# CHAPTER I

# INTRODUCTION

## 1.1 Background of the study

Common stock is a security issued by a company to raise capital. It is one of the major sources of long-term permanent capital. Funds collected from the common stock are used to finance or invest on major portion of fixed assets. Common stock is a legal document that provides an evidence of the ownership of the holders (Sharma, 2008). On the other hand, common stock also represents equity or ownership position in a corporation. Thus, common stock is known as a risky security. It is regarded as the most expensive form of long-term financing.

The objective of investment in stock market is to increase the wealth (Sharma, 2008). Now, coming to the concept of Common stockholders of company, they are the ultimate owners of the company. They own the company collectively and it is also presumed that final risk is related with ownership. Hereby, holding a common stock bears risk too. With the viewpoint to gaining high returns, investors invest in common stock. However, the returns earned may be high or low. So, there is always an uncertainty about the returns which leads to major risk for the investors while investing in the stock market. Regarding the concept of return, the term return is the *income* that is earned from *investment*. Return is also called as a *yield* from investment. Return means any additional amount to the initial amount. The return from an investment is usually dividend added by any change in the market price of share and it is usually expressed in percentage. Since both dividend and change in market price of share are uncertain, actual return of any investment may differ from expected return. This variability of return between expected and actual return is defined as risk. However, the return is a total gain or loss experienced on

an investment over a given period of time. Now, regarding the concept of *risk*, the probability that an *actual return* on an *investment* will be lower than the *expected return* is called *risk*. Usually investors are risk averse. Investors always pursue higher return for more risk. So the major challenge during investment is to identify the security, which bears low risk and provides high return. Even though return cannot be always increased substantially, however, risk can be reduced by diversification. Diversification can remove the unorganized risk which is not generally explained by the general market movement. Systematic or the organized risk (which is related to the change in return on the market as a whole) however, cannot be avoided with change in return on the market as a whole despite diversification. Over all, the terms *risk and return* are highly related to investment.

This study is basically concerned with investment in the common stocks of commercial banks and the analysis of its risk and return. *Investment,* in *finance,* is the purchase of a financial product or other items of value with an expectation of favorable future returns. In a simple parlance, investment means the use of money in the hope of making more money. On the other hand, Investment means to pool money in anything to earn certain profit. In other words, satisfactory current earning for future earning is investment. Risk and time are always associated with an investment. Investment helps to increase the national output also. An investment is the current spending of money or other resources in the hope of reaping future benefits.

Regarding the investment, this study is mainly concerned with the investment in the security market or stock market. Investment in stock market can only be fruitful if decided after analyzing all merits and demerits of the security to be invested in. The investment may be done on fixed assets like land, building or precious metals and collectibles or something else. However, since this study is about finance, the study has focused on the term investment as allocation of

money on financial assets like shares, debenture, warrants, convertibles etc for the long term return. Investors invest their funds on the securities of certain companies for the long run future returns.

In brief, return is generally defined as the reward for taking the risk and challenges. Return is a significant result of an investment whereas risk is defined as the occurrence of unfavorable outcomes, which are very harmful for the business. “Risk is inseparable from return. It most of the times creates uncertainty. Some of the factors that create investment uncertainty are those of interest rate risk, purchasing power risk, bull-bear market risk, management risk and so on” (Neupane, 2008). So, Investments account to “commitment of current rupee for future rupee.” In investment, you get return in the future at the expense of present cost. So, investment always moves around risk and return. People invest so that they can earn. Investment is made on real assets or financial assets. “Financial assets are piece of paper like share, debenture, convertible, warrants. Real assets are generally land and building” (Neupane, 2008).

As already mentioned above, risk is a part of business or return. So, risk cannot be avoided but only can be controlled. That means there can be minimization of the risk. Therefore, an investor is concerned with the portfolio risk, which is the sum of the relevant risk of individual assets included in portfolio. By investing in a single asset, investor cannot achieve his or her objective. But it is only possible through portfolio. A portfolio is combination of securities. By the help of portfolio, risk can be diversified. By portfolio, it means that one can lose all the eggs if some unlikely event occurs. So it means, it's more risky if you put all the eggs in one basket. This means that risk can be diversified if the investment is done over many assets rather than only one. The investor should invest their funds in many assets so that the risk will be minimized. Subsequently, risk will be

minimized if only investment is done in portfolio of many assets to diversify the risk.

Now regarding Bank, Bank has a role in utilizing public money that is why people pay attention whether their money is properly utilized or not and usually inquire whether the bank is going in profit or loss before they deposit their money. If there is no profit, a business firm will be unable to provide its facilities in the long run. "Financial market refers both money and capital market. Money market may be defined as the short term financial assets' markets, which have facility of liquidity and marketability of securities. This money market includes the market for short term debt instrument having maturity of less than one year. The instruments used in money market are treasury bills" (Sharma, 2008).

On the other hand, Capital market is long term debt which is for long run. This matures more than one year. And there are some financial institutions that have been involved in capital market for instance, there are Nepal Rastriya Bank, commercial Bank, Nepal industrial development corporation, non-government organization. So the banking institutions have vital role on the development of capital market. Securities raise funds in capital market that will help to expand the national economy. There are different types of securities as municipal bond, foreign bond, corporate common stock etc. Among these, this study focuses only upon the common stock.

Giving due consideration to risk is very important while taking every financial work or any financial decision. Considering risk as an indispensable part in financial analysis, it has to be noted that risk cannot be avoided if investor is seeking higher rate of return. Investors require different rate of return on various security. Since ordinary share is highly risky than debt, therefore, risk and return's relationship is different for different securities.

Although there are various types of banks, this study has however incorporated the analysis of only commercial banks. This study is based on the study of commercial banks.

The first financial institution was introduced in Nepal when the first commercial bank i.e., Nepal Bank Limited was established. Nepal Bank Limited was established under the special banking act 1936 having elementary function of commercial bank. Later in 1955, the central bank i.e., Nepal Rastriya Bank was established with an objective of supervising and directing the function of commercial banking activities. Another commercial bank fully owned by HMG/Nepal, as Rastriya Banijya Bank was established in 1966. The establishment of joint venture bank gave new horizon to the financial sector of the country (Neupane, 2008).

Banking sector is the most dynamic part of the economy that collects unused funds and mobilizes in required areas. Bank plays a significant role in national economy's development. Bank performs the work as borrowing. However, different banks provide differed functions. The word “bank” is derived from Italian word banca or banco, which means a counter table or bench used by money exchange. The bank operates in the modern and competitive business environment.

Over all, the aim of this study is to analyze the risk and return from the investment in common stock of the two commercial banks of Nepal i.e., Everest Bank Ltd and Nepal Investment Bank Ltd.

## 1.2 Statement of the Problem

Although the capital market has been gradually increasing and proliferating in Nepal, however, the attitudes and knowledge of the investor have not yet been fully fledged regarding risk and return analysis. Their knowledge about risk and return has not yet been developed. Most of the investors lack adequate ideas about risk and return since Nepal has no institutions that provide education and training in this area. Besides, because of investors' lack of knowledge on this very area, technology deficiency, lack of resources, investors are unable to take rational decisions that can accelerate stock investment and market efficiency. There also lack efficacious government policies that encourage the promotion of common stock investment.

The investors need to have knowledge and must be able to analyze the associated risks and returns of individual stock. As the investor's knowledge on the investment strategies or the risk and return analysis increases, there will be an automatic increase in market efficiency. As the market efficiency increases, market value of share will be maximized. Regarding the risk and return analysis, the investor should know that investing funds in different securities will diversify the risk or minimize the risk.

Most of the investors lack knowledge regarding risk and return analysis of investment on the common stock. Thus, the investors invest their fund without considering any potential risk.

In Nepalese context, investors invest in security market because investors do not have many alternatives for the investment. The following are the specific research problems this study has tried to resolve:

- How can investors make higher returns with less risk?
- How do investors measure the magnitude of risk prior to investment?
- How can investors diversify the risk?

## 1.3 Objective of the Study

The general objective of this study is to analyze the risk and return on common stock investment of specified commercial banks on the basis of selective financial tools as well as statistical tools. The specific objectives of this study are as follows:

- To evaluate the common stock in terms of risk and return.
- To evaluate whether stocks of selected commercial banks are overpriced, under-priced or are in equilibrium.
- To analyze the diversifiable and non-diversifiable risk of the banks.
- To examine the risk and return on selected commercial banks.
- To analyze the risk and return relationship of individual with that of market.
- To identify optimum portfolio of the banks.

## 1.4 Significance of the Study

Investors have less knowledge about the financial condition of the companies and degree of risk involved in their investment. There are few studies on the topic of risk and return analysis and there are also few journals, magazines which are related to the capital market though the capital market is augmenting rapidly in Nepal. This means the market is not sufficient. Investors do not have investment alternatives. They only invest in the security market. They invest in security without any proper knowledge and information on it. This study is significant

regarding its effort to provide information about Nepalese capital market by analyzing their risk and return. This study may be beneficial for the researchers, students who are interested in studying risk and return scenario of capital market.

## 1.5 Limitations of the Study

As every research has its own limitations, the study is not an exception to it. This study too has its own limitations. Some of the limitations of this study are as follows:

- Only few commercial banks are taken into consideration. Hereby, the study is not applicable to generalization for all the commercial banks.
- The study focuses only on analysis of risk and return leaving other components.
- Only secondary data have been used in this study.
- Much focus has been laid on the quantitative aspect and less focus on the qualitative aspect.

## 1.6 Organization of the Study

This thesis is broadly divided into five chapters, viz., introduction, review of literature, research methodology, data presentation and analysis, summary, conclusion and recommendations. The chapters' synopsis has been mentioned as below:

Chapter one focuses upon the introduction of study. This chapter outlines the background of the study, statement of the research problem, objectives of the study, significance of the Study, limitations of the study, and the organization of the study report. The chapter two highlights upon the literatures reviewed. The chapter also provides the conceptual/theoretical review and review of related studies. The conceptual or the theoretical review includes the elaboration of major

concepts like common stock, return, risk and finally Capital Assets Pricing Model (CAPM). On the other hand, the review of related studies includes review of related studies in general, review from journals and review from theses. The chapter three i.e., the research methodology part focuses on research design, population and samples, sources of data, data analysis tools. Chapter four concentrates on presentation and analysis of data. This chapter attempts to answer the research questions. This chapter attempts to analyze and evaluate the data with the help of analytical tools and interpret the result. Finally, Chapter five has been assigned for summary of the study, conclusion, and recommendations. This chapter summarizes the overall aspects of research work and attempts to draw important conclusions along with recommendations.

# CHAPTER II

# REVIEW OF LITERATURE

The chapter two viz., 'review of literature' includes the review of previous studies, review of articles and conceptual framework of the related studies. This chapter deals with the theoretical aspects of the topic i.e., risk and return on common stock investment in more detail and descriptive manner. Review of literature means reviewing research studies in the related area, which includes all the past studies, so that their conclusion and deficiencies can be known and from them, we can derive guidelines for further research. Therefore, it is the most indispensable section of a research work.

Overall, this chapter includes the following sections:

2.1 Conceptual review
2.2 Review of related studies
2.3 Review of theses

## 2.1 Conceptual Review

There are many definitions regarding risk and return, some of which have been taken into consideration for my study. Major focus of finance is the tradeoff between risk and return. Here focus has been given foremost to the implication in the investment of common stock.

### 2.1.1 Common Stock

Common stock is a security issued by a company to raise equity capital. It is one of the major sources of long-term (permanent) capital. Funds provided by common equity are used to finance major portion of the firm's fixed assets such as land and building, plant and machinery, vehicle, etc. Common stock represents ownership

of the company. Common stock holders of a company are its real owners. Their liability however is limited to the amount of their investment. Common stock certificates are legal document that are evident of the ownership of the holders in a company.

Common stockholders have residual claim on income and assets. Common stock dividend is paid after payment of interest to the creditors, tax to government, preferred dividend to the preferred stockholders. Similarly, in the event of liquidation, common stockholders have residual claim on the assets of the company after the claim of all creditors and preferred stockholders are settled in full (Horne, 1997). “Common stockholders of corporation are its residual owners, their claim to income and assets comes after creditors and preferred stock holders have been paid full. As a result, stockholders’ return on investment is certain than the return to a preferred stock holder. On the hand, the share of common stock can be authorized either with or without par value. The par value of a stock is merely a stated figure in the corporate charter and is of little economic significance” (Van Horne, 1997).

#### 2.1.1.1Characteristics of Common Stock

- **Authorized, Issued and Outstanding Shares**

  The authorized shares of common stock are the corporate charter of a company specified number of authorized shares. The firm cannot sell the charter authorized without obtaining approval from its owner through a shareholder vote or without amending its charter.

## ❖ Common stock values

Terms that are frequently used to refer to common stock values include par value, book value and the market values. These terms are quite different, and in most cases, the rupees amount of these values is not related for an individual stock.

a. Par Value

The face value of the stock, established at the time the stock in initially issued, is the par value. Without a stock split or other action by the board of directors, the par value of the stock does not change. It is stated value or nominal value or face value of a common stock represented in the common stock certificates.

b. Book Value

Book value per share is calculated by dividing the total common equity on the balance sheet by number of shares outstanding. This figure represents the assets value per share after deducting liabilities and preferred stock. It is the accounting value of stockholders' equity, which includes common stock, share premium retained earnings etc. it is also known as net worth of the business firm. Book value per share is simply the per share value of common stock which is calculated using total book value dividend by number of common shares outstanding.

c. Market Value

Market value in the secondary market is determined by supply and demand factors and reflects the consensus opinion of investors and traders concerning the "value" of stock. It is the current price at which common stock is bought and sold in the market.

❖ **Maturity**

Common stock has no maturity date. It exists as long as the life of the firm. Therefore, capital from common stocks is also called fixed or permanent capital. It is not returned to the stockholders until the firm is dissolved. Common stocks are transferable but they have not fixed maturity date.

❖ **Claim on income and Assets**

Common stockholders have residual claims on income and assets. Common stock holders have residual claims to the part of income left after paying interest to the bondholders, tax to the government and dividend to the preferred stockholders.

Just as common stock has a residual claim on income, it also has residual claim on assets in case of liquidation. When firm is declared bankrupt, its assets are sold, and the proceeds are used to distribute to employees, to the government, to creditors, to the preferred stockholders and finally residual value to the common stockholders.

❖ **Tax Treatment**

Interest payments to the debt holders are treated as tax – deductible expenses on the firms income statement, whereas divided payments to the common stockholders are non tax-deductible. The Tax-deductibility of interest primarily accounts for the fact that the explicit cost of debt is generally less than the explicit cost of equity.

Thus, stockholders are the last to receive any distribution of assets during bankruptcy proceedings.

❖ **Preemptive Rights**

Preemptive rights give existing stockholders the first option to purchase a proportionate interest in a new issue of a corporation's stock. The purpose of this

provision is to protect stockholders against a loss of voting control and a dilution in the value of their shares.

❖ **Liquidation Right**

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

❖ **Dividend**

The payment of corporate dividends is at the discretion of the board of directors. Most of the corporations pay dividend quarterly; dividend may be paid as cash, stock or merchandise. Cash dividends are most common whereas merchandise dividend is the least common. Before dividends are paid to the common stockholders, the claim of all creditors, the government and preferred stock holders must be satisfied.

❖ **Voting Rights**

Generally, each share of common stock entitles the holder to one vote in the election of directors and in other special election. Votes are generally, assignable and must be cast at the annual stockholder's meeting.

### 2.1.1.2 General Right of the Common Stockholder

There are two types of rights of common stockholders.

❖ Collective rights: Certain collective rights are usually given to the common stockholders. They are as follows:

a) Right to formulate and amend the memorandum and the articles of association.

b) Right to elect directors.

c) Right to authorize the sales of fixed assets.

d) Right to authorize the mergers.

e) Right to issue preferred stock, debentures, bonds, and other securities.

f) Right to change the amount of authorized common stock.

- Specific rights: Common stockholders also have specific rights as individual owner. They are as follows:

a) Right to income.

b) Right to inspect the corporate books.

c) Right to vote.

d) Right to sell their stock certificates.

e) Preemptive right.

### 2.1.2Return

Return is the actual gain on investment. The concept of return has different meaning to different investors. Return is reward from an investment, which includes both current income and capital gain. Return has two parts, one is capital appreciation and another is cash dividend. Capital appreciation is the difference between ending value and beginning value of an investment. Return is the income received on an investment and any charge in market price.

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

Expected return $E(R_j) = \sum_{j=1}^{n} R_j P_j$

$= P_1R_1+P_2R_2+ \text{--------} +P_nR_n$

Whereas,

$R_j$ = Rate of return on $j^{th}$ outcome or event

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

When historical returns are used, the following formula is used to calculate on average return.

Expected return $E(R_t) = \frac{\sum_{t=1}^{n} R_t}{n}$

Where E(R) is the expected or mean return and n is the number of observed returns.

For common stock, we can define, one period (single period) return as:

Holding period rate of return or Single rate of return $(R_t) = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$

Where,

$R_t$ = Annual rate of return

$P_t$ = Price of a stock at time t

$P_{t-1}$ = Price of stock at time t-1

$D_t$ = Cash dividend received at time t

This formula determines both actual one period return and expected one period return. This expected return represents the capital gain or loss and dividend.

### 2.1.3 Meaning of Risk

Risk is defined as the variability of the returns of a period. The greater the variability of the return the riskier the project. In the financial term, risk can be defined as the probability of the occurrence of unfavorable outcomes. In a sense, risk can be defined as the chance of loss. Assets having greater chances of loss are viewed as more risky than with lesser chances of loss.

Risk can also be defined as the likelihood that the actual return from an investment will be less than forecasted return. Investors are mostly interested in the projected yielding higher returns in less risk. Therefore, it is the investors required risk premium that establishes a link between risk and return. The motive of financial management is to increase the financial institutions' return for its owners. They often come at the cost of increased risk. It can be argued that the main business of financial institution is to manage the risk for the purpose of maximization of return. So managing a risk is an important subject for financial institution.

The investment decision in the world of uncertainty is mainly influenced by two parameters i.e. the expected return and the standard deviation: which are calculated as follows:

(i) Expected Return:

The expected rate of return is the weighted average of all possible rates of returns with the weights being the probabilities of occurrence of all possible outcomes. Expected return is calculated using equation as follows:

$$E(R_j) = \sum_{j=1}^{n} RjPj$$

Where,

$E(R_j)$ = Expected rate of return of stock j

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

$R_j$ = Return of $j^{th}$ outcomes

(ii) Standard Deviation:

Standard deviation is a statistical tool to measure the dispersion or deviation of possible return around the expected or mean return or value. The standard deviation of return on stock investment is calculated by using the following equation:

$$\sigma = \sqrt{\sum_{j=1}^{n} [R_j - E(R_j)]^2 \times p_j}$$

Where,

$\sigma_R$ = Standard deviation of stock j

Coefficient of variation (CV) is another statistical tool to measure the risk. It is used in many areas. It is the way to express risk. Standard deviation does not compare two or more projects in relative term of risk and return. But, CV measure two or more than two projects. Thus CV is widely used. CV measures risk per unit of expected return, which is calculated as follows:

Co-efficient of Variation (C.V.) = $\frac{\sigma_j}{E(R_j)}$

Where,

$E(R_j)$ = Expected rate of return of stock j

### 2.1.3.1 Relationship between Risk and Return

Generally there are positive relation between risk and return. The relation between risk and return is described by investor's perception. It means investors can usually attain more return by selecting dominant assets that involve more risk. As investor is always willing to averse the risk, it is not necessary that riskier assets will pay a higher rate of return.

The investors can offer high return in low risk. It means investor will not choose an investment that guarantee less return when investments promising higher in the same level of risk class are readily available.

The expected return from any investment proposal is linked in relationship to the degree of risk in the proposal. If we accept a higher risk proposal then there must have higher return.

### 2.1.3.2 Systematic Risk and Unsystematic Risk

Systematic and unsystematic risks are generally used in the portfolio context.
Systematic risk has its source factors that affect all the marketable assets and this cannot be diversified away. Systematic risk is due to the risk factor that affects the overall market such as changes in national economy, tax reform by the government or changes in the world energy situation.

Unsystematic risk is moreover concerned with a particular company or industry. It is independent of economic, political and other factor that affect all securities in systematic manner. A wildcat risk may affect only one company. A new

competitor may begin to produce essentially the same product or a technological breakthrough which can make an existing product absolute.

The relationship among systematic, unsystematic and total risk are shown as follows:

Total risk ($\sigma_j$) = Systematic Risk + Unsystematic Risk

Systematic Risk and unsystematic Risk are calculated as:

**Systematic Risk (SR)**

$$SR = \frac{Cov_{j,m}}{\sigma_m}$$

Where,

SR = Systematic Risk

$Cov_{j,m}$ = Covariance of Stock j and Market Return

$\sigma_m$ = Standard Deviation of Market

**Unsystematic Risk (USR)**

$$USR = \sigma_j - \frac{Cov_{j,m}}{\sigma_m}$$

$\sigma_j$ = Standard Deviation of Stock j

$$\text{Proportion of SR} = \frac{SR}{TR}$$

Where,

TR = Total Risk

Propotion of USR =1-Propotion of SR

### 2.1.4 Capital Asstes Pricing Model (CAPM)

The relation between expected return and unaviodable risk and the valuation of securities that follows, is the essence of the capital assets pricing model. This model was developed by Willian F. Sharpe and John Linter in the 1960's and it has been important for finance.

On this basis of price and divided data, expected return can be calculated with comparison of two, return investors can be analyzed whether the stock is underpriced or overpriced. Based on the behavior of the risk adverse investors, there is implied on equilibrium relation between risk and expected return to provide a return on common stock with its unavoidable risk. This is simply the risk that cannot be avoided by diversification. The greater the unavoidable risk of security, the greater is the return that investor will expect from the security (Van Horne, 1997).

CAPM is the model that describes the relationship between risk and expected return. In this model, a security's expected (required) return is the risk free rate plus a premium based on the systematic risk of the security. This model is expressed as:

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

Where,

$E(R_j)$ = Required rate of return for stocks j

$R_f$ = Risk free rate

$E(R_m)$ = Expected return for market portfolio

$\beta_j$ = An index of systematic risk of stock j (beta coefficient)

Beta measures the sensitivity of a stock's returns to change in the returns on the market portfolio.

The CAPM states that the expected risk premium on each investment is proportion to its beta. This means that each investment should lie in the sloping security market line connecting treasury bills and market portfolio. CAPM is the model used for estimating equity risk and return. Comparison between the expected rates of returns and required rate of return indicates that the stock is underpriced or overpriced. In addition, if these two stocks are equal then it is said market equilibrium. i.e., all the stocks lie on the Security Market line.

Regarding SML, it is the graphical representation of the CAPM, which shows relationship between systematic risk and required rate of return. If the stocks are underpriced, it lies above the SML and if they are overpriced then it lies below the SML. The Figure 2.1 shows the SML with overpriced and the under priced stocks. A graph of the CAPM is given below:

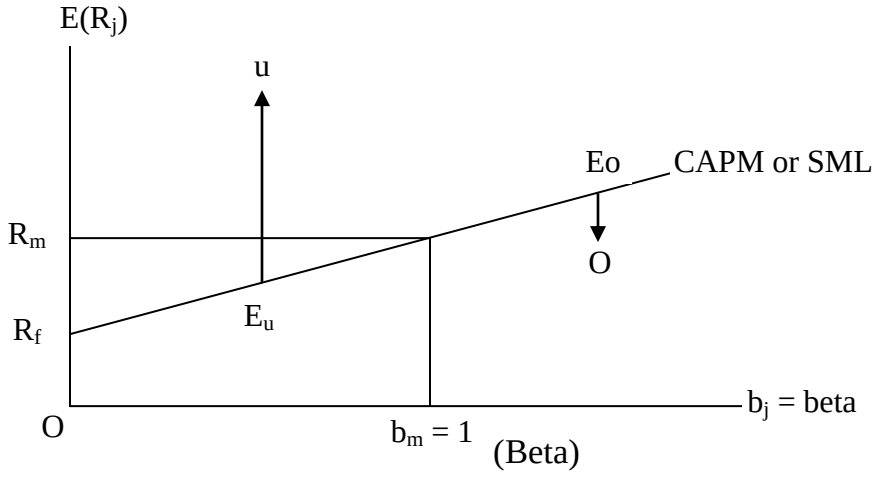



Figure 2.1

Above Figure2.1 shows two assets u and o, which are not equilibrium on the CAPM. Asset u is undervalued and therefore very desirable assets to own

u's price will rise in the market as more investors purchase it. However as u's price goes up its return falls. When u's return falls to the return to consistent with its beta on the SML, equilibrium is attained with o just opposite takes place. Investors will attempt to sell o since it is overvalued. And therefore put downward pressure on o's price. When the return on asset o increases to the rate that is consistent with the beta risk level given by the SML, equilibrium will be achieved and downward price pressure will cease (Francis, 1986:267-269.

Hence CAPM helps us to decide whether to purchase or sell the stock of the particular company. We decide by comparing required rate with the expected rate of return .The capital asset pricing model provides us a means by which to estimate the required rate of return on a security. And on the basis of price and dividend data expected return can be calculated. With comparison of two return investors, we can analyze whether the stock is under priced or overpriced.

## 2.2 Review of Related Studies in General

Ideas articulated by various people in their articles concerning risk and return of common stock of commercial banks are reviewed and presented in this review section.

Pradhan's (1993) study entitled "S*tock Market Behavior on a Small Capital Market: a case in Nepal*" is reviewed here. He collected the data of 17 enterprises from the year 1986 to 1990. His research study was carried out to examine the relationship of market equity, market value, price earnings, and dividends with liquidity profitability and assets turnover and interest coverage.

- There lies positive relationship between dividend payout and liquidity.

- Dividend per share and market price per share was found having positive correlation.
- Higher the earning on the stocks, larger was the ratio of dividends per share to market price per share.
- Hereby, overall, positive relationship was discovered between the dividend payout and the liquidity.

Using statistical tools like regression model he found a positive correlation between dividends per share to market price per share.

On the other hand, in the study conducted by Professor Shrestha (1995) viz., "*Shareholder's Democracy and Annual General Meeting Feedback*", Shrestha reveals that

- There is unwillingness or reluctance in the part of management and board of directors to alter their traditionally held or conventional activities towards shareholder since general meeting feedback provides no serious and honest response to the feelings of shareholders.

- The annual general meeting has become an area for the shareholders to express or opine their grievances in front of the management and board of directors.

Added to this, the article entitled "S*tock Market Doing Pretty Well*" by Pokharel in the journal of finance in 1999 proves more relevant in this study's context. The article reveals that the investment on the shares of manufacturing and processing would be more attractive than that of the banks. He reveals that the shares of individual companies have pretty much shown very good performance since October 1998 to 1999. The reasons behind the appreciation of share price, according to the author accounted to:

- Decline in the interest rate of money market.
- Rational attitudes of investors in their investment decision.
- Reward provision made by the companies to the shareholders.
- Consistent government policy as a benefit to the market.

Moreover, the author's major focus lies on the infrastructural investment in the capital market. The infrastructure is must to facilitate the market. This would also enlarge the market by introducing new governmental instruments.

Regarding Nepalese context, according to Kafle (1993), Nepalese capital market attained a proper shape and structure only in the year 1993. In the year, securities board was formed and founded as a regulator and, stock trading commercial through the member brokers adopting the auction system. Stock exchange in its usual form was anticipated to be developed as a powerful mechanism to mobilize savings for long-term investments. Stock market has expanded in the past decade but not to a desirable level. It is still in its infant or the early stage and has yet to grow significantly to play a more important role in the banking ruled financial system.

In Presley's work (1992), he mentions that there is a strong need for greater risk management in relation to more effective portfolio management. This demands a greater emphasis upon the nature of risk and return in bank assets structure, and greater diversification of assets in order to spread and reduce the bank's risks. But then, Elizabeth Duncan, Elliot (2004), emphasized that all financial performance measures as interest margin, return on assets, and capital adequacy have positive correlation with the customer service quality scores.

Besides, in Goetzmann's work (1999), entitled "*An Introduction to Investment Theory*", the author reveals that in the investors view it is explained as investor's

whether they are individual or institutions such as pension funds, mutual funds holds portfolio that are they hold a collection of different securities. Much of the innovation acquired from the investment research over the past 40 years have been the development of a theory of portfolio management, and this module is significant and the most important in introduction to these new methods. It will answer the basic question as to what rate of return will investors demand to hold a risky security in their portfolio. To answer this question we first have to learn how the investors or we define return and what is meant by the risk.

Raghavan (2000) commented on the risk perceptions and the risk measure parameters. He opined that risk measures are related to the return measurements. While risk can only be contained and cannot be eliminated altogether, there is no doubt that some risks have to be taken to get adequate returns. Returns can be increased or made quicker by taking more financial and operating risk. But the environmental risks typically do not increase returns but serve as constrains on returns and risk decisions. He concludes that the process of retaining the levels of risks within the desirable levels must be practiced in the daily operations.

Jaiswal(2001) opined that investors look for a certain level of return for assuming the “risk of equities volatile return”. This level can be measured through the equity risk premium. Equity risk premium is the sum of the dividend yield and earning growth less current bond annual yield. He observed that the risk premium rose very sharply towards the ends of the last decade. The expectations of the earning growth had moved up dramatically since 1998. But in the last year we saw of long term growth expectations. He argued that the equity investments are not for weak hearted, as the equity holders cannot escape the impact of the movements in the capital market. We are headed for a period of lowers returns to the investors. He concludes that scaling down of the return expectations would reduce the chances of wild saving. And this would be better for health of the equity investors.

Paudel (2002) in his study "Investing in Share of Commercial Banks in Nepal: an assessment of return and risk elements". An attempt has made in this paper to determine whether the share of commercial banks in Nepal are correctly priced by analyzing the realized rates of return and required rate of return using Capital Assets Pricing Model and trace their future price movements when striving towards equilibrium. For this some theoretical models have been discussed to analyze return and risk characteristics of those shares. To analyze the risk characteristics of the share, the shares of the joint venture banks have been analyzed. The sample period started in July 1919 and ends in mid July 2001. The statistical results suggest that analyzes shares here are not in equilibrium with most of shares being less risk than the market.

Hossain (2006) analyzed the determining factors of stock price and return movements of listed companies of Dhaka stock Exchange (DSE). He uses different variables as those of number of securities, number of initial publics offerings EPS, DPS dividend payout ratio. He also examines some micro economic variable like gross domestic product (GDP), per capital income, savings, investment, export, import, foreign reserve, inflation rate, money supply, consumption, deposit interest as influential factors for determining the price of stock. He found a negative relation between dividend yield and the price of any stock.

Aktan (2009) indicates that during the past four decades, the finance discipline has developed more theory on measurement of risk and its use in assessing returns. The two key components of these theories are beta, which is measure of risk, and the CAPM, which uses beta to estimate return. The CAPM has been subject of several empirical tests based on three implications of the relation between expected return and market beta implied by model. First, expected returns on all

assets are linearly related to their beta, and no other variable has marginal elucidatory. Next, the beta premium is positive, meaning that the expected return on assets whose returns are uncorrelated with the market return. Last, assets uncorrelated with the market have expected returns equal to the risk-free interest rate, and the beta premium is the expected market return minus the risk-free rate.

Annual report of NIBL (2010), tells that risk and return analysis management has become a core part of business. Moreover the current financial crises due to financial institutions' high exposure to risky assets, and the collapse of large financial institutions such as Lehman Brothers, Wachovia and Bear Stearns due to their inability to manage risky assets, has further emphasized the need for prudent of effective risk and return management. The management team and Board of NIBL manage the overall risk profile, aiming for a balance between risk and return. Risk management includes risk identification and measurement and assessment, and its objective is to minimize negative effects that can have on the financial result and capital of a bank.

Other aspects of operational risk include major failure of information technology system or events such as major fires or other disasters. The failure to properly manage operational risk can result in a misstatement of an institution's risk/return profile and expose the institution to significant losses.

Ricardo Ulivi (2011) emphasizes that, risk and return are positively correlated. This means that, if you assume no risk, you can expect to earn a rate of return commensurate with taking no risk, which is known as the risk free rate. Mathematically risk is defined as a deviation from the average. That implies that sometimes we will earn above the desired average and sometime below it.

## 2.4 Review of Theses

Risk and return are not new concepts in the field of financial analysis. However, in context of Nepal, the concept is slowly gaining light since capital market in Nepal is gradually growing. We have few or limited studies on this topic. Some of the findings derived from among those studies are presented as follows.

To begin with, Mishra (2002) has analyzed the "*Risk and Return on Common Stock Investment of Commercial Banks in Nepal"* with special reference to five listed commercials banks. The study aimed at finding how we can promote and protect the interest of the investors by regulating the issuance sales and distribution of securities and purchases, sale or exchange of securities. For this, he supervised and monitored the activities of the stock exchange and the other related firms conducting securities business. His study emphasized that for the development of capital market, it is important to make securities transaction fair healthy, efficient and responsible.

Overall, his study discovered that there is a positive correlation between risk and return character of the company. Since Nepalese capital market is in the infant stage and inefficient, the price index itself is not sufficient to provide the information about the prevailing market. Situation and the company regulation should be introduced so that there is more transparency in issuance, sales and distribution of the securities. Investors do not have any idea about the procedures of the securities issuance. Neither company nor the stockbrokers transmit any information to the investors about the current market situation making it difficult for the common investors to invest in the securities. Both the government authorities and the stock exchange regulator body should attempt to promote sound practices so that the stockbrokers do not come with the false information to the investors with the personal benefit motive. This is apparent and a common practice in Nepalese context. Investors should have the regular information

regarding the systematic Risk (Beta), Return on Equity and P/E Ratio of various listed companies in some way; it is given in economic times for the companies listed in Nepal Stock Exchange. Security exchange Board of Nepal ought to make and implement all these mandates to enable the investors to estimate risk and return of portfolio. This would also promote transparency in addition.

In Tuladhar's study, (2002), entitled "A study on risk and return analysis of common stock", she describes risk return analysis of common stock. She has sought to find out the risk return and other relevant variables important in making decision on stock investment. She has also sought to identify the problems faced by the individual investors in stock market. While doing so she has analyzed the risk and return of common stock and their portfolio. She has then assessed the past and the present situation of investment of common stock. The study has also provided few recommendations based on the analysis of the data. Moreover, the study found that

- There is a positive correlation between risk and return character of the company.
- Because of inefficiency of Nepalese capital market, the price index itself was sufficient to give the information about prevailing market.
- Investors do not have any knowledge about the procedures of the securities issuance.
- Investors ought to get regular information regarding the systematic risk (Beta), return on equity (ROE) and P/E ratio of various listed companies.
- An analysis of risk and return reveals that many companies have higher unsystematic or specific risk.

Coming to the work of Bhatta (1996) viz., "*A study on Security Investment in Nepal*" which is based on the performance of 10 listed companies' data since 1990 to 1995, one of the major objectives was to analyze the performance of listed companies in term of risk and return. The study attempted to analyze expected rate of return and company specific risk, required rate of return and internal rate of return, systematic risk and diversification of risk through portfolio context.

Based on his findings on risk return behavior from the analysis of different stock, it was discovered that there is a strong positive correlation between risk and return character of the company. Investor anticipates higher returns from the stock, which is related to higher risk. Nepalese capital market is not efficient one. So, the stock price does not contain all the information relating to market and company itself. None investor's analysis shows the overall relevant information and high process stocks such as BBC, NIB, NIC has higher beta them others. These companies demanded higher returns to satisfy the investors for their risk premiums.

Investors in Nepal have not yet exercised investing in portfolio of securities. It reveals that risk can be totally minimized if the correlation is negative. In such context, the risk can be diversified but when there is positive correlation between the return of the two securities, the risk is not diversifiable. The analysis reveals that some have negative correlation and some have positive. Negative correlation between security return is desirable for diversification of risk.

Therefore, Bhatta maintained that, an analysis of risk and return indicates that many companies bear higher unsystematic or specific risk. There is a requirement for export institution, which can provide consultancy provision to the investors to maximize their wealth via rational investment decision.

So, as far as findings of Bhatta's study are concerned, he emphasized upon following factors to improve market efficiency:

- Development of institutions to consult investors for risk minimization.
- Establishment of an information channel in NEPSE.
- Making of proper amendment of Trading Roles.

Bhatta did analyze risk and return in common stock investment. Nonetheless, due to other aspects of analysis, investor could not easily assess the result. One of the downsides of the study was that it did not pay attention on the investor's point of view. Rather it moreover focused upon the companies and stock market. All the same, this study explores some important aspects that are useful for further research in the subject.

It can also be seen in Aryal's work (1995), who found the dependent nature of price series produced by general market. Fluctuation statistically implied, present price change is positively correlated to the past price change. This indicated that there is a lack of financial and market analysis sufficient in analyzing the general market fluctuations, predicting the occurrence of future potential and economic events that their eventual affects on price series.

Even, Pradhan (1993) emphasizes that there is positive relationship between dividend payout and liquidity and dividend per share to market was positively correlated. So higher the earnings on stocks, large the ratio of dividend per share to market price per share.

Ojha (2000) also maintains that there is significant positive correlation between the dividends paid and stock prices of banking and manufacturing industries. All other industries have not perfect correlation between the dividends paid and stock prices. A positive correlation between the net worth per share and stock prices of

banking, airline and hotel industries was found. There is no perfect correlation between the net worth per share and common stock price.

Manandhar (2003) in her study entitled "*Analysis of Risk and Return analysis on Common Stock Investment*" precedes her analysis of five listed commercial banks. Her study aimed to examine risk and return of common stock in Nepalese stock market. The study was focused upon the common stock of commercial banks. Based on her study, it was found that,

- Stocks possess greater risk than other investment, which make a random and unpredictable choice. Stock market is risky in the short term and it is necessary to prepare the investors for it.
- It is very important to consider the balance between risks and return that you are comfortable with, when making investment choice.
- Investors ought to diversify their fund to minimize risk with the help of optimal portfolio.
- Investor's perception and risk handling capacity also play significant role in terms of rational investment decision.

Joshi (2006) emphasizes that saving deposit of bank increasing trend as compared to fixed deposit, bank is using more outsider's fund to extend loan and advantage to generate profit. Nonetheless, the profitability ratio of bank is not favorable or desirable condition.

Konaju (2007) pointed that common stock is the most risky security and lifeblood of stock market because of the higher expected return, common holders are the passive owners of the company.

Sarama(2008) stated that there is high degree of positive correlation between banks therefore the investors should try to formulate portfolio with other trading and manufacturing firms.

On the other hand, Bajracharya (2009) reveals that the relation is not statistically significant at level. The acceptance of null hypothesis indicates that MPS and DPS are not significantly correlated. Then such a situation is not a healthy indicator for the entries sector in the country. Alternative hypothesis reveals that MPS and DPS are significantly correlated which can be maintained as a positive indicator of the development of entire sector in the country.

Wagle (2011) says that creating the right balance securities in a diversified portfolio is crucial to maximizing return and minimizing risk. Through risk assessment return analysis, researching the beta of security and reviewing the average risk and return, we can determine the weight of our securities and devise the strongest portfolio to limit risk and maximize return. There should have good balance in risk taken and returns for the banks in the investment portfolio.

Malhotra (2012) indicates that there is relationship between profit and loss. Losses can be minimized and profit can be increased with the help of techniques. Many parameters i.e., mean of stock, standard deviation, betas are used to analyze risk and return. Thus, for risk and return analysis these parameters are used. So to achieve the goal of becoming better investor traders these parameters will support it. As risk and return are two inseparable factors, profit and loss are also two inseparable features.

# CHAPTER 3

# RESEARCH METHODOLOGY

## 3.1. Introduction

Research methodology is the systematic way of solving research problem. It refers to the overall research process, which a researcher conducts during his / her study. In this chapter research design, population and sample, sources of data, data collection technique, data analysis tools are included. A research can be conducted on the basis of primary and secondary data. In this study all the data are collected from secondary sources and the collected data are analyzed by using appropriate financial and statistical tools.

## 3.2 Research Design

Research design is necessary to fulfill the objectives of well-set research. This research study is based on the recent data, reports published by selected commercial banks. It covers the data from 2004/05-2009/2010. It deals with the common stock of commercial banks on the basis of available information. This study is more analytical and less descriptive. Analytical research takes information that has been gathered and looks at what it shows such as trends. On the other hand, descriptive research is about finding information about a situation that exists, without looking at reasons or trends within the situation. Analytical aspect for this study, includes that of financial analysis accompanied by various statistical and financial tools and testing of hypothesis. For the testing of hypothesis, T-test is used. "*One Way ANOVA*" table has been used for analyzing this aspect.

This study has also followed case study approach, wherein the study has attempted to assess the portfolio of the selected banks for the study.

This study is based on data extracted from annual reports of sample of the commercial banks for 5 years starting from 2004/05 to 2009/10. This study is quantitative and also analytical. It covers quantitative method in a greater extent and analyzes risk and return of two commercial banks of Nepal. This study also tries to analyze portfolio construction to separate systematic and unsystematic risk and to find out proportion of diversified and undiversified risks.

### 3.3 Sources of Data

All the data necessary for the research have been collected from secondary sources. The secondary data is obtained from the banks researched by the study. Data related to market price of share (MPS) or others are taken from the trading report published by NEPSE. The collection procedures are as follows:

- www.annual report of everest bank limited from 2004 to 2010
- www.annual report of Nepal investment bank limited from 2004 to 2010
- www.annual report of nepal stock market
- Central library T.U.
- Trading manual published by Nepal stock exchange limited.
- Materials published in newspaper and magazine
- Various journals and books.

### 3.4 Population and Sample

The population of the study includes all the commercial banks of Nepal, which have been listed in the Nepal stock exchange company (NEPSE). They are:

1. Sunrise Bank Ltd.
2. Development Credit Bank Ltd.
3. Siddartha Bank Ltd.
4. Laxmi Bank Ltd.
5. Machhapuchhre Bank Ltd.
6. Kumari Bank Ltd.

7. Lumbini Bank Ltd.
8. Bank of Kathmandu Ltd.
9. Nepal Bank Ltd.
10. Standard Charted Bank Ltd.
11. Nepal SBI Bank Ltd.
12. Nepal Industrial & Commercial Bank Ltd.
13. Everest Bank Ltd.
14. Nepal Bangladesh Bank Ltd.
15. Himalayan Bank Ltd.
16. Nepal Investment Bank Ltd.
17. Rastriya Banijya Bank Ltd.
18. Nabil Bank Ltd.
19. NCC Bank Ltd.
20. Agriculture Development Bank Ltd.
21. Global Bank Ltd.
22. Citizen Bank International Ltd.
23. Prime commercial Bank Ltd.
24. Bank of Asia Nepal Ltd.
25. KIST Bank Ltd.
26. Janata Bank Nepal Ltd.
27. Mega Bank Nepal Ltd.
28. Civil Bank Ltd.
29. Commrez Trust Ltd
30. Century commercial Bank Ltd.
31. NMB Bank Ltd

Source: www.list of all commercial banks of nepal

Among the banks mentioned above, this study has selected two listed commercial Banks viz., *Everest bank Ltd* and *Nepal investment Bank Ltd*. by using convenient

sampling methods. Two banks are taken as sample in this study so there is 6.451% sample taken for study. On the other hand convenient sampling is undertaken on the basis of researcher's convenience and access.

### 3.5 Tools of Data Analysis

Both financial and statistic tools have been used for analyzing the collected data.

#### 3.5.1 Financial Tools

##### 3.5.1.1. Expected Rate of Return

Expected rate of return is the arithmetic mean of the post years returns.

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

Where,

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

n = Number of years that the return is taken.

$\sum$ = Sign of summation.

##### 3.5.1.2. Expected Rate of Return

The expected rate of return for any assets is the weighted average rate of return, using probability of each rate of return and the respective weights. The expected rate of return is calculated by summing the products of the rates of return and their respective probabilities. It is calculated as follows:

$E(R_j)= \sum R_jP_j= R_1P_1 +R_2P_2+\ldots..+R_nP_n$

Where,

$R_j$= rate of return of $j^{th}$ outcome or event

$P_j$= probability of occurrence of $j^{th}$ outcome or event.

### 3.5.1.3 Holding Period Return (HPR)

Holding period return may be defined as the change in value plus any cash distributions expressed as a percentage of the beginning period's 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:

a. Income from price appreciation, this quantity is denoted $P_t - P_{t-1}$
b. Cash flow income from cash dividend represented by the $D_T$.

$$\text{HPR or Simple 'R'} = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$$

Where,

R= annual rate of return

$P_t$ = price of stock at time t

$P_{t-1}$=price of stock at time t-1

$D_t$ = cash dividend received at time t

### 3.5.1.4 Standard Deviation

Standard deviation is a statistical measure of the variability of a set of observations. The symbol is called (σ) sigma. It is the measure of the total risk on stock investment.

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

If data is probability distribution

$$\text{or,} \quad \sigma_j = \sqrt{\sum_{t=1}^{n} [R_j - E(R_j)]^2 P_j}$$

Where,

$\sigma_j$ = Standard deviation on of return stock j during the time period

$P_j$ = Probability distribution of the observation.

$R_j$ = Probability distribution of the observation.

$E(R_j)$ = Expected rate or return on stock j.

n = Number of years that the returns are taken.

### 3.5.1.5 Coefficient of Variation (C.V.)

It is defined as the standard deviation divided by the mean 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 investments when both the standard deviations and the expected values differ.

$$\text{C.V.} = \frac{\sigma_j}{E(R_j)}$$

Where,

C.V. = Coefficient of variation of stock.

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

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

### 3.5.1.6 Beta Coefficient (β)

Beta coefficient shows the market sensitivity of stock. Higher the beta, higher the sensitivity and reaction to the market movement. Beta coefficient of a particular stock will be less than equal or more than 1, but the beta for market will be always 1.

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

If historical returns are given:

$$Cov(R_j, R_m) = \frac{\sum [R_j - E(R_j)][R_m - E(R_m)]}{n-1}$$

If probability distribution is given:

$Cov(R_j,R_m)= \sum P_j[(R_j-E(R_j))(R_m-E(R_m))]$

Where,

$\beta_j$ = Beta coefficient of stock j.

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

$\sigma_m^2$ = Variance of market return.

### 3.5.1.7. Covariance

Covariance is a measure of the degree in which two variables come "over together" over the same time. A covariance between the rate of return for the assets that is positive indicates that the rate of return tend to move in the same direction at the same time. The covariance between assets return can be calculated by using the following equation:

a. If the probability is given:

$Cov_{AB}= \sum[(R_A - E(R_A))(R_B - E(R_B))]P_j$

b. If the probability is not given,

$Cov_{AB}=1/n-1 \sum [(R_A - E(R_A))(R_B - E(R_B))]$

### 3.5.1.8 Correlation Coefficient

Correlation coefficient measure the relationship between two variables in quantitative terms. Correlation coefficient always lies in the range of +1 to -1. A positive correlation coefficient indicates that the return from two securities generally move in the same direction. If negative correlation coefficient indicates that the return of two stocks moves in opposite directions.

Correlation coefficient and covariance are related by the following equation.

$$Cov_j = \sigma_i \sigma_j \rho_{ij}$$

$$\rho_{ij} = \frac{Covij}{\sigma_i \sigma_j}$$

Where,

$\sigma_i$ and $\sigma_j$ are the standard deviations of returns for assets i and j and $\rho_{ij}$ is correlation coefficient for asset i and j. there are various cases of correlation and risk condition which are presented below.

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

Return on two perfectly positive correlated stocks would move up and down together and a portfolio of two such stocks would be exactly as risk if the portfolio consists of perfectly positive correlated stocks.

**ii) Perfectly negative correlation ( $\rho_{ij}$ = -1)**

Returns on two perfectly negative correlated stock would move perfectly together put in exactly opposite in directions. In this condition, risk can be completely eliminated. However, Perfect negative correlation is almost never found in the real world.

**iii) No Relation between return ( $\rho_{ij}$ = 0)**

When the correlation between two stocks is exactly zero, there is no relationship between the return they are independent of each other. In this condition some risk can be reduced.

**3.5.1.9 Return on Market ($R_m$)**

Market return is independent variable of characteristic line. In the context of Nepalese financial market, average return or market return can be found by using NEPSE index. Market return cab be calculated as follows:

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

Where,

$\sum$ = sign of summation.

$R_m$ =Market return

n = Number of samples period

If probability distribution is given:

$E(R_m) = \sum P_j R_m$

### 3.5.1.10 Minimum Risk Portfolio

It is the portfolio with the lowest level of risk in the efficient frontier. It is also called risk minimizing weight or optimal weight, on two-stock portfolio, the optimal weight to invest in stock i and j are calculated as follows:

$$W_i = \frac{\sigma^2_j - Cov(R_i, R_j)}{\sigma^2_i + \sigma^2_j - 2Cov(R_i, R_j)}$$

Where,

$W_i$= Weight of proportion of stock i that minimize the portfolio risk.

$W_i + W_j = 1$, $W_j = 1 - W_i$

### 3.5.1.11. Portfolio Risk and Return

Portfolio is combination of group of assets. Investors have different types of investment opportunity but they have limited resource for investment so that investors have to choose that investment opportunity which maximizes return for a given level of risk or minimize risk for a given level of return. Thus the combination of these investments is called portfolio.

### i. Portfolio Return

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

$$E(R_P) = W_i\, E(R_i) + W_j\, E(R_j)$$

Where,

$E(R_P)$ = Expected return on portfolio.

$W_i$ = Proportion of wealth invested in i assets.

$W_j$ = Proportion of wealth invested in j assets.

$E(R_i)$ = Expected return on i assets.

$E(R_j)$ = Expected return on j assets.

### ii. Portfolio Risk

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

$$\sigma_p = \sqrt{\sigma_i^{\,2} w_i^{\,2} + \sigma_j^{\,2} w_j^{\,2} + 2 w_i w_j \operatorname{cov}(R_i, R_j)}$$

Where,

$\sigma_p$ = Standard deviation of stock i & j

$W_i$ =Proportion of asset i

$W_j$ =Proportion of assets j

$\sigma_i^{\,2}$ =Variance of assets i

$\sigma_j^{\,2}$ = Variance of assets j

$\operatorname{cov}(R_i, R_j)$ = Covariance between the return of assets i & j

### 3.5.1.12 .Required rate of return

It is minimum expected rate of return need to induce on investor to invest fund.

If expected rate of return is greater than required rate of return then it is under-priced.

If expected rate of return is smaller than required rate of return then it is over-priced.

If expected rate of return is equal to the required rate of return then it is equilibrium price.

**The required rate of return is calculated by using :-**

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

Where,

$E(R_j)$ = Required rate of return for stocks j

$R_f$ = Risk free rate

$E(R_m)$ = Expected return for market portfolio

$\beta_j$ = An index of systematic risk of stock j (beta coefficient)

### 3.5.2. Statistical Tools

#### 3.5.2.1 T-Test

The sampling distribution of sample means when the sample size is large (i.e. n >30), it is normally distributed with mean $\mu$ and standard deviation $\sigma$. But what to do in a situation when sample size is less than 30.

The student's t-distribution states that if the sample size is less than 30(i.e. $n \leq 30$), the sampling distribution of the sample means follow the student's t-distribution.

In order to test the significance of an observed samples return and beta the following procedure is applied.

Null Hypothesis ($H_0$): $R_m = R_j$ that is, there is no significant difference between overall market return and average return of common stock of listed commercial Banks.

Alternative Hypothesis($H_1$): $R_m \neq R_j$ that is, there is significant difference between overall market return and average return of common stock of listed commercials banks.

It is applied for hypothesis testing 1st to test whether there is any significant difference between average mean of commercial Bank with market or not. If the test is 'test of significance for a single mean' the test statistic is given by:

$$t = \frac{\overline{X} - \mu}{\frac{s}{\sqrt{n}}}$$

Where,

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

Where,

t = Student's test statistics

$\overline{X}$ = Arithmetic mean of sample statistics

$\mu$ = Arithmetic mean of population parameter

s = Estimated standard deviation of population parameter with is given as

$$S = \sqrt{\frac{\Sigma(X - \overline{X})^2}{n-1}}$$

n = Sample size

### 3.5.2.1. Analysis of Variance (ANOVA)

When we have to test the significance of the differences between two sample means, t-test is suitable. But when we need to test the significance of the differences between more than two sample means, F-distribution is suitable technique, called the "Analysis of variance". Using ANOVA technique, we will be able to make inferences about whether our samples are drawn from populations having the sample mean.

**One-Way Analysis of Variance**

The basic concept of ANOVA is to test whether the samples have same mean. One-way analysis of variance is the one if we study the effect of only one factor at a time and the hypothesis is to test the difference in average value due to the factor insignificance.

The whole analysis of ANOVA is finally presented in the ANOVA table.

**Table 3.1**

**One-Way ANOVA Table**

| Source of Variation | d.f | Sum of squares (ss) | Mean sum of squares (MSS = ss/d.f.) | F-ratio |
|---|---|---|---|---|
| Between samples | K – 1 | SSB | $MSB = \frac{SSB}{K - 1}$ | $\frac{MSB}{MSW} = F_{cal}$ |
| Within sample | N – K | SSW | $MSW = \frac{SSW}{N - K}$ | |
| Total | N – 1 | SST | | |

To make decision of the computed value of F is less than its calculated value $H_0$ accepted otherwise $H_0$ is rejected.

Where,

SSB = sum of square of variation between sample

SSE= sum of square of variation within samples

SST= sum of square of total

MSB= mean sum of square of variation between samples

MSW= mean sum of square of variation within samples.

### 3.6 Data Analysis Technique

Finally, regarding the data analysis technique, findings of the study have been presented in tabular form and their interpretations have been done in accordance with it. To make report simple and easy and understandable, tables and figure have been used.

# CHAPTER 4
# DATA PRESENTATION AND ANALYSIS

This chapter comprises an important part of the study, which is known as analysis of data collected and their interpretation. Detail data of market price per share (MPS) and dividend of each bank and NEPSE index of each bank is presented and their interpretation and analysis is done. By the support of many reading and literature review as mentioned in previous chapter, effort is made to analyze and diagnose the risk and return of the investment on the common stock of listed commercial banks. Different tables and diagrams are drawn to make the result understandable.

## 4.1 Analysis of Data

The study was focused on analyzing the common stock of listed commercial banks separately as the scope of the study concentrates only on listed commercial banks of Nepal. There are currently many commercial banks listed in NEPSE. But my study has taken sample of two commercial banks only. They are Nepal Investment Bank Limited and Everest Bank Limited. Their risk and return analysis are included in this study.

### 4.1.1 Nepal Investment Bank Limited (NIBL)

Nepal Investment Bank Limited was established in the year 1985 A.D. with an authorized capital, issued capital, and paid-Up capital of NIBL amounts to Rs. 5,90,000,000 and Rs.2,95,293,000 respectively. The par value per share of NIBL is Rs. 100 and number of shareholders are 2780.Now this bank is operating under the full ownership of Nepalese promoters and shareholders. Authorized, issued

and paid up capital of Rs. 4,00,00,00,000, Rs.2,40,90,97,700 respectively. Par value per share was Ra.100.the bank was listed in the NEPSE at 16th July 2010.

Market price per share, Dividend records, EPS and P/E ratio of common stock of Nepal investment bank (NIBL) are shown in Table 4.1

**Table 4.1**

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

| Fiscal Year | Closing MPS (Rs.) | Cash DPS (Rs.) | Stock Dividend (%) | Total Dividend (Rs.) | EPS (Rs.) | P/E Ratio |
|---|---|---|---|---|---|---|
| 2005/06 | 1260 | 20 | 55.46 | 978.90 | 59.35 | 21.23 |
| 2006/07 | 1729 | 5 | 30 | 740 | 62.57 | 27.63 |
| 2007/08 | 2450 | 7.50 | 40.83 | 574.91 | 57.87 | 42.3 |
| 2008/09 | 1388 | 20 | 20 | 161 | 37.42 | 37.10 |
| 2009/10 | 705 | 25 | 25 | 153.75 | 52.55 | 13.42 |

Source: Annual report of Nepal Investment bank limited

The Table 4.1shows the closing MPS is maximum in year 2007/08 i.e. Rs.2450 and minimum in year 2009/10 i.e. Rs. 705. MPS is increasing from year 2005/06 till 2007/08 and gradually decreasing from year 2008/09 to 2009/10. The EPS is also maximum in year 2006/07 i.e Rs.62.57 and minimum in the year 2008/09 i.e. Rs.37.42. EPS from the year 2005/06 to 2009/10 is fluctuating. The P/E ratio is maximum in the year 2007/08 i.e. Rs.42.3 and minimum in the year 2009/10i.e.13.42. It also shows that P/E ratio is increasing from year 2005/06 to till 2007/08 and decreasing from 2008/09 till 2009/10.The total dividend is maximum in year 2005/06 i.e. Rs.978.90 and minimum in the year 2009/10 i.e.,minimum i.e. Rs.153.75 which shows that it's total dividend is in declining

trend from year 2006/07 to 2009/10. Total stock dividend is maximum in year 2005/06 i.e.Rs. 978.90 due to maximum closing price stock.

**Figure 4.1**

**Closing MPS of NIBL**

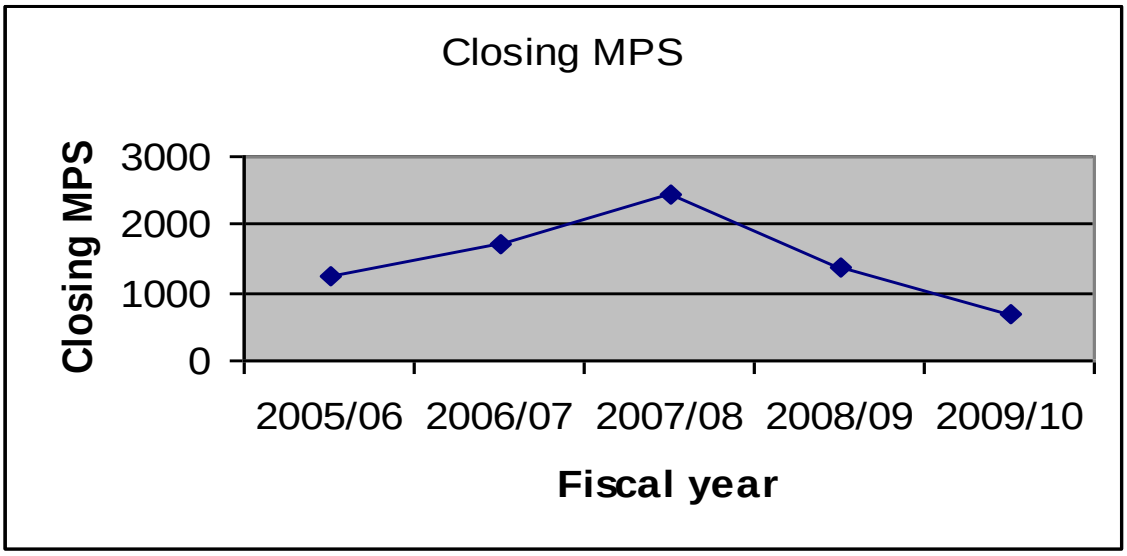



Figure 4.1 shows the trend line of market price in 5years of NIBL. It can be seen that there is market price in increasing trend from 2005/06 to 2007/08 which is maximum growth i.e maximum price in year 2007/08 is Rs.2450. There is minimum price in the year 2009/10 i.e. Rs. 705. So MPS is increasing from year 2005/06 till 2007/08 and MPS decreasing from year2008/09 to 2009/10.

**Table 4.2**

**Expected Return, S.D. and C.V of C.S of NIBL**

| Fiscal year | Closing market price ($P_t$) | Total dividend ($D_t$) | $R_N = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}} * 100\%$ | $[R_N - E(R_N)]$ (%) | $[R_N - E(R_N)]^2$ (%) |
|---|---|---|---|---|---|
| 2004/05 | 800 | 170 | - | | |
| 2005/06 | 1260 | 978.9 | 179.862 | 124.212 | 15547.7 |
| 2006/07 | 1729 | 740 | 95.952 | 40.302 | 1663.03 |
| 2007/08 | 2450 | 574.91 | 74.911 | 19.779 | 391.222 |
| 2008/09 | 1388 | 161 | -36.775 | -91.779 | 8454.359 |
| 2009/10 | 705 | 153.75 | -38.130 | -93.302 | 8705.353 |
| N=5 | | | 275.860 | | 34761.67 |

Source: Annual Report of Nepal Investment bank

We have,

Expected return $E(R_N) = \frac{\sum R_N}{n}$

$=275.8604/5$

$=55.17208\%$

Standard deviation ($\sigma$) = $\sqrt{\frac{\sum [R_N - E(R_N)]^2}{n-1}}$

$= \sqrt{\frac{34761.67}{5-1}}$

$=93.222\%$

Var= $(\sigma_E)^2$

$=(93.222)^2$

$=8690.417\%$

Coefficient of Variation (C.V.) = $\frac{\sigma_N}{E(R_N)} \times 100\%$

$$= \frac{93.222}{55.172} \times 100\%$$

$$=1.68966 * 100\%$$

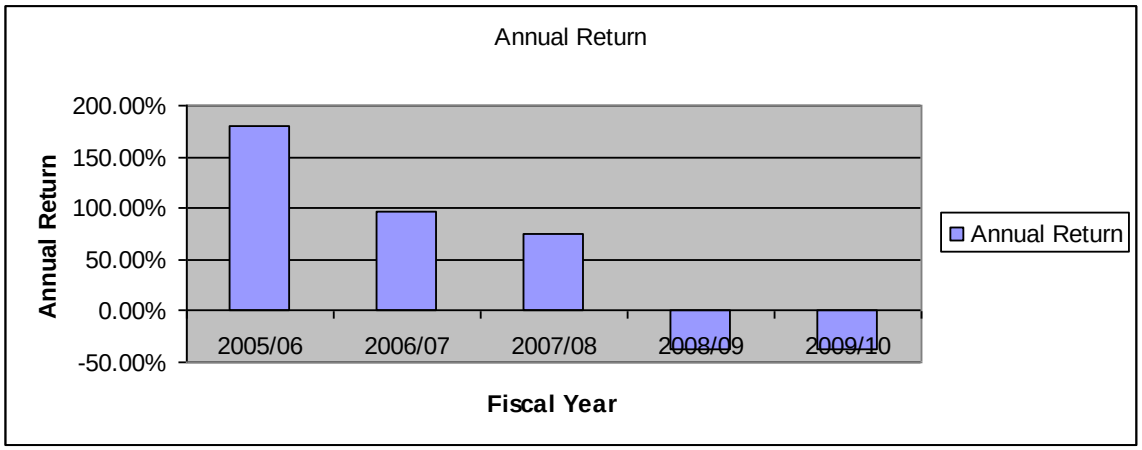
$$=168.966\%$$

The return of the share of NIBL is minimum in year 2009/10 i.e., -38.130%. The return is maximum in year 2005/06 i.e., 179.862%.The returns is increasing in year 2005/06 and then decreasing in 2006/07 to 2008/09 and decreasing then after. The return increasing means the income of the bank has gained income.

The expected return for NIBL's stock is 55.172% with the total risk (measured by S.D.) of 93.222%and C.V. for NBIL's i.e., 168.966% which denotes that to get per unit return 1.68 risk must be sacrificed. So, higher the C.V. higher will be the risk.

**Figure 4.2**

**Annual Return of Common Stock of NIBL**



The Figure 4.2 shows that the Annual rate of return of common stock of NIBL in several years. The rate of return is maximum on year 2005/06 i.e. 179.862% which shows high return profitable while the return is negative in year 2008/09, 2009/10 i.e., -36.775%,-38.130%. The annual return of bank is increasing in year 2005/06 and decreased there after from 2006/07 to 2009/10.

### 4.1.2. Everest Bank Limited (EBL)

Everest Bank Ltd. was established in 2049 B.S. (1993A.D.) with an authorized capital, issued capital and paid up capital of NRs. 600,000,000, NRs 529,800,000 and 518,000,000 respectively. Per value per share was NRs. 100 and number of shareholders were 24,222. and now it's authorized, issued and paid up capital is Rs.1,25,00,00,000, Rs.!,05,00,000 and Rs.1,03,04,67,300 respectively. The par value per share is Rs.100. It was listed on NEPSE in 16th July 2010. The central office of this organization is in Lajimpat.

The MPS and EPS, price/earning per share of Everest Bank Ltd are listed below.

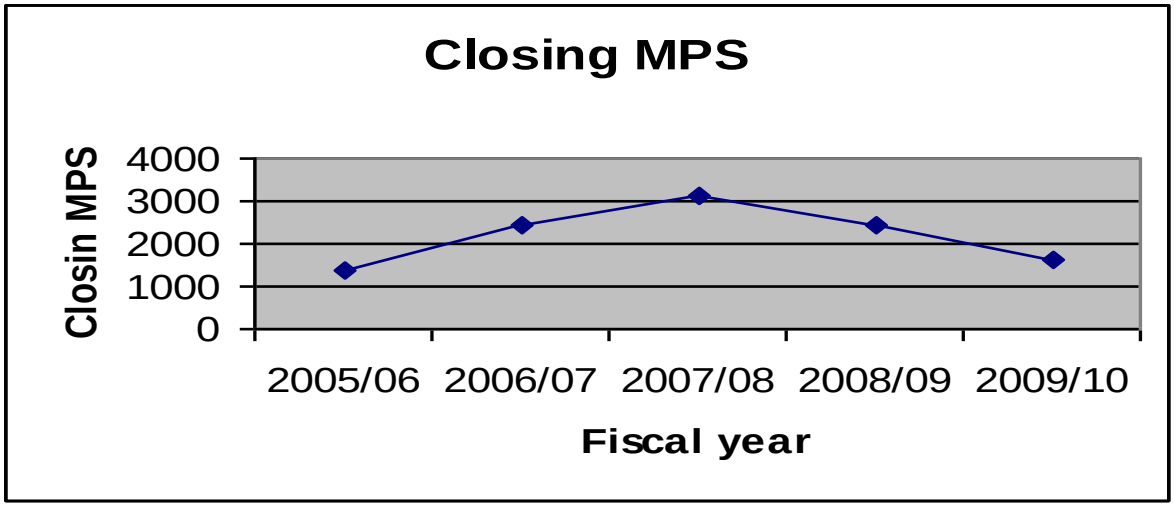
**Table 4.3**
**MPS, Dividend, EPS and P/E ratio of EBL**

| Fiscal year | Closing MPS (Rs.) | Cash DPS (Rs.) | Stock Dividend(%) | Total Dividend(Rs.) | EPS (Rs.) | P/E ratio |
|---|---|---|---|---|---|---|
| 2005/06 | 1379 | 25 | - | 25 | 62.78 | 21.97 |
| 2006/07 | 2430 | 10 | 30 | 949.6 | 78.42 | 30.99 |
| 2007/08 | 3132 | 20 | 30 | 756.5 | 91.82 | 34.11 |
| 2008/09 | 2455 | 30 | 30 | 519 | 99.99 | 24.55 |
| 2009/10 | 1630 | 30 | 30 | 358.2 | 100.16 | 16.27 |

Source: Annual report of Everest Bank Limited

Table 4.3 shows closing market price, cash dividend, stock dividend and total dividend of common stock of EBL. From the above table, the closing MPS of EBL was the maximum in the fiscal year 2007/08 with a closing MPS of Rs.3132 and minimum in the fiscal year 2005/06 with closing MPS of Rs.1379 which shows that MPS from the year 2005/06 to 2009/10 is fluctuating. Total dividend is Maximum in the year 2006/07 i.e.Rs.949.6 and minimum in the year 2005/06 i.e. Rs.25 which shows that it is increasing from year 2005/06 to 2006/07 and decreasing from 2007/08 to 2009/10. EPS is maximum in the year 2009/10 i.e. Rs.100.16 and minimum in the year 2005/06 i.e. Rs.62.78 which shows that EPS is increasing from year 2005/06 to 2009/10. P/E ratio is increasing in the year 2007/08 i.e. Rs.34.11 and minimum in the year 2009/10 i.e.Rs.16.27 which shows that P/E ratio from the year 2005/06 to 2009/10 fluctuating. Year-end closing MPS movement have been shown in the figure 4.3

**Figure 4.3**
**Closing MPS of EBL**




Source: Annual Report of Everest Bank Limited

Figure 4.3 shows the trend line of price or MPS of EBL in the fluctuating trend. The closing MPS is maximum in the fiscal year of 2007/08 i.e. Rs3132 and minimum in the fiscal year of 2005/06 i.e. Rs1379. It can be seen that there is

increasing from the year 2005/06 to 2007/08 which is maximum growth and decreasing from 2008/09 to 2009/10.

**Table 4.4**
**Expected Return, Standard Deviation and Coefficient Variation of EBL**

| year | Closing Market Price $P_t$ | Total Dividend $D_t$ | $R_E = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}} * 100\%$ | $R_E - E(R_E)$ (%) | $[R_E - E(R_E)]^2$ (%) |
|---|---|---|---|---|---|
| 2004/05 | 870 | 275.8 | - | - | - |
| 2005/06 | 1379 | 25 | 61.379 | 9.637 | 92.876 |
| 2006/07 | 2430 | 949.6 | 145.076 | 93.334 | 8711.249 |
| 2007/08 | 3132 | 756.5 | 60.020 | 8.278 | 68.533 |
| 2008/09 | 2455 | 519 | -5.0447 | -56.786 | 3224.737 |
| 2009/10 | 1630 | 358.2 | -2.720 | -54.463 | 2966.224 |
| Total | | | 258.710 | | 15063.62 |

Average Return of EBL, $E(R_E) = \frac{\Sigma R_E}{n}$

$= 258.710/5$

$= 51.742\%$

Standard Deviation of EBL, $(\sigma_E) = \sqrt{\frac{[R_E - E(R_E)]^2}{n-1}}$

$= \sqrt{\frac{15063.62}{5-1}}$

$= 61.366\%$

Variance (Var) $= (\sigma_E)^2$

$= (61.366)^2$

$=3765.905\%$

Coefficient of Variation (C.V.) $= \frac{\sigma_E}{E(R_E)} \times 100\%$

$= \frac{61.366}{118.601} \times 100\%$

$=1.18607*100\%$

$=118.601\%$

The expected return of EBL is 51.742% with the total risk (measured by S.D.) of 61.366%. The C.V. of EBL is 118.6017% which denotes that to get per unit return 1.1860 risk must be sacrifice. So, higher the C.V. higher will be the risk.

From the above table, the rate of return of the EBL was the maximum in the fiscal year of 2006/07 with a rate of 145.076% and minimum in the fiscal year 2009/10 with rate of return -5.0447%.

Annual rate of return of common stock of EBL have been shown in the figure 4.4

**Figure 4.4**
**Annual Rate of Return of Common Stock of EBL**

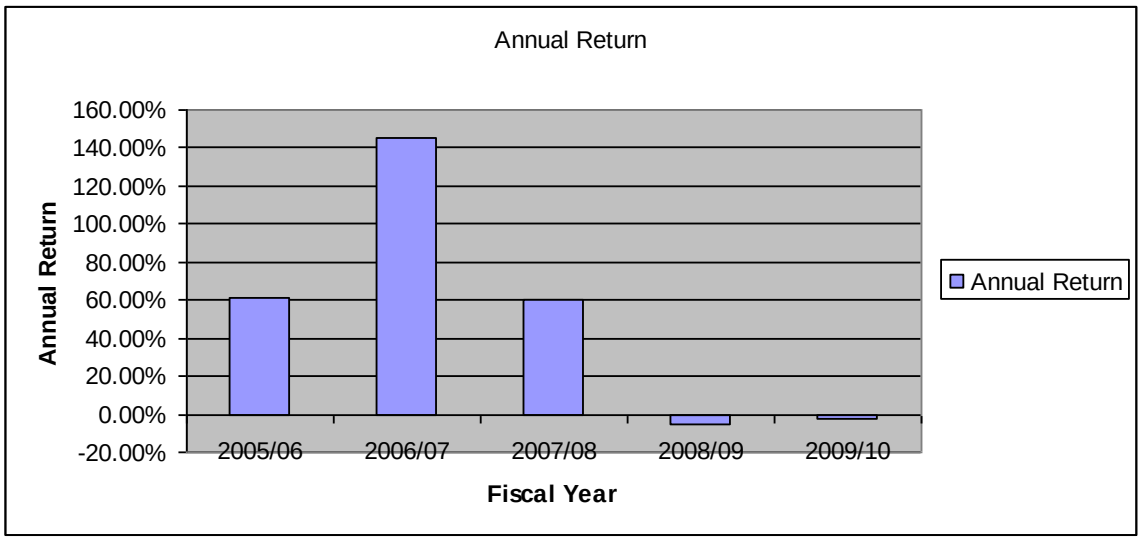



Figure 4.4 shows return of EBL in the several years. There is negative and fluctuating return in several years. The annual return is maximum at 2006/07 is 145.076% and minimum at 2009/10 is -5.0447%. There is increasing of annual return from 2005/06 to 2006/07 and decreasing of annual return from 2007/08 to 2009/10.

## 4.2 Inter -Banking Comparison

According to the result obtained from the analyses done above, a comparative analysis of return, total risk and risk per unit is analysed here. Average returns, standard deviation of the return (risk) and coefficient of variation of each bank for the year 2004/05 to 2009/10 are given in the table 4.5.

**Table 4.5**
**Expected Return, S.D and C.V. of selected Commercial Banks**

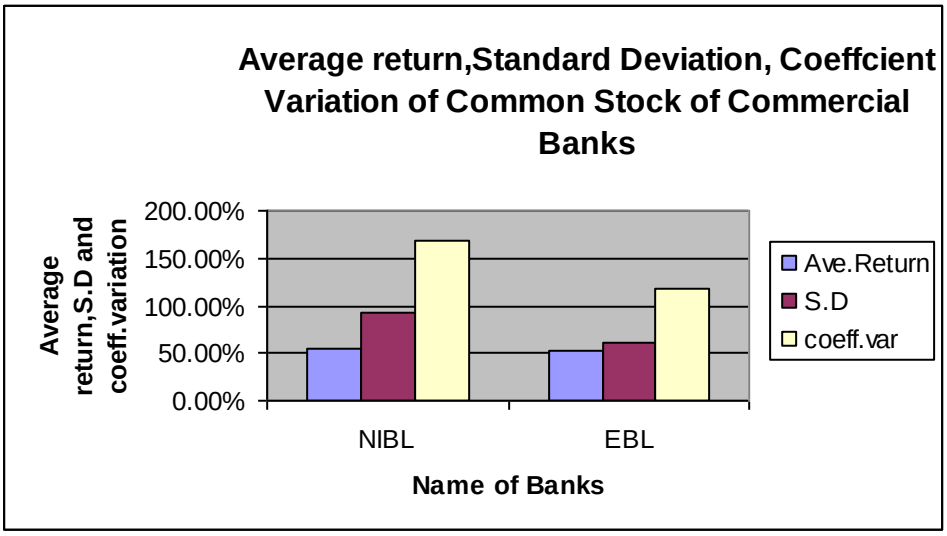
| S.N | Banks | Expected Return (%) | Standard Deviation(%) | Coefficient of Variation (C.V)(%) | Remarks | | |
|---|---|---|---|---|---|---|---|
| | | | | | Return | Risk | C.V |
| 1. | NIBL | 55.172% | 93.222% | 168.966% | highest | highest | highest |
| 2. | EBL | 51.742% | 61.366% | 118.601% | | | |

Source: Annual report of NIBL and EBL

The Table 4.5 shows that expected return, standard deviation, coefficient of variation of NIBL is 55.172%, 93.222%, and168.966% respectively. Similarly, expected return, standard deviation, coefficient of variation of EBL is 51.742%, 61.366% and 118.601% respectively. Investment made in the highest is EBL and lowest returns from the investment made in the NIBL. EBL has highest total risk as compared to the other bank. Where as NIBL has lowest total risk. Similarly, EBL has lower coefficient of variation.

For taking a wise investment decision on a single common stock, coefficient of variation is the more appropriate indicator than others. To make comparison easily understandable figure 4.5 is presented below:

**Figure 4.5**
**Expected Return, Standard Deviation, Coefficient of Variation of Common Stock of Commercial Banks**



The figure 4.5 depicts the expected return, standard deviation and coefficient of variation of each individual bank showing the comparison of these banks in terms of risk and return.

### 4.3 Analyses of Market Risk and Return

In Nepal, there is only one stock market called Nepal Stock Exchange Ltd. (NEPSE). The overall market movement is represented by market index (i.e., NEPSE index). The NEPSE index is adjusted and change continuously with this NEPSE base market portfolio return. Its standard deviation and coefficient of variation is presented below.

**Table 4.6**
**Calculation of Expected Return, S.D. and C.V. of overall Market**

| Fiscal year | NEPSE index | $R_m = \frac{(NEPSE_t - NEPSE_{t-1})}{NEPSE_{t-1}}$ | $[R_m - E(R_m)]$ (%) | $[R_m - E(R_m)]^2$ (%) |
|---|---|---|---|---|
| 2004/05 | 286.67 | - | | - |
| 2005/06 | 386.83 | 34.93% | 16.103 | 259.306 |
| 2006/07 | 683.95 | 76.80% | 57.973 | 3360.869 |
| 2007/08 | 963.36 | 40.85% | 22.025 | 485.118 |
| 2008/09 | 749.20 | -22.23% | -41.057 | 1685.677 |
| 2009/10 | 477.73 | -36.82% | -55.057 | 3031.273 |
| Total | | 94.1224 | | 8822.244 |

Source: Annual report of Nepal stock Exchange Limited

Average return on market $E(R_m)$ =94.1224/5
=18.827%

Standard Deviation ($\sigma_m$) $= \sqrt{\frac{\sum[R_m - E(R_m)]^2}{n-1}}$

$= \sqrt{\frac{8822.244}{5-1}}$

$=\sqrt{2205.561}$
=46.963%

Variance $(\sigma_m)^2$ $= (46.963)^2$

$=2205.561\%$

Coefficient of variation $(CV_m) = \frac{\sigma_m}{E(R_m)} \times 100\%$

$= \frac{46.963}{18.827} \times 100\%$

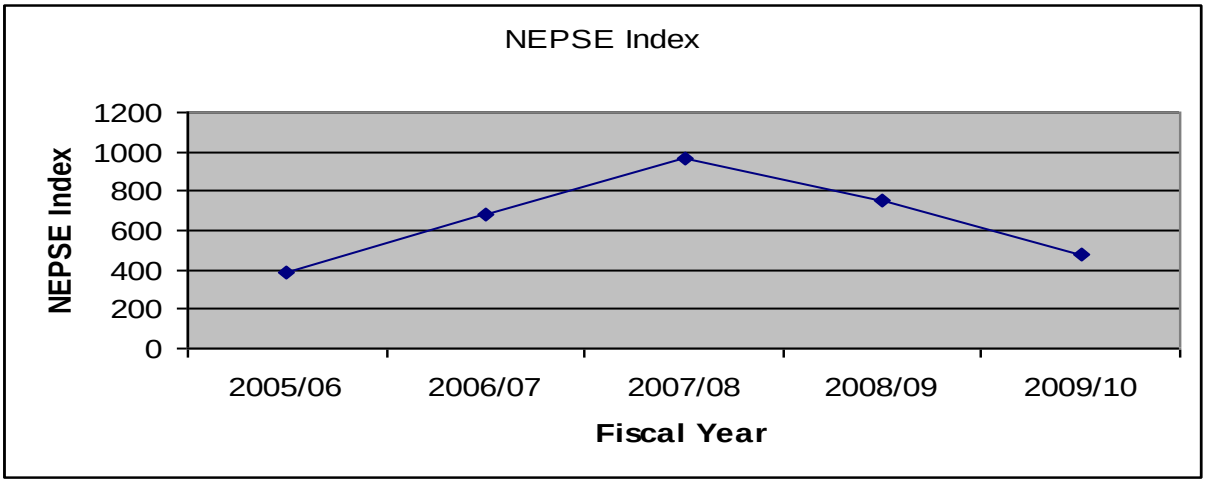
$= 249.447\%$

Here, the market return is 18.827%, risk is 42.005% and C.V. is 249.447%.

Expected return of the common stock of market is very low than commercial banks. Its standard deviation is also less than commercial banks. But its CV is very high than banks. So risk in the investment seems very high.

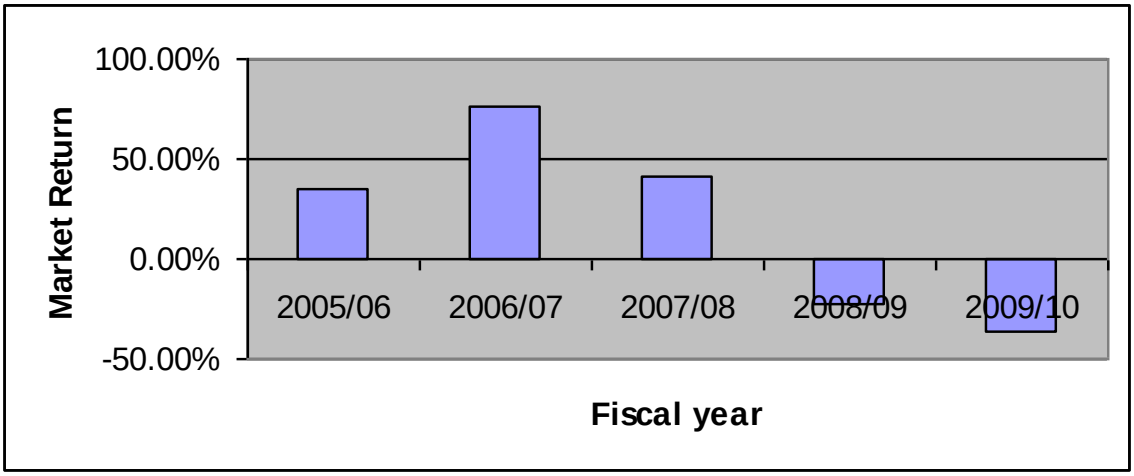
Table 4.6 shows the return of market in 5years. There is highest return of market in the year 2006/07 i.e. 76.80%and there is negative return of market in the year 2008/09 and 2009/10 i.e. -22.23% and -36.82%. the expected return of market is 18.827% with the total risk (measured by S.D.) of 46.963%. C.V. of market is 2.49 which denotes 2.49 risk must be sacrificed to get per unit market return. The NEPSE index movement is shown in following figure 4.6

**Figure 4.6**
**NEPSE Index Movement**




The above mentioned figure 4.6 shows that the movement of NEPSE index is increasing from the fiscal year 2003/04 to 2007/08 and begin to decrease in the 2008/09. The movement of NEPSE index is highly decreasing during the fiscal year 2009/10.The NEPSE index is maximum at year 2007/08 i.e Rs. 963.36 and minimum at year 2004/05 Rs. 286.67.

**Figure4.7**
**Market Return Movement**



The Figure 4.7 shows that the market returns is highly positive or maximum in the fiscal year 2006/07 and then after it started to decrease negatively in the year 2008/09. The return is high in the fiscal year2006/07 is 76.80% and minimum at year 2009/10 is 36.82%. Market return is increasing from year 2005/06 to 2007/08 and decreasing from 2008/09 to 2009/10.

**Table 4.7**
**Comparison with single stock**

| S.N. | Banks and Market | Expected return E(R) | Standard Deviation ($\sigma$) | Coefficient of variation (C.V.) |
|---|---|---|---|---|
| 1 | NIBL | 55.172% | 93.222% | 168.966% |
| 2 | EBL | 51.742% | 61.366% | 118.601% |
| 3 | Market | 18.827% | 46.963% | 249.447% |

Source : Annual report of NIBL, EBL, Nepal Stock Exchange Limited

Comparing with individually with the stock of NIBL's return is greater than the market return, where as the total risk of the NIBL is greater than the market risk. But C.V. is less than the market.

Similarly, comparing with stock of EBL's return is also greater than market return where as the risk is also higher than the market risk. But C.V. is less than the market.

When seeing the risk per unit EBL, NIBL are lesser than the market risk per unit.

From the above result there is high risk in market with comparison to NIBL and EBL.

### 4.4 Market Sensitivity Analysis

Market sensitivity of stock is explained by terms of beta coefficient. Beta coefficient can be used for an ordinal ranking of the systematic risk of asset.

Higher the beta represents greater the sensitivity and higher the reaction to the market movement and vice-versa. Percentage of risk that is correlated with market is said to be systematic portion of risk. Beta coefficient is systematic risk, which can not be eliminated through the means of diversification.

Mathematically, the systematic risk beta is measured as the covariance of the stock return with the market returns expressed per units of market variance as follows:

$$\beta_N = \frac{\text{cov}(R_N, R_m)}{\sigma^2}$$

$$= \sigma_m \rho_{Nm} / \sigma_m^2$$

$$= \sigma_N \rho_{Nm} / \sigma_m$$

And $\text{Cov}(R_N, R_m) = \sum[(R_N - E(R_N))(R_m - E(R_m))]/n-1$

Where,

$\text{Cov}(R_N, R_m)$= the covariance of return of the $N^{th}$ assets with the market.

$\sigma_m^2$ = the variance of the return of the market index.

$\rho_{Nm}$ = correlation between market return and stock 'N' return.

**Table 4.8**

**Calculation of Beta Coefficient ( $\beta$ ) of the Common Stock of NIBL**

| Fiscal year | $R_N$ | $R_N$-E($R_N$) | $R_m$ | $R_m$ - E($R_m$) | [($R_N$ - E($R_N$))($R_m$ -E($R_m$))] |
|---|---|---|---|---|---|
| 2005/06 | 179.862 | 124.690 | 34.93 | 16.103 | 2007.883 |
| 2006/07 | 95.951 | 40.780 | 76.8 | 57.973 | 2364.139 |
| 2007/08 | 74.951 | 19.779 | 40.852 | 22.025 | 435.632 |
| 2008/09 | -36.775 | -91.947 | -22.23 | -41.057 | 3775.068 |
| 2009/10 | -38.130 | -93.302 | -36.23 | -55.057 | 5136.928 |
| Total | | | | | 13719.65 |

Source: Annual Report of Nepal Investment Bank

We have,

Covariance of stock 'N' and 'm'

Cov($R_N$,$R_m$)= $\sum[(R_N - E(R_N))(R_m - E(R_m))]/n-1$

=13719.65/5

=3429.913%

$\beta_N$ = Cov($R_N$,$R_m$)/ $\sigma_m^2$

= 3429.913/2205.561

=1.551

$\sigma_m^2$ =variance of market return i.e.2205.561% and

n= number of observation i.e. 5

Since the beta of NIBL is 1.551, which is greater than one (i.e., market beta), its stock is highly sensitive with market as it is aggressive stock.

**Table 4.9**

**Calculation of Beta Coefficient (β) of Common Stock of EBL**

| Fiscal year | $R_E$ | $R_E$- $E(R_E)$ (%) | $R_m$ | $R_m$ - $E(R_m)$ (%) | $[(R_E-R(R_E))(R_m-E(R_m))]$ (%) |
|---|---|---|---|---|---|
| 2005/2006 | 61.379 | 9.637 | 34.93 | 16.103 | 155.184 |
| 2006/2007 | 145.076 | 93.334 | 76.80 | 57.973 | 5410.852 |
| 2007/2008 | 60.020 | 8.278 | 40.85 | 22.025 | 182.323 |
| 2008/2009 | -5.044 | -56.786 | -22.23 | -41.057 | 2331.463 |
| 2009/2010 | -2.720 | -54.463 | -36.23 | -55.057 | 2998.569 |
| Total | | | | | 11078.39 |

We have,

Covariance of stock'E' and 'm',

$\text{cov}(R_E,R_m)= [R_E - E(R_E))(R_m - E(R_m))]/n-1$

=11078.39/5-1

= 2769.598

$\beta_E = \text{Cov}(R_E,R_m)/ \sigma_m^2$

=2769.598/2205.561

=1.255

Where,

$\sigma_m^2$ =variance of market return i.e. 2205.561 and

n= number of observation i.e. 5

Since the beta of EBL is 1.255, which is higher than one (market beta), its stock is highly sensitive with market and it is aggressive stock.

**Table 4.10**
**Beta Coefficient of each Banks**

| Commercial banks | Beta( $\beta$ ) | Remark |
|---|---|---|
| NIBL | 1.551 | Aggressive |
| EBL | 1.255 | Aggressive |

Since the beta of NIBL is more than one they are aggressive assets, EBL is more than one, they are aggressive stock for investment.

**Table 4.11**
**Beta Coefficient, Expected, Required Rate of Return and Price Evaluation of two banks.**

| Commercial banks | Risk free rate($R_f$) | Beta( $\beta$ ) | E($R_m$) | Ex.return E(R) (%) | RRR=$R_f$+ (E($R_m$)-$R_f$) $\beta$ | Price evaluation |
|---|---|---|---|---|---|---|
| NIBL | 10% | 1.551 | 18.827% | 55.172% | 23.681% | underpriced |
| EBL | 10% | 1.255 | 18.827% | 51.742% | 21.077% | underpriced |

Note:-$R_f$=10%, according to assuming treasury bill rate of 364 on fiscal year 2009/10.

Where,

$R_f$= risk free rate of return

E($R_m$)= expected return on market

$B_j$=Beta of individual sample bank

E(R)=Expected rate of return

RRR=Required rate of return

If the required rate of return is higher than expected rate of return, the stock is said to be overpriced and an investor sold the holding stock or may involved in short selling strategy. If the expected return is higher than required rate of return, the stock is said to be under priced security and an investor make buying strategy for this type of stock.

In the above mentioned table 4.11, all the stocks are under priced and so from the investment point of view all are safe for investment. One can easily invest their money for buying the common stock of the listed commercial banks.

### 4.5 Portfolio Analysis

A portfolio is a combination of two or more than two securities or assets.
The portfolio management is related to the efficient portfolio investment in financial assets. The portfolio analysis is performed to develop portfolio that has the maximum return at that level of risk and investors think appropriate. If portfolio is being constructed, they can reduce unsystematic risk without losing considerable return. Therefore we need to extend our analysis of risk and return to portfolio context.

The expected return on a portfolio is simply the weighted average of the expected returns on the individual assets i.e the portfolio with the weight being the fraction of the total portfolio invested in each asset. The weights are equal to the proportion of total funds invested in each security. The sum of weights must be 100 percent. The analysis is based on two asset portfolio and the tools for analysis are presented in the chapter third, research methodology. Here the
Portfolio of the C.S. of NIBL bank (say stock A) and C.S. of EBL (say stock B) is analyzed.

**Table 4.12**
**Calculation of Cov ($R_A$,$R_B$) of stocks of EBL and NIBL**

| Fiscal year | $R_A$ | $R_A$-E($R_A$) | $R_B$ | $R_B$-E($R_B$) | ($R_A$-E($R_A$))($R_B$ –E($R_B$) |
|---|---|---|---|---|---|
| 2005/06 | 179.862 | 124.690 | 61.379 | 9.637 | 1201.641 |
| 2006/07 | 95.952 | 40.780 | 145.076 | 93.334 | 3806.161 |
| 2007/08 | 74.914 | 19.779 | 60.020 | 8.278 | 163.908 |
| 2008/09 | -36.775 | -91.947 | -5.044 | -56.786 | 5221.36 |
| 2009/10 | -38.130 | -93.302 | -2.720 | -54.463 | 5081.534 |
| Total | 275.860 | | 250.765 | | 15474.58 |

Data is taken from Table 4.2 and 4.4 respectively

We have,
Cov ($R_A$,$R_B$)=$\sum$[($R_A$-E($R_A$)) ($R_B$-E($R_B$))]/n-1
=15474.58/5-1
=3868.645%

Correlation Coeff. of A and B, ($\rho_{AB}$) = $\frac{Cov(R_A, R_B)}{\sigma_A.\sigma_B}$

$$= \frac{3868.645}{93.224 * 61.366}$$

$$= \frac{3868.645}{5720.784}$$

=0.67624

The optimal portfolio weight of stock A and B which minimized the risk is given below;

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

And $W_B$=(1- $W_A$)

Where,

$W_A$ =Optimal weight to invest in stock of NIBL

$W_B$ =Optimal weight to invest in stock of EBL

$\sigma_A^{\ 2}$ = Variance of NIBL

$\sigma_B^{\ 2}$ = Variance of EBL

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

$$W_A = \frac{((61.366)^2 - 3868.645)}{((93.222)^2 + (61.386)^2 - 2 * 3868.645)}$$

Here, $W_A$=-0.02177

$W_B$=1-$W_A$

= 1-(-0.02177)

=1.021

Here, if the portfolio is constructed with the above weights the risk can be minimized and it will be the ideal proportion for portfolio.

As we know that the proportion of stock A in the portfolio is constructed with i.e., NIBL -0.02177, and EBL of common stock that will be minimized and be ideal proportion.

**Calculation for Portfolio Returns:**

It is combination of two or more securities or assets and portfolio return is simply a weighted average of the expected returns on individual stock returns.

Here,

$E(R_p)=W_A*E(R_A)+W_B*E(R_B)$

= -0.0217*55.172+1.0217*51.742

=51.667%

Where,

$E(R_p)$=Expected return on portfolio of stock A and Stock B

$E(R_A)$= Expected return on NABIL

$E(R_B)$ = Expected return on HBL

**Calculation of Risk Portfolio:**

Portfolio risk is a function of the proportion invested on common stocks, the riskiness of the components and the correlation of returns on the stocks or securities. It is measured by standard deviation and calculated by using this formula;

$$\sigma_p = \sqrt{W_A{}^2\sigma_A{}^2 + W_B{}^2\sigma_B{}^2 + 2W_AW_BCov(R_A, R_B))}$$

$$= \sqrt{(-0.0217)^2 * 93.224^2 + (1.0217)^2 * 61.366^2 + 2 * -0.0217 * 1.0217 * 3868.645)}$$

$$= \sqrt{3763.669}$$

$$=61.348\%$$

Where,

$\sigma_p$ = The standard deviation of portfolio return of stock A and Stock B

By using portfolio, we can lower the risk in comparison to return.

Before diversification, the standard deviation of NIBL and EBL were 93.24% and 61.366% respectively. But their portfolio risk is only 61.348% which is less than before diversification. It shows that by using portfolio we can minimize risk without changing in return in same proportion. Thus, the portfolio construction is beneficial for investment.

**4.6 Correlation between the Banks**

The correlation between each bank is given below.

**Table 4.13**

**Correlation Coefficient between each Bank**.

| | NIBL | EBL |
|---|---|---|
| NIBL | 1 | 0.6762 |
| EBL | 0.6762 | 1 |

Here, almost stocks are positively correlated. In this condition the risk can be reduced or eliminated.

**T- Test**

**Hypothesis-1**

**Formulation of hypothesis,**

Null Hypothesis (Ho): average return of common stock of listed commercial bank is equal to the market return.

Alternative Hypothesis ($H_1$): average return of common stock of listed commercial bank is not equal to the market return.

Computation of test statistics: $t = \frac{\overline{X} - \mu}{\frac{S}{\sqrt{n}}}$

Where,

E(R) =average return of listed commercial banks
i.e. (0.55172+.51742)/2 =0.5345

$\mu$ = average rate of return of overall market

i.e. (0.18827)

n =number of observation

S = average standard deviation of selected commercial banks

i.e. (0.93224+0.61366)/2
=0.77295

Now,

$$t = \frac{0.53457 - 0.1882}{\frac{0.77295}{\sqrt{2}}}$$

$$t = \frac{0.34637}{0.54656}$$

= 0.63360

Therefore, t = 0.6360

Decision: since the calculated value of t (0.6360) is less than tabulated value of t (12.706), the null hypothesis is accepted, i.e. means that the average return of common stock of listed commercial banks is equal to the market return.

**Hypothesis - 2**

**Hypothesis formulation**

**Step 1st**

Null hypothesis, (Ho): $\mu_1=\mu_2$ i.e., there is no significant difference in an average return of common stock of selected commercial banks.

**Step 2nd**

Alternative hypothesis, ($H_1$): $\mu_1\neq\mu_2$ i.e., there is a significant difference in an average return of common stock of selected commercial banks.

**Step 3rd Calculation of ANOVA**

**Table 4.14**
**ANOVA Table**

| Source of variation | Sum of square | Degree of freedom(d.f.) | Mean sum of square | F-ratio |
|---|---|---|---|---|
| Between return | SSB=.01178 | K-1=2-1<br>=1 | $MSB = \frac{SSB}{K - 1}$<br>=0.00345/2-1<br>=0.00345 | $\frac{MSB}{MSW} = F_{cal}$<br>=0.00345/0.62277<br>=0.005553 |
| Within return | SSW=5.0228 | N-K=10-2<br>=8 | $MSW = \frac{SSW}{N - K}$<br>=4.9821/10-2<br>=0.62277 | |

**Step 4th**

Level of significant, d.f. and critical value

Level of significance (α) = 5%=0.05

Degree of freedom (d.f.) =(K-1, N-K) = (1, 8)

From table, $F_{tab,}$ F0.05,(1,8) = 5.32

**Step 5 th**

Since, calculated value of F(0.00553) is less than tabulated value of F(5.32) Ho is accepted, it means that there is no significant difference between the average return of common stock of listed commercial banks.

## 4.7 Major Finding of the Study

The major findings of this study are as follows:

- The higher risk of common stock may have higher return.

- Return is the income gained on a stock investment which is usually expressed in percentage. The higher return of NIBL seemed (55.172%) which is maximum in the selected banks and the least return seemed with EBL (51.742%) which is minimum of the selected banks.

- Risk is the variability of returns which is measured in terms of standard deviation. On the basis of standard deviation of common stock of EBL, it is more risky. Since it has highest S.D (i.e., 93.224%) and C.S. of EBL is least risky because of it has lowest S.D., (61.366%) among the selected commercial banks.

- By analyzing the C.V., it is found that the C.V. of NIBL is 168.966% is highest. C.V. of EBL is 118.601% which is lowest among selected commercial banks. The coefficient of variation is more rational basis of investment decision which measures the risk per unit of return. On the basis of C.V. of EBL is best among the selected banks.

- Beta Coefficient explains the sensitivity or volatility of stock within market. Beta coefficient of NIBL and EBL are greater that 1. So these are aggressive type of common stock. Beta of NIBL and EBL are 1.551 and 1.255 respectively.

- Correlation coefficient between all banks is positive that indicated there is high degree of positive correlation between them.

- The portfolio return between NIBL and EBL is 51.667%. The portfolio risk between NIBL and EBL is 61.348%.

- To identify whether it is overpriced or under priced we have to compare expected return with required rate of return. If RRR is greater than ERR, the stock is overpriced. This study shows that all the selected listed commercial banks stock is under priced. That means their stock value will be increased in near future. All the stocks are in demand. So, investor can buy the common stock of any bank.

- Systematic risk cannot be diversified through creation of portfolio. It is occurred due to market factor. Unsystematic risk can be diversified through creation of portfolio. It is occurred due to internal management factor.

- The first hypothesis based on the test of average return of common stocks of listed companies are equal to the market return or not and it was found that if the level of significance is 5%, Null hypothesis is accepted. i.e., average returns of listed commercial banks are equal to market return.

- The second hypothesis is based on the test of the significant difference in return of common stock of listed commercial banks and overall market portfolio and it was found the Null hypothesis is accepted at 5% of significance which means there is no significance between the average return of common stock of listed commercial banks.

- Most of the investors invest by not calculating the risk factors of security but only keeps return in the mind. Most of the investor invest in single security. Some of the investor use their fund in two or more than two securities. But it is found that they don't make any analysis of portfolio before selecting security. They invest their fund in different securities on the basis of expectation and assumption of individual securities rather than analysis of effect of portfolio. It shows that they don't have any knowledge of the risk diversification by using portfolio of their investment.

# CHAPTER 5

# SUMMARY, CONCLUSIONS AND RECOMMENDATUONS

## 5.1 Summary

The first chapter focuses on the brief background of the study, statement of the problem, objective of the study, significant of the study and limitation of the study. It also presents the organization of the study.

The second chapter is literature review of this study. It includes the review of previous studies in the same area. It also include conceptual framework which include the concept of risk and return.

The third chapter is research methodology. Research methodology deals with the introduction, research design, nature and source of data, population and sample, and method of data analysis.

Data presentation and analysis of this study includes the data presentation and analysis and major findings of the study. Analysis of risk return for five years has been done.

The relationship between risk and return is described by investor's view. Investor will not invest in the risky assets unless he analyses the risk. So the risk plays a central role in the analysis of investment. Risk and return have gained attention in the field of financial management.

The investors offer more fund at higher rate of return whereas users of capital always demand to use more capital at lower rate. Common stock is the most risky security.

So risk and return plays vital role in the investment decisions. Higher risk may render greater possible return. Investor's attitude, perception and risk handling capacity also play significant role in rational investment decision.

People participate in security investment and its plays a vital role in overall economic development of a nation. Commercial bank mobilizes cash in the areas where return can be maximized with less risk. The main focus has been given to commercial banks to trade off between risk and return

Since the main objective of the study was to analyze the risk and return of common stock investment of commercial banks in Nepalese context, the study is focused on the common stocks of listed two commercial banks which are taken as reference. While analyzing the risk and return, brief review of related studies has been performed, scientific method are used in data analysis and tables, graph and diagram are used to analyze both the qualitative and quantitative data .

Only secondary data are collected for study.

### 5.2 Conclusions

The conclusion of this study may be important information for those who are involved in the common stock investment. Thus the conclusion is as follows:

i. Stock investment is risky investment than compared to any other investment which cannot be predicted.

ii. Expected return of the common stock of NIBL is minimum (i.e., 55.172%) and EBL is maximum (i.e, 51.742%).

iii. Risks associated with common stock investment of different selected banks are 93.224% and 61.366% for NIBL and EBL respectively. So the risk of NIBL is maximum and risk of EBL is minimum.

iv. The beta explains the sensitivity of volatility of the stock with market. If beta is greater than one, then the asset is called an aggressive asset. If beta is less than one, asset is called defensive stock, and if the beta is equal to one, the asset is called equilibrium or average asset. In this study, NIBL's beta coefficient is 1.551 which is grater than one that means these common stocks are more volatile with market. And the coefficient of EBL is 1.255 which is more than one which means that it is volatile.

v. Both bank NIBL and EBL are underpriced. Required rate of return of NIBL is 23.681% and expected return is 55.172%. RRR of NIBL is less than the expected return so it is underpriced for NIBL. And, RRR of EBL is 21.077% and expected Return is 51.742%, thus RRR is less than expected return which is underpriced for EBL.

## 5.3 Recommendations

The recommendation of this study may be important for those who are concerned with common stock investment. Thus the recommendations of the study are mentioned as follows:

i. Firstly expected return has been calculated. So expected return recommends that EBL is suitable and best for investment because the C.V. of EBL is least.

ii. Investors have to focus on risk also not only return. Before thinking about higher return they also have to think about risk associated with return.

iii. For analyzing data in this study for C.V. of studied bank different financial and statistical tools are involved. C.V. of EBL is least so it should invest in this bank.

iv. Correlation coefficient between banks and banks is positive, which indicates that there is high degree of positive correlation between them.

v. One of the most important things to consider when choosing investment strength is the balance between risk and return that you are comfortable with.

vi. As compared to other investment the most risky is, to invest in stock. Thus investment in assets is challenging job.

vii. Investor should diversify their funds to reduce risk with the help of optimal portfolio concept. There is an adage that do not risk all the eggs by putting all the eggs into one basket.

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# APPENDIXES

## Appendix: I

### Calculation of total dividend

| Total dividend in (Rs.)= Cash Dividend + % of Stock Dividend * Next year MPS | | | | | |
|---|---|---|---|---|---|
| 2003/04 | =20 | +0% | * | 870 | =20 |
| 2004/05 | =0 | +20% | * | 1379 | =275.8 |
| 2005/06 | =25 | +0% | * | 2430 | =25 |
| 2006/07 | =10 | +30% | * | 3132 | =949.6 |
| 2007/08 | =20 | +30% | * | 2455 | =756.5 |
| 2008/09 | =30 | +30% | * | 1630 | =519 |
| 2009/10 | =30 | +30% | * | 1094 | =358.2 |

## Appendix: II
### Calculation of total dividend

| Total dividend in (Rs.) =cash dividend + % of stock dividend * Next year MPS | | | | | |
|---|---|---|---|---|---|
| 2003/04 | =15 | +15% | * | 800 | =135 |
| 2004/05 | =12.50 | +12.50% | * | 1260 | =170 |
| 2005/06 | =20 | +55.46% | * | 1729 | =987.54 |
| 2006/07 | =5 | +30% | * | 2450 | =740 |
| 2007/08 | =7.50 | +40.88% | * | 1388 | =574.91 |
| 2008/09 | =20 | +20% | * | 705 | =161 |
| 2009/10 | =25 | +25% | * | 515 | =153.75 |

## Appendix: III

The findings of this study are as follows:

| Fiscal year | NIBL | EBL | Total |
|---|---|---|---|
| 2005/06 | 1.7986 | 0.6137 | 2.4123 |
| 2006/07 | 0.9595 | 1.4507 | 2.4102 |
| 2007/08 | 0.7491 | 0.6002 | 1.3497 |
| 2008/09 | -0.3677 | -0.0504 | -0.4181 |
| 2009/10 | -0.3813 | -0.0272 | -0.4085 |
| Total | 2.7586 | 2.5869 | 5.3455 |

N=10

Correction Factor (C.F) $= \frac{T^2}{N}$

$= \frac{(5.3422)^2}{10}$

$= \frac{(28.539)}{10}$

= 2.8539

Total sum of square (SST) = $(1.7986)^2+(0.6137)^2+(0.9595)^2+(1.4539)^2+$.....+ $(0.116)^2 -$ 2.853

=7.8426-2.853

=4.985

Sum of square between the Bank (SSB)

$= \frac{(2.758)^2}{5} + \frac{(2.586)^2}{5}$ - c.f

= 1.521+ 1.337 -2.853

=2.858-2.797

=0.005

Sum of square with in banks (SSW)

=SST ─SSB

=4.985-0.005

=4.98

## Appendix: IV

## Calculation of beta coefficient ( $\beta$ ) of the common stock of NIBL

| Fiscal year | $R_N$ | $R_N$-E($R_N$) | $R_m$ | $R_m$ - E($R_m$) | [($R_N$ - E($R_N$))($R_m$ - E($R_m$))] |
|---|---|---|---|---|---|
| 2005/06 | 179.862 | 124.690 | 34.93 | 16.103 | 2007.83 |
| 2006/07 | 95.952 | 40.780 | 76.80 | 57.973 | 2364.139 |
| 2007/08 | 74.951 | 19.779 | 40.85 | 22.025 | 435.632 |
| 2008/09 | -36.775 | -91.947 | -22.23 | -41.057 | 3775.068 |
| 2009/10 | -38.130 | -93.302 | -36.23 | -55.057 | 5136.928 |
| Total | | | | | 13719.65 |

## Calculation of beta coefficient (β) of the common stock of EBL

| Fiscal year | $R_E$ | $R_E$- E($R_E$) | $R_m$ | $R_m$ - E($R_m$) | [($R_E$-E($R_E$)) ($R_m$ - E($R_m$))] |
|---|---|---|---|---|---|
| 2005/06 | 61.379 | 9.637 | 34.93 | 16.103 | 155.184 |
| 2006/07 | 145.076 | 93.334 | 76.80 | 57.973 | 5410.852 |
| 2007/08 | 60.020 | 8.278 | 40.85 | 22.025 | 182.323 |
| 2008/09 | -5.0447 | -56.786 | -22.23 | -41.057 | 2331.463 |
| 2009/10 | -2.720 | -54.463 | -36.23 | -55.057 | 2998.569 |
| Total | | | | | 11078.39 |