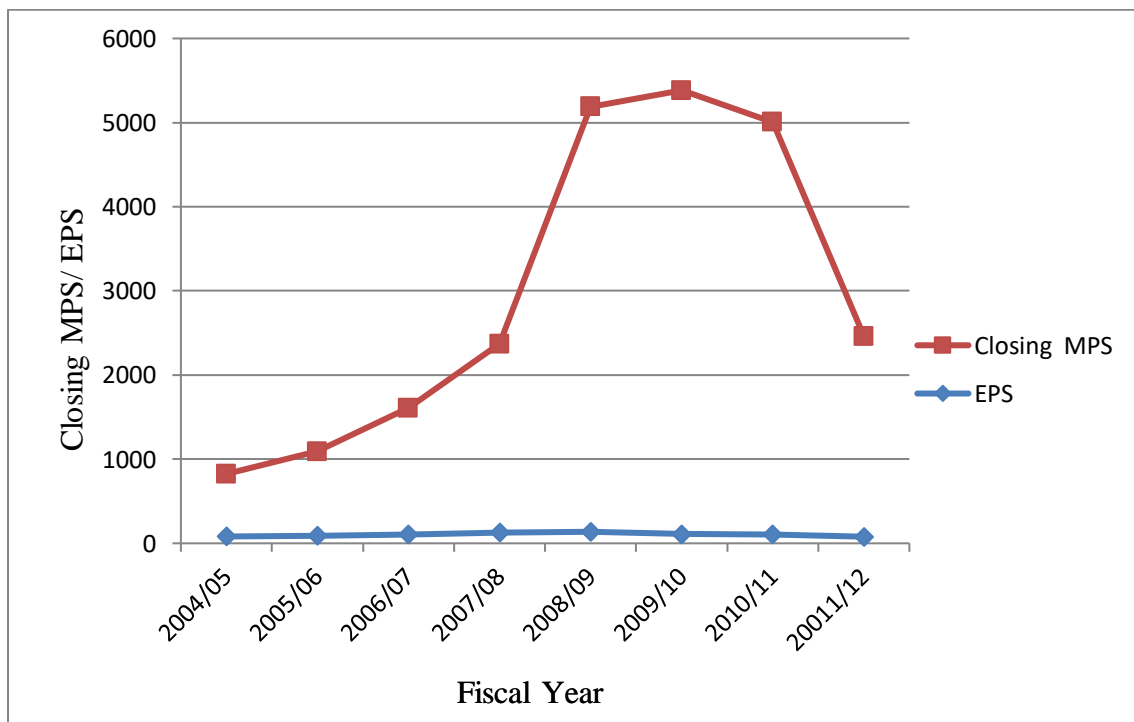
For 2010/2011

Total dividend =35+50% of 2384=1192

(Model for total dividend calculation is mentioned in Research Methodology section.)

From the above table, the highest closing MPS of NABIL is Rs.5275 that is seen in fiscal year 2009/2010 whereas lowest one is Rs.740 at fiscal year 2004/05. Nabil Bank has been paying cash or stock dividend frequently to their shareholders but varied from year to year. EPS is also in increasing trend.

Figure 4.1
Closing EPS and MPS trend of NABIL



From the above diagram, it is observed that the closing MPS is in increasing trend up to fiscal year 2009/10 and EPS is also in increasing trend.

4.1.1.3 Realized Return (R), Expected Return E(R), Standard Deviation (σ) and Coefficient of Variation (C.V.) of NABIL Bank

Return on security consists of the dividend yield and capital gain yield. On the based in Table 4.1 by using closing MPS and Total dividend amount following calculations are made.

Table 4.2
Realized Return (R), Expected Return E(R), Standard Deviation (σ) and Coefficient of Variation (C.V.) of NABIL Bank

Final Year	Closing MPS	Dividend	$R_N = [D_t + (P_t - P_{t-1})] / P_{t-1}$	$R_N - \bar{R}_N$	$(R_N - \bar{R}_N)^2$
2004/05	740	50	-	-	-
2005/06	1000	65	0.4392	-0.4859	0.2361
2006/07	1505	70	0.575	-0.3501	0.1226
2007/08	2240	85	0.545	-0.3802	0.1446
2008/09	5050	5280	3.612	2.6865	7.2173
2009/10	5275	2019.6	0.444	-0.4806	0.231
2010/11	4899	1227	0.1620	-0.9897	0.9795
2011/12	2384	*670	-0.3766	-1.1481	1.3181
			$\sum R_N = 5.4006$		$\sum (R_N - \bar{R}_N)^2 = 10.2492$

We have,

$$\begin{aligned} \text{Expected Return } (R_N) &= \frac{\sum R}{n} \\ &= \frac{5.4006}{7} \\ &= 0.7715 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\sigma_N) &= \frac{\sqrt{\sum (R_H - \bar{R}_H)^2}}{n-1} \\ &= \frac{\sqrt{10.2492}}{6} \\ &= 1.3070 \end{aligned}$$

$$\text{Variance } (\sigma_N^2) = 1.3070^2 = 1.7082$$

$$\text{Coefficient of Variation (C.V.N)} = \frac{\sigma_N}{R_N} = \frac{1.3070}{0.7715} = 1.6941$$

4.1.2 Standard Chartered Bank Limited. (SCBL)

4.1.2.1 Introduction

Standard Chartered Bank Nepal Limited (SCBNL) which was incorporated in 1987 with the name of Grindlays Bank Ltd, as a second Joint Venture Bank of Nepal after NABIL, under the company Act 1965 (B.S.2021) and the Commercial Bank Act 1974 (B.S.2031). ANG Grindlays Bank PLC is the foreign joint venture partner with 50% equity investment. Shrawan 2057 (2000). Due to change in 50% ownership, its name changed to Standard Chartered Bank Nepal Limited. Now, SCB group had taken 75% ownership and remaining 25% ownership is given to Nepalese people. It is largest international bank.

The main objective of the bank is to collect deposits and provide loan to agriculture, commerce, and industry and to provide modern banking services to the people. Authorized capital, paid up capital, issued capital, par value of shares, number of shares of SCBL are as follows:

Authorized capital: Rs. 2,000,000,000

Issued capital: Rs. 1,398,483,600

Paid up capital: 1,398,483,600

Par value per share: Rs.100

Number of shares: 13,984,836

4.1.2.2 Data Analysis

Market price and dividend records of common stock of Standard Chartered Bank of Nepal and EPS movement are shown in table 4.1. Closing MPS is taken into account for the purpose of calculating realized return for the years. Total dividend includes cash as well as stock (Bonus) dividend.

Table 4.3

MPS, EPS and Dividend Data of Standard Chartered Bank of Nepal

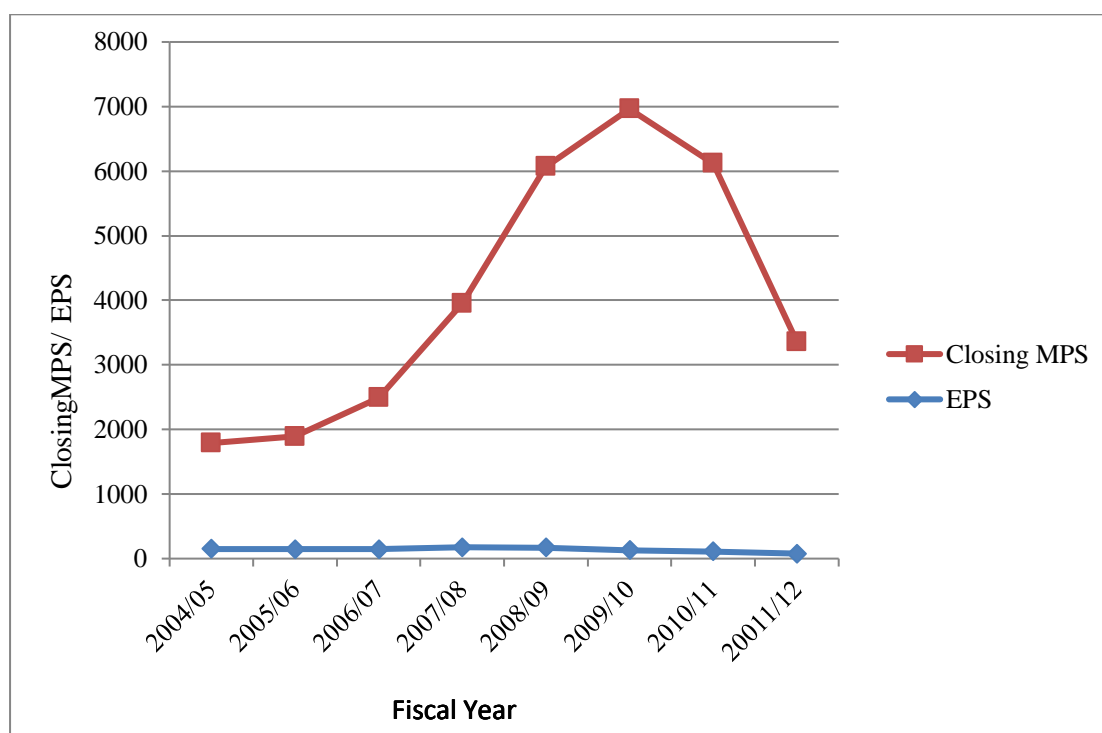
Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend in %	Total Dividend	EPS
2004/05	1640	110	10	284.5	149.30
2005/06	1745	110	-	110	143.55
2006/07	2345	120	-	120	143.14
2007/08	3775	140	10	730	175.84
2008/09	5900	130	50	3545	167.37
2009/10	6830	130	50	3135	131.92
2010/11	6010	70	55	1873.4	109.99
2011/12	3279	85	40	805*	77.65

Source: Annual Report of Standard Chartered Bank of Nepal

*Let next year MPS is Rs.1800

Figure 4.2

Closing EPS and MPS trend of Standard chartered Bank of Nepal



4.1.2.3 Realized Return (R), Expected Return E(R), Standard Deviation (σ) and Coefficient of Variation (C.V.) of SCBNL Bank

Return on security consists of the dividend yield and capital gain yield. On the based in Table 4.3 by using closing MPS and Total dividend amount following calculations are made.

Table 4.4
Realized Return (R), Expected Return E(R), Standard Deviation (σ) and Coefficient of Variation (C.V.) of SCBNL Bank

Fiscal Year	Closing MPS	Dividend	$R_s = [D_t + (P_t - P_{t-1})] / P_{t-1}$	$\bar{R}_s - R_s$	$(R_s - \bar{R}_s)^2$
2004/05	1640	284.5	-	-	-
2005/06	1745	110	0.1311	-0.5344	0.2856
2006/07	2345	120	0.4126	-0.2529	0.0640
2007/08	3775	730	0.9211	0.2556	0.065
2008/09	5900	3545	1.5020	0.8365	0.6997
2009/10	6830	3135	0.6890	0.0235	0.0006
2010/11	6010	1873.	0.3375	-0.328	0.1076
2011/12	3279	805*	-0.3205	-0.8452	0.7144
			$\sum R_s = 3.6728$		$\sum (R_s - \bar{R}_s)^2 = 1.9369$

We have,

$$\begin{aligned} \text{Expected Return } (R_s) &= \frac{\sum R}{n} \\ &= \frac{3.6728}{7} \\ &= 0.5247 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\sigma_s) &= \frac{\sqrt{\sum (R_H - \bar{R}_H)^2}}{n-1} = \frac{1.9369}{6} \\ &= 0.5682 \end{aligned}$$

$$\text{Variance } (\sigma_s^2) = 0.5682^2 = 0.3228$$

$$\text{Coefficient of Variation (C.V.s)} = \frac{\sigma_s}{R_s} = \frac{0.5682}{0.5247} = 1.4829$$

4.1.3 Himalayan Bank Limited. (HBL)

4.1.3.1 Introduction

Himalayan Bank Ltd (HBL) was incorporated in 1992 A.D. as a Joint Venture Bank under the company act 1964 A.D. Joint venture partner of HBL is Habib Bank Ltd, which is one of the largest commercial bank of Pakistan. HBL is the first commercial bank of Nepal with maximum shareholding by the Nepalese private sector. Operation of HBL was started from February and it is first joint venture bank, which is managed by Nepali Chief Executives in Nepal. Himalayan Bank Ltd was listed in NEPSE on 05/07/1993 as mentioned in NEPSE annual report. Main objectives of the bank is to provide modern banking facilities like Tele banking to the business, industrialists and other professionals and to provide loans on agriculture, commerce and industrial sectors. Its major shares like 80% of the investment are made from Nepalese investors and remaining 20% is invested from foreign investors. The bank's authorized capital, issued capital, paid-up capital, par value share and number of shares are as follows:

Authorized Capital: Rs. 3,000,000,000

Paid up Capital: Rs. 1,600,000,000

Issued Capital: Rs. 1,600,000,000

Par value of share: Rs. 100

No. of shares: 16,000,000

4.1.3.2 Data Analysis

Market price and dividend records of common stock of Himalayan Bank Ltd. of Nepal and EPS movement are shown in table 4.1. Closing MPS is taken into account for the purpose of calculating realized return for the years. Total dividend includes cash as well as stock (Bonus) dividend.

Table 4.5

MPS, EPS and Dividend Data of Himalayan Bank Limited

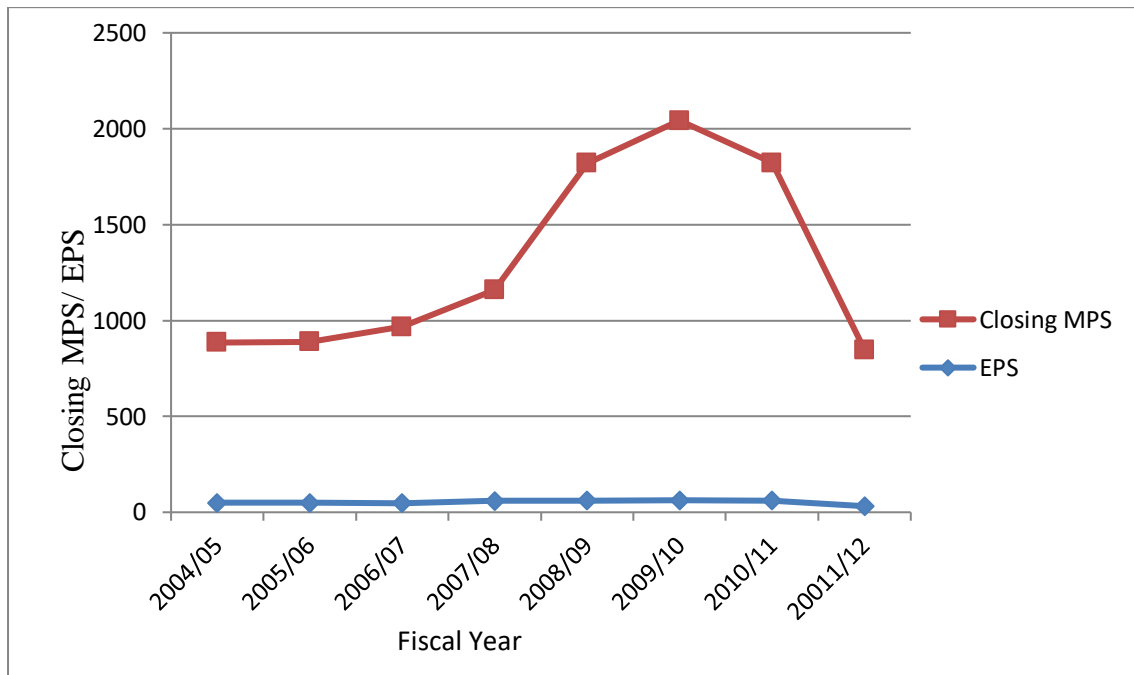
Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend in %	Total Dividend	EPS
2004/05	836	1.32	25	211.32	49.45
2005/06	840	-	20	184	49.05
2006/07	920	11.58	20	231.58	47.91
2007/08	1100	30	5	118	59.24

2008/09	1760	15	25	367	60.66
2009/10	1980	25	20	377	62.74
2010/11	1760	12	31.56	259.52	61.90
2011/12	816	11.84	25	155.59*	31.80

Source: Annual Report of Himalayan Bank Ltd.

*Let next year MPS is Rs.575

Figure 4.3
Closing EPS and MPS trend of HBL



4.1.3.3 Realized Return (R), Expected Return E(R), Standard Deviation (σ) and Coefficient of Variation (C.V.) of HBL

Return on security consists of the dividend yield and capital gain yield. On the based in Table 4.5 by using closing MPS and Total dividend amount following calculations are made.

Table 4.6
Realized Return (R), Expected Return E(R), Standard Deviation (σ) and Coefficient of Variation (C.V.) of HBL

Fiscal Year	Closing MPS	Dividend	$R_H = [D_t + (P_t - P_{t-1})] / P_{t-1}$	$R_H - \bar{R}_H$	$(R_H - \bar{R}_H)^2$
2004/05	836	211.32	-	-	-
2005/06	840	184	0.225	-0.1708	0.0292
2006/07	920	231.58	0.3709	-0.0249	0.0006

2007/08	1100	118	0.3239	-0.0719	0.0052
2008/09	1760	367	0.9336	-0.5378	0.2892
2009/10	1980	377	0.3392	-0.0566	0.0032
2010/11	1760	259.52	0.1822	-0.2136	0.0456
2011/12	816	155.59*	-0.4479	-0.7232	0.5230
$\sum R_H = 1.9269$					$\sum (R_H - \bar{R}_H)^2 = 0.896$

We have,

$$\begin{aligned} \text{Expected Return } (R_H) &= \frac{\sum R}{N} \\ &= \frac{1.9269}{7} \\ &= 0.2753 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\sigma_H) &= \frac{\sqrt{\sum (R_H - \bar{R}_H)^2}}{n-1} \\ &= \frac{0.896}{6} \\ &= 0.3864 \end{aligned}$$

$$\text{Variance } (\sigma_H^2) = 0.3864^2 = 0.1493$$

$$\text{Coefficient of Variation } (C.V._H) = \frac{\sigma_H}{R_H} = \frac{0.3864}{0.2753} = 1.4036$$

4.1.4 Everest Bank Limited (EBL)

4.1.4.1 Introduction

Everest bank Limited was established in 1992 A.D. under the company act 1964 A.D. with an objective of extending efficient banking services to various segments of the society under the commercial bank Act 1974. It is a joint venture between Punjab National Bank, India and Nepali promoters with public shareholders. Punjab National Bank (PNB) is the largest Public Sector Bank of India having 109 years of banking history with more than 4400 offices all over India and is known for its strong procedures and a distinct work culture. The corporate office of Everest Bank Limited is in Lazimpat of Kathmandu. The local Nepalese promoters hold 50% stock in the bank's equity, while 20% of equity is contributed by joint venture partner Punjab National Bank and remaining 30% is held by the public sector. The bank's authorized capital, paid up capital, issued capital, par value of shares, number of shares and change in paid in capital of EBL are as follows:

Authorized Capital: Rs. 1,250,000,000

Issued Capital: Rs. 1,050,000,000

Paid up Capital: Rs. 1,030,467,300

Par value of share: Rs.100

No. of share: 10,304,673

4.1.4.2 Data Analysis

Market price and dividend records of common stock of Everest Bank Ltd. of Nepal and EPS movement are shown in table 4.1. Closing MPS is taken into account for the purpose of calculating realized return for the years. Total dividend includes cash as well as stock (Bonus) dividend.

Table 4.7
MPS, EPS and Dividend Data of Everest Bank Limited

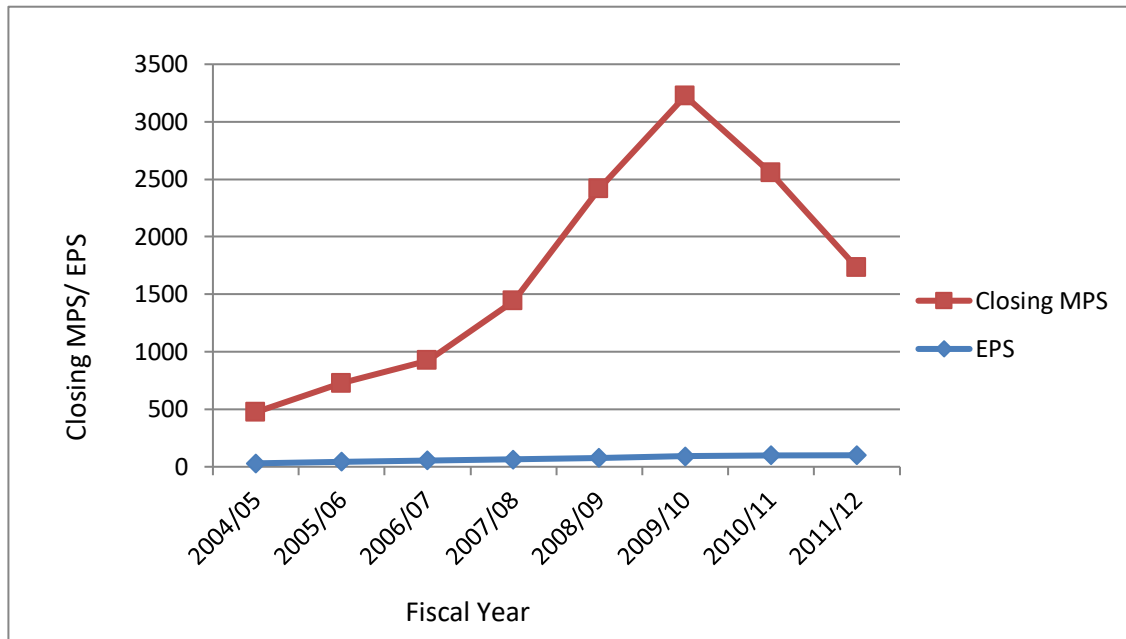
Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend in %	Total Dividend	EPS
2004/05	445	20	-	20	29.9
2005/06	680	20	-	20	45.58
2006/07	870	-	20	275.8	54.22
2007/08	1379	25	-	25	62.78
2008/09	2340	10	20	636.4	78.42
2009/10	3132	20	10	265.5	91.82
2010/11	2455	30	-	30	99.99
2011/12	1630	30		30	100.16

Source: Annual Report of Everest Bank Ltd.

*Let next year MPS is Rs. 109

Figure 4.4

Closing EPS and MPS trend of EBL



4.1.4.3 Realized Return (R), Expected Return E(R), Standard Deviation (σ) and Coefficient of Variation (C.V.) of EBL

Return on security consists of the dividend yield and capital gain yield. On the based in Table 4.7 by using closing MPS and Total dividend amount following calculations are made.

Table 4.8
Realized Return (R), Expected Return E(R), Standard Deviation (σ) and Coefficient of Variation (C.V.) of EBL

Fiscal Year	Closing MPS	Dividend	$R_E = [D_t + (P_t - P_{t-1})] / P_{t-1}$	$R_E - \bar{R}_E$	$(R_E - \bar{R}_E)^2$
2003/05	445	20	-	-	-
2004/06	680	20	0.5730	0.0271	0.0007
2005/07	870	275.8	0.685	0.1391	0.0193
2006/08	1379	25	0.6138	0.0679	0.0046
2007/09	2340	636.4	0.1584	0.6125	0.3752
2008/10	3132	265.5	0.4519	-0.094	0.0088
2009/11	2455	30	-0.2066	-0.7525	0.5662
2010/12	1630	30	-0.3238	-0.6026	0.3631
			$\sum R_E =$ 1.9517		$\sum (R_E - \bar{R}_E)^2$

					= 1.3379
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We have,

$$\begin{aligned} \text{Expected Return (R}_E\text{)} &= \frac{\sum R}{n} \\ &= \frac{1.9517}{7} \\ &= 0.2788 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation (}\sigma_E\text{)} &= \frac{\sqrt{\sum (R_H - \bar{R}_H)^2}}{n-1} \\ &= \frac{\sqrt{1.3379}}{6} \\ &= 0.4722 \end{aligned}$$

$$\text{Variance (}\sigma_E^2\text{)} = 0.4722^2 = 0.2230$$

$$\text{Coefficient of Variation (C.V.}_E\text{)} = \frac{\sigma_E}{R_E} = \frac{0.4722}{0.2885} = 1.6367$$

4.1.5 Nepal SBI Bank Limited (SBI)

4.1.5.1 Introduction

Nepal SBI Bank Limited was incorporated in 1993 A.D. and operation of the bank was started on July 1993 as a foreign Joint Venture Bank which is managed by the foreign Partner State Bank of India. Now, State Bank of India holds 55% of equity share under the Joint Venture and technical services agreement assigned between it and Nepalese promoters, Employee Provident Fund of Nepal holds 15% and remaining ownership holds by the general public. Authorized capital, paid up capital, issued capital, par value of shares and number of shares of SBI are as follows:

Authorized Capital: Rs. 2,000,000,000

Issued Capital: Rs. 1,661,602,896

Paid up Capital: Rs. 1,224,338,976

Par value of share: Rs. 100

No. of shares: 12,243,389

4.1.5.2 Data Analysis

Market price and dividend records of common stock of Nepal SBI Bank Ltd. of Nepal and EPS movement are shown in table 4.1. Closing MPS is taken into account for the

purpose of calculating realized return for the years. Total dividend includes cash as well as stock (Bonus) dividend.

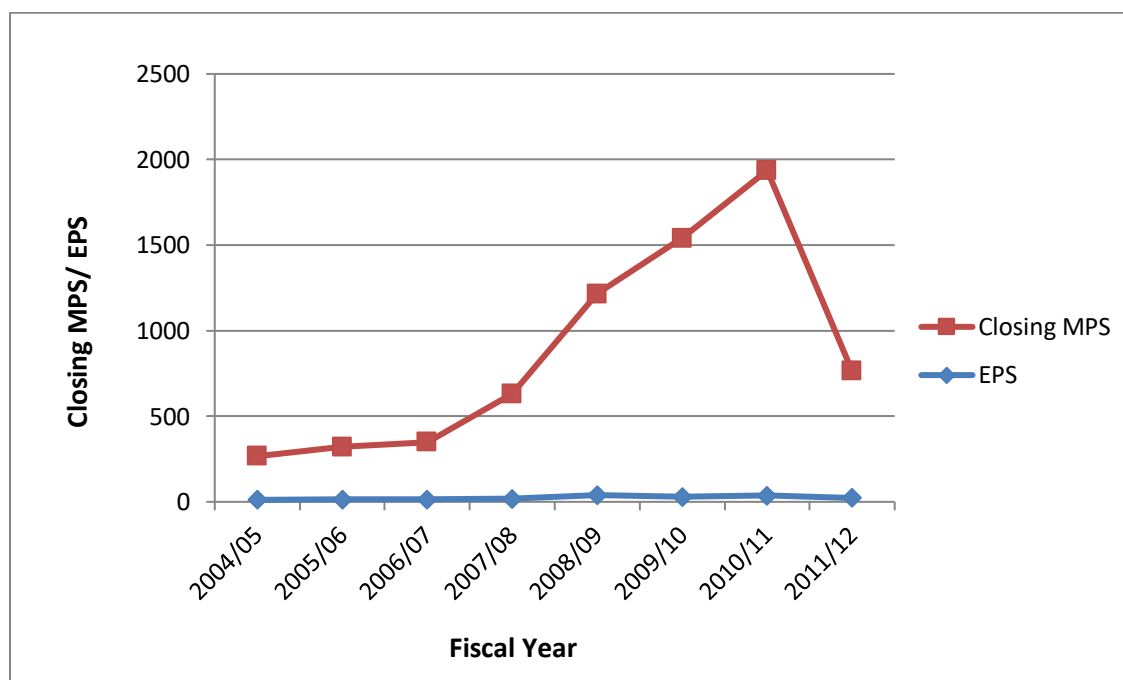
Table 4.9
MPS, EPS and Dividend Data of Nepal SBI Bank Limited

Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend in %	Total Dividend	EPS
2004/05	255	8	-	8	11.47
2005/06	307	-	-	-	14.26
2006/07	335	-	-	-	13.29
2007/08	612	5	-	5	18.27
2008/09	1176	12.59	35	541.44	39.35
2009/10	1511	-	-	-	28.33
2010/11	1900	2.11	40	296.4	36.18
2011/12	741	5.02	12.56	75.98*	23.69

Source: Annual Report of Nepal SBI Bank Ltd.

Let next year's MPS is 565*

Figure 4.5
Closing EPS and MPS Trend of SBI



4.1.5.3 Realized Return (R), Expected Return E(R), Standard Deviation (σ) and Coefficient of Variation (C.V.) of SBI Bank

Return on security consists of the dividend yield and capital gain yield. On the based in Table 4.9 by using closing MPS and Total dividend amount following calculations are made.

Table 4.10
Realized Return (R), Expected Return E(R), Standard Deviation (σ) and
Coefficient of Variation (C.V.) of SBI Bank

Fiscal Year	Closing MPS	Dividend	$R_{SBI} = [D_t + (P_t - P_{t-1})] / P_{t-1}$	$R_{SBI} - \bar{R}_{SBI}$	$(R_{SBI} - \bar{R}_{SBI})^2$
2004/05	255	8	-	-	-
2005/06	307	-	0.2039	-0.4654	0.2166
2006/07	335	-	0.0912	-0.5781	0.3342
2007/08	612	5	0.8418	0.1725	0.0298
2008/09	1176	541.44	1.8046	1.1353	1.2889
2009/10	1511	-	0.2860	-0.1833	0.1969
2010/11	1900	296.4	0.7883	0.119	0.0148
2011/12	741	75.98	-0.5700	-1.0623	1.1285
			$\sum R_{SBI} = 3.4458$		$\sum (R_{SBI} - \bar{R}_{SBI})^2 = 3.2097$

We have,

$$\begin{aligned} \text{Expected Return } (R_{SBI}) &= \frac{\sum R}{n} \\ &= \frac{3.4458}{7} \\ &= 0.4923 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\sigma_{SBI}) &= \frac{\sqrt{\sum (R_H - \bar{R}_H)^2}}{n-1} \\ &= \frac{\sqrt{3.2097}}{6} \\ &= 0.7314 \end{aligned}$$

$$\text{Variance } (\sigma_{SBI}^2) = 0.7314^2 = 0.5350$$

$$\text{Coefficient of Variation (C.V.)}_{SBI} = \frac{\sigma_{SBI}}{R_{SBI}} = \frac{0.7314}{0.4923} = 1.4857$$

4.2 Inter Firm Comparison

4.2.1 On the Basis of Risk and Return

Table 4.11
On the Basis of Risk and Return

Banks	Expected Return	Variance	Standard Deviation	Coefficient of Variation	Remarks
NABIL	0.7715	1.7082	1.3070	1.6941	Highest in terms of risk & return.
SCBNL	0.5247	0.3228	0.5682	1.4829	Medium std. deviation, medium return,
HBL	0.2753	0.1493	0.3864	1.4036	Lowest in terms of risk & return. best in terms of C.V
EBL	0.2788	0.223	0.4722	1.6367	Medium std. deviation, medium return.
SBI	0.4923	0.535	0.7314	1.4857	Medium std. deviation, medium return.

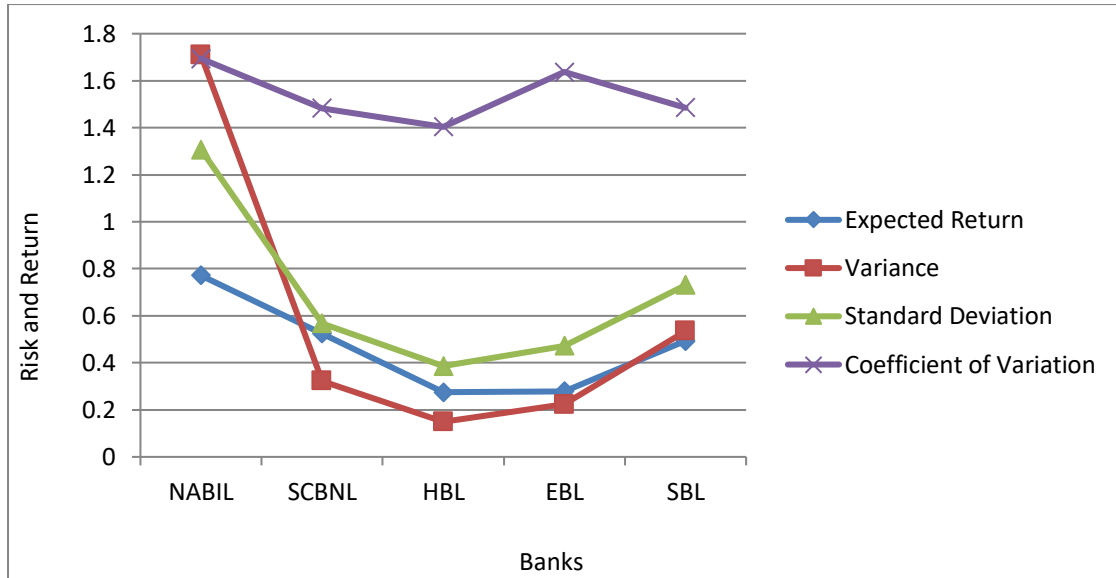
From the above table, It has been shown that NABIL enjoy greater return than other banks but at the same time HBL has lower return. Similarly risk in NABIL is also more than other whereas lower risk is in HBL. This evidence proves that where there is high risk there is high gain & vice versa.

If we consider coefficient of variation (C.V.), that risk on per unit of return of NABIL is also more than other i.e. 1.6941. It means investor of NABIL Bank must bear 1.6941 risk to get a unit of return. Where as the C.V. of HBL is lowest. Coefficient of variation (C. V.) is the most appropriate basis to take investment decision. Rational investor should invest on common stock of HBL because it has lowest risk on per unit of return. Besides this the investment decision also depends upon personal preferences.

In conclusion, for risk taker investor common stock of NABIL is appropriate. For risk averter investor common stock of HBL is appropriate.

To make the comparison easily understandable figure is given below:

Figure 4.6
On the Basis of Risk and Return



4.2.2 On the Basis of Market Capitalization Market Capitalization of Listed 5 Joint Venture Banks

Based on the market capitalization at mid July 2012, size of each bank is presented in table 4.12. The market capitalization of 5 joint venture banks at the end of the fiscal year 2011/12(2068/69) is presented here.

Table 4.12

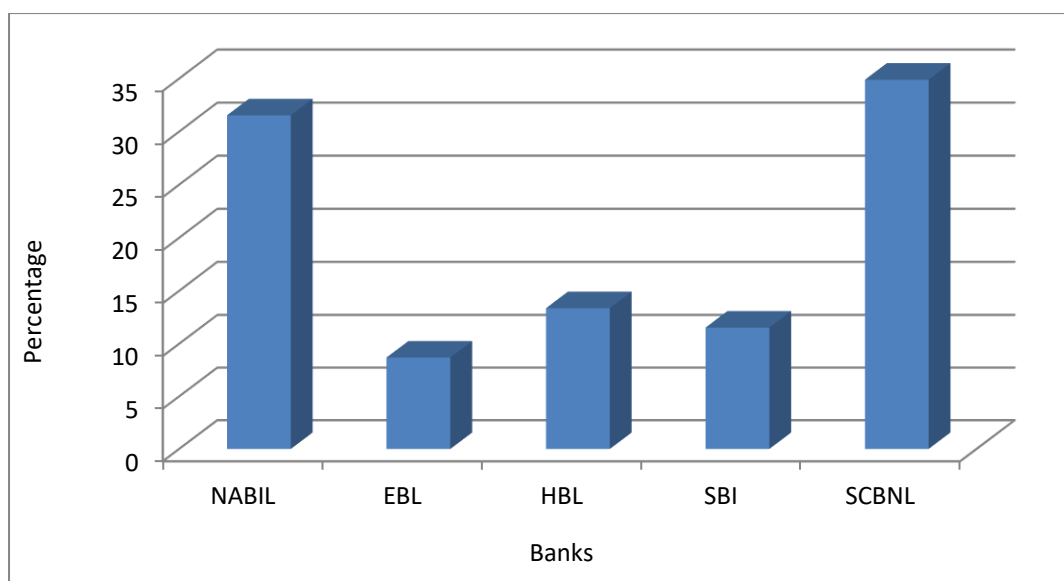
Market Capitalization of Listed 5 JV Bank

Name of the Bank	Market Cap. (in Million)	Weight (in %)
NABIL	33,675.38	31.53
EBL	9,279.90	8.69
HBL	14,270.26	13.36
SBI	12,308.26	11.53
SCBNL	37,254.92	34.89
Total	106,788.72	100

Source: SEBON, Annual Report 20011/12

Figure 4.7

Market Capitalization of Listed 5 JV Bank



From the above table and diagram, it has become clear on the basis of market capitalization SCBNL has the highest mkt. capitalization i.e. 34.89% and the lowest is 8.69% of EBL among 5 joint venture bank .

4.3 Inter Industry Comparison

The main objective of the study is to analyze the portfolio performance of banking sector of Nepal moreover of 5 joint venture banks of Nepal as my research topic. However, effort has been doing here to show the financial outcome of various industries that contributes their effort in Nepalese economy. Banking sector is not only the route of economic development of any country but also various means are contributing their own effort.

4.3.1 On the Basis of Market Capitalization of Different Sector

Table 4.13

Market Capitalization of Different Sector in 2011/12

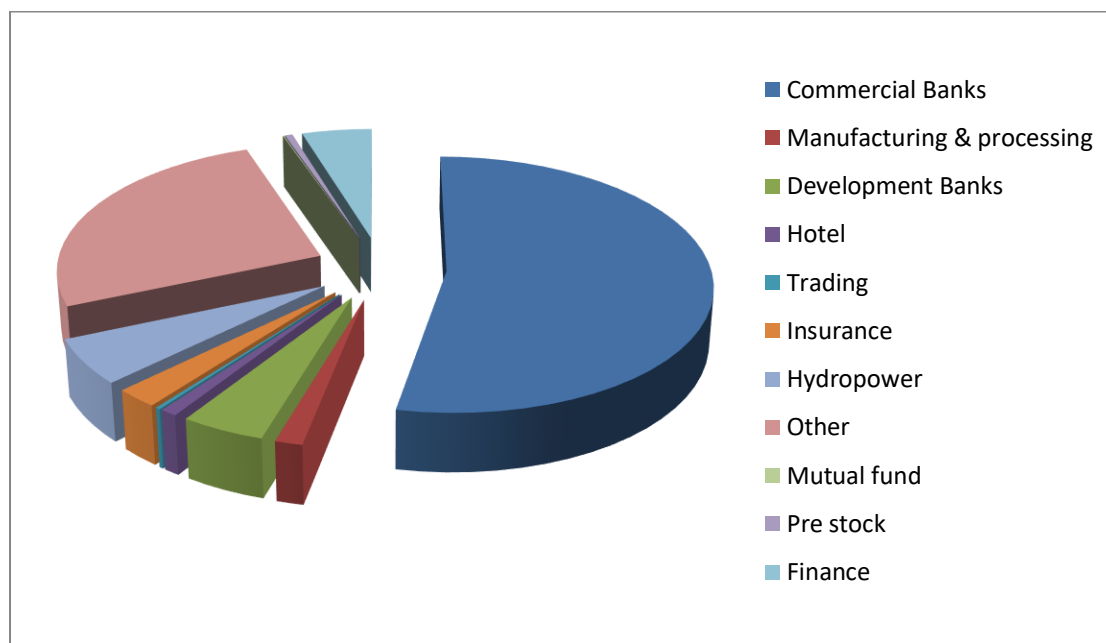
S.N.	Sector	Mkt. Capitalization (in million)	Percentage
1.	Commercial Banks	192611.17	53.16
2.	Manufacturing & processing	5424.58	1.5
3.	Development Banks	16648.39	4.6
4.	Hotel	3346.41	0.93
5.	Trading	980.70	0.26
6.	Insurance	8640.23	2.38
7.	Hydropower	20769.65	5.73
8.	Other	94369.16	26.05
9.	Mutual fund	260	0.07

10.	Pre stock	1906	0.53
11.	Finance	17342.23	4.79
	Total	362,298.5	100

Source: SEBON, Annual Report 2011/12

Figure 4.8

Market Capitalization of Different Sector in 2011/12



From the above table and diagram, it has become clear that major portion i.e. 53.16% of the total market capitalization occupies by banking industry. So that we can say that Nepalese share market is largely depend upon the banking industry and banking sector plays a vital role in national economy due to its highest value. However remaining others are also contributing their effort in our national economy from their place.

4.3.2 On the Basis of Sector wise NEPSE index of Different Sector

a) Sector wise NEPSE index during the fiscal year 2011/12 is shown in the following table

Table 4.14

Sector wise NEPSE Index During the Fiscal Year 2011/12

Sector	Nepse Index
Commercial Bank	477.33
Manufacturing	427.89
Hotel	400.26
Hydro Power	881.00

Trading	282.08
Insuranc	548.52
Finance	397.38
Development Bank	478.53
Other	540.48
Nepse Index	477.73

b) Sector wise NEPSE Index of Different Sector During the year 2004/05 to 2011/12 at a Glance

Table 4.15

Sector wise NEPSE Index of Different Sector During the Year 2004/05

Fiscal Year	Commercial Bank	Finance	Hotel	Mfg.	Trading	Other
2004/05	199.90	208.14	196.68	250.13	94.56	48.56
2005/06	231.97	195.99	184.41	255.58	95.01	142.61
2006/07	304.64	228.39	178	276.50	123.20	347.65
2007/08	437.49	261.37	180.77	301.11	148.11	410.00
2008/09	789.21	471.82	251.47	348.63	155.37	818.12
2009/10	985.70	1152.70	370.90	423.70	204.10	768.30
2010/11	780.87	697.61	367.42	434.32	295.83	738.30
2011/12	477.33	397.38	400.26	427.89	282.08	540.48

c) Table Showing Expected Return, Standard Deviation, Variance and Coefficient of Variation of Different Sector

Table 4.16

Expected Return, Standard Deviation, Variance and Coefficient of Variation of Different Sector

Sector	Expected Return	Variance	Standard Deviation	Coefficient of Variation
Banking	0.2925	0.1105	0.3324	1.1363
Finance	0.3508	0.4400	0.6633	1.8908
Hotel	0.1292	0.1825	0.4272	3.3065
Manufacturing	0.0985	0.0075	0.0869	0.8819
Trading Company	0.2187	0.02830	0.16825	0.7691
Other Industry	0.7400	0.7064	0.8405	1.1385

4.4 Comparison with Market

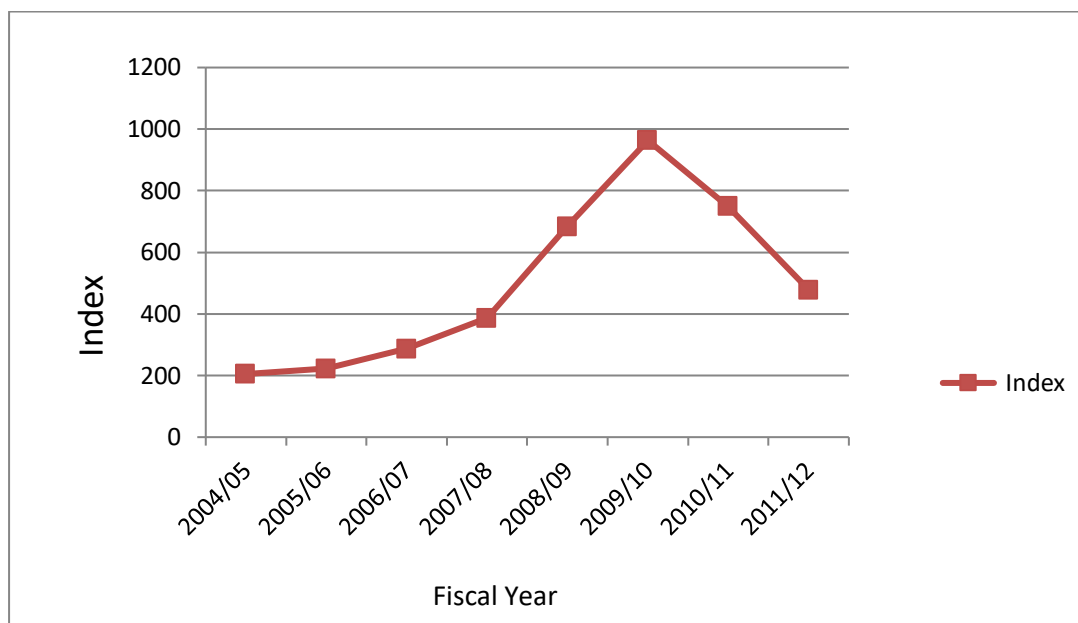
There is only one stock market exit in Nepal namely Nepal stock exchange limited (NEPSE). Overall market movement is represented by the market index i.e. NEPSE index. In this section risk and return of each industry is compared with market risk and return.

Table 4.17
Comparison with Market

Fiscal Year	Overall NEPSE Index
2004/05	204.86
2005/06	222.04
2006/07	286.67
2007/08	386.83
2008/09	683.95
2009/10	963.4
2010/11	749.1
2011/12	477.73

Source: SEBON, Annual Report 20011/12

Figure 4.9
Overall NEPSE Index



4.4.1 On the Basis of Market Risk and Return

Market return, its standard deviation, variance and co-efficient of variation is shown.

Table 4.18
Calculation of Expected Return, Standard Deviation,
Variance and C.V. of Market

Fiscal Year	NEPSE index	$R_m = (NI_t - NI_{t-1}) / NI_{t-1}$	$\bar{R}_m - R_m$	$(\bar{R}_m - R_m)^2$
2004/05	204.86	-	-	-
2005/06	222.04	0.839	-0.196	0.0384
2006/07	286.67	0.2911	0.0112	0.0001
2007/08	386.83	0.3499	0.0695	0.0048
2008/09	683.95	0.7681	0.4882	0.2383
2009/10	963.40	0.4086	0.1287	0.01656

2010/11	749.10	-0.222	-0.5019	0.2519
2011/12	477.73	-0.3622	-0.6421	0.4123
		$\sum R_m = 2.0725$		$\sum (R_m - \bar{R}_m)^2 = 0.9623$
	Total			

We have,

$$\begin{aligned} \text{Expected Return } (R_m) &= \frac{\sum R_m}{n} \\ &= \frac{2.0725}{7} \\ &= 0.2961 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\sigma_m) &= \frac{\sqrt{\sum (R_H - \bar{R}_H)^2}}{n-1} \\ &= \frac{\sqrt{0.9623}}{6} = 0.4005 \end{aligned}$$

$$\text{Variance } (\sigma_m^2) = 0.4005^2 = 0.1604$$

$$\text{Coefficient of Variation } (C.V._m) = \frac{\sigma_m}{R_m} = \frac{0.4005}{0.2961} = 1.3526$$

4.4.2 On the Basis of Market Sensitivity of Common Stock of 5 Joint Venture Banks

Market sensitivity is explained by its beta coefficient. The beta is known as systematic risk which can not be eliminated through the means of diversification as mentioned in chapter II. Beta of market is always equals to 1. The beta of common stock more than one is 'aggressive'. And the beta of common stock less than one is called 'defensive'. Especially aggressive denotes more risky and highly returnable and defensive denotes less risky and less returnable.

Calculation of Beta of market

$$B_j = \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2} = \frac{\sigma_m \sigma_{j m} \rho_{j m}}{\sigma_m^2} = \frac{\sigma_j \rho_{j m}}{\sigma_m}$$

Where,

$\rho_{j m}$ = correlation coefficient between returns of market and stock j.

$$\beta_m = \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2} = \frac{\sigma_m \sigma_m \rho_{mm}}{\sigma_m^2} = \rho_{mm} = 1.$$

Hence, Beta coefficient of market is always equals to 1.

Table 4.19
Beta Coefficient of Different Banks

Names of Banks	Beta Coefficient	Remarks
NABIL	3.2927	Aggressive
EBL	1.21	Aggressive
HBL	0.71	Most defensive
SBI	0.97821	defensive
SCBNL	1.2645	Aggressive

The beta of common stock of NABIL is most aggressive because the beta coefficient of this is highest than the other i.e. 3.2927 which means that if market return is increased by 1% , then NABIL stock return will rise by 3.2927. The beta coefficient of EBL & SCBNL are also greater, thus their common stocks are also known as aggressive. But the beta coefficient of HBL is most defensive and SBI is defensive.

4.4.3 On the basis of Price Evaluation of Common Stock of each Bank

Comparison of required rate of return and expected rate of return gives the result whether the common stock is under priced or overpriced. Generally there are three conditions of price evaluations that are as follows.

When expected rate of return is greater than the required rate of return, in that case the price of stock will be underpriced.

When expected rate of return is lower than the required rate of return, in that case the price of stock will be overpriced.

When expected rate of return is equal to the required rate of return, in that case the price of stock will be correctly priced.

For the price evaluation, the calculation of required rate of return is necessary and it can be calculated by using the following formula.

$$\text{Required rate of return (RRR)} = K_{rf} + (R_m - K_{rf}) \cdot \beta_i$$

In the above equation, the risk free rate of return is needed to determine required rate of return. The discount rate of Treasury bill (T-bill) issued by the Nepal Rastra Bank is taken as risk free rate of return (K_{rf}) in Nepal. NRB issue two type of T-bill i.e.

91days and 364days but according to the suggestion of T-bill section of NRB it is better to take 364days weighted average discount rate as risk free rate. T-bill rate will be differs in various issue but in this study I have taken 8% as K_{rf} .

Table 4.20

Equilibrium Return, Expected Return & Price Evaluation of JVBs

Name of Banks	Beta	RRR = $K_{rf} + (R_m - K_{rf}) \cdot \beta_i$	Expected Return(R_i)	Price Evaluation
NABIL	3.2927	$=0.08 + (0.2961 - 0.08)3.2927 = 0.7382$	0.7715	Under priced
HBL	0.71	0.1219	0.2753	Under priced
SBI	0.9782	0.3155	0.4923	Under priced
EBL	1.21	0.1219	0.2788	Under priced
SCBNL	1.2645	0.3328	0.5247	Under priced

Where,

$K_{rf} = 0.08$ i.e. 8%

–

$R_m = 0.2799$

–

$R_i =$ Expected rate of return of stock

From the above table it is observed that the pricing of common stock of above 5 joint venture banks are under priced. It means the investor can gain from buying the under priced stock.

4.5 Portfolio Analysis

A portfolio is the combination of the different investment assets. It is a process of investing in two or more than two assets. Portfolio would be able to reduce unsystematic risk or undiversified risk. Thus investors want to invest in portfolio assets because of diversification of risk. An investor wants to spread the risk by investing their fund in different assets with hoping to get optimum return or benefit by bearing the low level of risk.

The concept of portfolio theory was developed by prof. Harry M. Markowitz. He explained that the risk could be reduced without losing considerable return by constructing portfolio. The investor can diversify the unsystematic risk up to zero level. The main objective of portfolio is reducing unsystematic risk from which the investor can get optimum return in certain degree of risk by constructing efficient portfolio. For making portfolio investment, the total available fund is divided into proper amount or proportion for different securities that means in this study investment common stock of different 5 joint venture banks. The total weight of a portfolio is equal to 100%. In this covariance of the returns of the given two stocks i.e. the optimal weight is calculated to minimize the risk and to find risk and returns of portfolio assets. Details of the calculations are shown in appendix x to x respectively.

Table 4.21
Portfolio Risk and Returns, Covariance, and Optimal
Weight Between Joint Venture banks

S.N.	Portfolio	Weight	Covariance	Portfolio Return	Portfolio Risk
1.	NABIL& SBI	$W_N = 0.355, W_{SBI} = 0.645$	0.69586	0.7601	0.844
2.	NABIL&HBL	$W_N = 1.2508, W_H = -0.2508$	0.3605	1.0578	0.7331
3.	NABIL & EBL	$W_N = 1.2712, W_E = -0.2712$	0.4748	1.0280	1.6042
4.	NABIL & SCBNL	$W_N = 1.3490, W_S = -0.3490$	0.5623	1.0457	1.6586
5.	SBI & HBL	$W_{SBI} = 1.3072, W_H = -0.3072$	0.1377	0.7533	0.7684
6.	SBI & EBL	$W_{SBI} = 0.7802, W_E = 0.2198$	0.11212	0.6422	0.5725
7.	SBI & SCBNL	$W_{SBI} = 1.1863, W_S = -0.1863$	0.2674	0.67	0.6809
8.	HBL & EBL	$W_H = -0.9734, W_E = 1.9734$	0.09648	0.6920	0.6869
9.	HBL & SCBNL	$W_H = 0.6578, W_S = .3422$	0.1196	0.4881	0.339
10.	EBL & SCBNL	$W_E = 0.3324, E_S = 0.3376$	0.1449	0.6257	0.4420

Risk can be diversified by using diversification method or forming an optimal portfolio. Risk diversification means divide risk in various parts as keeping eggs in different baskets. As mentioned in above table 4.16. Risk is minimized by making investment diversification. Before diversification the risk of NABIL was 1.3365 and

SBI was 0.6374 and average risk was 0.98695 but after diversification, the risk of portfolio is decreased by 0.14295 which is considerable decreasing in risk.

Diversification not only reduces risk but also increase return. Portfolio return is simply the average of weight of high return individual's security returns. Hence average of high returns is also high. According to table 4.16 portfolio return between NABIL & HBL is very high i.e. 1.0578. And lowest portfolio return is 0.4881 which is portfolio return between HBL SCBNL.

Expected return of NABIL is only 0.6693 and HBL is only 0.3958 but if we make portfolio between NABIL & HBL we get 1.0578 return, which we cannot recover from NABIL & HBL in aggregate. We get only $(0.6693+0.3958)/2 = 0.5326$ in aggregate.

In case of weight on the way of doing portfolio there is seem some borrowing portion. Portfolio weight between NABIL & HBL is 1.2508 and -0.2508 respectively. The meaning is that borrowing from HBL and investing in NABIL 25.08% is found to be profitable to investor. Likewise investor should borrow 27.12% from EBL and investing in NABIL, 34.90% from SCBNL and investing in NABIL, 30.72% from HBL and investing in SBI, 18.63% from SCBNL and investing in SBI and 97.34% from HBL and investing in EBL while creating portfolio to get concerned portfolio return while creating portfolio between mentioned banks.

4.6 Correlation Between Banks

Correlation between the returns of the two securities play vital role to minimize risk. Some risk can be reduced when stocks will be positively correlated not perfectly. Correlation between each bank is presented below in table 4.17. Details of calculations are shown in appendix-

Table 4.22

Correlation Coefficient between Each Bank

Banks	NABIL	HBL	SBI	EBL	SCBNL
NABIL	1	0.9877	0.8168	0.8045	0.8489
HBL	0.9877	1	0.7910	0.8000	0.8836
SBI	0.8168	0.7910	1	0.3983	0.8465
EBL	0.8089	0.8000	0.3983	1	0.6621
SCBNL	0.8489	0.8836	0.8465	0.6621	1

According to table shown in above NABIL & HBL is highly positively correlated i.e. 0.9887 and the lowest correlation coefficient is 0.3983 between SBI & EBL. However there is neither negative correlation nor perfect correlation. The meaning is that each bank is positively correlated from 0.3983 to 0.9877.

4.7 Calculation of Systematic Risk and Unsystematic Risk of Individual Bank

Here only table is presented. Details of this you can see in appendix.....

Table 4.23

Systematic and Unsystematic Risk of Individual Bank

Name of the Bank	Beta	Variance	Systematic risk S. R.= $(\beta_i^2 \times \sigma_m^2)/\sigma_i^2$	Unsystematic risk = 1 – S.R.
NABIL	3.2927	1.7082	0.6677	0.3323
HBL	0.71	0.1493	0.7433	0.2567
SBI	0.9782	0.535	0.2793	0.7407
EBL	1.21	0.223	0.8259	0.1741
SCBNL	1.2645	0.3228	0.7161	0.2839

Market variance (σ_m^2) = 0.1100

4.8 Measurement of Portfolio Performance

Risk and return both have to consider when taking into account a portfolio performance. For the simplicity of the study, here the Sharpe portfolio performance is considered.

The Sharpe portfolio performance is based on the capital market line (CML) and total risk, which makes it more suitable for evaluating portfolios rather than individual

assets. Ranking of each portfolio using the Sharpe measure has been presented in table 4.18. Results and interpretation is shown below and details of calculation can be seen in appendix

Table 4.24

Sharpe's Portfolio Performance Measurements (Sp)

S. No.	Portfolio	Sharpe's Performance (Sp)	Rank
1	NABIL &HBL	1.3338	1 st
2	EBL & SCBNL	1.2346	2 nd
3	HBL & SCBNL	1.204	3 rd
4	SBI & EBL	0.9820	4 th
5	HBL & EBL	0.8909	5 th
6	SBI & HBL	0.8762	6 th
7	SBI & SCBNL	0.8665	7 th
8	NABIL & SBI	0.8058	8 th
9	NABIL & EBL	0.5909	9 th
10	NABIL & SCBNL	0.5822	10 th

The Sharpe's portfolio performance measures the market.

$$S_m = \frac{(R_m - K_{rf})}{\sigma_m} = \frac{(0.2799 - 0.08)}{0.3317} = 0.6027$$

Where, K_{rf} = risk free rate of return =0.08

R_m = Expected return of market =0.2799

σ_m = Standard deviation of market = 0.3317

From the above calculation, portfolio NABIL & HBL has the highest risk premium return per unit of total risk and the portfolio NABIL & SCBNL has the lowest risk premium return per unit of total risk. Even though, every portfolio performs better than the market.

4.9 Major Findings of the Study

In this study, the data has been collected, presented analyzed to fulfill the objectives of this study. From the presentation and analysis of data the following points can be listed out as major findings of the study.

The Expected Returns, Standard Deviation, Coefficient of Variation Beta of Mentioned Banks are found as below:

Table 4.25
The Expected Returns, Standard Deviation, Coefficient of Variation Beta of Mentioned Banks

Banks	\bar{R}_i	S.D.	C.V.	Beta	Systematic Risk	Unsystematic Risk
NABIL	0.7715	1.307	1.6941	3.2927	0.6677	0.3323
HBL	0.2753	0.3864	1.4036	0.71	0.7433	0.2567
SBI	0.4923	0.7314	1.4857	0.9782	0.2593	0.7407
EBL	0.2788	0.4722	1.6367	1.21	0.8259	0.1741
SCBNL	0.5247	0.5682	1.4829	1.2645	0.7161	0.2839

- According to the above table, the expected return of NABIL is highest among five joint venture banks i.e.0.7715 and standard deviation is 1.307 which shows that the risk of investing on common stock of NABIL is 1.307with coefficient of variation is 1.6941. The meaning is that NABIL has best performance among mentioned banks and seems more secure for the investment. HBL shows its expected return only 0.2753 which is lowest one among 5 joint venture banks. It means there is less opportunity of investment on common stock of HBL.
- On the basis of standard deviation NABIL has the highest standard deviation i.e.1.307 and HBL has the lowest s.d. i.e. 0.3864 among 5 JVBs. Thus it indicates that common stock of NABIL is very risky and HBL is less risky for investment.
- On the basis of C.V. HBL has the lowest C.V. i.e. 1.4036 and NABIL has the highest i.e. 1.6941 which indicates that common stock of HBL is best for investment due to less risk but return is also less i.e. 0.2753.
- Considering the beta coefficient of mentioned banks the beta coefficient of NABIL is highest one (3.2927), which is greater than one that indicates the return of NABIL is more volatile than that of market. That means 1% change in market return leads to 3.2937% change in NABIL stock's return. Thus it is most aggressive stock but the stock of HBL is most defensive due to the lowest beta coefficient i.e. 0.71.
- The systematic risk of EBL is highest one among the mentioned JVBs of Nepal i.e. 0.8259 and the lowest is 0.2593of the SBI. In the case of unsystematic risk the SBI has the highest i.e. 0.7407 and lowest is 0.1741of EBL.

- Considering the market capitalization of 5 JVBs, the market capitalization of SCBNL, NABIL, HBL, SBI & EBL are 34.89, 31.53, 13.36, 11.53 & 8.69% respectively in fiscal year 2011/12 mid July. The SCBNL has capitalized greater amount i.e. 37254.92 million. The lowest amount that is capitalized by EBL i.e. 9279.90 million.
- Considering the total market capitalization of various industries in fiscal year 2011/12. Commercial bank, manufacturing & processing, development bank, hotel, trading, insurance, hydropower, other, mutual fund, pre. Stock & finance are 53.16%, 1.5%, 4.60%, 0.92%, 0.27%, 23.85%, 5.73%, 26.05%, 0.071%, 0.526% & 4.787% respectively. Out of total market capitalization of various industries the commercial banks covers most of the share i.e. 53.16% and the mutual fund covers the lowest share i.e. 0.071%.
- Considering the market risk and return the expected rate of return and standard deviation of overall market is 0.2961 and 0.4005 respectively. And the coefficient of variation of the market is 1.3526.
- From the analysis of required rate of return and expected rate of return it has become clear that all JVBs 's common stocks are underpriced.
- While creating the portfolio between two stocks of all sample banks the optimum portfolio of NABIL & HBL gives the maximum expected return i.e. 1.0578. the portfolio of HBL & SCBNL gives the lowest expected return i.e. 0.4881
- Considering the portfolio risk, the portfolio of NABIL & SCBNL has maximum standard deviation i.e. 16586 and portfolio of HBL & SCBNL has the the lowest i.e. 0.339.
- Correlation between NABIL & HBL is 0.9877 which is highest and the correlation of SBI & EBL is 0.3983 that is lowest correlation. However all banks are positively correlated but neither they are perfectly correlated nor negatively correlated.
- Considering the Sharpe's performance measure the portfolio of NABIL& HBL has the best performance because the highest risk premium return per unit of total risk i.e. 1.3338 and the portfolio of NABIL & SCBNL is worst due to the lowest risk premium return per unit i.e. 0.5822

CHAPTER – V

SUMMARY, CONCLUSION AND RECOMANDATION

5.1 Summary

National economic development is the backbone of the any country, which affects the development of every sector of any country. Without economic development, the country has fearsome of loosing its existence and identity. Thus, the primary need of the country is to boost up its economic development to promote the welfare of the people and country as well as but to achieve this objective, there should be proper investment in productive activities to enhance the country's economic development. In this regard, commercial banks occupy an important place in the framework of every economy because they generate the sources of capital and its utilization in the proper sector through the banking activities. In the context of Nepal, among the commercial banks, the Joint Venture Banks are playing the leading role in the banking sector. Their role is remarkable in capital formation, foreign capital flows, and transfer of advance technology, enhancement in management skills and access in global market. Thus, simply, it is known that banking sector contributes its effort for the development of the nation. Therefore, in this study, it is trying to flash the contribution of commercial banks in Nepalese economy by taking the Joint Venture Banks as sample. Common stock is the most risky security because the common stock neither ensures an annual return nor ensures for the return of price of stock. Therefore, the investment in the common stock is very sensitive on the ground of risk. Even though, in the context of Nepal, the participation of investors and the stock trading is in increasing trend. Among them, the share of commercial banks is heavily traded in the stock market and the majority is of Joint Venture Banks but the main problem is that they can not perfectly analyze the risk and return of the common stock and the stock market. Without the proper information and sound knowledge, individual investors are suffering from losses. It means they are bearing the high risk on their investment.

This study is concerned with risk, return and portfolio analysis because the central focus of finance is tradeoff between risk and return. Generally, investors are risk averter. None of investor would like to invest in the risky asset unless he/she is assured for adequate compensation for the acceptance of risk. So the primary problem in

investment is to identify such security, which has low risk and high return. Thus, risk plays vital role in the analysis of common stock investment and to reach investment decision. However return cannot increase subsequently but the risk can be reduced by diversification of funds in different stocks making portfolio of different stocks. A rational investor always seeks to find the optimal portfolio with good performance so that this will reduce risk in his/her investment. It means appropriate portfolio should be constructed instead of investing in a single asset because it would be able to reduce unsystematic risk.

The main objective of this research work is to analyze the portfolio risk and return and the portfolio performance evaluation on common stock investment of 5 Joint Venture Banks which are listed in NEPSE where six years data are presented as required. Thus, this research work covers population study considering only Joint Venture Banks those are operating in Nepal among 31 commercial banks. During this research work, a brief review of literature has been conducted. Mathematical and financial tools and technique are used in data analysis process. In this research, the data are separately presented in Tables, graphs and diagram to make the result more clear. Both quantitative and qualitative analysis has performed by using statistical tools as well as personal judgments to derive the conclusion. Secondary data has been gathered from various sources such as website of concern Joint Venture Banks, articles and annual reports of related banks, annual report of SEBO/N, NEPSE website and other related fields.

5.2 Conclusion

In the Nepalese context, there is seen very fluctuation in the return of common stock investment, which is expected from the investor. Thus, due to such inequality, stock market is known as a gambling. Many people have unrealistically optimistic or pessimistic expectations about the stock market investment that means they are taking fear of unknown. Therefore, the conclusion of this research work may be important information for those who are directly or indirectly concerned with the common stock investment.

From the analysis of various financial indicators and statistical tools of all the sample banks, the following conclusion can be outline.

The return is defined as income received on common stock investment, which is usually expressed in percentage. The expected rate of return on common stock of NABIL is maximum (i.e. 77.15%), which is the highest one among the 5 Joint Venture Banks and the lowest one is 27.53% of HBL during this research work covered period. Similarly, risk is associated with return and it is variability of returns, which is measured in terms of S.D. The NABIL has the highest S.D. (i.e. 130.7%) and the HBL has the lowest S.D. (i.e. 38.64%). According to S.D. the investor should choose HBL due to less risky but as expected return, the investor should choose NABIL due to the highest one. Thus, to remove this difficulty regarding the choice of individual stock, we can use other relative measure of risk that is C.V. According to the C.V., the HBL is the best investment alternative due to the least C.V. that is 1.4036.

- Beta is systematic risk and market beta is always 1. Beta coefficient of NABIL is the highest (i.e. 3.2927), which is greater than 1. Thus, it indicates that the return of NABIL is more volatile that means every 1 % change in market return leads to 3.2927% change in NABIL stock return. Therefore, stock of NABIL is most aggressive and the stock of HBL is the most defensive stock than other due to the lowest beta coefficient (i.e. 0.71).
- Regarding the market capitalization of 5 Joint Venture Banks, SCBNL is in the highest position with Rs. 37254.92 (i.e. 34.89%) and EBL is the lowest position with Rs. 9279.90 (i.e. 8.69%).
- Considering the total market capitalization of various industries in fiscal year 2011/12, Commercial banks cover most of the shares i.e. 53.16% and the mutual fund covers the lowest share 0.071%. Among the whole sector wise industries, categorized by NEPSE, other industry has the highest expected return i.e. 74% and the lowest one is 9.85% of Manufacturing and Processing. Similarly, the common stock of other industry sector is very risky due to the highest S.D. i.e.84.05% and due to the lowest risk (i.e. 17.89%), manufacturing sector is less risky.
- Considering the market risk and return, expected return of overall market is 29.61% which is the lowest than the expected return of NABIL, SCBNL, & SBI. The risk is also found in minimum portion i.e. 40.05%, which represent the lower sensitivity on investment in the market. But HBL has least risk i.e. 38.64%.

- One of the main significant of beta is Capital Asset Pricing Model (CAPM), which describes the relationship between risk and equilibrium return. In this model, risk free rate plus a premium based on systematic risk of security is equilibrium rate of return of the stock. Comparing the expected rate of return and equilibrium rate of return there is found common stock of NABIL, SCBNL, HBL, EBL and SBI are under priced. So NABIL, SCBNL, HBL, EBL & SBI are having stock with a good investment opportunity because there is chance of increasing of stock value in near future. Thus the investor can purchase the common stock of four under priced bank.
- Using the Markowitz simple diversification, risk could be diversified on investing in two or more asset without losing considerable return. According to this research work, investing on NABIL & SBI, unsystematic risk could be reduced to 84.40%. Before diversification, risk of these particular banks was 130.7% and 56.82% respectively. Their expected return of portfolio is 76.01%. Similarly, after creating the portfolio between HBL & SCBNL, the risk can be minimized to 33.90% but before diversification, risk of these particular banks was 27.31% and 49.56% respectively. In this way, with doing the diversification, every bank could reduce their risk for the same or more return but after diversification risk can be maximized also instead of minimization. While creating the portfolio between two assets among the sample banks, the portfolio between NABIL & HBL gives the highest expected return, which is 105.78% where as the portfolio between HBL & SCBNL gives the lowest expected return i.e. 48.81%. Similarly, considering the portfolio risk, the portfolio of NABIL and SCBNL has the highest risk i.e. 165.86% and the portfolio of HBL and SCBNL has the lowest risk i.e. 33.90%.
- Correlation co-efficient between NABIL & HBL is the highest one that is 0.9877, which is about near of perfectly positively correlation (1) and correlation co-efficient between SBI & EBL is the lowest that is only 0.3983, which means common stock of such banks are less correlated.
- Portfolio performance evaluation measures the better financial position of created portfolio between mentioned sample banks by making cameraperson among them.

- Considering the Sharp's performance measure, the portfolio of NABIL & HBL has the best performance because of the highest risk premium return per unit of total risk that is 1.3338. The portfolio of NABIL & SCBNL is worst due to the less risk premium return.

5.3 Recommendation

The finding of this study may provide significant information for those who are concerned directly or indirectly with the stock market activities. Thus, on the basis of the analysis and findings of this study, the following recommendations are presented separately for investors and institution to overcome the weakness and inefficiently and to improve present stock performance.

Risk and return play vital role on common stock investment of banking sector. Therefore, it is suggested to analyze risk and return with sincerely before investing in this sector. According to the analysis of individual common stock of Joint Venture Bank, Investors should invest their money in common stock of HBL due to the lowest C.V. (i.e. 1.4036). But if investor wants to bear more risk to gain maximum return he or she should invest his or her fund in the stock of NABIL.

- Analysis of the market sensitivity of common stock guides in investing on stock market. It is better to invest on such common stock, which has less beta i.e. defensive stock for that investor who does not eager to take high risk but higher return can't obtain in such investment. Thus, investor should buy the under priced stocks when market is rising and sell the over-priced securities when market performance is falling. Similarly, the investors should hold that securities which are performing better than the market. This study recommends to purchase the common stock of all sample banks due to the under priced.
- Investors must concern with the systematic risk that is measured by given stock's beta. The systematic risk is only the risk, which is priced at market. According to the study, the stock of NABIL has the higher systematic risk i.e. 329.27% and HBL has the lowest systematic risk i.e. 71%. Although, there is chance of more return than expected and there is also a chance of heavy loss because stock market investment is risky job. Thus, investor must be well aware of this fact and must be able to visualize and analyze about the whole things. To beat the stock

market, proper analysis of individual security, industry and overall market is always essential. Similarly, general knowledge about the economic, political and technological trend is advantageous.

- Among mentioned industries in this research work, the co-efficient of variation of Hotel has highest and CV of Trading has the lowest. Thus, investing in trading is the best.
- Investors need to diversify their fund to reduce the risk. Proper construction of portfolio will reduce considerable potential loss, which can be defined in term of the risk but portfolio construction is dynamic and difficult job. Thus, investor should be selected the stocks that have higher return and negative correlation or near to zero correlation between different companies and sector. The portfolio revision is also necessary at certain interval time to get best return at lower risk. According to the study, the portfolio between NABIL & HBL is recommended to construction due to higher return. If investor wants to bear less risk then they can select HBL & SCBNL. But remember that there is least return as well.
- Before making an investment decision in stock, it is recommended to visit and discuss with investment companies, with individual expert and researchers. Investor should make their investment decision on the basis of reliable information or financial parameters of the related bank rather than imagination.
- Government should amend the rules and regulations regarding to the stock market in time to time that ensures the protection of an individual investor's right. Such amendment is essential to make the act effectiveness with the pace of time and also need to follow the implementation and supervision of rules and regulation to make sure the objective is achieved.
- The financial institutions and companies should provide the real financial statements. The data provided by NEPSE and the company itself are different in some cases. It creates confusion to potential investors about the actual financial condition of the company. They should publish their annual reports and information timely and accurately, which will help to the investors to take the investment decision on their common stock.
- The peace and the political problem of the country are another burning issue, which affects the economy of the nation adversely. Thus, political stability is must for the economic prosperity and increasing trend of business.

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APPENDICES

APPENDIX I

MPS, EPS and Dividend Data of NABIL

Fiscal year	Closing MPS	Cash Dividend	Stock Dividend in %	Total Dividend	EPS
2004/05	740	50	-	50	84.66
2005/06	1000	65	-	65	92.61
2006/07	1505	70	-	70	105.49
2007/08	2240	85	-	85	129.21
2008/09	5050	100	40	2210	137.08
2009/10	5275	60	40	2019.60	108.31
2010/11	4899	35	50	1227	106.76
2011/12	2384	30	40	*670	78.61

Source: Annual Report of Nabil Bank of Nepal

Let's next year MPS is 1550*

For 2008/09

Total dividend = 100 + 40% of 5275 = 5280

For 2009/10

Total dividend = 60+ 40% of 4899 = 2019.60

For 2010/2011

Total dividend =35+50% of 2384=1192

Closing EPS and MPS Trend of NABIL

Final Year	Closing MPS	Dividend	$R_N = [D_t + (P_t - P_{t-1})] / P_{t-1}$	$\bar{R}_N - R_N$	$(R_N - \bar{R}_N)^2$
2004/05	740	50	-	-	-
2005/06	1000	65	0.4392	-0.4859	0.2361
2006/07	1505	70	0.575	-0.3501	0.1226
2007/08	2240	85	0.545	-0.3802	0.1446
2008/09	5050	5280	3.612	2.6865	7.2173
2009/10	5275	2019.6	0.444	-0.4806	0.231
2010/11	4899	1227	0.1620	-0.9897	0.9795
2011/12	2384	*670	-0.3766	-1.1481	1.3181
			$\sum R_N = 5.4006$		$\sum (R_N - \bar{R}_N)^2 = 10.2492$

We have,

We have,

$$\begin{aligned} \text{Expected Return } (R_N) &= \frac{\sum R}{n} \\ &= \frac{5.4006}{7} \\ &= 0.7715 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\sigma_N) &= \frac{\sqrt{\sum (R_H - \bar{R}_H)^2}}{n-1} \\ &= \frac{\sqrt{10.2492}}{6} \\ &= 1.3070 \end{aligned}$$

$$\text{Variance } (\sigma_N^2) = 1.3070^2 = 1.7082$$

$$\text{Coefficient of Variation (C.V.N)} = \frac{\sigma_N}{R_N} = \frac{1.3070}{0.7715} = 1.6941$$

Appendix II

MPS, EPS and dividend data of Standard Chartered Bank of Nepal

Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend in %	Total Dividend	EPS
2004/05	1640	110	10	284.5	149.30
2005/06	1745	110	-	110	143.55
2006/07	2345	120	-	120	143.14
2007/08	3775	140	10	730	175.84
2008/09	5900	130	50	3545	167.37
2009/10	6830	130	50	3135	131.92
2010/11	6010	70	55	1873.4	109.99
2011/12	3279	85	40	805*	77.65

Source: Annual Report of Standard Chartered Bank of Nepal

*Let next year MPS is Rs.1800

Closing EPS and MPS Trend of Standard chartered Bank of Nepal

Fiscal Year	Closing MPS	Dividend	$R_s = [D_t + (P_t - P_{t-1})] / P_{t-1}$	$\bar{R}_s - R_s$	$(R_s - \bar{R}_s)^2$
2004/05	1640	284.5	-	-	-
2005/06	1745	110	0.1311	-0.5344	0.2856
2006/07	2345	120	0.4126	-0.2529	0.0640
2007/08	3775	730	0.9211	0.2556	0.065
2008/09	5900	3545	1.5020	0.8365	0.6997
2009/10	6830	3135	0.6890	0.0235	0.0006
2010/11	6010	1873.	0.3375	-0.328	0.1076
2011/12	3279	805*	-0.3205	-0.8452	0.7144
			$\sum R_s = 3.6728$		$\sum (R_s - \bar{R}_s)^2 = 1.9369$

We have,

$$\begin{aligned} \text{Expected Return } (R_s) &= \frac{\sum R}{n} \\ &= \frac{3.6728}{7} \\ &= 0.5247 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\sigma_s) &= \frac{\sqrt{\sum (R_H - \bar{R}_H)^2}}{n-1} = \frac{1.9369}{6} \\ &= 0.5682 \end{aligned}$$

$$\text{Variance } (\sigma_s^2) = 0.5682^2 = 0.3228$$

$$\text{Coefficient of Variation (C.V.)} = \frac{\sigma_s}{R_s} = \frac{0.5682}{0.5247} = 1.4829$$

Appendix III

MPS, EPS and Dividend Data of Himalayan Bank Limited

Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend in %	Total Dividend	EPS
2004/05	836	1.32	25	211.32	49.45
2005/06	840	-	20	184	49.05
2006/07	920	11.58	20	231.58	47.91
2007/08	1100	30	5	118	59.24
2008/09	1760	15	25	367	60.66
2009/10	1980	25	20	377	62.74
2010/11	1760	12	31.56	259.52	61.90
2011/12	816	11.84	25	155.59*	31.80

Source: Annual Report of Himalayan Bank Ltd.

*Let next year MPS is Rs.575

Closing EPS and MPS trend of Himalayan Bank Limited

Fiscal Year	Closing MPS	Dividend	$R_H = \frac{[D_t + (P_t - P_{t-1})]}{P_{t-1}}$	\bar{R}_H	$(R_H - \bar{R}_H)^2$
2004/05	836	211.32	-	-	-
2005/06	840	184	0.225	-0.1708	0.0292
2006/07	920	231.58	0.3709	-0.0249	0.0006
2007/08	1100	118	0.3239	-0.0719	0.0052
2008/09	1760	367	0.9336	-0.5378	0.2892
2009/10	1980	377	0.3392	-0.0566	0.0032
2010/11	1760	259.52	0.1822	-0.2136	0.0456
2011/12	816	155.59*	-0.4479	-0.7232	0.5230
$\sum R_H = 1.9269$					$\sum (R_H - \bar{R}_H)^2 = 0.896$

We have,

$$\begin{aligned} \text{Expected Return } (R_H) &= \frac{\sum R}{N} \\ &= \frac{1.9269}{7} \\ &= 0.2753 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\sigma_H) &= \frac{\sqrt{\sum (R_H - \bar{R}_H)^2}}{n-1} \\ &= \frac{0.896}{6} \\ &= 0.3864 \end{aligned}$$

$$\text{Variance } (\sigma_H^2) = 0.3864^2 = 0.1493$$

$$\text{Coefficient of Variation } (C.V._H) = \frac{\sigma_H}{R_H} = \frac{0.3864}{0.2753} = 1.4036$$

Appendix IV

MPS, EPS and Dividend data Of Everest Bank Limited

Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend in %	Total Dividend	EPS
2004/05	445	20	-	20	29.9
2005/06	680	20	-	20	45.58
2006/07	870	-	20	275.8	54.22
2007/08	1379	25	-	25	62.78
2008/09	2340	10	20	636.4	78.42
2009/10	3132	20	10	265.5	91.82
2010/11	2455	30	-	30	99.99
2011/12	1630	30		30	100.16

Source: Annual Report of Everest Bank Ltd.

*Let next year MPS is Rs. 109

Closing EPS and MPS trend of Everest Bank Limited L

Fiscal Year	Closing MPS	Dividend	$R_E = [D_t + (P_t - P_{t-1})] / P_{t-1}$	$R_E - \bar{R}_E$	$(R_E - \bar{R}_E)^2$
2004/05	445	20	-	-	-
2005/06	680	20	0.5730	0.0271	0.0007
2006/07	870	275.8	0.685	0.1391	0.0193
2007/08	1379	25	0.6138	0.0679	0.0046
2008/09	2340	636.4	0.1584	0.6125	0.3752
2009/10	3132	265.5	0.4519	-0.094	0.0088
2010/11	2455	30	-0.2066	-0.7525	0.5662
2011/12	1630	30	-0.3238	-0.6026	0.3631
			$\sum R_E = 1.9517$		$\sum (R_E - \bar{R}_E)^2 = 1.3379$

We have,

$$\begin{aligned} \text{Expected Return } (R_E) &= \frac{\sum R}{n} \\ &= \frac{1.9517}{7} \\ &= 0.2788 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\sigma_E) &= \sqrt{\frac{\sum (R_H - \bar{R}_H)^2}{n-1}} \\ &= \frac{\sqrt{1.3379}}{6} \\ &= 0.4722 \end{aligned}$$

$$\text{Variance } (\sigma_E^2) = 0.4722^2 = 0.2230$$

$$\text{Coefficient of Variation } (C.V._E) = \frac{\sigma_E}{R_E} = \frac{0.4722}{0.2885} = 1.6367$$

Appendix V

MPS, EPS and Dividend Data of Nepal SBI Bank Limited

Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend in %	Total dividend	EPS
2004/05	255	8	-	8	11.47
2005/06	307	-	-	-	14.26
2006/07	335	-	-	-	13.29
2007/08	612	5	-	5	18.27
2008/09	1176	12.59	35	541.44	39.35
2009/10	1511	-	-	-	28.33
2010/11	1900	2.11	40	296.4	36.18
2011/12	741	5.02	12.56	75.98*	23.69

Source: Annual Report of Nepal SBI Bank Ltd.

Let next year's MPS is 565*

Closing EPS and MPS Trend of SBI Bank Limited

Fiscal Year	Closing MPS	Dividend	$R_{SBI} = [D_t + (P_t - P_{t-1})] / P_{t-1}$	$\bar{R}_{SBI} - R_{SBI}$	$(R_{SBI} - \bar{R}_{SBI})^2$
2004/05	255	8	-	-	-
2005/06	307	-	0.2039	-0.4654	0.2166
2006/07	335	-	0.0912	-0.5781	0.3342
2007/08	612	5	0.8418	0.1725	0.0298
2008/09	1176	541.44	1.8046	1.1353	1.2889
2009/10	1511	-	0.2860	-0.1833	0.1969
2010/11	1900	296.4	0.7883	0.119	0.0148
2011/12	741	75.98	-0.5700	-1.0623	1.1285
			$\sum R_{SBI} = 3.4458$		$\sum (R_{SBI} - \bar{R}_{SBI})^2 = 3.2097$

We have,

$$\begin{aligned} \text{Expected Return } (R_{SBI}) &= \frac{\sum R}{n} \\ &= \frac{3.4458}{7} \\ &= 0.4923 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\sigma_{SBI}) &= \frac{\sqrt{\sum (R_H - \bar{R}_H)^2}}{n-1} \\ &= \frac{\sqrt{3.2097}}{6} \\ &= 0.7314 \end{aligned}$$

$$\text{Variance } (\sigma_{SBI}^2) = 0.7314^2 = 0.5350$$

$$\text{Coefficient of Variation } (C.V._{SBI}) = \frac{\sigma_{SBI}}{R_{SBI}} = \frac{0.7314}{0.4923} = 1.4857$$