

# **CHAPTER - I**

## **INTRODUCTION**

### **1.1 Background of the Study**

Nepal is one of the least development countries in the world. More than 80 percent of the total people are still in the rural areas and most of them are deprived from the minimum requirement of human livelihood. Because of the hard life and lack of service, facilities and infrastructure in the rural areas, most of the younger that are considered as the backbone of nation development are going for overseas employment in search of employment.

Nepal is still on the group of low income countries in the world that are divided by World Bank. In Nepal 24.8% of people are under the line of poverty and the average life expectancy of Nepalese people is 59.8(World Human Development Report, UNDP).

To raise the status of Nepalese people from this complex situation and to maintain high economic growth in the country, it is necessary to develop the financial sector and business enterprises which is also the foundation pillar of the overall development of the country (Koirala, K.R., Asian Tribune correspondent in Nepal).

In Today's 21<sup>st</sup> century world, where each and every managerial decision making is based on financial analysis, stock market as important part of finance will encourage the development of the country's financial sector.

Financial analysis covers the acquisition, utilization, control and administration of the fund. In a capitalistic economy, expansion of stock market represents the development of a country's financial sector and its speed of the nation.

“Today’s world, the members of economic society, individual and institutions rare have balanced budget. Some of them always earn more than what they consume and other earn less than what they consume. Further, some members of the society under take additional activities of investing requiring more funds than what they have. Thus, there is no equilibrium in income and expenditure. Similarly, their members have varying perceptions towards risk and enterprising ability. This disequilibrium in income and expenditure in the one hand and perception towards risk and enterprising ability on the other necessitated a mechanism to transfer financial resources from one unit to another unit of the society. The advents of security markets have successfully served this purpose of fund transfer from one unit to another.”(Upadhaya, 2003: 80).

To bring together buyers and sellers of securities, security market exists in the market. Stock market results both opportunity and threatens. Opportunity for well informed peoples having better knowledge of market and threatens for unknown people.

To promote and protect the interest of investors by regulating the securities markets, Security Board Nepal (SEBO) was established on May, 1993(Jestha, 2050). It has the responsibility to develop the security markets in the country.

SEBO’S general objectives and functional responsibility are as follows.

1. To protect and promote the interest of investor regulating the issuance, sale and distribution of securities and purchase, sale and exchange of security.
2. To supervise, look after and monitor the activities of the stock exchange and of other related firms carrying on securities business.
3. To making contribution to the development of capital market by making securities transactions fair, healthy, efficient and responsible.

“As a developing regulator of the capital market, SEBO is basically relying on government’s financial assistance. In order to move towards a self-funded institution, it has created a revolving fund from which it generates income that helps to cover part of its expenses. Income from registration of corporate securities, renewal of license of stock exchange and registration as well renewal of the license of market intermediaries are its other sources of funds.” (Upadhaya, 2003: 80).

“NEPSE is only stock exchange in the country. It is owned by the government, Nepal Rastra Bank (The Central Bank) and Nepal Industrial Development Corporation (NIDC). It has a small ownership holding of its member. Securities businesspersons such as stockbrokers, market makers and securities dealer registered by SEBO have to get membership from the stock exchange for conducting securities business. Similarly, the issue activities also have to get membership of stock exchange to conduct their business” (Upadhaya, 2003: 82).

Risk plays a central role in the analysis of investments. Investors often ask about the total risk they will be assuming in an investment and like to know if the risk premium provided is enough. But they are also concerned about many other issues. First of all, it is necessary to see if the total risk associated with a single asset is relevant for them. Second they need to know the actual contribution of an asset’s risk to portfolio risk. Financial market refers to money market and capital market. Money market may be defined as short- term financial assets market, which facilitates liquidity and marketability of securities. It includes the market for short –term debt instrument having maturity of less than one year. The functions of money market interest rates reflect the demand and supply of funds in the competitive market. The instruments used in money market are treasury bills, negotiable certificates of deposit, banker acceptance etc.

In Nepalese context, some financial institutions have been involved in capital market. They are Nepal Rastra Bank, Commercial Banks, Agriculture Development Bank, Nepal Industrial Development Corporation, Employees Provident Fund, Citizen Investment Trust, Cooperatives Agencies, Non government Organization (NGO's) and some hotels manufacturing and trading agencies.

These institutions play a vital role on the development of capital market. Nepalese Capital Markets are classified in organized sector and unorganized sectors. Government agencies and other institution, which are already mentioned above categorized in organized sectors, they provide long term fund for the development of agriculture, industrial and commercial sectors. Individual investor, merchants and private sectors also helps for the development of capital markets.

Common stocks are easier to describe but hard to analysis. Common stock represents equity or ownership position in a corporation. Hence common stock is known as risky security. It is regarded as most expensive form of long term financing. This is because dividends are not tax deductible and it is risky security. Investing is a process of making decision today whose result will not be known until tomorrow. The motivation for investment in stock market is desire to increase the wealth.

Generally, investment is risky. The assets having great returns with the least amount of risk investor must be able to identify the securities having low risk but high return. One way in which investor can reduce the risk is by spreading their capital across a range of investment. This is the principle of diversification of not putting the eggs in one basket. Diversification involves constructing the investor's portfolio in such a manner that risk is minimized.

Banks are one of the major players in the economic growth of the country and hence it needs proper attention to run successfully. Banks should be established and conducted after analyzing the factors.

Normally banks play at public money that is why people pay their attention whether their money is properly utilized or not and running at profit or loss. The existence of profit to any business firm is the basic factor if there is no profit a business firm becomes unable to provide its facilities in the long run.

Although, there are various types of banks, only commercial banks are considered here, for the purpose of present study. They are the hearts of the modern financial system.

“In Nepal, organized banking system is a relatively recent phenomenon. The process was started with the establishment of Nepal Bank Ltd in 1994 BS. This is the first financial institution of the nation. Rastrya Baniya Bank founded in 2022 BS followed the process and many other joint venture banks(JVBS) were established after 2040 BS. In 2041 B.S the first joint venture bank under the name of Nepal Arab Bank Ltd (NABIL) was incorporated. In 2043 B.S, the second JVBS “Nepal Indosuez Bank Ltd (NIBL)” was established. In the same year, Nepal Grind lay’s Bank Ltd (now Standard Chartered Bank Ltd) in the form of JVB was also established. But more JVBS were come to existence after the initiation of government’s policy of economic liberalization and privatization in 2049 B.S. They are Himalayan Bank Ltd (2049), Nepal SBI Bank Ltd (2050), Nepal Bangladesh Bank Ltd (2051), Everest Bank Ltd (2051), and Bank of Kathmandu (2052). These JVBS came into existence to accelerate the pace of economic development and financial system of the nation.”(Upadhaya,Sudeep and Pandey, panday Lila nath Risk and Return on common stock investment,page 2 unpublished thesis).

## **1.2 Statement of the Problem**

In comparison to the development and growth of capital market within very short period, the attitude, thoughts and knowledge of investor has not changed. They do not have idea about risk and return. There are no separate institutions, which provide information required for making rational decision and on the other hand lack of good policy had discouraged the investors.

Investors need to have more knowledge about investment opportunities. They must be able to analyze the associated risk and return of individual stock. This will increase the market efficiency. An investor must be able to design his investment and financing activities in a manner to maximize the market values of shares. There are no sources to get exact or perfect information about the future regarding risk and return on investment in Nepal. Investing funds in different securities diversifies the risks, which needs to be understood by Nepalese people.

More specially, the research problems are:

1. How can one achieve higher return with lower risk?
2. What compensation for bearing risk?
3. How do the investors know about the magnitude of risk?
4. What are the criteria for evaluating that the stock they are holding will give them a favourable return?

## **1.3 Objective of the Study**

The overall objective of this study is to analyze risk and returns in common stock investment of selected commercial bank. The specific objectives of the study are as follow:-

1. To calculate risk and return of a common stock and the portfolio.
2. To construct an optimal portfolio.
3. To analyze risk and return relationship of individual stock with that of market.

4. To examine common stock of listed commercial banks in term of risk and return.
5. To provide more knowledge about the stock for investors.

#### **1.4 Significance of the Study**

Generally the public companies obtain funds from the public investors through financial market. The long run objective of every company is to maximize shareholders wealth position whereas the investors seek to get good returns in future.

In our context, there lacks wider investment opportunities, which provides good rate of return. So there has been huge amount of unutilized saving funds with general public. Increasing trends of MPS of public companies, mainly Joint Venture Commercial bank attracts the investors. Therefore they are investing their saving funds in common stock of public companies with the good expectation of higher capital gain in future. But, there seems very least consciousness about the real financial conditions of the companies and degree of risk involved in their investment. Further, this research will attempt to clarify concrete pictures of different aspect of risk and return, which will be beneficial to the investor for taking right investment decision.

This study not only fulfils MBS course of TU, but also provides more knowledge about the Nepalese stock market developments and encourage investing in the stock market.

#### **1.5 Statement of Hypothesis**

Following hypothesis has set in this study paper.

Null Hypothesis ( $H_0$ ): Average return of common stock of listed company is equal to the market return.

Alternative Hypothesis ( $H_1$ ): Average return of common stock of listed company is not equal to the market return.

## **1.6 Limitation of the Study**

The following are some limitations of the study.

1. It covers only relevant data of last five years.
2. Only few commercial banks are taken into consideration.
3. This study focuses only on analysis of risk and return leaving other components.
4. Most of the data are secondary in nature.
5. The main focus is given to the quantitative aspect, qualitative aspects are not studied.

## **1.7 Organization of the Study**

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

### **Chapter-I Introduction**

It includes general introduction, statement of problem, objective of the study, significance of the study, hypothesis of the study and limitation of the study.

### **Chapter -II Review of Literature**

It consists of the review of concept and various studies relevant to study.

### **Chapter-III Research Methodology**

It focuses on research design, population and sample, source of data, data gathering producer, analytical tools, and description and comparison and so on.

### **Chapter-IV Data Presentation and Analysis**

This chapter attempts to analyze and evaluate the data with the help of analytical tools and interpret the result so obtained.

### **Chapter-V Summary, Conclusion and Recommendation**

It sums up the results obtained through analysis and recommends some suggestion.



## **CHAPTER - II**

### **REVIEW OF LITERATURE**

This study is focused on common stock investment and its impact on risk and return. Theoretical aspect of risk and return is explored in this chapter. The main objective of reviewing the literature is to develop some expertise in once area and to see what extra contribution can be made and to achieve some ideas for developing a research design. In this part, previous studies related with this field are reviewed as valuable foundation for current study, which is simply the continuity on past study. This chapter reviews some basic academic course books, journals and other related studies.

#### **2.1 Conceptual Framework**

This centre point of this study is risk and return analysis on common stock investment of commercial banks. This section of chapter reviews the meaning and definitions of concepts and terms used in this study.

##### **2.1.1 Investment**

An investment involves the sacrifice of current rupees for future rupees. The sacrifice takes place in the present and certain. The reward comes later and is uncertain. Investment generally involves real assets or financial assets. Real assets are tangible, material things such as building, machinery and factory and text book.

Financial asset are pieces of paper representing an indirect claim to real assets held by someone else. Real assets are generally less liquid then financial assets. Returns to real assets are frequently more difficult to measure accurately. But our principal concern is with financial assets. Investment is an exchange of financial claim stocks and bonds etc. Investment is the employment of funds with the aim of achieving additional income or growth in value. It involves the commitment of resources that have been saved or put away from current

consumption in the hope that some benefits will accrue in future. Investment involves long term commitment and waiting for a reward.

Investment, in its broad sense, means the sacrifice of current Rupees (dollars) and resources for the sake of future Rupees (dollars) and resources. In the other words, it is a commitment of money and other resources that are expected to generate additional money and resources in the future. Such a commitment takes place in the present and is certain to occur but the reward comes in the future and always remains uncertain. Therefore, every investment entails some degree of risk.

Investments are made in assets. Assets, generally, are of two types: real assets (land, building, factories etc) and financial assets (stocks, bonds, t-bill etc). These two types of assets are not competitive but complementary, highly-developed institutions for financial investment greatly facilitating real investment.

### **Forms of Investment**

There are two categories of assets viz-financial assets and real assets. Accordingly, there are two forms of investment.

- ) Financial investment
- ) Real investment

### **) Financial Investment**

Investment in financial assets like common stocks, bond etc is called financial investments. Financial assets represent a financial claim. It is an asset that is usually documented by some forms of legal representation. Although financial assets are typically represented by tangible certificates of ownership, the financial assets itself is intangible. They are also called securities.

## ) **Real Investment**

A real asset represents an actual tangible asset that may be seen, felt, held or collected e.g. real estate, gold etc. Investment in such tangible assets is called real investment. Real assets have productive capacity. The capital formation is the direct outcome of the productive investment.

### **2.1.2 Common Stock**

Common stock is an ownership security. It is a source of long term financing. The common stock certificates are legal documents that give an evidence of ownership in a company in a company that is organized as a corporation. Common stocks are marketable financial instruments. Sole proprietorships and partnerships are other forms of business organizations, but only corporations can issue common stock.

When investors buy common stock, they receive certificate of ownership as a proof of their being part owners of the company. The certificate states the number of share purchased and their par value. Common stock is the first security of corporation to be issued and, in the event of bankruptcy, the last to be retired. Each share of stock is fraction of the rights and privilege that belongs to the owners of a business.

Stockholders return on investment is less certain than the return to lender or a preferred stockholder. On the other hand the share of common stock can be authorized 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 should no issue stock at a price less than par value because stockholders who bought for less than par value would be liable to creditors for the difference between par price they paid and the par value (Van Horne, 1997: 560)

The main characteristics of common stock are as follows:

**a) Priority to Assets and Earnings**

Common stock holders have a residual claim on the earning and assets of their corporation.

**b) Par value Stock no par value Stock**

Owners of common stock in a corporation are referred to as shareholders. They receive stock certificates for the shares they own. There is often a stated value on each stock certificate called the par value. The par value each share of most common stock in Nepal is NRS.100.

**c) Authorized, Issued and Outstanding Shares**

The corporate charter of a company specifies the number of authorized shares of common stock that the company can issues maximum without amending its charter.

**d) Voting Rights**

The common shareholders have right to vote in the affairs of the company. In most of the common stock each shareholders can caste one vote in one share. A proxy is a temporary transfer of the right to vote.

**e) Maturity**

The capital obtained from this source is called as fixed capital. This cannot be redeemed in the mid life of the organization.

**f) Capital in excess of Par Value**

Capital in excess of par value often called capital surplus or additional paid in capital usually refers to the amount directly contributed to equity capital in excess of the par value.

**g) Retained Earnings**

Retained earnings are the balance sheet account that indicates the total amount of earnings that is retained in the business. These earnings have been reinvested in the firm.

**h) The Book Value Per Share**

The book value of each common stock is equal to the net worth or common equity (common stock holder's equity), consisting of sum of common stock, retained earnings, and paid in capital, dividend by the number of share of common stock outstanding.

**i) Stock Certificates**

Stock certificate is usually registered with the name, address and holding of the investor included on the corporation books, which represented the ownership of a firm's stock.

**j) Ownership right**

Common stockholders are owners of the firm they often have voting right that permits them to select the firm's director and to vote on special issue.

As owners, common stockholders are entitled to certain rights and privileges as follows:

**A) Control**

Common stock has voting rights that can be used to elect corporate directors who, in turn appoint the corporate officers.

**B) Pre-emptive Right**

A pre-emptive right gives existing shareholders the first option to purchase a proportionate interest in a new issue of a corporation stock. The purpose of this provision is to protect stockholder against a loss of voting and Control and

dilution in the value of their shares. The pre-emptive right is usually satisfied by the use of right offering.

**C) Liquidation Right**

As owners rather than the creditors, common stockholders receive no priority in the distribution of assets resulting from liquidation of corporation. Typically, after assets are sold liabilities and preferred stockholders are satisfied, little if any cash will be available for common stockholders.

**D) Right to Income Distribution of Additional Shares**

Common stockholders have no legal right to receive income distribution from the corporation. As a practical matter, however the board of directors may declare cash dividends to the stockholders, provided the financial resources are available, even for periods when the corporation has experienced a loss.

**2.1.3 Return**

Return is the reward for uncertainty or risk. The concept of return has different meaning to different investors. Return is the main attraction for investors to invest in risky securities as stock accepting a varying degree of risk tolerance. Return is the total gain or loss experienced on investment over a given period of time.

Some investors seek near term cash inflows and give less value to more distant return such an investor might purchase the stock of other firm that pays large cash dividends. Other investors are concerned primarily with growth of sales, earning and capital appreciation.

When people buy common stock they give up current consumption in the hope of attaining future consumption. They expect to collect dividend and eventually sell the stock at a profit. The benefit associated with ownership includes the cash dividends paid during the year together with an appreciation

in market price, or capital gain realized at the end of year. Returns are defined as the dividend yields plus the capital gain or loss. The relationship between levels of return on their relative frequencies is called probability distribution. It can formulate a probability distribution for the relative frequency of a firm annual return by analyzing its historical return over the previous year. But history never repeats itself exactly. Hence, after analyzing relative frequencies of historical return for individual company, it can form a probability distribution based on historical data based on historical data plus the analysis for the economy and outlook for the economy and the outlook for the industry, the outlook for the firm in its industry and another factors.

The after tax increase in the value of the initial investment is the investment return, the increase in value can come from two sources: a direct cash payment to the investor or a increase in the market value of investment relative to the original purchase price. An investment single period rate of return denoted 'r' is simply the total return an investor would receive during the investment period or holding period stated as a percentage of the investment price at the start of holding period.

$$r = \frac{(P_1 - P_0) + D_1}{P_0}$$

Where,

r = single period of return

P<sub>1</sub> = market price at the end of period '1'

P<sub>0</sub> = current market price at the purchase price

D<sub>1</sub> = cash dividend received during the period '1'

(P<sub>1</sub> - P<sub>0</sub>) = Income from price appreciation (or losses from depreciation) sometimes called capital gain (or losses).

Above formula can be used to determine both actual single period return as well as expected return. Holding period's returns are often calculated for

periods other than one year. Many holding periods returns over periods shorter or longer than year are annualized. In general, if the length of holding period is not specified, it is assumed to be one year.

The expected rate of return for any asset is the weighted average rate of return, using probability of each rate of returns as the weight. The expected rate of return is calculated by summing the product of the rates of return and their respective probabilities.

$$\text{Expected Value } E(r) = r_1p_1 + r_2p_2 + \dots + r_np_n$$

Where,

$r_j$  =Rate of return on  $j^{\text{th}}$  outcome or event.

$P_j$  =Probability of occurrence of  $j^{\text{th}}$  outcome or event.

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

$$\text{Expected Value, } E(r) = \frac{\sum r}{n}$$

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

### **Probability Distribution of Return**

When we expect return in the future, we talk about chances to earn some possible returns. The possibility or the chances are known as probabilities. Probabilities are assigned on two different bases: objective probability and subjective probability. Objective probabilities are assigned on the basis of past data or relative frequency distribution and subjective probabilities are based on a financial analyst's best guesses about the future returns. Subjective probability is also known as judgmental probability. Whatever techniques are



followed to assign the probabilities, the main thing is that, the probabilities are the foundation of the quantitative analysis of risk and return.

#### **2.1.4 Risk on a Common Stock**

Risk is defined in Webster's dictionary as hazard; a peril: exposure or loss or injury. Thus for most, risk refers to the chance that some unfavourable event will occur. If you invest in speculative stocks for really, any stock, you are taking a risk in the hope of making an appreciable return.

Risk is the uncertainty associated with the end-of –period value of investment. “Risk is the possibility or chance of meeting danger or suffering loss. Uncertainties and risk are the facts of life to the common stock holders. Uncertainties and risk are perceived by different people in different ways. Some people perceived uncertainty as simply a lack of defines outcomes. It is anything that could happen any unknown event, which may be favourable or unfavourable. Other many people consider risk as a chance of happening some unfavourable event or danger of losing some value. The terminology uncertainty and risk are often used interchangeably.

Although it is not quite clear what previously uncertainty and risk means. Authorities are the field of finance and people concern about finance does agree that risk is the product of uncertainty. If we interpret uncertainty as a future outcome which is hundred percent sure to happen, uncertainty is then just a opposite of certainty that refers to all possible outcomes none of which is sure to happen .Risk on the other hand is the product of all potential outcomes expressed with probability associated with each of them and it is measure in terms of the degree of variability in the probability distribution of such outcome. Risk defines most generally is the probability of the occurrence of unfavourable outcomes. But risk has different meanings on the different context. In our context two-measure development from the probability distribution has been used as initial measures of return and risks. There are the variance and the standard deviation of the probability distribution.

The standard deviations can sometimes be misleading in comparing the risk on uncertainty, surrounding alternative of they differ size. To adjust the size, or scale, problem, that standard deviation can be divided by the expected return computed the co-efficient of variation (C.V) thus the co-efficient of variation measures relatives' dispersion.

Uncertainty and risk are treated separately in financial analysis. The practice is to translate the uncertainty into the mathematical value, which represent the best estimate of uncertainty, is taken care by calculating the expected value of all possible uncertainty outcomes .But risk is treated is differently. Although risk raises from uncertainty it magnitude depends upon the degree of variability in the uncertain cash flows, and it is measured in terms of standard deviation.

#### The Probability Distribution of Returns

Investment risk generally analyzed by writing down the various possible rates of return and attaching probabilities to each one.

Some probability distributions are based on ex-post returns. These are called objectives or relative frequency distributions. Some probability distributions are based on a financial analyst's best guesses about the future returns. These are called subjective. Therefore, **the** probability distribution is the foundation for quantitative investment analysis.

Financial analysts and statisticians prefers to use a quantitative risk measure called the variance of returns, denoted by  $\text{Var.}(r)$ .

#### **The Variance and Standard Deviation**

It is a statistical measure of the variability of a set of observations. The symbol is  $\sigma^2$ , pronounced "sigma square". It is the measure of total risk. The smaller the variance, the lower the riskiness of the stock and vice versa.

## Step for the Variance and Standard Deviation

### Step 1:

Calculate the expected value:

Expected return,  $E(r) = \sum r_j p_j$  (For Ex ante return)

### Step 2:

Subtract the expected value,  $E(r)$ , from each possible outcome,  $r$ .

Deviation =  $r_j - E(r_j)$

### Step 3:

Square each deviation and multiply it by the probability of occurrence of the applicable state of the economy, and then sum these product to obtain the variance ( $\sigma^2$ ).

$$\sigma^2 = \text{Variance} = \text{Var} = \sum P_j [r_j - E(r_j)]^2$$

### Step 4

Take the square root of the variance to obtain the standard deviation. The square root of the variance of the rates of the return is called the standard deviation of the rates of return.

$$\text{Standard Deviation} = \sigma = \sqrt{\sum [r_j - E(r_j)]^2 P_j}$$

## Coefficient of Variation

It is defined as the standard deviation divided by the means of expected return. It is used to standardize the risk per unit of return i.e. measure the risk per rupee. The coefficient of variation should be used to compare investment when both the standard deviations and the expected value differ.

$$CV = \frac{\sigma}{E(r)}$$

## **Sources of Investment Risk**

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

### **A. Interest Rate Risk**

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

### **B. Purchasing Power Risk**

It is the variability of return an investor suffers because of inflation. Inflation (or a rise in general prices over time) seems to be normal way of life in most countries today. However, when inflation takes place, financial assets, (such as cash, stock and bond) may lose their ability to command the same amount of real goods and services they did in the past. To put this way, the real rate of return or financial assets may not adequately compensate the holder of financial assets for inflation.

### **C. Bull-Bear Market Risk**

This risk arises from the variability in market returns resulting from alternating bull and bear market forces. When a security index arises fairly consistently from a low point, called a trough, for a period of time, this upward trend is called bull market. The bull market ends when the market index reaches a peak and starts downward trend. This period of during which the market declines to the next trough is called bear market.

#### **D. Default Risk**

It is the portion of an investment's total risk that results from changes in the financial integrity the investment. The degree of default risk is closely related to the financial condition of the company issuing the security and the security is rank in claims on assets in the event of a default or bankruptcy.

#### **E. Liquidity Risk**

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

#### **F. Callability Risk**

Some bonds and preferred stocks are issued with a provision that allows the issuer to call them in for repurchase. The portion of a security's total variability of return that derives from the possibility that the issue may be called is the callability risk.

#### **G. Convertibility risk**

Convertibility risk is that of the variability of return from a convertible bond or a convertible preferred stock that reflects the possibility that the investment may be converted into the issuer's common stock at a time or under terms harmful to the investor's best interest.

#### **H. Political risk**

The portion of an assets total variability of return caused by changes in the political environment (for e.g. tax law) affects the assets market value.

## **I. Industry Risk**

An industry is a group of companies that compete with each other to market a homogeneous product. Industry risk is that portion of an investment's total variability of return caused by events that affect the products and firms that make up an industry (Francis, 1997).

### **2.1.5 Portfolio Analysis**

Portfolios of assets usually offer the advantage of reducing risk through diversification. A portfolio is a combination of investment assets. The portfolio is a holding of securities and investment in financial assets that is bond, stock. Portfolio management is related to the efficient portfolio investment in financial assets.

A portfolio is defined as a combination of assets. Portfolio theory deals with the selection of optimal portfolios; that is a portfolio that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. Since portfolio theory has been developed most thoroughly for financial assets- stocks and bonds. However, extensions of financial assets portfolio theory to physical assets readily made and centrality the concept are relevant in capital budgeting.

The rate of return on portfolio is always a weighted average of the returns of the individual securities in the portfolio. A fundamental aspect of portfolio theory is the idea that the riskiness inherent in any single assets held in a portfolio analysis is performed to a portfolio that has maximum return whatever level of risk an investor thinks appropriate. If portfolio is been constructed they can reduce unsystematic risk without losing considerable return. Therefore we need to extend our analysis of risk and return to portfolio position. Portfolio theory, originally proposed by Harry M. Markowitz is based on assumption that the utility of investor is a function of two factors: mean return and variance or its square root, the standard deviation of return. Hence it

is also referred as the mean variance portfolio theory or two- parameter portfolio theory (Chandra, 1994).

Three influences reduce portfolio risk in relation to the standard deviation of individual securities in isolation:

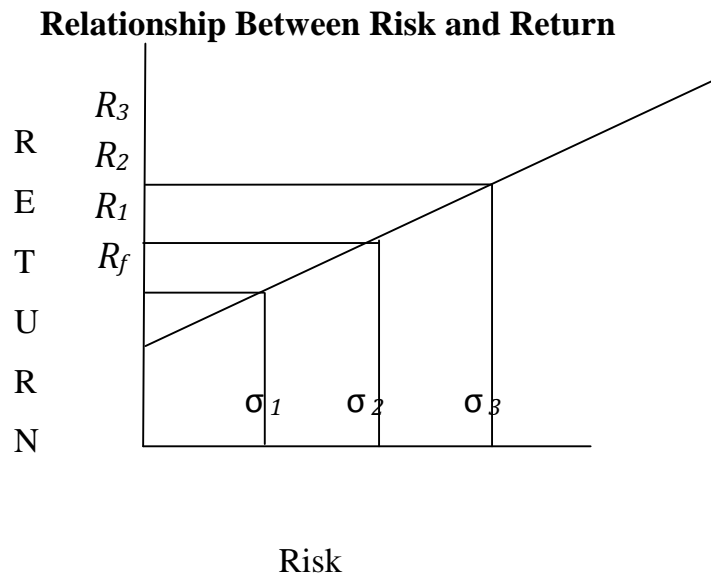
- ) Extent to which the correlation between the returns from the individual securities is less than one,
- ) Number of the securities in the portfolio and
- ) Proportion or weights of the individual securities in the portfolio in relation to their correlation among one another.

### **2.1.6 Relationship between Risk and Return**

Investors are generally risk averse. This implies that risky investment must offer higher expected return than less risky investment in order to make the people buy and hold them. The risk aversion attitude of investors portfolio theory was developed and being very important subject in the field of finance. “Any individual investment may differ substantially from the adverse risk and return statistics. That is why it is prudent to investigate any assets before investing.

The relationship between the risk and return is described by investors’ perception about risk and their demand for compensation. No investors will like to invest in risky assets unless he is assured of adequate compensation for the assumption of risk. Therefore it is the investor required risk premiums that establish a link between risk and return. In a market dominated by rational investor higher risk will command by rational premium and the trade off between the two assumes a linear relationship between risk and risk premium. The observe difference in both the levels and variability of the rates of return across securities are indicative of the underlying risk return relation in the market.

**Figure 2.1**



The figure represents a higher premium for a higher risk in a linear fashion indicating a premium of  $(R_1 - R_F)$  for  $\sigma_1$  degree of risk  $(R_2 - R_F)$  for  $\sigma_2$  degree of risk and so on. Risk premium will be change in increase or decrease in proportion of risk.  $R_F$  stands for return on risk free security. The partial interest is the difference in rates of return across sacrifice, since provide valuable clues to the market's trade off between risk and return.

Rational investors would agree that an investment's required return should increase as the risk of investment increase. Most investors would also agree how the expected rate of return should be calculated. But when the discussion turns to risk, the debate begins.

### **Classification of Risk**

The total risk of any assets can be assessed by measuring its variability of returns. The total risk can be partitioned into two main parts: Systematic risk and unsystematic risk.



## Unsystematic Risk

Unsystematic risk also known as diversifiable risk. This type of risk is unique to an organization and can be largely eliminated by holding a diversified portfolio of investment. Diversifiable risk is the portion of the risk that can be diversified away. This type of risk differs from one company to another. For example. Labour strikes, management errors, inventions, advertising campaigns etc.

## Systematic Risk

Systematic risk is also called undiversifiable risk. Undiversifiable risk is the portion of the total risk of an individual security caused by market factors that simultaneously affect the prices of all securities. It cannot be diversified away. Mathematically the systematic risk (beta) is measured as the covariance of the stock returns with the market returns expressed per unit of market variance as follows:

$$\text{Beta Coefficient ( } \beta_i) = \frac{\text{Cov}(r_m, r_i)}{\sigma_m^2}$$

Where,

- Cov. (r<sub>m</sub>, r<sub>i</sub>) = Covariance between the returns of security i and market
- $\sigma_m^2$  = Variance of market return
- $\rho_{im}$  = Correlation between the return of security i and market

### 2.1.7 Capital Assets Pricing Model

CAPM is a model that describes the relationship between risk and expected return. It was developed by William F. Sharpe, who was awarded the 1990 Nobel Prize for economics. In this model, a security's expected return is the risk free rates plus a premium based on the systematic risk of the security. The CAPM equation is suggested for the computation of expected rate of return on common stock.

This model is a under:

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

$K_r$  =Required Rate of Return or Equilibrium rate of return for stock j.

$R_f$  =Risk free rate of return.

$E(R_m)$  =Expected return for the Market portfolio.

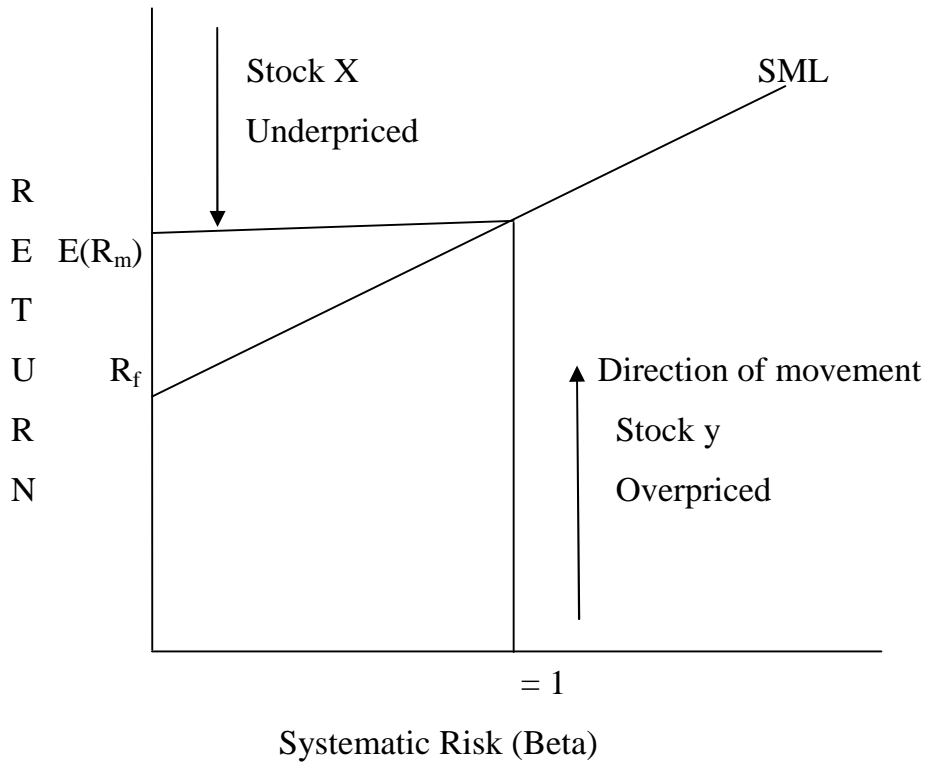
$\beta_j$  =an index of systematic risk of stock j.

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

If beta is 1 (one) then required return is simply the average return for all situations that is the return on market portfolio; otherwise, the higher then the premium and the total return required. A relatively high beta does not however, guarantee a relatively high return. The actual return depends partly on the behaviour of the market, which acts as a proxy for general economic factors.

Premium is the amount of excess return over the risk free rate that investors demand for holding a risky security such as stock. Financial economists, William sharp are one of the creators of the CAPM a theory which began a quest to identity the tendency portfolio. In fact of the CAPM as it is called is very useful tool. It has been taken as a prescription for the investment portfolio, as well as a tool for estimating an expected rate of return. Comparison between the expected rates of returns and require rate of return can analyze the stock to be under priced. And when these two return are equal than it is said to be market equilibrium i.e. all stock lie on the security market line (SML). “The graphical version of CAPM is called the security market line which shows the relation between risk and the required rate of return.

**Figures 2.2**  
**Under – Priced and Overpriced Stock During Temporary Market**  
**Disequilibria**



The security market line clearly shows that return is increasing function. In a fact a linearly increasing function of risk. Furthermore, it is only market risk that effects return. The investors receive no added return for being diversifiable risk. The slope of SML is the risk premium of the market portfolio. At the point where  $\beta = 1$  (which is the beta of the market portfolio) on the horizontal axis, it can read off the vertical axis the expected return of the market portfolio.

Stock that are overpriced lies below the SML and the stock that are underpriced lays above the SML diagram which shows the security market line with overpriced and underpriced.

Above diagram clarifies that stock X being underpriced, its expected rate of return is greater than required rate of return. And stock Y is expected to

provide lower rate of return than required rate to compensate the systematic risk. Investors seek the opportunity to invest in stock X for superior return.

Investing in stock X is rush to buy it. This action (increase in demand) would drive price up and the expected return, until the expected return was on the SML. In case of stock Y, investor holding this stock would sell it, recognizing that they could obtain a higher return for same amount of systematic risk with other stocks. These selling pressure would drive Y's market price down and its expected return up until the expected return was on SML. When the expected returns for these two stocks returns to the SML. Market equilibrium will again prevail.

Few people discuss with that idea that investors require some extra return for taking risk. That is why common stocks require higher return than government treasury bill (which is assumed to be risk free, because of taxing power that government enjoy). No one would want to invest in risky common stock, if they offered only the same expected return as bills.

The CAPM captures these ideas in a simply way. That is why many financial managers find it the most convenient to for coming to the decision with the slippery motion of risk. And it is why economists often use the CAPM to demonstrate important ideas in finance even when there are otherwise to prove these ideas. But this does not mean the CAPM is ultimate truth.

## **2.2 Review of Related Studies**

### **2.2.1 Review from Journals**

In this section of the chapter, articles published in the journals are reviewed. The journal extends the class of stochastic volatility diffusion for assets returns to encompass poisson jumps of time varying intensity. Any reasonably descriptive continuous – time index returns must allow for discrete jumps as well as stochastic volatility with a pronounced negative relationship between

return and volatility innovations. They also tend that dominant empirical characteristics of the return process appear to be priced by the option market. Their analysis indicates a general correspondence between the evidence extracted from daily equity and the stylized features of the corresponding options market prices.

The journals conclude that the much assets and derivative pricing theory is based on diffusions models for primary securities. Yet, there are very few estimates of satisfactory continuous time model equity returns. The objectives of the paper is to identify a class of jump diffusions that are successful in approximating the Sand P 500 returns dynamics and therefore should constitute an adequate basis for continuous time assets pricing applications. They extend the class of stochastic volatility diffusion by allowing for poison jumps of time varying intensity in returns. They also explore alternative models both within and outside of the popular fine class. Estimation is performed by careful implementation of the EMM that provides powerful model diagnostic and specification tests. Finally, they explore the relationship between the estimated models and option prices. They contrast those of their parameter estimates that are invariant to adjustments for volatility a jump risk to those reported in the option literature, and provide a qualitative comparison of the pricing implications of their estimate system and the stylized evidence from actual option data.

They find that every variant of their stochastic volatility diffusions without jumps fails to jointly accommodate the prominent characteristics of the daily S and P 500 returns. Further, every specifications that does not incorporate a strong negative correlation between return innovations and diffusions volatility fails as well. In contrast, two versions of our SVJDS that incorporate discrete jumps and stochastic volatility, with return innovations and diffusion volatility strongly and negatively correlated, accommodate the main features of the daily S and P 500 returns. This is true not only of the models estimated union sub

examples. The models therefore appear to get structurally stable. Finally, they find that those parameter estimates that are invariant to adjust mints for volatility and jump risk generally are similar to those reported in the option literature and they document that small risk premium suffice to produce pronounced patterns in Black and Scholes option implied volatilities that are qualitative consistent with the stylized evidence from derivatives markets. Thus, the main characteristics of the stock price process by options data independently identified as highly significant components of the underlying S and P 500 returns dynamics.

The return factors in emerging markets are qualitatively similarly to these in developed markets. Small stocks outperform growth stocks and emerging markets stocks exhibit momentum. There is no evidence that local market beats are associated with average returns. A Bayesian analysis of premiums in developed and emerging markets shows that, unless one has strong prior beliefs to the contrary, the empirical evidence favours the hypothesis that size, momentum and value strategies are compensated the relationship between expected returns and share turnover, and examines the turnover characteristics of the local returns factors portfolios. There is no evidence of a relation between expected return and turnover, in emerging markets. However, beta, size momentum, and value are positively cross section ally correlated with turnover in emerging markets. This suggests that the return premiums do not simply reflect a compensation for liquidity (Rouwenhourst, K.G, (1999): 1442-1443).

### **2.2.2 Review from Book**

For the sake of simplicity, the return on the security could be regarded as being linearly related to a single index like the market index. Theoretically, the market index should consist of all the securities trading on the market. However, a popular average can be treated as a surrogate for the market index. Acceptance of the idea of a market index, Sharpe argued, would obviate the

need for calculating thousand of co-variances between individual securities, because any movements in a single underlying factor being measured by the market index. The simplification of the Markowitz model has come to be known as the market model or simple index model (SIM).

The desirability of any securities is direct related to its excess return to beta ratio. Where average return is the expected return on the securities, risk less rate of interest is the return on a risk less asset, the beta is the expected change in the rate of return on security associated with a one percentage in the market return. If the securities are rank by access return to beta from highest to lowest, the ranking represents the desirability of any securities inclusion in a portfolio. The number of securities with higher ratio of access return will be included and all securities with lower rate excluded (Bhalla, V.K., 2004: 3).

### **2.2.3 Review of Nepalese Studies**

Poudel (2001) in his study entitled "*A study on Risk and Return Analysis of Common stock Investment*" conclude that according to the study the market share and market shares of these banks do not captures the growth rates of different banking indicators used. The ordinary least square quotation of book value per share on market value per share reveals that the independent variable does not fully explain the dependent variable on the basis of the above mentioned two points; Nepal Stock Exchange operates in a weak from of efficient market hypothesis. Indicating that the market prices move randomly the market value per share does not accommodate all the variable historical information. Having good track record of the financial position, the market potential investors buy the shares of joint ventures commercial banks. Therefore, the shares of joint venture commercial banks emerge in blue-cheap in the Nepalese stock market. The beta coefficient, which measures the riskiness of individual security in relative term, suggests that none of the shares of eight sampled banks are risky. Therefore, even a risk averter can go for making an investment in shares to these banks. The shares of publicity quoted

joint venture commercial banks are less risky compared to other average stocks traded in the stock exchange.

Spakota (2002) in his study entitled "*Risk and Return Analysis in common stock Investment*" concludes that "Banking industry is the biggest one in terms of market capitalization and turnover. He has performed an analysis of risk and return on common stock investment with special reference to banking industry. The study is found on commercial stock of commercial banks. The main objectives of the study are to analysis the risk and return of the common stocks in Nepalese stock market. From his analysis, the portfolio approach of investment is better way to win stock market investment".

Mishra (2002) in his study entitled "*Risk and Return Analysis in Common Stock Investment*" concludes that an asset can be measured quantitatively using statistical tools such as: standard deviation and coefficient of variation that can be used to measure the variability of assets return. The relationship between risk and return is described by investor's perception about risk and their demand for compensation. No investor will like to invest in risk assets unless he is assured of adequate compensation for the acceptance of risk point of view, banking sector is the best for the investment in common stock".

Joshi (2008) has conducted a study entitled "*Risk and Return Analysis of Common Stock of Five Listed Commercial Banks.*" The major objectives of the study are to calculate and analyze the risk and return of banking sector, to evaluate common stock of listed commercial banks and to analyze whether the common stock of commercial banks are correctly priced or not etc.

The major findings of his study are summarized below:

- J) Regarding the market capitalization of selected companies, SCBL has the maximum market capitalization and NBBL has the minimum market capitalization.



- J Regarding the market capitalization of the inter industry, Banking sector has 65%, Insurance & Finance has 14%, Manufacturing & Processing sector has 13%, Hotel sector has 7%, Trading sector has 1% and Other sector has negotiable proportion of share in over all market capitalization.

Joshi further concludes that the considering return, the return of SCBL is maximum (i.e. 73.30%) but its risk also maximum but if risk is taken into account for consideration, NIBL has the minimum risk of 43.82%. In industry wise analysis, the expected return of finance and insurance has a maximum expected return (i.e. 27.70%), while other sector has a minimum expected return (i.e. 16.61%). If the risk is assessed in term of C.V., Banking sector has minimum C.V. like 1.66, which indicates that it is better to invest on the shares of banking sector.

Theme of Joshi's study is summarized as below:

- J As analyzing the Coefficient of variation, he suggests that the banking industry is the best one for investment. Similarly, while analyzing individual securities, SCBL is the best for investment due to highest return and lowest C.V.
- J Based on the findings and conclusion of the study, it is recommended to the investor that if they wish to generate higher return, then they should bear higher risk and invest in the shares of SCBL. But if they are risk averters and they want to invest in single assets, then they can invest in the share of NIBL or HBL because these two stocks have lower risk than that of portfolio risk.
- J Portfolio analysis shows that the portfolio investment can reduce risk significantly. Thus, portfolio investment is recommended to receive high return at minimum risk.

Pokharel, (2008) has under taken a study entitled "*Risk & Return on Common Stock Investment of Commercial Banks, With Reference to Six Commercial*

*Banks.*” Among various objectives of his study, some majors basic objectives of his research are to analyze, whether the common stock of commercial banks are correctly priced or not, by analyzing the required rate of return and to study systematic and unsystematic risk associated with securities of the commercials banks.

Majors finding of his study are given below:

- J Among the six commercials banks, NABIL bank has highest expected rate of return on common stock (i.e. 14.03%) and NIB bank has negative expected rate of return o common stock (i.e.-3.9698%). Similarly, The common stock of BOKL is most risky asset, which has highest standard deviation (i.e. 52.15%) and HBL’s stock is less risky due to lowest standard deviation (i.e. 19.49%).
- J Regarding the market capitalization of six selected companies, SCBNL has the maximum market capitalization (i.e. 31.36%) and the market capitalization of BOKL is low by 7.11%.
- J Considering the different investment sectors, the expected return of other sector is maximum by 34.53% and the processing sector has very low expected return (-12.076%). Similarly, considering coefficient of variation of different sectors, the trading sector has maximum by 18.49 units, which indicate that to earn 1 unit of return, the investor has to bear 10.49 units of risk. The coefficient of variation on manufacturing & processing is 3.1349 and -3.28 (negative) respectively.
- J On the basis of required rate of return and expected rate of return, the study shows that RRR of NIBL, NABIL, SCBNL, HBL, EBL & BOKL is 0.0175, -0.0677, -0.0174, 0.0099, -0.0526, and -0.0903 respectively. The ERR of NIBL, NABIL, SCBNL, HBL, and BOKL is -0.0396, 0.1403, 0.2264, 0.1158, 0.1312 and 0.0021 respectively. As his study shows that the common stock of NIBL is overpriced and rest of all’s common stocks are under priced. At the end of study, Pokharel recommended that before making investment decision, the investor should

visit and discussion with investment Companies, with export and researchers because sharing experience, idea and view of export will provide grater help. also advice that the investors need to diversify their investment to reduce risk. Proper construction of portfolio never takes any considerable loss.

Mainali (2009) has performed another study entitled “*Risk and Return Analysis on Common Stock Investment*”. In this study performed an analysis of risk and return on common stock investment with special reference to banking industry. In this study, his writs, 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. others objectives of the study 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:

- J 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.
- J 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.
- J 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.
- J 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

Budhathoki (2009) in this study “*Risk and Return Analysis on Common Stock Investment*” (an analysis of listed commercial banks) concluded that majority of the stock investment has been taking place without base the logical financial evaluation,

for most of the investors it is the blind game. Many people have unrealistically optimistic or pessimistic expectations about stock market investments or perhaps the fear of the unknown. This study enables investors to put the return they can expect and the risks they may take into better perspective.

Nepalese stock market is in emerging stage and very new phenomenon to majority of the people though in recent years they have shown participation in stock investment due to growing commercial banks in the country. Our stock market is not sensitive to international stock markets. Its development is getting acceleration after multiparty system in country, since 2046 B.S. It takes place after economic liberalization in national economy since 1992. But due to the lack of proper information and poor knowledge, Nepalese individual investors cannot analyze the securities as well as market properly. This study may helps to have some understanding about stock investment, returns and associated risk there on.

Shakya (2009) on “*Risk and Return Analysis of the Commercial Banks*” has made conclusion that the expected return of EBL and NABIL are highest among the sampled banks i.e. 56.7% and 52.79% respectively. however, SCBL has lowest expected rate of return which is 28.26% followed by HBL with 29.52% expected rate of return. Analyzing the standard deviation of the sampled banks, SCBL is in the best position with standard deviation of 0.33. NABIL is in the worst position with standard deviation as high as 0.91. The coefficient of variance is worst for BOK which is 1.941. All the sampled joint-venture commercial banks have positive expected rate of return. However, the commercial banking sectors have positive return together with market sector.

#### **2.4 Research Gap**

For this research, researcher has used primary and secondary sources and its collection from NEPSE, thesis, journals, and books and internal other types of information are collected through personal visit. It is different than the past studies because researcher has used recent information. All the language used in past thesis are complex and also incorrect. To make this thesis more understandable charts, diagrams have been used.

## **CHAPTER - III**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Research methodology is also major part of the thesis. It describes the method and process applied in the entire aspect of the study. Research methodology concerns to data collection procedures, focus of data tabulation and processing of the data and analysis method. It is composed of both technical and logical aspect. Detail research methods are explained in the following way.

#### **3.2 Research Design**

The study is based on descriptive and analytical research design. The study is concern on recent historical data, which is based on recent historical data, which covers five years periods. It deals with the common stock of commercial banks on the basis of available information. The main objectives of this study are to find out how the returns can be maximizing in terms of investment of common stock of the selected companies. To achieve these objectives, both the analytical and descriptive research design has been adopted. It is composed of technical and logical aspect.

#### **3.3 Population and Sample**

The population of the study is the commercial banks of Nepal which have been listed in the Nepal Stock Exchange Company (NEPSE). From among the population, the four listed commercial banks will be selected by using random sampling method. As there are twenty four commercial banks listed in NEPSE, the sample will be the 20.84% of the total population.

The 24 banks listed in NEPSE are as follows:

1. Nepal Arab Bank Ltd.(NABIL)
2. Nepal Investment Bank Ltd.
3. Standard Chartered Bank Ltd.
4. Himalayan Bank Ltd.

5. Nepal State Bank of India ltd.
6. Nepal Bangladesh Bank Ltd.
7. Everest Bank Ltd.
8. Bank of Kathmandu Ltd.
9. Nepal Industrial and Commercial bank Ltd.
10. Lumbini Bank Ltd.
11. Machhapuchhre Bank Ltd
12. Kumari Bank Ltd.
13. Laxmi Bank Ltd.
14. Nepal Credit and Com.Bank.
15. Siddhartha bank Limited.
16. NMB Bank Limited.
17. Bank of Asia Nepal Limited.
18. Citizen Bank International Limited.
19. Kist Bank Limited.
20. DCBL Bank Limited.
21. Global Bank Limited.
22. Prime Commercial Bank Limited.
23. Sunrise Bank Limited.
24. Agriculture Development Bank Limited.

Selected four banks are as follows:

1. Nepal Arab Bank Ltd. (NABIL)
2. Standard Chartered Bank Ltd.(SCBL)
3. Himalayan Bank Ltd.(HBL)
4. Everest Bank Ltd.(EBL)

### **3.4 Sources of Data**

#### **3.4.1 Primary Sources**

Unpublished data or adopting from the spot by questionnaire, mail method, direct visit method, observation method so on are called primary sources. To

write the thesis report , I used personal as well as telephone interviews, mobile contract and also using SMS services conducted to collect more information on the subject.

### **3.4.2 Secondary Sources**

Collected from published matters i. e. Speeches, articles, news, report, thesis, and books are called secondary sources. The major sources of secondary data for the study

1. Published documents of different institution the NEPSE, trading report.
2. Published journals from Nepal Rastra Bank.
3. Abstracts articles and newspaper.
4. Published documents of government with related commercial banks and
5. Other related records and data relevant to the study, economic journal, financial report and policy. “( Nepal Stock exchange Ltd )”

### **3.5 Method of Data Analysis**

Data collected from various sources are analyzed by using financial and statistical tools.

#### **Financial Tools**

- ) Market price of share (MPS)
- ) Dividend per share (DPS)
- ) Expected rate of return
- ) Standard Deviation
- ) Beta Coefficient

#### **Market Price Per Share (MPS)**

One of the major data of this study is market price of stock. Market price of stock is determined by demand and supply methods. NEPSE quote three price namely high, low and close price of each year. In the present study closing price of common stock at the end of fiscal year is used as market price of stock,

which has a specific time span of one year and the study has focused in annual basis.

### **Dividend Per Share (DPS)**

A company/bank may declare only the cash dividend, stock dividend and stock split. If a company declares only the cash dividend there is no problem to take the dividend amount. But if company declare stock dividend (bonus share) it is difficult to obtain the amount that really shareholder has gained. A stock dividend is paid in additional share of stock instead of in cash and simply involves a book keeping transfer from retained earnings to the capital stock accounts; instead a larger of shares of common stock is issued. So on any formula to get real amount of dividend. DPS of the company is calculated by using the following formula (Van Horne and Wachowich, 1997: 90-109):-

$$\text{DPS} = \frac{\text{Total Dividend}}{\text{No of Share Outstanding}}$$

### **Return of Common Stock Investment**

Single period return may be defined as the change in value plus any cash distribution expressed as a percentage of the beginning of period investment value. An investor can obtain two kinds of income from an investment in a share of stock or a bond. They are as follows:

1. Income from price appreciation (or losses from price depreciation), sometimes called capital gains (or losses). This quantity denoted  $p_t - p_{t-1}$ .
2. Cash flow income from cash dividend or coupon interest payments, represented by the convention  $c_t$ .

Sum of these two sources of income (or loss) equals the total return and can be express in percentage as follows:

$$\text{Single Period of rate of return, } r_t = \frac{(\text{Price Change}) + \text{Cash Dividend}}{\text{Purchase Price at Beginning of the Period}}$$



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

Whereas,

$P_t$  = Ending stock price

$D_t$  = Cash dividend received at time t

$P_{t-1}$  = Beginning stock price

### **Expected Rate of Return of Common Stock**

This rate is obtained by arithmetic mean of the past year's return. This study is also to find out the expected return on the investment in common stock. Symbolically, expected rate of return of common stock r can be expressed as follows:-

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

Where,

$\sum$  = Sign of summation

n = no. Of years that the return is taken

$E(r_A)$  = Expected rate of return on stock A

Expected value  $E(r) = \sum r_t p_t$

$$= P_1 r_1 + p_2 r_2 + \dots + p_t r_t$$

Where,

$r_t$  = The  $t^{\text{th}}$  rate of return from a probability distribution

$p_t$  = Probability that  $t^{\text{th}}$  rate of return will take place

t = Possible rates of return

### **Standard Deviation**

It is a statistical concept and is widely used to measure risk from holding single assets. It is a statistical measure of the variability of a distribution of return

around its mean. This is a measure of the dispersion of forecast returns when such returns approximately a normal probability distribution.

The standard deviation is derived so that a high standard deviation represents a large dispersion of the total risk of the assets. It is the square root of the variance and measures the systematic risk of stock investment. Symbolically, standard deviation can be expressed as follows:

$$\text{Standard Deviation ( } \sigma_j \text{ )} = \sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{n-1}}$$

Where,

$\sigma_j$  = Standard deviation of return on stock j

$R_j$  = Rate of return of stock j

$\bar{R}_j$  = Average rate of return of stock j

n = Time period

### **Coefficient of Variation (CV)**

The relative measures of variation based on the standard deviation are known as the coefficient of variation. Coefficient of variation measures the risk per unit of expected return. It is a measure of relative risk. The coefficient of variation is calculated using the following formula.

$$CV = \frac{\sigma_j}{\bar{R}_j}$$

Where,

CV = Coefficient of variation

$\sigma_j$  = Standard deviation of return on stock 'j'

$\bar{R}_j$  = Expected rate of return on common stock 'j'

### **Beta Coefficient (b)**

The beta coefficient is an idea of systematic risk. It may be used for ranking the systematic risk of different assets. It is an index of the degree of movement of an assets return in response to a change in the market return. An asset's historical returns are used in findings the asset's beta coefficient.

Market sensitivity of stock is explained in terms of beta coefficient. Higher the beta greater the sensitivity and reaction to the market movement. Market beta serves as a benchmark or a measuring scale for the evaluation of risk of individual stocks. For an individual stock, the beta could be less than 1, equals to 1 or more than 1 depending upon the volatility of that stocks return relative to market returns. Beta coefficient can be expressed as follows:

$$\text{Beta Coefficient (b)} = \frac{\text{Cov}(r_i, r_m)}{\sigma_m^2}$$

Where,

$\text{Cov}(r_i, r_m)$  = Covariance of the return on assets i, and market portfolio.

$\sigma_m^2$  = Variance of the return on the market portfolio

$r_m$  = required rate of return on the market portfolio of securities.

### **Correlation Coefficient**

The correlation is also a measure of the relationship between two assets. The correlation coefficient can take on a value from -1 to +1. Correlation and covariance are related by the following equation:-

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

Therefore,

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

There are various cases of correlation and risk condition which are given below:

1. Perfect positive correlation ( $\rho_{ij} = +1$ )
2. Perfect negative correlation ( $\rho_{ij} = -1$ )
3. No relationship between returns ( $\rho_{ij} = 0$ )
4. Intermediate risk ( $\rho_{ij} = +0.5$ )

## Statistical Tools

### Tools of Testing Hypothesis

One of the important applications of statistical inference is 'test of hypothesis. In testing of hypothesis, an assumption is made about the population parameter. To test whether the assumption or hypothesis is right or not, a sample is selected from the population, sample statistic is obtained, observe the difference between the sample mean and test whether the difference is significant or insignificant.

#### t- Test

The student's t- distribution states that if the sample size is less than 30, then t- test is used. In order to test the significance of an observed samples return and the beta the following procedure is applied.

Null Hypothesis;  $H_0: \mu = \mu$  i.e. there is no significant difference between sample mean and the population mean.

Alternative Hypothesis;  $\mu \neq \mu$  i.e. there is significant difference between sample mean and the population mean.

Test statistic, under  $H_0$ ,

$$T = \frac{\bar{X} - \mu}{\frac{S}{\sqrt{n}}}$$

Where,

$\bar{X}$  = Average return of selected samples

$\mu$  = Average rate of return of population mean.

n = Number of observation.

S = Average standard deviation of selected samples.

## **CHAPTER - IV**

### **PRESENTATION AND ANALYSIS OF DATA**

This chapter is the heart of this study .It is fully related to analysis and presentation of data. In this chapter the effort has been made to analyze Risk and Return on common stock investment of commercial banks. At present 31 commercial banks are operating in Nepal and among them only 24 are listed in NEPSE. Out of these 24 banks, four commercial banks are taken as sample of the study.

They are Nepal Investment Bank Limited (NIBL), Standard Chartered Bank Limited (SCBL), Himalayan Bank Limited (HBL), and Everest Bank Limited (EBL). Common stock of each listed commercial banks; their risk and return analyses were included in this study

#### **4.1 Nepal Investment Bank Ltd (NIBL)**

##### **4.1.1 Introduction**

Nepal Investment Bank Ltd, previously Nepal Indosuez Bank Ltd., was established in 1986 as a joint venture between Nepalese and French Partners. The French partner (holding 50%) of the capital was Credit Agricole Indosuez, a subsidiary of one of the largest banking groups in the world. With the decision of Credit Agricole Indosuez to divest, a group of companies comprising of bankers, professionals, industrialists and businessmen, in April 2002, acquired 50% of the holdings of Credit Agricole Indosuez in Nepal Indosuez Bank. The name of the bank was changed to Nepal Investment Bank Ltd. upon approval of the Bank's Annual General Meeting, Nepal Rastra Bank and Company Registrar's Office.

#### 4.1.2 Analysis of MPS, EPS and P/E Ratio of NIBL

The table 4.1 shows the MPS, EPS and P/E Ratio of NIBL bank.

<b>FY</b>	<b>MPS</b>	<b>DPS</b>	<b>EPS</b>	<b>P/E Ratio</b>
2060/61	940	15	51.70	18.18
2061/62	800	12.5	39.5	20.25
2062/63	1260	20	59.35	21.23
2063/64	1729	5	62.57	27.693
2064/65	2450	7.5	57.87	42.33
2065/66	1388	20	37.42	37.1

**Table 4.1**

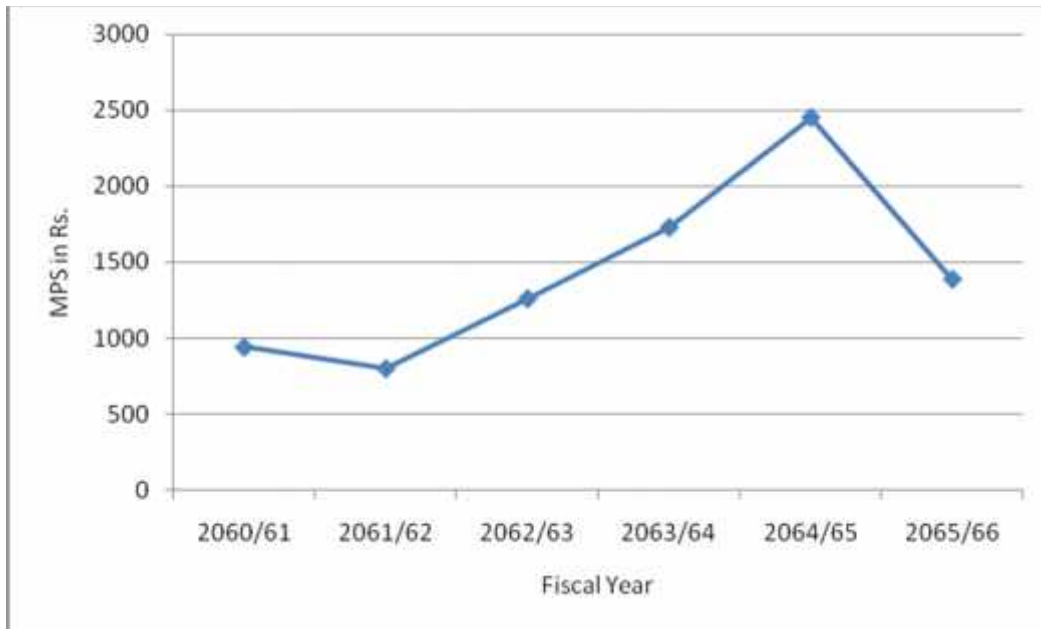
#### **MPS, Dividend, EPS and P/E Ratio of NIBL**

*Source: Annual Report of NIBL 2060/61 to 2065/66*

According to table 4.1, the closing MPS of NIBL is maximum of Rs. 2450 in the year 2064/65 and minimum of Rs. 800 in the year 2061/62. NIBL has highest DPS in the year 2062/63 and 2065/66 and has lowest DPS in the year 2063/64. NIBL is paying cash dividend in every year. The EPS of NIBL is highest in year 2063/64(i.e. 62.57) and lowest in the year 2065/66 (i.e. 37.42). P/E ratio of NIBL is maximum in the year 2064/65 i.e. 42.33 and minimum in the year 2060/61 i.e. 18.18.

Figure 4.1 shows the trend line of market price in several year of NIBL. It can be seen that there is fluctuation of market price from year 2060/61 till 2065/66. There is minimum price in the year 2061/62 i.e. Rs. 800 and maximum in the year 2064/65 i.e. Rs. 2450. The trend reach the peak point in the Year of 2064/65 .

**Figure 4.1**  
**Market Price of NIBL**



**Figure 4.2**  
**Dividend Per Share of NIBL**

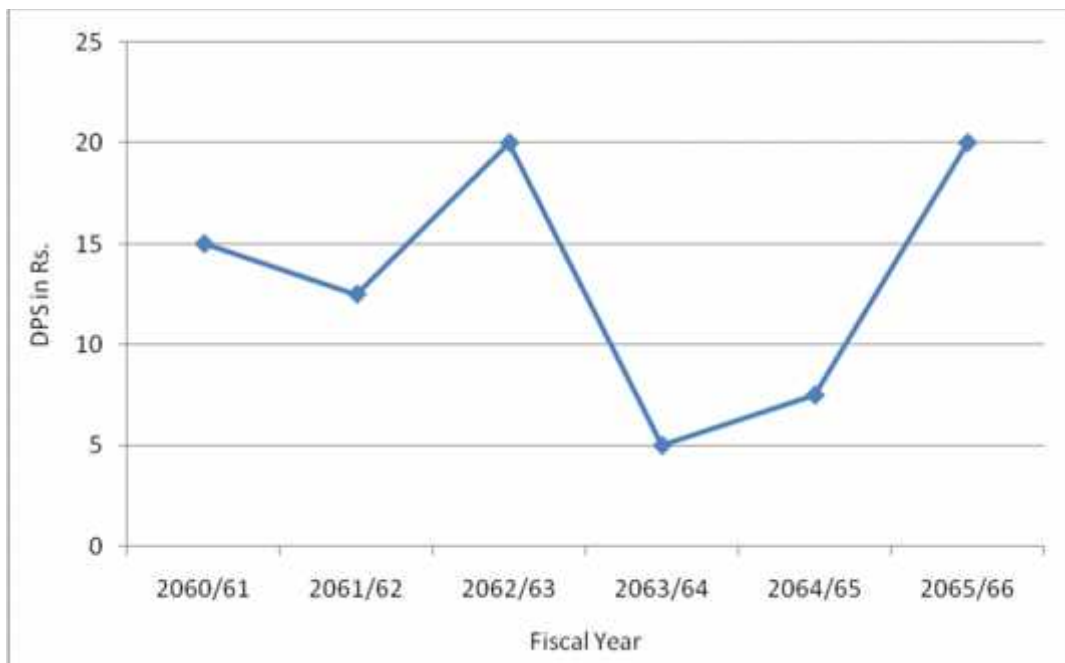


Figure 4.2 shows the dividend per share of NIBL. It can be seen that there is fluctuation of dividend per share from 2060/2061 till 2065/2066. There is minimum dividend per share in the year

#### 4.1.3 Expected Return ( $R_j$ ), Standard Deviation ( ) and Coefficient of Variation (C.V) of NIBL

The table 4.2 shows the expected return, standard deviation and coefficient of variation of NIBL bank.

**Table 4.2**

#### Expected Return, Standard Deviation and Coefficient of Variation of NIBL

FY	MPS in RS	DPS in Rs	$R_n$	$(R_n - \bar{R}_n)$	$(R_n - \bar{R}_n)^2$
2060/61	940	15	0	-0.139	0.0193
2061/62	800	12.5	-0.136	-0.275	0.0756
2062/63	1260	20	0.6	0.461	0.2125
2063/64	1729	5	0.38	0.241	0.0581
2064/65	2450	7.5	0.421	0.282	0.0759
2065/66	1388	20	-0.43	-0.569	0.3238
	<b>Total</b>		<b>0.835</b>	<b>0.001</b>	<b>0.7652</b>

Where,

R is calculated with the use of following equation

$$R = \frac{\text{Ending Price} - \text{Beginning Price} + \text{Dividend Per Share}}{\text{Beginning Price}}$$

$$\text{Expected Return } (\bar{R}) = \frac{\sum R}{N}$$

$$= \frac{0.835}{6}$$

$$= 0.139$$

$$\text{Standard Deviation } (\sigma_n) = \sqrt{\frac{\sum (R_n - \bar{R}_n)^2}{N-1}}$$

$$= \sqrt{\frac{0.7652}{(6-1)}} = 0.389$$



Coefficient of Variance

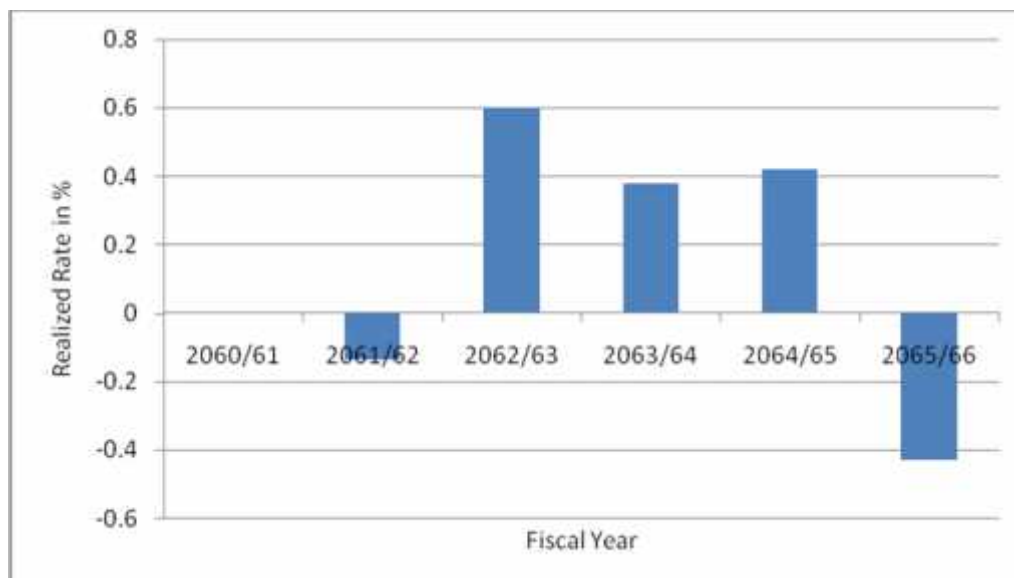
$$CV = \frac{\sigma}{R} = \frac{0.389}{0.139} = 2.79$$

Expected return of NIBL is 0.139 with the total risk (measured by S.D) of 0.389. The C.V of NIBL is 2.79 which denotes that to get per unit return 2.79 risk must be borne.

Figure 4.3 shows the realized rate return of Nepal Investment Bank Limited in the various years under study.

**Figure 4.3**

**Realized Rate of Return Per Share of Nepal Investment Bank**



*Source: Table 4.2*

The figure 4.3 shows that the realized rate of return of NIBL in several years. The rate of return is maximum on 2062/63 i.e. 0.6 while the return is negative in the year 2061/62 and 2065/66. The figure shows that there is a higher variability in realized return.

## **4.2 Standard Chartered Bank Limited Nepal (SCBL)**

### **4.2.1 Introduction**

Standard Chartered was incorporated in 2042 B.S (1995 A.D). It is second joint venture bank under the company act. The bank was listed in Nepal Stock Exchange in Ashadh 21, 2045 B.S. Standard Chartered Bank Nepal Limited (SCBL), was previously known as Nepal Grind lays Bank . Today the bank is an integral part of Standard Chartered Group having an ownership of 75% in the company with 25% shares owned by the Nepalese public. The bank enjoys the status of the largest international bank currently operating in Nepal, with 18 points of representation, 23 ATMs across the country and with more than 350 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. SCBL 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.

### **4.2.2 Analysis of MPS, DPS, EPS and P/E Ratio of SCBL**

The table 4.3 shows the MPS, DPS and P/E ratio of SCBL bank. According to Table 4.3, the closing MPS of SCBL is maximum of Rs. 6830 in the year 2064/65 and minimum of Rs. 1745 in the year 2060/61. SCBL has highest DPS in year 2062/63 (i.e.130) and has lowest DPS in year 2065/66 (i.e. 50). SCBL is paying cash dividend. The EPS is highest in the year 2062/63 i.e.175.84 and lowest in the year 2060/61 i.e. 96.51. P/E ratio of SCBL is maximum in the year 2065/66 i.e. 54.64 and minimum in the year 2061/62 i.e. 16.38.

**Table 4.3**

**MPS, Dividend, EPS and P/E Ratio of SCBL**

<b>FY</b>	<b>MPS in Rs</b>	<b>DPS in Rs</b>	<b>EPS (Rs)</b>	<b>P/E ratio</b>
2060/61	1745	110	96.51	18.08
2061/62	2345	120	143.14	16.38
2062/63	3775	130	175.84	21.47
2063/64	5900	80	167.37	35.25
2064/65	6830	80	131.92	51.77
2065/66	6010	50	109.99	54.64

*Data Source: Annual Report of SCBL 2060/61 to 2065/66*

**Figure 4.4**

**Market Price of SCBL**

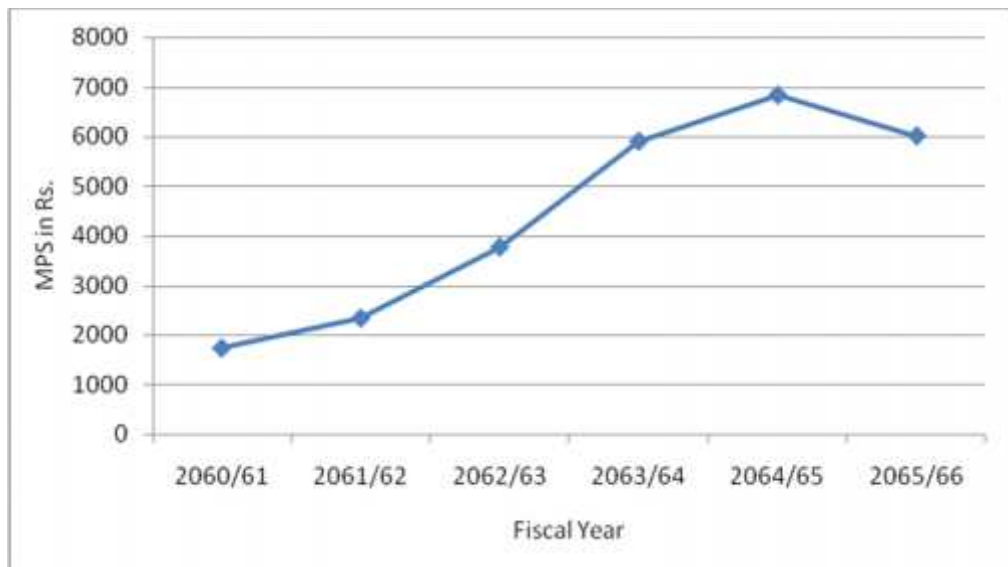


Figure 4.4 shows the trend line of market price in several year of SCBL. The trend line shows the rapid growth after 2060/61 to 2064/65. There is minimum price in the year 2060/61 i.e. Rs. 1774 and maximum in the year 2064/65 i.e. Rs. 6830.

**Figure 4.5**

**Dividend Per Share of SCBL**

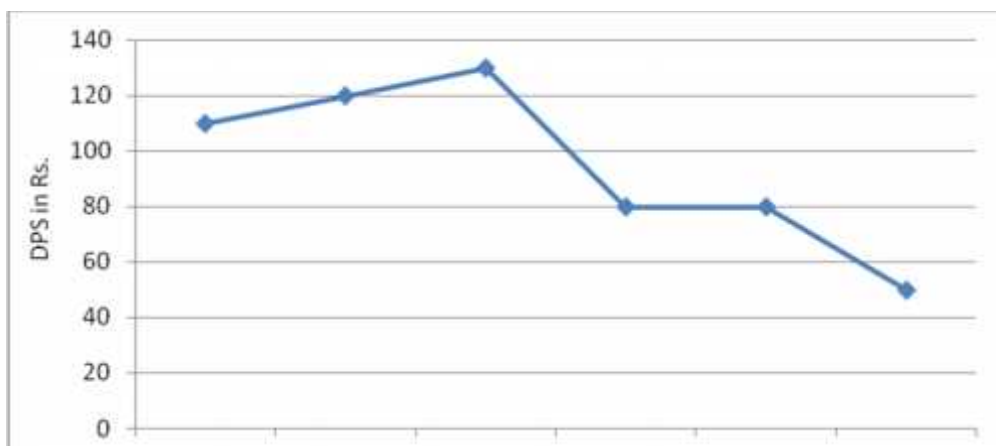


Figure 4.5 shows the dividend per share of SCBL. The Dividend per share is minimum in the year 2065/66 i.e. Rs 50 and maximum in the year 2062/63 i.e. Rs 130.

#### 4.2.3 Expected Return ( $R_j$ ), Standard Deviation ( $\sigma$ ) and Coefficient of Variation (C.V) of SCBL

The table 4.4 shows the expected return, standard deviation and coefficient of variation of SCBL bank.

**Table 4.4**  
**Expected Return ( $R_j$ ), Standard Deviation ( $\sigma$ ) and Coefficient of Variation (C.V) of SCBL**

FY	MPS in Rs	DPS in Rs	$R_s$	$(R_s - \bar{R}_s)$	$(R_s - \bar{R}_s)^2$
2060/61	1745	110	0	(0.288)	0.0829
2061/62	2345	120	0.413	0.125	0.0156
2062/63	3775	130	0.665	0.377	0.1422
2063/64	5900	80	0.584	0.296	0.0876
2064/65	6830	80	0.171	(0.117)	0.0136
2065/66	6010	50	(0.113)	(0.401)	0.1608
	Total		1.723		0.5026

*Data Source: Annual Report of SCBL 2060/61 to 2065/66*

$$\begin{aligned} \text{Expected Return } (\bar{R}) &= \frac{\sum R}{N} \\ &= \frac{1.723}{6} = 0.288 \end{aligned}$$

$$\begin{aligned} \text{Standard Deviation } (\sigma) &= \sqrt{\frac{\sum (R_s - \bar{R}_s)^2}{N-1}} \\ &= \sqrt{\frac{0.5026}{(6-1)}} \\ &= 0.317 \end{aligned}$$

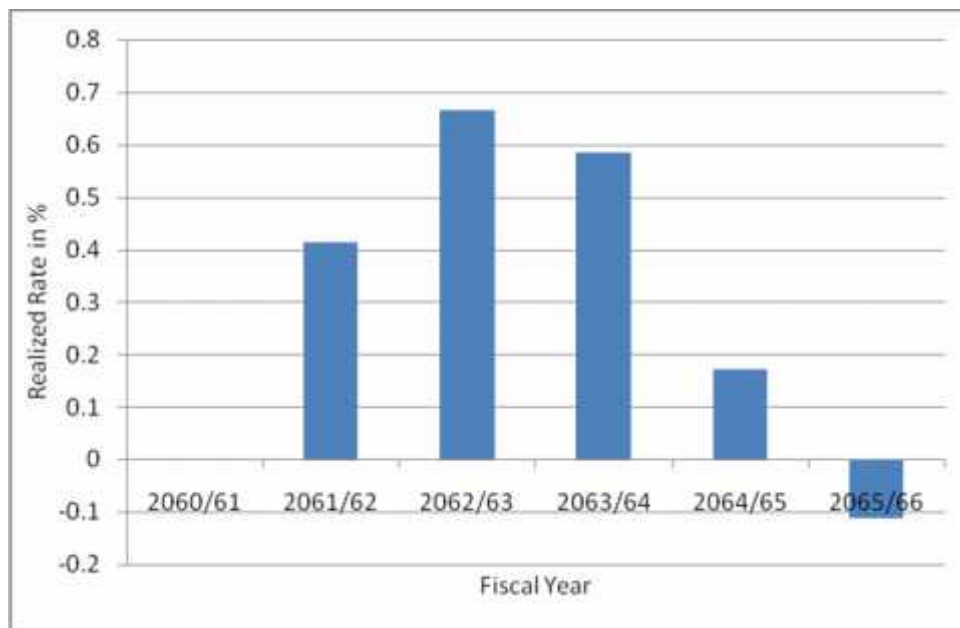
Coefficient of Variance

$$CV = \frac{\sigma}{\bar{R}} = \frac{0.317}{0.288} = 1.101$$

Expected return of NIBL is 0.288 with the total risk (measured by S.D) of 0.317. The C.V of NIBL is 1.10 which denotes that to get per unit return 1.10 risk must be borne.

Following chart shows the rate of return of Standard Chartered Bank Limited in the various years under scrutiny.

**Figure 4.6**  
**Realized Rate of Return of Per Share of**  
**Standard Chartered Bank Limited**



The figure 4.6 shows that the expected rate of return of SCBL in several years. The rate of return is maximum on 2062/63 i.e. 0.68 which shows highest return profitable while the rate of return is minimum in the year 2065/66.

### **4.3 Himalayan Bank Limited (HBL)**

#### **4.3.1 Introduction**

It is a first joint venture bank after the adoption of liberalization and revitalization was established in 1992 A.D.(2049). The bank was listed on NEPSE in 1993 A.D(2050/03/21). Himalayan Bank Limited is the first joint venture bank managed by Nepalese Chief Executive. Himalayan Bank Limited

(HBL) was incorporated in 1992 by a few distinguished business personalities of Nepal in partnership with Employee Provident Fund and Habib bank Limited, one of the largest commercial bank of Pakistan. Banking operation was commenced from January 1993. HBL does not include government ownership. It has been established to maintain the economic welfare of the general people to facilitate loan for agriculture industry and commerce to provide the banking service to the country and people. It is the first commercial bank of Nepal with maximum share holding by Nepalese private sector. Besides commercial, activities, the bank also offers industrial and merchant banking. Its ownership is composed of founder shareholder 51% Habib bank of Pakistan 20%, employee's provident fund 14% and general public 15%. It is the 1<sup>st</sup> bank having domestic ownership more than 50%. HBL has been operating in high profit from the establishment period till now. It accepts deposit through current deposit, saving deposit, fixed deposit and call deposit.

#### 4.3.2 Analysis DPS, EPS MPS and P/E Ratio of HBL

The table 4.5 shows MPS, EPS, DPS and P/E ratio of HBL bank.

**Table 4.5**

##### **MPS, Dividend, EPS and P/E Ratio of HBL**

<b>FY</b>	<b>MPS in Rs</b>	<b>DPS in Rs</b>	<b>EPS</b>	<b>P/E Ratio</b>
2060/61	840	0	49.05	17.12
2061/62	920	11.58	47.91	19.2
2062/63	1100	30	59.24	18.57
2063/64	1740	15	60.66	28.69
2064/65	1980	25	62.74	31.56
2065/66	1760	12	61.9	28.43

*Source: Annual Report of HBL FY 2060/61 to 2065/66*

Table 4.5 shows that the closing MPS of HBL is maximum of Rs. 1980 in the year 2064/65 and minimum of Rs. 840 in the year 2065/66. Highest total dividend is paid in the year 2064/65 i.e. Rs 25 and lowest is in the year 2060/61 i.e. Rs 0. HBL is not paying cash dividend in the year 2060/61. The EPS is

highest in the year 2064/65 i.e. 62.74 and lowest in the year 2061/62 i.e. 47.91. P/E ratio of HBL is maximum in the year 2064/65 i.e. 31.56 and minimum in the year 2060/61 i.e. 17.12. P/E ratio is in increasing trend from starting year 2060/61 to the ending year 2064/65.

**Figure 4.6**  
**Market Price of HBL**

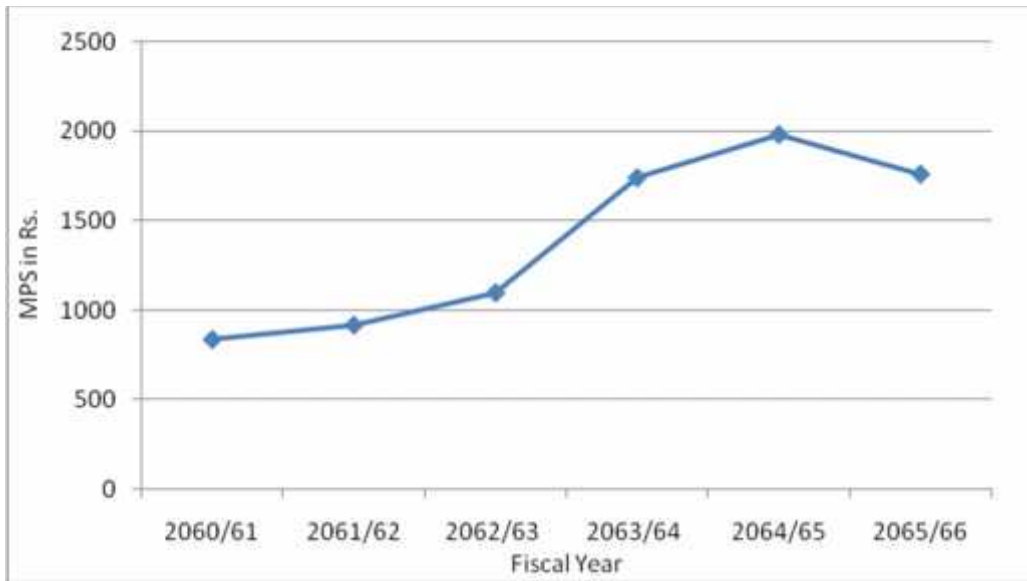


Figure 4.5 shows the trend line of market in several year of HBL. It can be seen in the fluctuating trend. The minimum is in the year 2060/61 i.e. 840 and maximum in the year 2064/65 i.e. Rs 1980

**Figure 4.7**  
**Dividend Per Share of HBL**

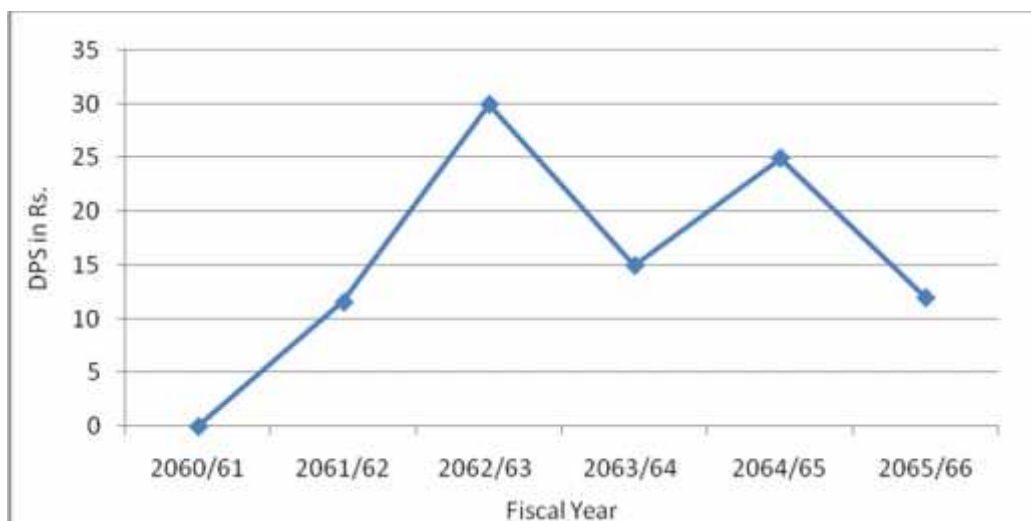


Figure 4.7 shows the dividend per share of HBL. It can be seen that there is fluctuation of dividend per share from year 2060/61 till 2065/66. There is minimum in the year 2060/61 and maximum in the year 2062/63 i.e. Rs 30.

### 4.3.3 Expected Return ( $R_j$ ), Standard Deviation ( $\sigma$ ) and Coefficient of Variation (C.V) of HBL

Here, the table 4.6 shows the expected return, standard deviation and coefficient of variation of HBL bank.

**Table 4.6**

#### **Expected Return, Standard Deviation and Coefficient of Variation of HBL**

FY	MPS in Rs	DPS in Rs	$R_h$	$(R_h - \bar{R}_h)$	$(R_h - \bar{R}_h)^2$
2060/61	840	0	0	(0.163)	0.0266
2061/62	920	11.58	0.109	(0.054)	0.0029
2062/63	1100	30	0.288	0.065	0.00422
2063/64	1740	15	0.595	0.432	0.18662
2064/65	1980	25	0.152	(0.011)	0.00121
2065/66	1760	12	(0.105)	(0.268)	0.07182
	<b>Total</b>		<b>0.979</b>		<b>0.29337</b>

*Data Source: Annual Report of EBL Fiscal Year 2060/61 to 2065/66*

$$\begin{aligned} \text{Expected Return } \bar{R} &= \frac{\sum R}{N} \\ &= \frac{0.979}{6} = 0.163 \end{aligned}$$

$$\begin{aligned} \text{Standard Deviation } (\sigma_h) &= \sqrt{\frac{\sum (R_h - \bar{R}_h)^2}{N-1}} \\ &= \sqrt{\frac{0.29337}{(6-1)}} \\ &= 0.2425 \end{aligned}$$

Coefficient of Variance

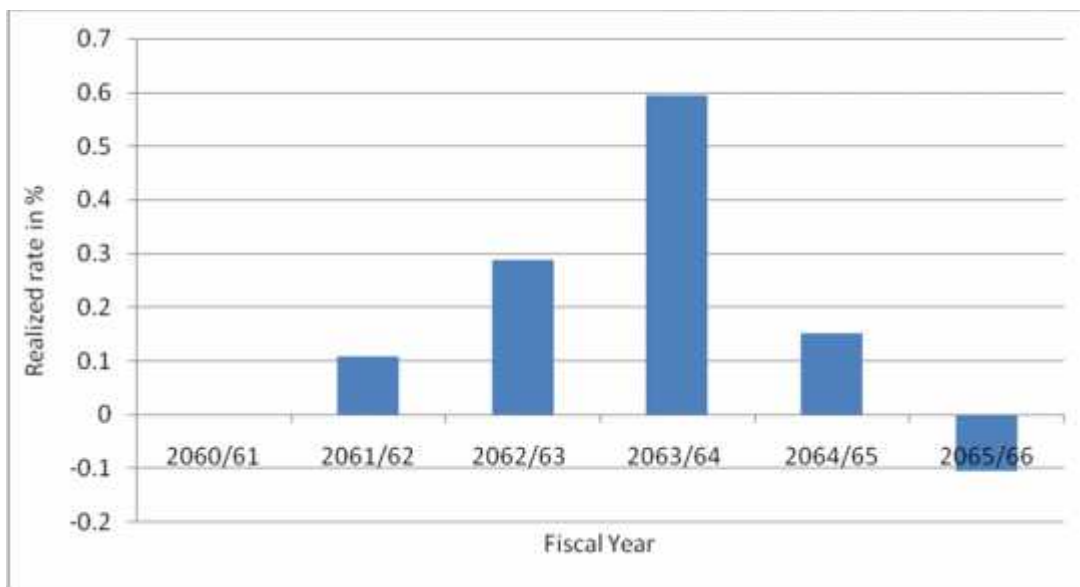
$$CV = \frac{\sigma}{\bar{R}} = \frac{0.2425}{0.163} = 1.49$$



Expected return of HBL is 0.163 with the total risk (measured by S.D) of 0.2425. The C.V of HBL is 1.49 which denotes that to get per unit return 1.49 risk must be borne.

**Figure 4.8**

**Realized Rate of Return of Per Share of Himalayan Bank Ltd.**



The Figure 4.6 shows the annual return of HBL in several years. The rate of return is maximum on 2063/64 i.e. 0.59 which shows highest return profitable while the return is negative in the year 2065/66 i.e. 0.1.

#### **4.4 Everest Bank Limited (EBL)**

##### **4.4.1 Introduction**

Everest Bank Limited (EBL) was established in 1992 under the company act 1964 with collaboration of Punjab National Bank of India. The bank is second joint venture bank between India and Nepal. This bank is joint venture with Punjab National Bank India. The head office of EBL is located at Lazimpat. This bank is providing customer-friendly services through its branch network and over 250 correspondent banks across the globe. All the branches of the banks are connected through Anywhere Branch Banking System (ABBS),

which enables customers to do all their transactions from any branches other than where they have their account. On equity holding PNB has 20% equity participation in its total share holding and also has under taken management responsibility under a technical service agreement and promoter holding 50% and rest 30% held by general public. The bank was listed in Nepal stock exchange in 1995 A.D (2052, Chaitra 25). The main purpose of EBL is to extend professional banking services to various sectors of the society of Nepal and thereby contributing in the economic development of the country.

#### 4.4.2 Analysis of MPS, DPS, EPS and P/E Ratio of EBL

The table 4.7 shows the MPS, DPS, EPS and P/E ratio of EBL bank.

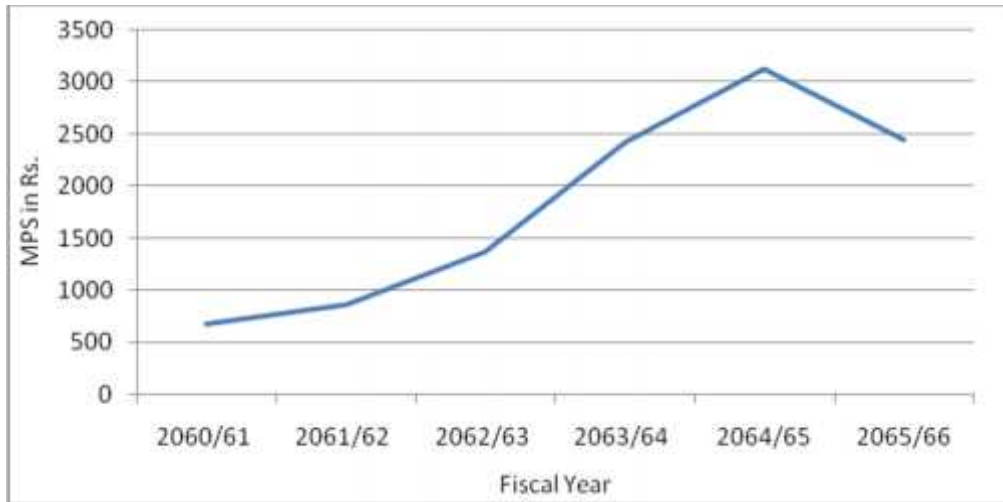
**Table 4.7**  
**MPS, DPS and P/E Ratio of EBL**

<b>FY</b>	<b>MPS</b>	<b>DPS in Rs</b>	<b>EPS</b>	<b>P\E Ratio</b>
2060/61	680	20	45.6	14.9
2061/62	870	-	54.22	16.04
2062/63	1379	25	62.78	21.97
2063/64	2430	10	78.42	30.99
2064/65	3132	20	91.82	34.11
2065/66	2455	30	99.99	24.55
	Total			

*Data Source: Annual Report of EBL Fiscal Year 2060/61 to 2065/66*

According to Table, The closing MPS of EBL is maximum of Rs. 3132 in the year 2064/65 and minimum of Rs. 680 in the year 2060/61. Highest total dividend is paid in the year 2065/66 i.e. Rs. 30 and lowest total dividend in 2061/62 i.e. 0. There is no cash dividend in the year 2061/62. The EPS is highest in the year 2065/66 i.e. 99.99 and lowest in the year 2060/61 i.e. 45.6. P/E ratio of EBL is maximum in the year 2064/65 i.e. 34.11 and minimum in the year 2060/61 i.e. 14.90.

**Figure 4.9**



**Market Price of EBL**

Figure 4.9 shows the trend line of price of EBL which is in increasing trend from 2060/61. The price is minimum in the year 2060/61 i.e. Rs. 680 and maximum in the year 2064/65 i.e. Rs. 3132. It is shown that there is pick point 2064/65 then after decreased.

**Figure 4.10**

**Dividend Per Share of EBL**

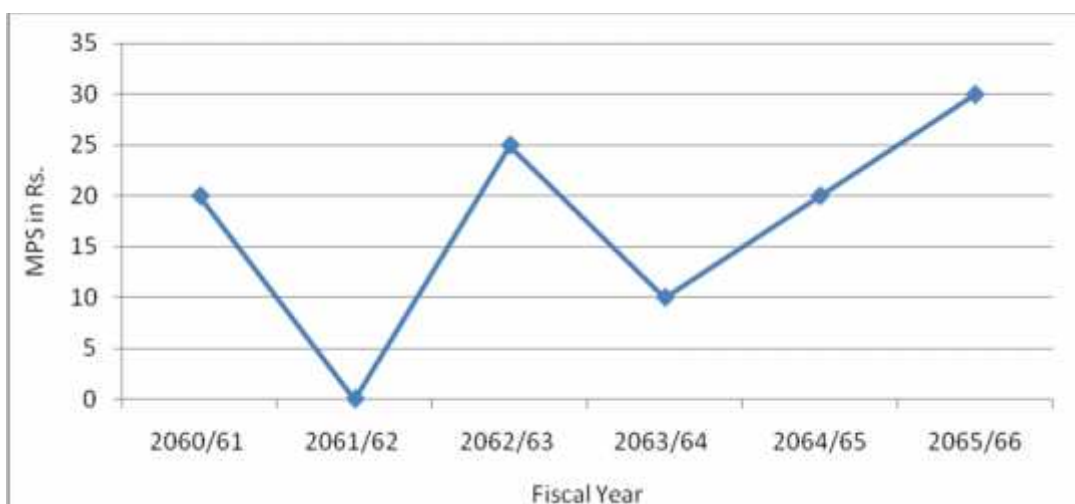


Figure 4.10 shows that dividend per share of EBL. It can be seen in fluctuating. The minimum is in the year 2061/62 and maximum in the year 2065/66 i.e. Rs 30.

#### 4.4.3 Expected Return ( $R_j$ ), Standard Deviation ( $\sigma$ ) and Coefficient of Variation (C.V) of EBL

The table 4.8 shows the expected return, standard deviation and coefficient of variation of EBL bank.

**Table 4.8**

#### Expected Return, Standard Deviation and Coefficient of Variation of EBL

FY	MPS	DPS in Rs	$R_e$	$(R_e - \bar{R}_e)$	$(R_e - \bar{R}_e)^2$
2060/61	680	20	0	(0.292)	0.0853
2061/62	870	-	0.279	(0.013)	0.000169
2062/63	1379	25	0.614	0.322	0.1037
2063/64	2430	10	0.769	0.477	0.2275
2064/65	3132	20	0.297	0.005	0.000025
2065/66	2455	30	(0.206)	(0.498)	0.248
	Total		1.753		0.6647

Data Source: Annual Report of EBL Fiscal Year 2060/61 to 2065/66

Now,

$$\begin{aligned} \text{Expected Return } (\bar{R}) &= \frac{\sum R}{N} \\ &= \frac{1.753}{6} \\ &= 0.292 \end{aligned}$$

$$\begin{aligned} \text{Standard Deviation } (\sigma_e) &= \sqrt{\frac{\sum (R_e - \bar{R}_e)^2}{N-1}} \\ &= \sqrt{\frac{0.6647}{(6-1)}} \\ &= 0.365 \end{aligned}$$

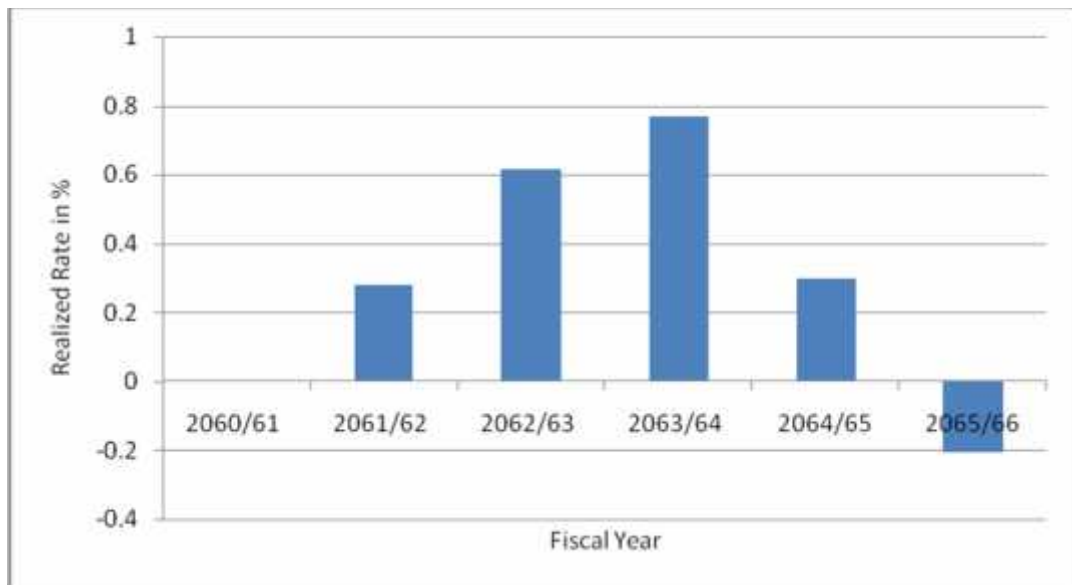
Coefficient of Variance

$$CV = \frac{\sigma}{\bar{R}} = \frac{0.365}{0.292} = 1.25$$

Expected return of EBL is 0.292 with the total risk (measured by S.D) of 0.365. The C.V of EBL is 1.25 which indicates the investor needs to sacrifice 1.25 unit of risk for per unit return.

Following figure shows the market price per share of EBL in the various years under study.

**Figure 4.11**  
**Annual Rate of Return of Everest Bank Limited**



The figure 4.8 shows the annual rate of return of EBL in several years. There is highest return of 0.78 in the year 2063/64 and negative return in the year 2065/66. There is fluctuation of returns.

#### **4.5 Comparison of Expected Returns, Standard Deviation and the Coefficient of Variation between the Sampled Banks**

Table 4.9 shows the expected returns, standard deviation and the coefficient of variation of the sampled banks under study.

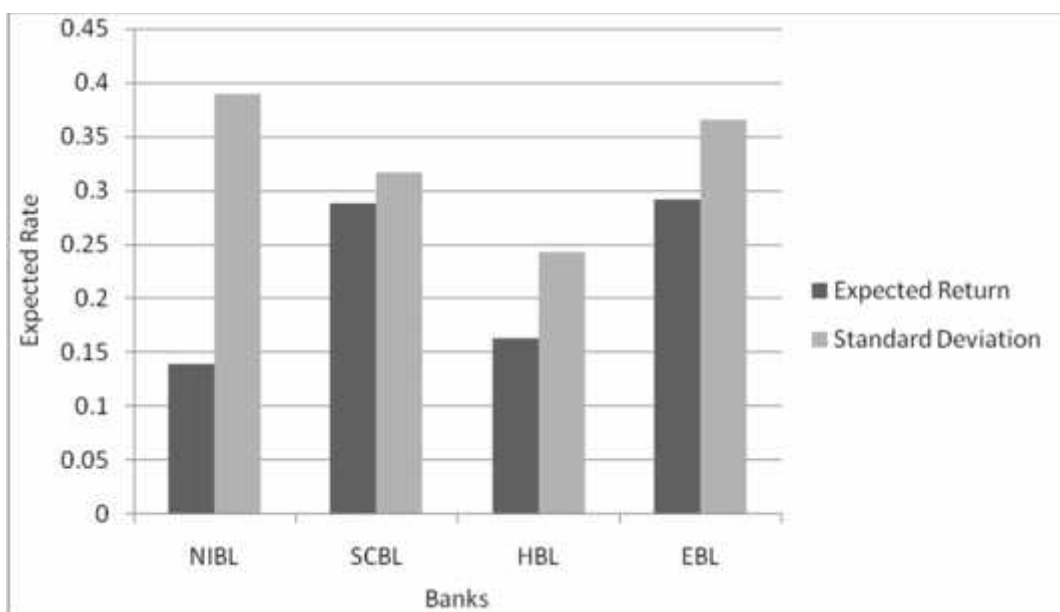
**Table 4.9**  
**Expected Return, Standard Deviation and Coefficient of Variance of the Sampled Banks**

S.N	Bank	Expected Return	Standard Deviation	Coefficient of Variation	Remarks
1	NIBL	0.139	0.389	2.79	Highest C.V
2	SCBL	0.288	0.317	1.10	Lowest CV
3	HBL	0.163	0.2425	1.49	Lowest risk
4	EBL	0.292	0.365	1.25	highest return, highest risk

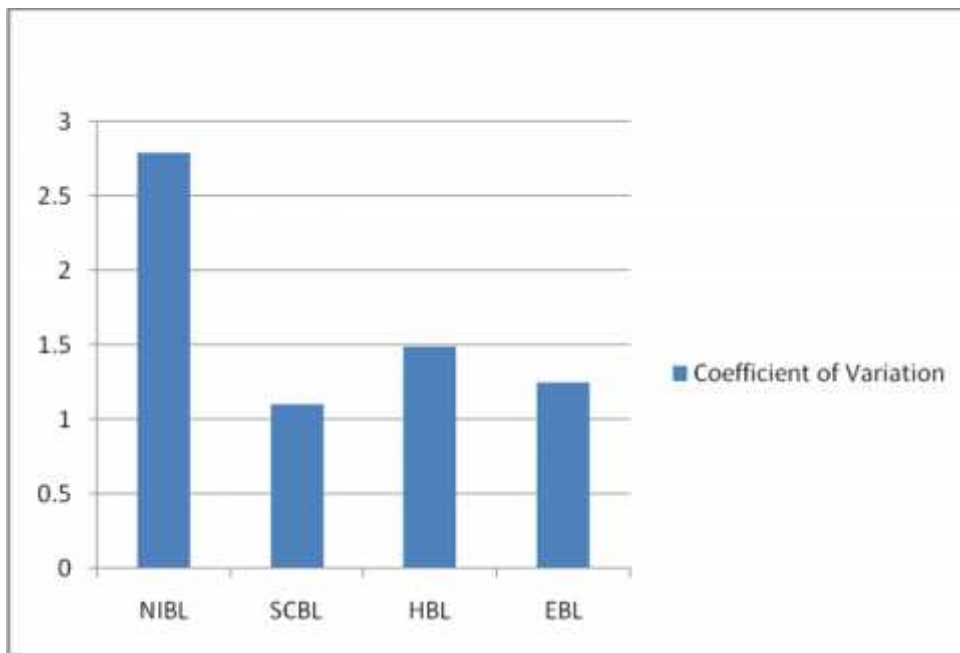
According to the table 4.9 the statistical results imply that over the period EBL has highest expected return. The lowest expected return is 0.139 of NIBL. Based on the standard deviation, the NIBL and EBL can be considered as high risk securities. The standard deviation of the returns on the shares of HBL is the lowest one. Looking at the coefficient of variation, the share of the SCBL has the lowest risk per unit of return; the highest being is of NIBL. Investment in SCBL is desirable because its return is higher and risk is lowest compared to others.

By observing the figure 4.12 and 4.13, the comparison of the sampled banks in terms of risk and return can be clearly seen. It clarifies the expected return, standard deviation and coefficient of variation of each individual bank.

**Figure 4.12**  
**Expected Return, Standard Deviation and Coefficient of**  
**Variation of the Sampled Banks**



**Figure 4.13**  
**Coefficient of Variation of the Sampled Banks**



#### **4.6 Analysis of Expected Return, Standard Deviation and Coefficient Variation of Market**

Market Return is calculated as the percentage change in NEPSE index each year. Table 4.10 shows the expected return, standard deviation, and coefficient variation of market.

**Table 4.10**  
**Expected Return, Standard Deviation and Coefficient of Variation of the Market Index**

Fiscal Year	NEPSE Index (NI)	$R_m$	$R_m - R_m$	$(R_m - R_m)^2$
2060/61	199.9	Not available	-0.297	0.088
2061/62	231.97	0.160	-0.137	0.019
2062/63	386.83	0.668	0.371	0.137

2063/64	683.95	0.768	0.471	0.222
2064/65	963.36	0.409	0.111	0.012
2065/66	749.1	-0.222	-0.519	0.270
Total		1.782		0.748

Source: Various Annual Reports of NEPSE.

$$\begin{aligned} \text{Expected Return } (\bar{R}) &= \frac{\sum R_m}{N} \\ &= \frac{1.782}{6} = 0.297 \end{aligned}$$

$$\begin{aligned} \text{Standard Deviation } (\sigma_m) &= \sqrt{\frac{\sum (R_m - \bar{R}_m)^2}{N-1}} \\ &= \sqrt{\frac{0.784}{(6-1)}} \\ &= 0.387 \end{aligned}$$

Coefficient of Variance

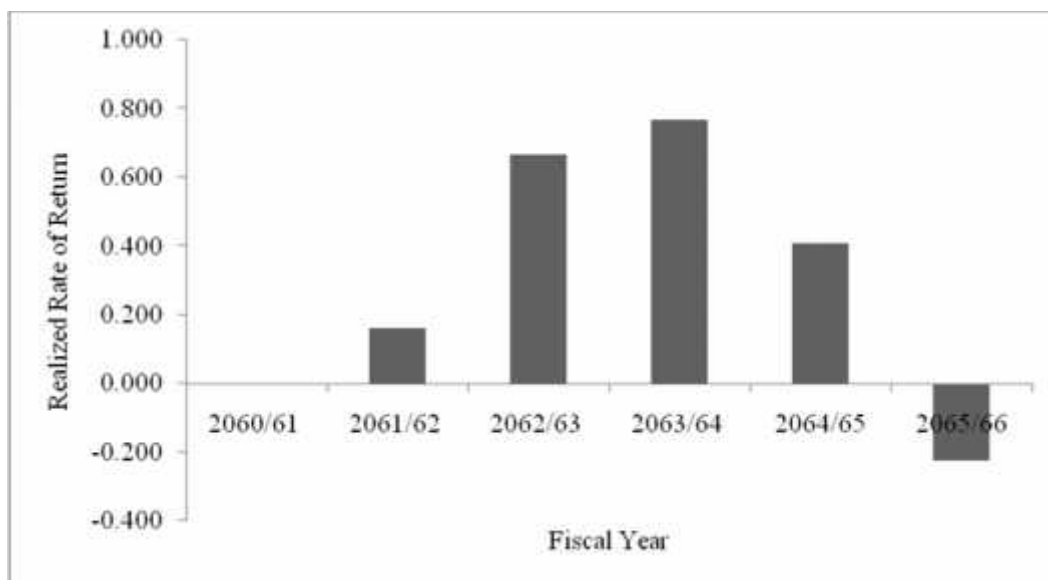
$$CV = \frac{\sigma}{\bar{R}} = \frac{0.387}{0.297} = 1.302$$

Table 4.10 shows the return of Market in several years. There is highest return of market in the year 2063/64 i.e. 0.7682 and there are negative returns in the year 2065/66 i.e.-0.222. The expected return of the market is 0.297 with the total risk (measured by S.D) of 0.387 and C.V is 1.302, which means. 1.302 risks must be sacrificed to get per unit market return.

Figure 4.13 shows the annual rate of return of Market in several years. There is highest return of 0.768 in the year 2063/64 and negative return of in the year 2065/66 i.e-0.222. There is high fluctuation in market rate of returns



**Figure 4.14**  
**Annual Rate of Return of**  
**Market**



#### 4.7 Analysis of Relation of Return of NIBL with Market

Market Return is calculated as the percentage change in NEPSE index each year. Table 4.11 shows the relation of return of NIBL with Market in each year.

**Table 4.11**

**Co-Variance (Cov<sub>jm</sub>), Correlation of Coefficient ( $\sigma_{jm}$ ) and Beta (B<sub>j</sub>)**

Fiscal Year	$(R_n - \bar{R}_n)$	$(R_m - \bar{R}_m)$	$(R_n - \bar{R}_n)(R_m - \bar{R}_m)$
2060/61	-0.139	-0.297	0.0413
2061/62	-0.275	-0.137	0.0377
2062/63	0.461	0.371	0.171
2063/64	0.241	0.471	0.1135
2064/65	0.282	0.111	0.0313
2065/66	-0.569	-0.519	0.2953
Total			0.6901

$$\text{Co- variance (Cov}_{nm}) = \frac{(R_n - \bar{R}_n)(R_m - \bar{R}_m)}{N-1}$$

$$= \frac{0.6901}{(6-1)}$$

$$= 0.138$$

$$\text{Correlation of coefficient ( } r_{nm} \text{)} = \frac{\text{Cov}_{nm}}{\sigma_n \sigma_m}$$

$$= \frac{0.138}{0.389 \times 0.387} = \frac{0.138}{0.1505} = 0.9169$$

$$\text{Coefficient of determination ( } P^2_{nm} \text{)} = (0.9169)^2$$

$$= 0.841$$

Beta of NIBL

$$\text{Beta ( } b_n \text{)} = \frac{\text{Cov } R_n R_m}{\sigma_m^2}$$

$$= \frac{0.138}{0.387^2}$$

$$= 0.921$$

Here the covariance between the return of NIBL and Market is 0.138; correlation coefficient is 0.9169 and beta-coefficients of NIBL stock is 0.921. The coefficient of determination measures the proportion of systematic risk in total risk. Here the determination is 0.841 which indicates that, out of total variability of return, 84.1% variability is due to market movement and the remaining 15.9% is due to unique causes of the company itself.

#### 4.8 Analysis of Relation of Return of SCBL with Market

Market Return is calculated as the percentage change in NEPSE index each year. Table 4.12 shows the relation of return of SCBL with Market.

**Table 4.12**

**Table of Co-Variance, Correlation of Coefficient and Beta of SCBL**

Fiscal Year	$(R_s - \bar{R}_s)$	$(R_m - \bar{R}_m)$	$(R_s - \bar{R}_s)(R_m - \bar{R}_m)$
2060/61	(0.288)	-0.297	0.085536
2061/62	0.125	-0.137	(0.017125)
2062/63	0.377	0.371	0.139867

2063/64	0.296	0.471	0.139416
2064/65	(0.117)	0.111	(0.012987)
2065/66	(0.401)	-0.519	0.208119
Total			0.542826

$$\begin{aligned} \text{Co- variance (Cov}_{sm}) &= \frac{(R_s - \bar{R}_s)(R_m - \bar{R}_m)}{N-1} \\ &= \frac{0.542826}{(6-1)} \\ &= 0.109 \end{aligned}$$

$$\begin{aligned} \text{Correlation of coefficient ( } r_{sm}) &= \frac{\text{Cov}_{sm}}{\sigma_s \sigma_m} \\ &= \frac{0.109}{0.317 \times 0.387} = \frac{0.109}{0.1226} = 0.889 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of determination (P}^2_{sm}) &= (0.889)^2 \\ &= 0.7903 \end{aligned}$$

### Beta of SCBL

$$\begin{aligned} \text{Beta (b}_s) &= \frac{\text{Cov } R_s \text{ } R_m}{\sigma_m^2} \\ &= \frac{0.109}{0.387^2} \\ &= 0.728 \end{aligned}$$

Here the covariance between the return of SCBL and Market is 0.109; correlation coefficient is 0.889 and beta-coefficients of SCBL stock is 0.728. Here the determination 0.7903 indicates that, out of total variability of return, 79.03% variability is due to market movement and the remaining 20.97 is due to unique causes of the company itself.

### 4.9 Analysis of Relation of Return of HBL with Market

Market Return is calculated as the percentage change in NEPSE index. Table 4.13 shows the relation of return of HBL with Market.

**Table 4.13**

**Table of Co-Variance, Correlation of Coefficient and Beta of HBL**

FY	$R_h - \bar{R}_h$	$(R_m - \bar{R}_m)$	$(R_h - \bar{R}_h)(R_m - \bar{R}_m)$
2060/2061	-0.163	-0.297	0.048411
2061/2062	-0.054	-0.137	0.007398
2062/2063	0.065	0.371	0.024115
2063/2064	0.432	0.471	0.203472
2064/2065	-0.011	0.111	-0.001221
2065/2066	-0.268	-0.519	0.139092
Total			0.421267

$$\begin{aligned} \text{Co- variance (Cov}_{hm}) &= \frac{(\sum (R_h - \bar{R}_h)(R_m - \bar{R}_m))}{N-1} \\ &= \frac{0.421267}{(6-1)} \\ &= 0.0843 \end{aligned}$$

$$\begin{aligned} \text{Correlation of coefficient ( } r_{hm}) &= \frac{\text{Cov}_{hm}}{\sigma_h \sigma_m} \\ &= \frac{0.0843}{0.2425 \times 0.387} = \frac{0.0843}{0.094} = 0.896 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of determination (P}^2_{hm}) &= (0.896)^2 \\ &= 0.8028 \end{aligned}$$

**Beta of HBL**

$$\begin{aligned} \text{Beta (b}_h) &= \frac{\text{Cov } R_h R_m}{\sigma_m^2} \\ &= \frac{0.0843}{0.387^2} \\ &= 0.563 \end{aligned}$$

Here the covariance between the return of HBL and Market is 0.0843; correlation coefficient is 0.896 and beta-coefficients of HBL stock is 0.563 of HBL. Here the determination 0.8028 indicates that, out of total variability of

return 80.28% variability is due to market movement and rest 19.72% is due to unique causes of company itself.

#### 4.10 Analysis of Relation of Return of EBL with Market

Market Return is calculated as percentage change in NEPSE index each year.

Table 4.14 shows the relation of return of EBL with Market.

**Table 4.14**

**Table of Co-variance, Correlation of Coefficient and Beta of EBL**

Fiscal Year	$(R_e - \bar{R}_e)$	$(R_m - \bar{R}_m)$	$(R_e - \bar{R}_e)(R_m - \bar{R}_m)$
2060/61	(0.292)	-0.297	0.08672
2061/62	(0.013)	-0.137	0.001781
2062/63	0.322	0.371	0.119462
2063/64	0.477	0.471	0.224667
2064/65	0.005	0.111	0.00056
2065/66	(0.498)	-0.519	0.258462
Total			0.6917

Table of Co-Variance, Correlation of coefficient and Beta of EBL

$$\begin{aligned} \text{Co- variance (Cov}_{em}) &= \frac{(R_e - \bar{R}_e)(R_m - \bar{R}_m)}{N-1} \\ &= \frac{0.6917}{(6-1)} \\ &= 0.138 \end{aligned}$$

$$\begin{aligned} \text{Correlation of coefficient } r_{em} &= \frac{\text{Cov}_{em}}{\sigma_e \sigma_m} \\ &= \frac{0.138}{0.365 \times 0.387} = \frac{0.138}{0.141} = 0.978 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of determination (P}^2_{em}) &= (0.978)^2 \\ &= 0.956 \end{aligned}$$

#### Beta of EBL

$$\text{Beta (b}_e) = \frac{\text{Cov } R_e R_m}{\sigma_m^2}$$

$$= \frac{0.138}{0.150} \\ = 0.921$$

Here the covariance between the return of EBL and Market is 0.138; correlation coefficient is 0.978 and beta-coefficients of EBL stock is 0.921 of EBL. Here the determination 0.956 indicates that, out of total variability of return, 95.6% variability is due to market movement and rest 4.4% is due to unique causes of company itself.

#### 4.11 Comparison of Co-variance, Correlation Coefficient and Beta Coefficient between the Sample Banks

Table 4.15 shows the Co-variance, correlation coefficient and Beta coefficient between the sampled banks under studied.

**Table 4.15**  
**Covariance, Correlation Coefficient and Beta of the Sample Banks**

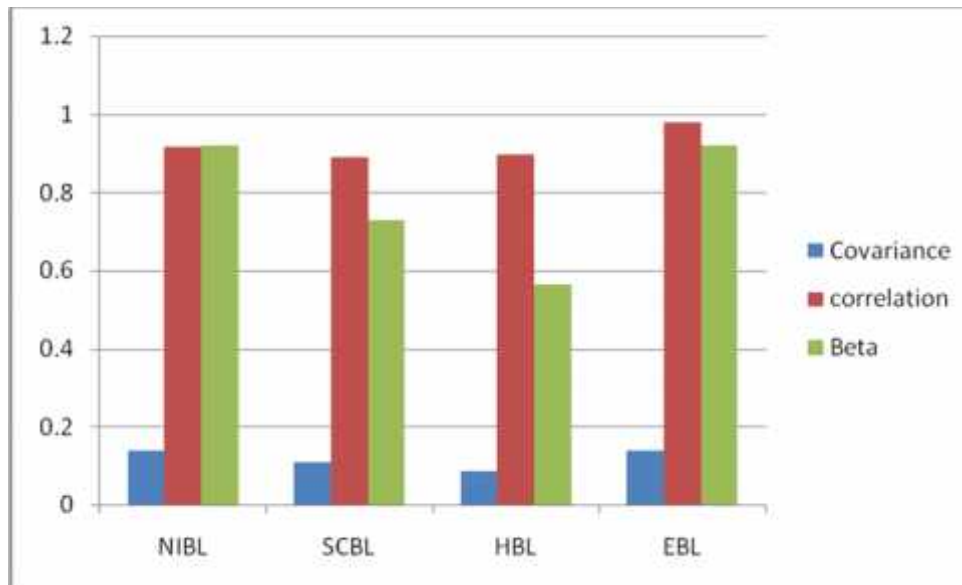
S.N	Bank	Covariance	Correlation	Beta	Remarks
1	NIBL	0.138	0.917	0.921	Highest beta
2	SCBL	0.109	0.889	0.728	Constant
3	HBL	0.0843	0.896	0.563	Lowest Beta , lowest covariance and lowest correlation
4	EBL	0.138	0.978	0.921	Highest correlation

According to the table 4.15 shown the highest covariance is 0.138 of EBL and Lowest Covariance is 0.0843 of HBL. The correlation of coefficient between bank and market of EBL is highest i.e. 0.978 and lowest is 0.896 of HBL. The EBL have highest beta coefficient i.e. 0.921.

By observing the Figure 4.14 the comparison of the sampled banks in terms of Covariance and Beta can be clearly seen. It clarifies Covariance, Correlation and Beta Coefficient of each individual bank.

Figure 4.15

Co-variance, Correlation Coefficient and the Beta of the Sample Banks



4.12 Test of Hypothesis

Hypothesis-1

Formulation of Hypothesis

Null hypothesis ( $H_0$ ):- Average return of common stock of selected commercial banks is equal to market return.

Alternative hypothesis ( $H_1$ ):- Average return of common stock of selected commercial bank is not equal to the market return.

Computation of test statistics:

$$T = \frac{\bar{X} - \mu}{\frac{s}{\sqrt{n}}}$$

Where,

$\bar{X}$  = Average return of selected four commercial banks.

(i.e.  $0.139 + 0.288 + 0.163 + 0.292 / 4$ ) = 0.221

$\mu$  = Average rate of return of overall market (i.e. 0.297)

n = Number of observation.

S = Average standard deviation of selected commercial banks.

(i.e.  $0.389 + 0.317 + 0.2425 + 0.365 / 4$ ) = 0.328

According to formula

$$\begin{aligned} T &= \frac{0.221-0.297}{\frac{0.328}{\sqrt{4}}} \\ &= \frac{(0.076)}{0.328} \\ &= \frac{-0.076}{0.164} \\ &= -0.463 \end{aligned}$$

Critical value: The tabulated value of t at 5% level of significance for two tailed test and for d.f 3 is 3.182.

Decision: Since the calculated value of t is less than tabulated value, the null hypothesis is accepted. Therefore we can say average return of common stock of commercial bank is equal to market return.

#### **4.13 Major Findings of the Study**

This study enables investors to keep the returns they can expect and the risk they may take into better perspective. Nepalese stock market is in effect of openness and liberalization in national economy. But Nepalese individual investors cannot analyze the securities as well as market properly because of the lack of information and poor knowledge about the analysis of securities for investment.

The return is the income received on a stock investment, which is usually expressed in percentage. Expected return is maximum (29.2%) of EBL bank. Similarly expected return of NIBL, HBL and SCBL are 13.9%, 16.3% and , 28.8% respectively.

Risk is the variability of returns which is measured in terms of standard deviation. On the basis of standard deviation, common stock of NIBL is most



risky since it has high Standard Deviation i.e. 0.389. Common stock of HBL has least risk because of its low Standard Deviation of 0.2425.

On the other hand we know that Coefficient of Variation is more rational basis of investment decision. This measures the risk per unit of return. On the basis of Coefficient of Variation, common stock of SCBL is best among all other banks. SCBL has 1.10 unit of risk per unit of return. But common stock of NIBL has the highest risk per unit of return i.e. 2.79 units.

Market return is calculated as the percentage change in NEPSE Index each year. The expected return of market is 0.297, standard deviation is 0.387 and coefficient of variance is 1.302.

As we know if beta is more than 1, then it is more volatile and is aggressive similarly if it is less than 1, then it is less volatile and is called defensive. As comparing the sampled banks NIBL and EBL has highest beta although its beta is less than 1. Among the sampled banks HBL has lowest beta so it is less volatile and is defensive too.

The coefficient of determination measures the systematic risk in total risk. Systematic risk and coefficient of determination have positive relationship. As systematic risk increases the coefficient of determination also increases. It occurs because due to changes in macro economic factors like interest rate, inflation, GDP, moreover it is caused of external environment (political, legal, economic, sociological and technological). The coefficient of determination of NIBL with market is 0.841, of SCBL with market is 0.7903, of HBL with market is 0.8028 and of EBL with market is 0.956.

Hypothesis means the presumption or quantitative statement of the population parameter which may true or false. In this hypothesis testing T-test has been used because no of sample is less than 30. Here, the calculated value is less than tabulated value, the null hypothesis is accepted. Therefore we can say average rate of common stock of commercial banks is equal to market return.

## **CHAPTER -V**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Summary**

In a developing economy like Nepal, capital market plays a vital role in making a sustained and self-reliant growth of the economy. Capital market helps in the collection and mobilization of the saving of the people which is much true even in case of Nepal. Among the capital market too, the role of the security market is immense in the sense that it offers a platform for the transaction of securities. In Nepal, NEPSE acts as a security market where the transactions of the listed shares are performed. The NEPSE has 159 companies listed by the end of 2009. Among these listed companies, commercial banks dominate the position in terms of amount traded, number of transactions and market capitalization. Today, there are twenty nine commercial banks listed in the NEPSE. Simply saying, these banks collect deposits from the people and lend the same for investment and thereby gain the profit in the transactions. Banks are making good profit in recent years that is why general investors are more interested in making their investment in these Banks' shares.

But most of the general Nepalese investors are investing in the shares merely because of the nice facts they have heard of or just for the sake of their interest. Proper analysis of risk and return to decide their investment is nearly absent in the practice. They hardly care for the risk- return behavior of the stocks before investing in them. Lack of knowledge of the stocks' risk and return among the general investors and their investment habit without thorough analysis of the coefficient of variance together with the relationship between risk and return of a particular industry with that of total market risk and return has been pinpointed as a major problem of this study.

Thus, describing the risk, return and other relevant variables that play role in stock investment together with the analysis of risk, return and coefficient of

variance have been the major objectives of this report. And on the based of findings, the reports has presented some valuable suggestions.

Risk of an investor in investment is nothing but the chance that his investment brings less or no return and also the chance of losing all his investment. Return, on the other hand is the gain an investor make from his investment in the stocks. Coefficient of variance calculates risk per unit of return, useful especially in making investment decisions when there are equal risks but different returns or equal returns but different risks among the various stocks. In this aspect, expected rate of return for any stock is the weighted average rate or return using the probability of each rate of return as the weight whereas required rate of return is composed of a risk-free interest rate and a risk premium rate.

The study has adopted historical and analytical research design. The data utilized are mostly secondary in nature. Various financial and statistical tools are applied to synthesize and present the data. Among the twenty nine commercial banks listed in the NEPSE, four established banks are taken as the sample for the study. Data of the last six year are used for the study. Market price per share and dividend per share of the banks are used to analyze the risk and returns of the banks together with the NEPSE index of the banking sector and other industries are used.

The expected return of the bank for the period studied was 13.9% with standard deviation of 38.9% and coefficient of variance is 2.79 for NIBL . Similarly, returns and standard deviation of SCBL, HBL and EBL were 28.8%, 16.3%, 29.2% and 31.7%, 24.25%, 36.5% respectively. The coefficients of variance for these banks were 1.10, 1.49 and 1.25 respectively for the period studied.

The expected return, standard deviation and coefficient of variance of market Index was 29.7%, 38.7% and 1.302 respectively. The Covariance, correlation of coefficient and beta coefficient of NIBL bank with market index were 0.138,

0.917 and 0.921 respectively which seems good enough for the general investors to invest in this sector. The Covariance, correlation of coefficient and beta coefficient of SCBL bank with market index were 0.109, 0.889 and 0.728 respectively. The Covariance, correlation of coefficient and beta coefficient of HBL bank with market index were 0.0843, 0.896 and 0.563 respectively. The Covariance, correlation of coefficient and beta coefficient of HBL bank with market index were 0.138, 0.978 and 0.921 respectively. While testing t test, null hypothesis is accepted because the calculated value is less than tabulated value. Therefore, we can say average returns of common stock of commercial banks are equal to market return.

## **5.2 Conclusion**

The expected return of SCBL and EBL are highest among the sampled banks i.e. 28.8% and 29.2% respectively. However, NIBL has lowest expected rate of return which is 13.9% followed by HBL with 16.3% expected rate of return. Analyzing the standard deviation of the sampled banks, HBL is in the best position with standard deviation of 0.2425. NIBL is in the worst position with standard deviation as high as 0.389. The coefficient of variance is worst for NIBL which is 2.79 but the better position of C.V of SCBL. All the sampled joint-venture commercial banks have positive expected rate of return. However, the commercial banking sectors have positive return together with market sector. The covariance, correlation and beta of NIBL are 0.138, 0.9169 and 0.921 respectively. Similarly the covariance, correlation and beta of SCBL are 0.109, 0.889 and 0.729. Similarly the covariance, correlation and beta of HBL are 0.0843, 0.896 and 0.563. Similarly the covariance correlation and beta of EBL are 0.138, 0.978 and 0.921. Comparing the sample banks HBL has lowest beta, lowest covariance and lowest correlation. NIBL and EBL has highest beta though it is less volatile. Most Nepalese investor replaced adequate awareness on risk and return involved in share investment in commercial bank.

### **5.3 Recommendation**

Mainly this study is focused on individual investors. Other related components of stock are also taken into account to some extent. The following recommendation and suggestion are prescribed on the basis of data analysis and major findings of this research.

1. Shares of commercial banking sector are more lucrative for the investors to invest. It is safer for the Nepalese investors to invest in this sector.
2. The covariance and beta-coefficient of the commercial banking sector with that of the market are also good enough for the general investors to invest in this sector.
3. Among the commercial banking sector too, investors should invest in shares of SCBL as their coefficient of variance are good than other sampled commercial banks. However, NIBL and EBL are more risky at the present time to invest in its share than other selected banks.
4. If beta is greater than 1, then the assets are more volatile than the market and if it is less than 1, then it is less volatile. Here all the sample banks are less than 1 so they are less volatile but as comparing the bank HBL is more less volatile and is defensive too.
5. Higher the standard deviation, higher will be the risk similarly higher the coefficient of variation higher will be the risk. Comparing the sampled banks NIBL has highest standard deviation and highest coefficient of variation so it is risky than other banks.

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[www.standardchartered.com](http://www.standardchartered.com)



## ANNEXURE

### Annex-1

#### Calculation of R

#### Nepal Investment Bank Limited (NIBL)

FY	MPS (in RS)	DPS	R
2060/61	940.000	15	-
2061/62	800.000	12.5	(0.136)
2062/63	1260.000	20	0.6
2063/64	1729.000	5	0.376
2064/65	2450.000	7.5	0.421
2065/66	1388.000	20	(0.425)
	Total		0.836

Where,

R is calculation with the use of following formula.

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

The detail calculations of R for each fiscal year:

FY 2061/62

$$= \frac{12.5 + (800 - 940)}{940} = (0.136)$$

FY 2062/63

$$R = \frac{20 + (1260 - 800)}{800}$$

$$= 0.6$$

FY 2063/64

$$R = \frac{5 + (1729 - 1260)}{1260}$$

$$= 0.376$$

FY 2064/65

$$R = \frac{7.5 + (2450 - 1729)}{1729}$$
$$= 0.421$$

FY 2065/66

$$R = \frac{20 + (1388 - 2450)}{2450}$$
$$= -0.425$$

$$\text{Expected Return (R)} = \frac{\sum R}{N} = \frac{0.836}{6} = 0.139$$

### Standard Chartered Bank Limited

FY	MPS in Rs	DPS	R
2060/61	1745	110	0.000
2061/62	2345	120	0.413
2062/63	3775	130	0.665
2063/64	5900	80	0.584
2064/65	6830	80	0.171
2065/66	6010	50	(0.113)
	Total		1.723

The detail calculations of R for each fiscal year:

FY 2061/62

$$R = \frac{120 + (2345 - 1745)}{1745} = 0.413$$

FY 2062/63

$$R = \frac{130 + (3775 - 2345)}{2345}$$
$$= 0.665$$

FY 2063/64

$$R = \frac{80 + (5900 - 3775)}{3775}$$

$$= 0.584$$

FY 2064/65

$$R = \frac{80 + (6830 - 5900)}{5900}$$

$$= 0.171$$

FY 2065/66

$$R = \frac{50 + (6010 - 6830)}{6830}$$

$$= (0.113)$$

$$\text{Expected Return (R)} = \frac{\sum R}{N} = \frac{1.723}{6} = 0.287$$

**Himalayan Bank Limited (HBL):**

FY	MPS in Rs	DPS	R
2060/61	840	0	0.000
2061/62	920	11.58	0.109
2062/63	1100	30	0.228
2063/64	1740	15	0.595
2064/65	1980	25	0.152
2065/66	1760	12	(0.105)
	Total		0.979

The detail calculations of R for each fiscal year:

FY 2061/62

$$R = \frac{11.58 + (920 - 840)}{840}$$

$$= 0.109$$

FY 2062/63

$$R = \frac{30 + (1100 - 920)}{920}$$

$$= 0.228$$

FY 2063/64

$$R = \frac{15 + (1740 - 1100)}{1100}$$

$$= 0.595$$

FY 2064/65

$$R = \frac{25 + (1980 - 1740)}{1740}$$

$$= 0.152$$

FY 2065/66

$$R = \frac{12 + (1760 - 1980)}{1980}$$

$$= (0.105)$$

$$\text{Expected Return (R)} = \frac{\sum R}{N} = \frac{0.979}{6} = 0.163$$

**Everest Bank Limited:**

FY	MPS	DPS	R
2060/61	680	20	0
2061/62	870	0	0.279
2062/63	1379	25	0.614
2063/64	2430	10	0.769
2064/65	3132	20	0.297
2065/66	2455	30	(0.206)
	Total		1.753

The detail calculations of R for each fiscal year:

FY 2061/62

$$R = \frac{0 + (870 - 680)}{680}$$

$$= 0.279$$

FY 2062/63

$$R = \frac{25 + (1379 - 870)}{870}$$

$$= 0.614$$

FY 2063/64

$$R = \frac{10 + (2430 - 1379)}{1379}$$

$$= 0.769$$

FY 2064/65

$$R = \frac{20 + (3132 - 2430)}{2430}$$

$$= 0.297$$

FY 2065/66

$$R = \frac{30 + (2455 - 3132)}{3132}$$

$$= (0.206)$$

$$\text{Expected Return (R)} = \frac{\sum R}{N} = \frac{1.753}{6} = 0.292$$

### Annex-2

#### Calculation of Square of Deviation of Realized Rate of Return from the Expected Rate of Return

#### Nepal Investment Bank Limited (NIBL):

FY	$R_n$	$(R_n - \bar{R}_n)$	$(R_n - \bar{R}_n)^2$
2060/61	-	(0.139)	0.0193
2061/62	(0.136)	(0.275)	0.0756
2062/63	0.6	0.461	0.2125
2063/64	0.376	0.241	0.0581
2064/65	0.421	0.282	0.0759
2065/66	(0.425)	(0.569)	0.3238
Total			0.7652

**Standard Chartered Bank**

FY	$R_s$	$(R_s - \bar{R}_s)$	$(R_s - \bar{R}_s)^2$
2060/61	0	(0.288)	0.089
2061/62	0.413	0.125	0.0156
2062/63	0.665	0.377	0.1421
2063/64	0.584	0.296	0.0876
2064/65	0.171	(0.117)	0.0136
2065/66	(0.113)	(0.401)	0.1608
Total	1.723		0.5026

**Himalayan Bank Limited (HBL):**

FY	$R_h$	$(R_h - \bar{R}_h)$	$(R_h - \bar{R}_h)^2$
2060/61	0.000	(0.163)	0.0266
2061/62	0.109	(0.054)	0.0029
2062/63	0.228	0.065	0.00422
2063/64	0.595	0.432	0.18662
2064/65	0.152	(0.011)	0.00121
2065/66	(0.105)	(0.268)	0.07182
Total	0.979		0.29337

**Everest Bank Limited**

FY	$R_e$	$(R_e - \bar{R}_e)$	$(R_e - \bar{R}_e)^2$
2060/61	0.000	(0.292)	0.0853
2061/62	0.279	(0.013)	0.000169
2062/63	0.614	0.322	0.1037
2063/64	0.769	0.477	0.2275
2064/65	0.297	0.005	0.000025
2065/66	(0.206)	(0.498)	0.248
Total	1.753		0.6647

**Market Index**

Fiscal Year	NEPSE Index (NI)	$R_m$
2060/61	199.9	0.000
2061/62	231.97	0.160

2062/63	386.83	0.668
2063/64	683.95	0.768
2064/65	963.36	0.409
2065/66	749.1	-0.222
Total		1.782

Expected Return

$$(R_m) = \frac{\text{Ending Index} - \text{Beginning Index}}{\text{Beginning Index}}$$

Fiscal Year 2061/62

$$(R_m) = \frac{231.97 - 199.9}{199.9}$$

$$= 0.160$$

Fiscal Year 2062/63

$$= \frac{386.83 - 231.97}{231.97}$$

$$= 0.668$$

Fiscal Year 2063/64

$$= \frac{683.95 - 386.83}{386.83}$$

$$= 0.768$$

Fiscal Year 2064/65

$$= \frac{963.36 - 683.95}{683.95}$$

$$= 0.409$$

Fiscal Year 2065/66

$$= \frac{749.10 - 963.36}{963.36}$$

$$= -0.222$$

Fiscal Year	$R_m$	$R_m - \bar{R}_m$	$(R_m - \bar{R}_m)^2$
2060/61	0.000	(0.297)	0.088
2061/62	0.160	0.160	0.019
2062/63	0.668	0.668	0.137
2063/64	0.768	0.768	0.222
2064/65	0.409	0.409	0.012
2065/66	-0.222	(0.222)	0.270
Total	1.782		0.748

### Covariance of NIBL

Fiscal Year	$(R_n - \bar{R}_n)$	$(R_m - \bar{R}_m)$	$(R_n - \bar{R}_n)(R_m - \bar{R}_m)$
2060/61	(0.139)	(0.297)	0.0413
2061/62	(0.275)	(0.137)	0.0377
2062/63	0.461	0.371	0.171
2063/64	0.241	0.471	0.1135
2064/65	0.282	0.111	0.0313
2065/66	(0.569)	(0.519)	0.2953
Total			0.6901

$$\begin{aligned} \text{Co- variance (Covnm)} &= \frac{(R_n - \bar{R}_n)(R_m - \bar{R}_m)}{N-1} \\ &= 0.6901/(6-1) \\ &= 0.138 \end{aligned}$$

### Covariance of SCBL

Fiscal Year	$(R_s - \bar{R}_s)$	$(R_m - \bar{R}_m)$	$(R_s - \bar{R}_s)(R_m - \bar{R}_m)$
2060/61	(0.288)	(0.297)	0.08556
2061/62	0.125	(0.137)	(0.017125)
2062/63	0.377	0.371	0.139867
2063/64	0.296	0.471	0.139416
2064/65	(0.117)	0.111	(0.012987)
2065/66	(0.401)	(0.519)	0.208119
Total			0.542826

$$\text{Co- variance (Covsm)} = \frac{(R_s - \bar{R}_s)(R_m - \bar{R}_m)}{N-1}$$



$$= 0.542826/(6-1)$$

$$= 0.109$$

### Covariance of HBL

Fiscal Year	$(R_h - \bar{R}_h)$	$(R_m - \bar{R}_m)$	$(R_h - \bar{R}_h)(R_m - \bar{R}_m)$
2060/61	(0.163)	-0.297	0.048411
2061/62	(0.059)	-0.137	0.007398
2062/63	0.065	0.371	0.024115
2063/64	0.432	0.471	0.203472
2064/65	(0.011)	0.111	(0.001221)
2065/66	(0.268)	-0.519	0.139092
Total			0.421267

$$\text{Co- variance (Covhm)} = \frac{(R_h - \bar{R}_h)(R_m - \bar{R}_m)}{N-1}$$

$$= 0.421267/(6-1)$$

$$= 0.0843$$

### Covariance of EBL

Fiscal Year	$(R_e - \bar{R}_e)$	$(R_m - \bar{R}_m)$	$(R_e - \bar{R}_e)(R_m - \bar{R}_m)$
2060/61	(0.292)	-0.297	0.086724
2061/62	(0.013)	-0.137	0.001781
2062/63	0.322	0.371	0.119462
2063/64	0.477	0.471	0.224667
2064/65	0.005	0.111	0.00056
2065/66	(0.498)	-0.519	0.258462
Total			0.691656

$$\begin{aligned}
 \text{Co- variance (Covhm)} &= \frac{(R_e - \bar{R}_e)(R_m - \bar{R}_m)}{N-1} \\
 &= 0.691656/6-1 \\
 &= 0.138
 \end{aligned}$$