

# CHAPTER - I

## INTRODUCTION

### 1.1 Background of the Study

Nepal is a land locked country of south Asia, north polar. It is bordered on the north by china and bounded by India to the east, south and west. It is located 26<sup>0</sup>22' to 30<sup>0</sup> 27' North latitude and 80<sup>0</sup>4' east to 88<sup>0</sup>12' east longitude and covers an area of 147181 square kilometers (56827 Sq. mile) which is 0.03 percent area of world land area and 0.3 percent area of total land area of Asia. The average length of east-west of Nepal is 885 Km and average width is 193 Km (241 Km to 145 Km). Nepal is least developed nation. It has the population of more than 26.9 million and Per capita income of Nepalese people is \$ 320. The economy is heavily dependent on agriculture. About 80 % of labor force are attached on agriculture and contribute about 32% gross domestic product. Traditional agriculture system is not substituting by new production technology rapidly. Today, foreign employment and other industrial development are the emerging sources of income besides agriculture. Although world economic crisis push nations toward unemployment, the condition of foreign employment is good in the context of Nepal. To overcome such problem initiated by the crisis and possible unemployment, it is necessary to develop prime requisite such as trade, commerce and industry for the nation. The key to success for sustainable economic development are sustainable and stable government, Good fund mobilization and industrialization. For this purpose money is an instrument, for which an entrepreneur always thinks, drives and directs his mind himself. To provide such money for entrepreneur and other business persons, many bank, finance institutions and development banks have been established.

The term 'Bank' derived from Latin word 'Bancus' which refers to the bench on which the banker would keep the money and his records. In General term 'Banking'- The business of 'providing financial services to consumers and business man'. Bank is an institute, which deals with money, money market instrument and other activities such as accepting various types of deposits, disbursing loans and rendering other facilities. Bank renders a wide range of services to the people of different walks of life. It is the backbone as well as the foundation for the sustainable development of the nation. The basic services a bank provides are checking accounts, which can be used like money to make payments and purchase goods and services; savings accounts and time deposits that can be used to save money for future use; loans that consumers and businesses can use to purchase goods and services; and basic cash management services such as check cashing and foreign currency exchange. Four types of banks specialize in offering these basic banking services: commercial banks, savings and loan associations, savings banks, and credit unions. In Nepal Commercial banks, Development Banks, Financial Companies and saving & co-operatives are facilitating such services.

A broader definition of a bank is any financial institution that receives, collects, transfers, pays, exchanges, lends, invests, or safeguards money for its customers. This broader definition includes many other financial institutions that are not usually thought of as banks but which nevertheless provide one or more of these broadly defined banking services. These institutions include finance companies, investment companies, investment banks, insurance companies, pension funds, security brokers and dealers, mortgage companies, and real estate investment trusts.

Banking services are extremely important in a free market economy. Banking services serve two primary purposes. First, by supplying customers with the basic

mediums-of-exchange (cash, checking accounts, and credit cards), banks play a key role in the way goods and services are purchased. Without these familiar methods of payment, goods could only be exchanged by *barter* (trading one good for another), which is extremely time-consuming and inefficient. Second, by accepting money deposits from savers and then lending the money to borrowers, banks encourage the flow of money to productive use and investments. This in turn allows the economy to grow. Without this flow, savings would sit idle in someone's safe or pocket, money would not be available to borrow, people would not be able to purchase cars or houses, and businesses would not be able to build the new factories the economy needs to produce more goods and grow. Enabling the flow of money from savers to investors is called financial intermediation, and it is extremely important to a free market economy. In a narrow concept bank is a financial intermediaries only but in a broad Bank is a service providing profit making organization.

### **1.1.1 An Overview of Risk and Return**

Generally Risk means to take uncertain result and Return means something which to be achieved by the lapse of time. Risk and return analysis is the analysis of return of various investment assets, their variability and the relationship between risk and return. It is a financial analysis which finds the variability of return. It describes the relationship between expected return and the expected level of risk. Risk measures the variability of actual return with expected return. The term risk and return is closely associated with investment. Investment simply means sacrificing current funds for future returns, bearing certain risk. The investment may be on fixed assets like land, building or precious metals and collectibles or something else. Investors invest their fund on the securities of certain companies for the long run future returns. The return is defined as the reward for bearing the risk. Return is the most important outcome from an

investment. It measures the investor's rate of wealth accumulation i.e. increase or decrease per period. Risk is defined as the occurrence of unfavorable outcomes, which is ever harmful for the business. Risk is inseparable from return. It ever creates uncertainty. Some of the factors that create investment uncertainty such as interest rate risk, purchasing power risk, bull-bear market risk, management risk and so on.

Risk means the uncertainty in the probability distribution of return. Risk in fact is an indication of chance of losing investment value. Thus, Risk is concern with unknown chance of unfavorable, unpredictable events.

Common stockholders of a company are its ultimate owners. Collectively they own the company and it is assumed that ultimate risk is associated with ownership. So the common stock is risky security. It's hard to define, but you know it when you see it. Investor invests in common stock for higher return. But their expected return may or may not change in realities. This uncertainty is major risk to investors in stock market investment.

The return is income received on an investment, which is expressed as dividend, plus any change in market price of share and usually expressed in percent. Both market price of share and dividend are uncertain figures. So, the actual figure of return on investment in common stock may differ substantially from the expected return. The greater variability, the riskier the security is said to be. The market price of share of a company is driven both by fundamental business values and stock market sentiment. For a given business, it is always worth attempting to identify which of those is driving its share price.

Generally investors are risk averse. They always seek higher return for more risk as risk premium. So the primary problem of investment is to identify the security, which has low risk and high return. Although, return cannot be increased substantially, risk can be reduced by diversification can eliminate the unsystematic

risk, which is not explained by general market movement. Systematic risk, which is associated with change in return on the market as a whole, cannot be avoided with change in return on the market as a whole, cannot be avoided by the diversification.

In Nepalese context, the institutional set up of securities market began along with the securities exchange center (now Nepal Stock Exchange Ltd.) in 1976. In spite of considerable development there are still more potentialities to be explored for the development of stock market in Nepal. Most of the potential investors and the shareholder public themselves are unknown or least understood about risk-return behavior of stock. Most of the Nepalese investors are finding to visit in single security due to lack of information and poor knowledge, market intermediates exploit investors. So, many investors are afraid to invest in stocks. People participation in securities investment and its dynamic trading plays a vital role in overall economic development. For this propose potential investors must be able to analyze risk and return of individual stock and portfolio as well. This will increase their confidence and ultimately increase stock investment and increase the degree of market efficiency, which is essential to spreading economic development of the nation.

Investment in its simplest form means employing money to generate more money in future. It is the sacrifice of current rupees for future rupees. The sacrifice takes place in the present and is certain. But the reward comes later and is an uncertain. Return is the primary motive of investment, but it always entails some degree of risk. Buying common stocks, bonds, deposited money into bank account, buying a piece of land, gold or silver are some example of investment. All these examples involve sacrifice of current rupees in expectation of future return. Hence, they are investment. The main objective of investment is to maximize the wealth of an investor.

Investment can be made on real assets or financial asset. Investment on real assets is known as real investment and investment on financial assets is known as financial investment. Real investment means investment on real assets like land buildings, factory etc. financial investment means on financial asset like share, debentures, warrants and convertibles etc.

The term risk and return is closely associated with investment. Investment simply means sacrificing current funds for future returns, bearing certain risk. The investment may be on fixed assets like land, building or precious metals and collectibles or something else. But here as a student of finance, I have focused the term investment as sacrificing current fund on financial assets like shares, debenture, warrants, convertibles etc for the long term return.

Investors invest their fund on the securities of certain companies for the long run future returns. The return is defined as the reward for bearing the risk. Return is the most important outcome from an investment. It measures the investor's rate of wealth accumulation i.e. increase or decrease per period. Risk is defined as the occurrence of unfavorable outcomes, which is ever harmful for the business. Risk is inseparable from return. It ever creates uncertainty. Some of the factors that create investment uncertainty such as interest rate risk, purchasing power risk, bull-bear market risk, management risk and so on.

Thus, risk is virtually every decision. Assessing risk and incorporating the same in the final decision is an integral part of financial analysis. The objectives in decision making are not to eliminate or valid risk often it may be neither feasible nor necessary to do so. But to properly assets it and determine whether it is worth bearing.

Investor generally does not invest their money in the only on risky asset. The investor should invest their money in portfolio of many assets. It will help to the investor to minimize 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. The relevant risk of an asset is defined as the portion of its total risk that changes proportionately with market risk. Some stocks are riskier than other and even in years when the overall money into one stock goes down. Therefore, putting all your money into one stock is extremely risky. The single best weapon against risk is diversification.

The concept of financial institution in Nepal was introduced when the first commercial bank, Nepal bank limited was established in 1973. It was established under special banking act 1936 having elementary function of commercial bank. Later in 1955 the central bank Nepal Rastra Bank was established with an objective of supervising, protecting and directing the function of commercial banking activities. Another commercial bank fully owned by Nepal Government names as Rastriya Banijya Bank got established in 1966. The establishment of joint venture bank gave a new horizon to the financial sector of the country. Since 1984 Joint Venture banks were established under company act and their shares were listed in Nepal stock exchange limited (NEPSE). The focus of the study is that commercial bank whose share listed in NEPSE.

Banking sector is the most dynamic part of economy, which collects unused funds and mobilizes in needed areas. It is the heart trade, commerce industry. In Nepalese context, commercial banks have comparatively good performance among the public limited companies. Because most of the banks are counted with in the top ten positions among the listed companies on the basis of amount traded, number of transaction, market capitalization etc. Most of the banks are established with collaboration of foreign well-known banks. As a public limited company,

Nepal Bank Limited (NBL) is only one oldest Nepalese commercial bank, which is listed in NEPSE. Besides these, a government bank, Rastriya Banijya Bank, also plays a vital role in banking sector. In Nepal altogether there are 26 commercial banks .Among them 21 banks are listed in NEPSE.

The nature of bank fund and its payment depends upon day to day operation. Therefore, its operation of fund rising and investment of funds are of short-term nature. As long-term investments are associated with higher risk, banks are confined to make short-term investment only. The significant of commercial banks is greater in countries, of comparatively lower level of economic development. The shares of commercial banks in the net issues of all financial institution are much higher in such countries in the ones with higher stage of economic development.

In Nepal foreign joint venture banks perform better than Nepalese ones do. Because they have higher management efficiency and they can manage risk properly. Specifically, Nepalese banks have a high degree of internal firm specific risk. At the same time they have to bear more social obligation and government intervention than foreign banks. However, Nepalese bank has high potentialities to increase their performance by changing their risk attitude and by improving their internal management.

Risk is related to future and future is uncertain. But risk is manageable rather than uncertain. Company – specific risk [earning variability] and companies ability to service its debt burden are intimately related to the particular characteristics of the business in which the company operators. Moreover, they are affected by economic condition-apart management’s ability to generate satisfactory operating performance.



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

- a. Set the investment policy
- b. Perform security analysis
- c. Construct a portfolio
- d. Revise the portfolio
- e. Evaluate the performance of the portfolio

#### **a) Set the Investment Policy**

The initial step in setting an investment policy involves determining the investment objectives and the amount of one's invest-able wealth. Investment is always related with risks and returns. Making money alone cannot be an appropriate objective. It is appropriate to state that the objective is to make a lot of money by recognizing the possible losses. Therefore, investment objectives should be stated in terms of both risks and returns.

Setting a clear investment policy also involves the identification of the potential categories of financial assets for consideration in the ultimate portfolio. The identification of assets depends upon many things, such as investment objectives, invest-able wealth, tax considerations etc.

#### **b) Perform Security Analysis**

The second stage of an investment process involves the analysis of securities, which are identified in the previous stage of the process. The main purpose of analyzing securities is to find out the miss-priced securities.

Many approaches can be used to analyze the securities. This approach in a broad sense can be classified into two types.

- a. Technical analysis
- b. Fundamental analysis.

### **c) Construct a Portfolio**

Portfolio construction is the third step of our investment process. At this stage we identify assets in which to invest and what proportion of the investor's wealth to put in each one. While constructing a portfolio, the selectivity, timing and diversification need to be addressed by investor.

### **d) Revise the Portfolio**

Portfolio revision means repeating the previous three steps of the process. Over the period of time, the objectives of the investor may change and the current portfolio may no longer be optimal.

- ) The investor can sell some unattractive securities and introduce attractive ones to form a new optimal portfolio.
- ) Some securities that are initially unattractive may turn out to be attractive later and vice versa.

### **e) Evaluate the Performance of the Portfolio**

The last step of the investment process is to evaluate the investment performance. The performance should be evaluated not only in terms of the returns but also the risks experienced. Evaluate the performance, appropriate measures and standard are needed.

## **1.2 Significance of the Study**

This study will give information about Nepalese capital market by analyzing risk and return and will definitely contribute to increase the analytical power of the investors in capital market. The study will be beneficial for all the persons who are directly or indirectly related to the Nepalese capital market.

This research has attempted to analyze the market share of samples companies with references to their financial indicators and risk in common stock investment, which may probably provide real pictures of samples companies, to both the outstanding and potential investors in order to take proper investment decision. Similarly, this piece of task may work as guide for future research and concerned persons.

Further this research will attempt to clarify concrete picture of different aspects of risk and return which will be beneficial to the investor for taking right investment decision. The study will be maximum significant for exploring and increasing stock investment. It will also provide little contribution to Nepalese stock market development.

This study is not only to fulfill MBS level course of Tribhuvan University, but also to provide some knowledge about the Nepalese stock market along with providing ideas to minimize the risk on stock investment.

From the viewpoint of investors, the analysis of risk and return is significant management decisions which influence the shareholder risk and return. Consequently, the risk and return analysis influences the market price of stock, by making it at an appropriate level. Apart from this study will be a matter of interest for academicians, students, researchers, teachers or persons, practicing in the field of finance.

### **1.3 Statement of the Problem**

Investors should make rational investment decision. For this purpose, knowledge for analysis of common stock is essential. Investor's attitude and perceptions are also considerable for rational investment decision. Many investors are manipulated and exploited by the financial institution and other market intermediaries since they are unknown about norms of security market. Not only general public but also the university graduates and post graduates cannot analyze risk and return while making stock investment decision.

In the context of Nepal investors are also facing the problems of lack of the institutions to provide adequate information about the investment options.

After the emergence of NEPSE in 1993 AD, these type of problem some how has been solved, but another problem to the Nepalese people is they feel more risk in stock investment than as its real risk, it keeps them in dilemma, whether they should invest in stock or not and this all conditions makes them to not utilize their funds as a result investors are not benefited nor the national economy as well.

Further, theory says that the stock price in market is guided by the intrinsic value which is calculated by aid of company's result of financial performance such as dividend, required rate of return and growth. In the efficient market condition stock price is equal to the intrinsic value since the buyer and the seller are fully aware of the facts and figures of the company. Therefore one can say that market price and financial performance are correlated but condition here is totally different from that. Courage and faith are intermediate factor to invest in common stock because there are several questions, which may be arising tin the mind of the individual investors at the time of the investment.

More specifically the research problems are:

- How can one evaluate common stock under risk and return?
- How can one make assessment of relationship between risk and return?
- How do they know about the position of share price?
- What is the optimum portfolio and how do they exercise this theory?
- How can investor diversify the risk?

#### **1.4 Objectives of the Study**

The main objectives of the study are to assess the risk and return on common stock investment of listed commercial banks. The specific objectives of the study will be as follows:

- To evaluate common stock of commercial banks in terms of risk and return by assessing the relationship between risk and return.
- To know whether stock of selected commercial banks are overpriced, under priced and equilibrium price.
- To know optimum portfolio of the banks.
- To find out the systematic and unsystematic risk of the banks.

#### **1.5 Limitation of the Study**

As every research has its own limitation, the study is not free from it. Some limitations of this study are as follows:

- Data published from various sources differ from the figures published by NEPSE and respective commercial banks. However in this study respective banks published annual report data is taken into accounts as the basis sources of data.
- The study only focus on the analysis of risk and return associated with common stock investment of selected commercial banks. The finding on the

study is based on the performance of listed banks for the period of nine years starting from fiscal year 2000/01 to 2008/09

- Only secondary data is used.
- Some data are taken on the verbal information of the management of the company. The validity and confidence of the data depends on their faithful & trust worthiness.

## **1.6 Organization of the Study**

This study is organized into five chapters:

Chapter - I: The first chapter is introduction chapter. It consists of background, , an overview of risk and return, statement of problems, objective of the study, significance of the study, limitation of the study and organization of the study.

Chapter - II: The second chapter deals with the received of literature, which consists of conceptual framework and review of relevant studies.

Chapter - III: This chapter is concerned with the research methodology used in this study. It consists of research design, sources of data, population and sample and method of analysis.

Chapter - IV: This chapter contains presentation and analysis of data.

Chapter - V: The fifth chapter is associated with the summary, conclusion and recommendations.

The bibliography and appendix have in corporate at the end of study.

## **CHAPTER – II**

### **REVIEW OF LITERATURE**

This Study is about the risk and return of investment of the common stock of Nepalese Commercial Banks. So the Theoretical aspect of the topic on risk and return on common stock investment is reviewed in this chapter as Review of literature. This Chapter includes the review of concept and findings of previous research on the same field. Basically Books, Journals, articles and conceptual framework for the related studies. In this regard, basic academic course book on finance, recently published books specially related studies are reviewed. More analysis is not sufficient to present real framework of the study. So review of related materials should be deal with to give the research a clear vision, past study and knowledge provides foundation to the present day.

Review of literature includes the following topics:

- 2.1 Conceptual review
- 2.2 Review from Journals
- 2.3 Review of Other Independence Studies in Nepal
- 2.4 Review from thesis

#### **2.1 Conceptual Review**

Various books relating to theoretical aspect of risk and return are taken into consideration.

##### **2.1.1 Investment**

In general sense, investment means to pay out money to get more but in the broadest sense, investment a present commitment for the future benefits. While the commitment takes place with certainty, the future benefits are shrouded in

uncertainty. The uncertainty creates risk to investors and they desire to minimize return by minimizing such risk.

Therefore, taking decision about proper investment is crucial to the investor and it requires a specific investment decision process, analysis of securities, identification of overpriced, under priced securities, making appropriate investment strategies as well as construction of efficient portfolio.

Investment is concerned with the management of an investor's wealth, which are the sum of current income and the present value of all future income. The term investment is conceptualized as income, saving or other collected fund. It covers wide range of activities. T is commonly known fact that an investment is possible only when there are adequate saving. Therefore both saving and investment are interrelated.

Investment is an exchange of financial claim stocks and bonds etc. investment if the employment of funds with the rim of achieving additional income or growth in value it involves the commitment of resources that have been saved or pot away from current consumption in the hope that some benefit will occur in future. Investment involves long term commitment and waiting for a reward.

"Investment is a commitment of funds made in the expectation of some positive rate or return. If the investment is property undertaken the return will be comminute with the risk the investor assumes". Return risk and time are the elements of investment (Fisher and Jordan, 1995:104).

### **2.1.2 Common Stock**

"The study is focused on the common stock investment that's why light is thrown on it. It is sources of long term financing and an ownership security. Common



stock certificates are legal documents that evidence ownership or equality in a company that is organized as a corporation, and they are also marketable financial instruments.

Common stock is recipient of the residual income of the corporation. Through the right to vote, holders of common stock have legal control of the corporation. An element of high risk is involved with common stock investment due to its low priority of claims at liquidation. When investors buy common stock they receive certificate of ownership as a proof to their being part of the company. The certificate states the number of shares purchased and their value per share" (Bhalla, 1997:196).

Common stock holders of a corporation are its residual owners, their claim to income and asset comes after creditors and preference share holders have been paid in full. As a result, a stockholders return on investment is less certain than the return to lender or to preference stock holder. On the other hand, the share of the common stock can be authorized either with or without per value. The par value of the stock is merely a stated figure in the corporate character and is of little economic significance. A company should not issue stock at a price less than par value because stock holders who bought stock for less than par value would be liable to creditors for the difference between the below pre price they paid and the par value (Van Horne, 1997:98).

But in Nepal, as per the provision of Nepal Company Act 2057, no common stocks are allowed to issue without par value. The par value must be either Rs.10 or Rs.100. Common stock has one important investment characteristics and is important speculative characteristics. Their investment value and average market price tend to increase regularly but persistently over the decreases as their net worth builds through the reinvestment of undistributed earning. However, most of

the time common stocks are subject to irrational and excessive price fluctuation in both directions, as most people to speculate or gamble i.e. give way to hope fear and greed.

### **2.1.3 The Return of Common Stock**

The concept of return has different meaning to different investors. Some investors seek near term cash flows and give less value to more distant return. Such an investor might purchase the stock of other firm that pays a large cash dividend.

Return better known or reward from an investment includes both current income and capital gain or loss that arises by the increase or decrease of the security price. Return is the income received on an investment plus any change in market price. Usually expressed as a percent of beginning price of the investment, the overall rate of return can be decomposed into two parts as capital appreciation and dividend. Capital appreciation is the difference between ending value and beginning value of an investment. Return is defined as the dividend yield plus the gain or loss. The relationship between different levels of return on their relative frequencies is called a probability distribution. We could formulate a probability return over the previous period but we know that history never repeats itself exactly. Hence after analyzing relative frequencies of historical data plus the analysis for the outlook for the economy and the outlook for the industry, the outlook for the firm in its industry and other factors.

For investors, return is considered as the main attraction to invest in a risky security as a stock (equity) accepting a varying degree of risk tolerance. "The return from holding an investment over some period says a year is simply and cash payments received due to ownership plus the change in market price dividend by the beginning price. Thus the return comes from source, income and price appreciation.

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

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

Where,

R = 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

Above formula can be used to determine both actual one period return (when based on historical figure) as well as expected one period return (when based on expected dividends and prices). The return in the parenthesis is the number of the above equation represents the capital gain or loss during the period.

Holding period return measures mentioned above is useful with an investment horizon of one year or less. For longer periods, it is better to calculate rate or return as an investments yield. The yield calculated is present value based and this considers the time value of money.

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

The simple arithmetic means:

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

The Geometric mean

$$\overline{\text{HPR}}_g = \sqrt[n]{(1 + \sum_{t=1}^n \text{HPR}_t)}$$

Where  $\text{HPR}_t$  is the individual period return,  $n$  is the number of period and  $\prod$  represents the product (or the result of multiplication) (Cheney and Moses, 1996:93).

## **2.1.4 The Risk on Common Stock**

### **2.1.4.1 Risk**

In the basic sense, risk can be defined as the chance of loss. Assets having greater chances of loss are viewed as more risky than those with lesser chances of loss. More formally, the term risk is used interchangeably with uncertainty to refer to the variability of expected returns associated with a given asset.

Risk is a complicated subject and needs to be properly analyzed. The relationship between risk and return is described by investor perception about risk and their demand for compensation. Generally, Investors are mostly interested in the project yielding higher returns in less risk. Therefore, it is the investors required risk premium that establishes a link between risk and return. In a market dominated by rational investor higher risk will command by rational investor's higher risk will be commanded by rational premium and the trade-off between the two assumed linear relationships between risk and risk premium. "The observe difference in both the levels and variability of the rates of return across. Securities are indicative of the underlying risk and return relation in the market" (Loric, Dodd and Kimpton, 1985:87).

Risk defines most generally is the probability of the occurrence of unfavorable outcomes. But risk had different meaning in the different context in our context;

two measure developments from the probability distribution have been used as initial measure of return and risk. There are the mean and the standard deviation of the probability distribution (Weston and Brigham, 1982:557).

There are many ways to measure risk. The following three models are commonly used (Van Horne, 1998:205).

### **Beta Coefficient**

This is mathematical value that measures the risk of one asset in terms of its effects on the risk of a group of assets, as would be the concern for an investor holding stocks and bonds. It is derived mathematically so that high beta indicates a high level of risk whereas a low beta represents a low level of risk. Mathematically, " $\beta_j$ " denotes it.

### **Standard Deviation**

This is a measurement of the dispersion of forecast returns when such returns approximate a normal probability distribution. It is a statistical concept and is widely used to measure risk from holding a single asset. The standard deviation is derived so that a high standard deviation represents a large dispersion of return and is a high risk and vice versa. Mathematically, it is denoted by  $\sigma_j$

### **Subjected Estimates**

A subjective risk measure occurs when qualitative rather than quantitative estimates are used to measure dispersion. As an example: an analyst may estimate that a proposal offers a "low" level of risk. This means that, in the analyst's view – the dispersion of return will not be very wide. Similarly, a "high" risk level will accompany a project whose forecast return may vary a great deal.

With the overall definition of risk as dispersion of return, there are two components of risk may be identified.

## **1. Business Risk**

Business risk may be defined as the chance that the firm will not have ability to complete successfully with the assets that it purchases. For an example: the firm may acquire a machine that may not operate properly, that may not produce stable products or that may face other operating or market difficulties that causes losses. Any operational problems are grouped as business risk.

## **2. Financial Risk**

This is the chance that an investment will not generate sufficient cash flows either to cover interest payment on money borrowed to finance it or principal repayment on debt or to provide profits to the firm.

### **Sources of Risk**

Every investment involves uncertainty that contribute to investment risk are as follows: (Clark, 1997:308).

### **Interest Rate Risk**

Interest rate risk is defined as the potential variability of return caused by changes in the market interest rates. In more general terms, if market interest rate rise, then investment values and market prices will fall, and vice versa. This interest rate risk affects the prices of bonds, stocks, real estate gold, puts, calls, futures contracts and other investment a swell.

### **Purchasing Power Risk**

Purchasing power risk is the variability of return and investor suffers because of inflation. Economists measure the rate of inflation by using a price index. The consumer price index (CPI) is a popular price index in the United States. The percentage change in the CPI is widely followed measure, of the rate of inflation.

### **Bull-Bear Market Risk**

The various market forces make securities price upward and downward. The upward trend of market price (Bull Market) and downward trend of market price (Bear Market) create a long lasting source of investment at risk.

### **Management Risk**

Management risk is defined as the variability of return caused by decision made by a firm's management and board of directors. Though many top executives earn princely salaries, occupy luxurious offices, and wield enormous power within their organizations, they are mortal and capable of making mistake or a poor decision. Furthermore, errors made by business managers can harm those who have invested in their firms. Forecasting management errors is difficult work that may not be worth the effort and, as a result, imparts needlessly skeptical outlook. Agency theory provides investors with an opportunity to replace skepticism with the informed insight as they endeavor to analyze subjective management risk.

### **Default Risk**

Default risk is that portion of investments total risks that results from changes in the financial integrity of the investment. It is related to the probability that some or all of the initial investment will not be returned.

### **Liquidity Risk**

Liquidity risk is associated with uncertainty created by the inability to sell the investment quickly or cash. The return variability will increase if price discount and sales commission are to be given in order to liquidate assets in time. The less the liquidity, the greater will be the risk. So, two factors price and time are associated with liquidity.

### **Call – Ability Risk**

Some securities are issued with a call provision i.e. a company may call back the securities issued before their maturity. The call ability risk is portion of a securities

total variability of return that derives from the possibility that the issue may be called.

### **Convertibility Risk**

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

### **Political Risk**

Political risk is the portion of assets' total variability of return caused by changes in the political environment (domestic and international as well as internal changes of the company). The current Nepalese political environment has made a significant impact on the investment to increase losses.

### **Industry Risk**

An industry may be viewed as a group of companies that compete with each other to market a homogeneous product. Industry risk is that portion of an investment total variability of return caused by events that affect the products and firms that make up an industry. The stage of the industry's life cycle, international tariffs and/or quotas on the products produced by an industry related taxes industry wide labour union problems environmental restriction, raw materials availability and similar factors interact and affect all the firms in an industry simultaneously. As a result of these commonalities, the prices of the securities issued by competing firms tend to rise and fall together.

The uncertainties discussed above are the major sources of investment risk, but by no means do they make up an exhaustive test. If all the uncertainties could be listed, they would add up to total risk or total variability of returns.



#### **2.1.4.2 The Risk on Common Stock**

Risk, in simple word, is an uncertainty. Risk and uncertainties are the facts of life so to the common stockholders. Technically, their meanings are different. Risk, simply in investment, means a chance of happening some unfavorable event or danger of losing some value. Risk suggests that a decision maker known the possible consequences of a decision and their relative livelihoods at the times he makes decision. In other, uncertainty is simple a lack of definite outcomes, its anything that could happen-any unknown event, which may be favorable, or unfavorable on the other hand. Uncertainty involves a situation about which the likelihood of the possible outcomes is not known. The trouble arises from the fact that despite different interpretation of uncertainty and risk, people often use them interchangeably. Although it is quit clear what precisely these two terms mean, authorities in the field of finance do agree that the risk is the product of uncertainty. If we interpret certainty as future outcomes, which is 100% sure to happen, uncertainty is then just the opposite of certainty that refers to all possible future outcomes none of which is know for sure to happen.

Risk, on the other hand, is the product of all potential outcomes expressed with probability associated with each of them and it is measure in terms of the degree of variability in the probability distribution of such outcomes.

"The practice is to translate the uncertainty into a mathematical value which represents the uncertainty into a mathematical value which represents the best estimate of all uncertain value. But risk is treated differently. Although risk arises from uncertainty, its magnitude depends upon the degree of variability in uncertainty cash flows, and it is measure in term of standard deviation. In project analysis, the project risk indicates the probability of return is being less than exceed value-higher the probability of such loss or less return, higher the project risk" (Pradhan, 1992:244).

Assets having greater chances of loss are viewed as more risky than those with lesser chances of loss. More systematically, the term risk is used interchangeably with certainty to refer to the variability of return associated with a given asset. For example, a government bond that guarantees its holder \$100 interest after 30 days has no risk, since there is no variability associated with return. In equivalent investment in a firm's common stock that may earn over the same period anywhere from \$0 to \$100 is very risky due to high variability of return. The more certain returns from an asset, the less variability and therefore the less risk.

### **2.1.5 Relationship between Risk and Return**

The expected return from any investment proposal will be linked in fundamental relationship to the degree of risk in the proposal. In order to be acceptable a higher risk proposal must offer a higher forecast return than lower risk proposal (Hampton, 1996:341).

"The observed difference in both the levels and variability of the rate of return across securities are indicative of the underlying risk and relation in the market" (Loric, Dodd and Kempton, 1985:1029).

Generally, there is a positive relationship between rate of return and risk. It means an investor can usually attain more return by selecting dominant assets that involve more risk. While it is not always true that a riskier asset will pay a higher average rate of return, it is usually. The reason is that investors are risk averse. As a result, high-risk assets must offer investors' high return to induce them to make the riskier investment normally; investors are likely to prefer more return and less risk. It means investors will not choose an investment that guarantees less return when investments promising higher returns in the same level of risk class are readily available.

### 2.1.6 Portfolio

Investors rarely place their entire wealth into a single asset or investment rather they construct a portfolio or a group of investments. Therefore, it is needed to extend analysis of risk and return to include portfolio. A combination of two or more securities or assets is portfolio. Portfolio management is related to the efficient portfolio investments in financial assets. It has following two types of objective.

#### Primary Objective

- To minimize risk
- To maximize return.

#### Secondary objectives:

- Regular return
- Safety of investment
- Stable income
- Tax benefit
- Appreciation of capital

The expected return on the portfolio is simply a weighted average of the expected returns of the individual securities that they are included in the portfolio. The weighted are equal securities (the weight must sum to 100% or 1). The general formula for expected return of a portfolio ( $R_p$ ) is as follows.

$$\overline{R}_p = \sum_{j=1}^n W_j \overline{R}_j$$

Where,

$\overline{R}_p$  = Expected return of a portfolio

$\overline{R}_j$  = Expected return for security j

$W_j$  = Proportion of total funds invested in security j

$n$  = Total no. of different securities in the portfolio

While the portfolio expected return is a straight forward weighted average of returns on the individual security where as portfolio standard deviations would be to ignore the relationship or correlation between the returns of two securities. "The Standard deviation of probability distribution of possible portfolio return  $\sigma_p$  is

$$\sigma_p = \sqrt{\sum_{j=1}^n \sum_{k=1}^n W_j \cdot W_k \cdot \text{Cov}_{j,k}}$$

Where,

$n$  = Total no. of different securities in the portfolio.

$W_j$  = Proportion of total funds invested in security j.

$W_k$  = Proportion of total funds invested in security k.

$\text{Cov}_{j,k}$  = Covariance between the possible return of securities j and k.

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

$$\text{Cov}_{j,k} = \sigma_j \sigma_k r_{jk}$$

Where,

$r_{jk}$  = Correlation coefficient between possible return for security j and k

$\sigma_j$  = S.D. of the security j.

$\sigma_k$  = S.D. of the security k.

When  $j = k$ , the correlation coefficient is 1 as variance movement correlated perfectly with itself.

"The correlation coefficient which is significant in portfolio construction is standardized statistical measured of the linear relationship between two variables. Its range from -1 (perfect negative correlation) to +1 (perfect positive correlation). Lesser the correlation, higher the reduction in portfolio risks" (Van Horne and Wachowicz, 1995: 97).

The positive correlation coefficient shows that the return from the securities generally moves in the same direction. While negative correlation coefficient shows that they move to opposite direction and zero correlation coefficient shows that the returns from two securities are uncorrelated. They show no tendency to vary together in either a positive or negative in linear function.

### **2.1.7 Systematic Risk and Unsystematic Risk**

Systematic and unsystematic risks are the terms frequently used in the portfolio context. Combining securities that are not perfectly positively correlated helps to reduce the risk of a portfolio to some extent.

Systematic risk has its source factors that affect all the marketable assets and this cannot be diversified way. 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 unique to a particular company or industry. It is independent of economic, political and other factors that affect all securities in a systematic manner. A wild cat risk may affect only one company a new competitor may begin to produce essentially the same product or a technological breakthrough can make an existing product obsolete. "For most stocks, unsystematic risk accounts for between 60 to 70 percent of stocks total risk or standard deviation (Van Horne and Wachowicz, 1995:91).

The relationship among systematic, unsystematic and total risk are shown below.

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

Systematic Risk and unsystematic Risk can be written as

### Systematic Risk(SR)

$$SR = \frac{\text{Cov}_{j,m}}{\sigma_m}$$

Where,

SR = Systematic Risk

$\text{Cov}_{j,m}$  = Covariance of Stock j and Market Return

$\sigma_m$  = Standard Deviation of Market

### Unsystematic Risk (USR)

$$USR = \sigma_j - \frac{\text{Cov}_{j,m}}{\sigma_m}$$

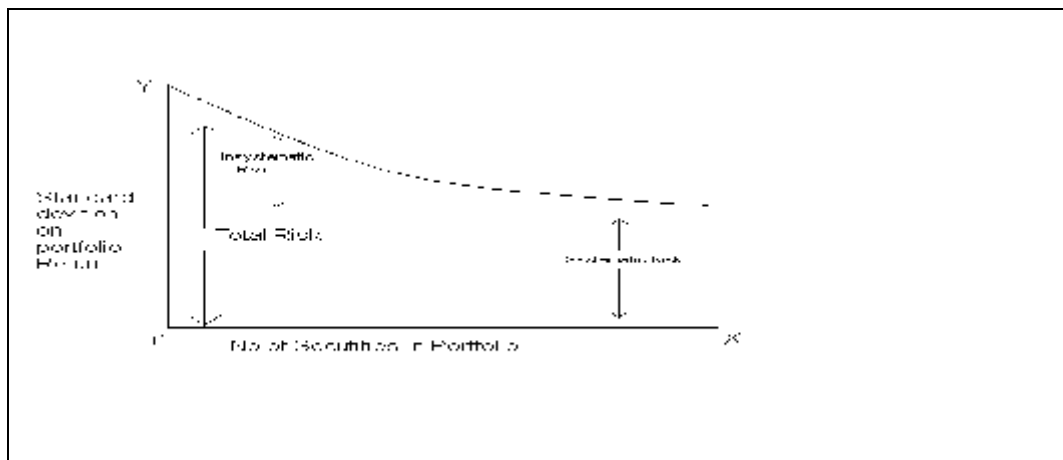
$\sigma_j$  = Standard Deviation of Stock j

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

Where,

TR = Total Risk

Proportion of USR =  $1 - \text{Proportion of SR}$



Where, systematic risk =  $\rho_j P_{jm}$  and unsystematic risk =  $\rho_j (1-P_{jm})$ . Here  $P_{jm}$  is the Correlation coefficient between the return of given stock (j) and the return on market portfolio.

However by diversification, unsystematic risk can be reduced and even eliminated if diversification is efficient. Therefore, not all the risk involved in holding a stock is relevant since part of their risk can be diversified away. The important risk of stocks is its unavoidable systematic risk. Investor will be compensated for bearing this systematic risk. They should not however expect the market to provide any extra compensation for bearing avoidable risk. It is the large that lies behind Capital Assets Pricing Model (CAPM).

### **2.1.8 Capital Asset Pricing Model (CAPM)**

The Capital Asset Pricing Model provides us a means by which to estimate required rate of return on a security. This model was developed by William F. Sharpe and John Linter in the 1960's and it has had important implications for finance ever since. And on the basis of price and dividend data, expected return can be calculated with comparison of these two returns investors can analyze whether the stock is under priced or overpriced.

Based on the behavior of the risk adverse investors, there is implied an equilibrium relationship 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 the return that investor will expect from the security (Van Horne, 1997:64).

“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 beta of a portfolio is simply a weighted average of the individual stock betas in the portfolio” (Van Horne, 1997:100).

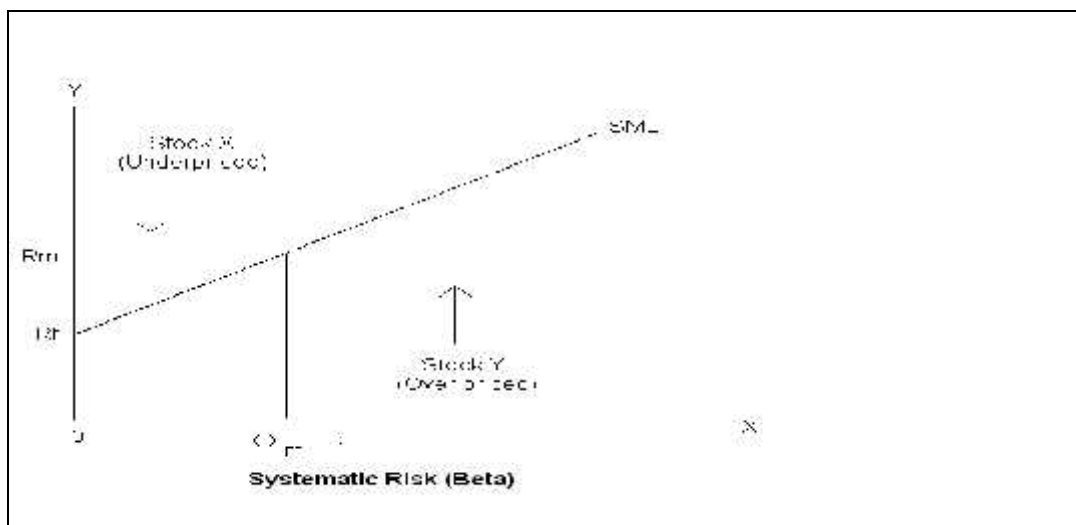
If beta is one (i.e. =1) then the required return is simply the average return for all situation, that is the return on market portfolio, otherwise, the higher the beta, higher the risk premium and the total required return. However, a relatively high beta does not guarantee a relatively high return. The actual return depends partly on the behavior of the market, which acts as a prissy for general economic factor.

The CAPM states that the expected risk premium on each investment is proportion to its beta. This means that each investment should lie on the sloping security market line connecting treasury bills and market portfolio. CAPM is the predominant model used for estimating equity risk and return. Comparison between the expected rate of return and required rate of return indicates whether the stock is under priced or overpriced. And when these two return are equal then it is said table market equilibrium i.e. all the stocks lie on the Security Market Line (SML).



SML is the graphical representation of the CAPM, which shows the relationship between risk and required rate of return. The SML clearly shows that returns are the increasing function, in fact at linearly increasing function of risk. Further, it is only market risk that affects return. The investor receives no added return for bearing the diversifiable risk. If stocks are under priced it lies above the SML and if they are overpriced then it lies below the SML. The following diagram shown the SML with over priced and the under priced stocks.

**SML Diagram**



“Above figure clarifies that stock X is under priced relative to the security market price while stock Y is over priced. As a result tock X is expected to provide a rate of return greater than that required based on its systematic risk. In contact stock Y is expected to provide a lower return than that required to compensate for its systematic risk. Investors seeing the opportunity for the superior return by investing in stock X will rush.

This situation would drive the price up and expected return comes down. It would continue until the market price was seen that the expected return would row lies on the SML. In the case of stock Y, investors holding this stock will start to sell it, recognizing that they could obtain a higher return for some amount of systematic

risk with other stocks. This selling pressure would drive market price down and its expected return goes up until the expected return matches on the SML. When the expected return for these two stocks returns to SML, market equilibrium will again prevail (Van Horne and Wachowicz, 1995: 107).

Under the CAPM, each investors hold the market portfolio and is concerned with its standard deviation because this will influence the slope of the SML and hence the magnitude of his/her investment in the market portfolio.

“The CAPM is sometimes used to estimate the required rate of return for my firm with publicly traded stock. The CAPM is based on the promise that the only important risk of firms is systematic risk, or the risk that returns firm expose to general stock market movements. The CAPM is not concerned with so-called unsystematic risk, which is specific to an individual firm, because investors can avoid that type of risk by holding diversify portfolio (Madura, 2001: 118).

Investor appears to be concerned principally with risk that they cannot eliminated by diversification. If this is not so, we find that stock price increases. Whenever two companies merge to spread their risk and we should find that investment companies which invest in the share of other firm are more highly valued than the shares they hold. But we do not observe either phenomenon. Mergers undertaken just to spread risk don't increase stock prices and investment companies are no more highly valued than the stocks held. The CAPM model captures these ideas in simply way. That's way many financial managers find it is the most convenient for coming to decision with slippery motion of risk. And it is why economist often uses the CAPM to demonstrate important ideas in finance even when there are other ways to prove thee ideas.

## 2.2 Reviews from Journals

In the field of finance in Nepal it is very difficult to get advanced and research based journal. There are very limited numbers of journals available in the subject of management and it is also hard to find any article in the subject matter of finance. Almost no articles about the risk and return analysis on common stock investment are found. Hence some foreign well known recently published journals of finance has been reviewed here. However, it helps to build the conceptual framework on this topic.

An article entitled "*Expected Return, Realized Returns and Assets Pricing Tests*" by Edwin J. Elton as journal of finance in the year 1999 is relevant to this study. In this paper he points out the fundamental issues in finance like that what the factors are that affect expected return on assets, the sensitivity of expected return to those factors, and the reward for bearing this sensitivity. There is long history of testing in this area and it is clearly one of the most investigated areas in finance.

Almost all of the testing being aware of using realized returns as a process for expected returns. The use of an average realized return relies on a belief that information surprises tend to average out over the period of a study and realized returns are therefore an unbiased estimate of expected returns. However, he believes that there is ample evidence that this belief is misplaced. There are periods longer than 10 years during which stock market realized returns are on average less than the risk free rate (1973 to 1984). There are periods longer than 50 years in which risk long term bonds on average under perform the risk free rate (1927 to 1981). Having a risky asset with expected return above the risk free rate is an extremely weak condition for realized returns to be an appropriate process for expected return, and 11 and 50 years is an awful long time for such a weak

condition not to be satisfied. In the recent past, the United States has had stock market returns of higher than 30% per year while Asian Markets have had negative returns (Elton, 1999:26).

The journal of finance, published by American Finance Association for many decades is taken into account. In its recent volume of August 1999, an article "*Local Return factors and Turnover in Emerging Stock Markets*" by K Greet Rouwenhast. This paper examines the sources of return variation in emerging stock markets. Compared to the developed markets the correlation between most emerging market and stock market has been historically low and until recently many emerging country restricted investment by foreign investor.

He attempts two set of question to answer. The first set of three questions concern the existence of expected return premiums. (i) Do the factors that explain expected return difference in developed equity markets also describe the cross section or expected returns of emerging market firms?(ii) Are the returns factors in Emerging markets primarily local or they have global components as well? (iii) How does the emerging market evidence contribute to the international evidence form developed markets that similar return factors are present in markets around the world? The set of questions of the paper include, (iv) is there a cross sectional relation between liquidity and average, returns in emerging markets? Are the return factors in emerging markets cross sectional correlated with liquidity?

Total returns are calculated in the sum of the dividend return and price appreciation using prices scaled by a capital adjustment factor, which the IFC computers to correct for price effects associated with stock splits, stock dividends and rights issues. Many emerging market have firms with multiple share assess are treated as a single value weighted portfolio of the outstanding equity securities (Rouwenhorst, 1999:1442-1443).

In this paper Rouwenhorst has been made detail analysis of the data and he interprets the result in each section. Lastly, he has concluded his findings as "The first conclusion is that the return factors in emerging markets are qualitatively similar to those in developed markets: Small stocks out perform growth stocks and emerging market stocks exhibit momentums. There is no evidence that local market betas are associated with average returns. The low correlation between the country return factors suggest that the premium have a strong local character. Furthermore, global exposure cannot explain the average factor returns of emerging market. This is little evidence that the correlation between the local factor portfolios have increase, which suggests that the factors responsible for the increase of emerging market country correlation are separated from those drives the difference between expected return within these markets. A Bayesian analysis of Premiums in developed and emerging markets shows that unless one has strong prior belief to the contrary. The empirical evidence favors the hypotheses that size, momentum and values strategies are compensated for in expected returns around the world. Finally, the paper documents the relationship between expected returns and share turnover and examines the turnover characteristics of the local factors portfolios. There is no evidence of relation between expected returns and turnover, in emerging markets. However, beta, size momentum and value are positively cross sectionally correlated with turnover in emerging markets. This suggests that return premium do not simply reflect a compensation for liquidity (Rouwenhorst, 1999:1462).

After reviewing, an article entitled American Association of Individual Investors, Investing basis reveals importance to understand how personal circumstance affect investment decision. (If these factors make no difference we could simply publish one suggested portfolio for everyone to follow). Investment profile is the beginning of the asset allocation process, which consists of dividing portfolio

among the major asset categories of stocks, bonds and cash. The asset allocation decision will have a far more effect on portfolio return.

Make allocation decision with the major categories. For instance stock portfolio can be divided among large capitalization stock, small capitalization stocks and international stocks. Once these decisions are reached, you will be ready to make selection among the various investment options. Lastly, once you have set up your investment portfolio you must monitor it, making changes when appropriate.

Every investor wants the highest assured return possible. Both as we have seen, returns are not certain and different investors have varying degree of uncertainty that they are willing accept.

In order to reduce overall risk, it is the best to follow diversification of assets that are not related. "The technical term for this is not putting all your eggs in one basket". In that way if u trip, you wont break all the eggs. The creation of a portfolio by combining two assets that behave exactly the some way cannot reduce the portfolio's overall risk below the risk of the least risky asset.

Fluctuations expose you to wide uncertainty in your overall returns and even to the risk of permanent loss of principal. CAPM is an effective model in finance but it is not far off from argument. It has also got it good points as well as bad points.

It tells us where to invest, how to invest and what discount rate to use for project cash flows. Not only that, it is a disarmingly simple model. The expected return of a security depends upon a simple statistics. The relationship between risk and return is linear. Calculation of portfolio risk trivial at the sometime, the CAPM is revolutionary. It tells us that the variance of a project is not a factor in determining the appropriate risk adjusted rate. It turns financial research from roll-up-your

sleeves fundamental analysis into a statistical problem. In short, the CAPM turned Wall Street on its head.

### **2.3 Review of Other Independence Studies in Nepal**

Very few independent studies can be found in the topics of finance. Specifically, it is rare in the case of this research topic, risk and return analysis. However, the available independent studies which are related to the Nepalese stock market and about shareholders democracy are reviewed here.

The study carried out by professor Dr. Manohar Krishna Shrestha (1995) in the title of “*Shareholder’s Democracy and Annual General meeting feedback*” is reviewed here Dr. Shrestha prefers to consider this book as assemblage of opinions which he had express in different occasions of various annual general meeting where he has critically analyzed the situation of common stock investors and the situations that is not improving till date.

The content of the book have been divided into two parts. The first part includes views on the rights of the shareholders regarding how they can exercise them in democratic perspective, where as the second part consists of feedback and the issues raised by shareholders at different annual general meeting of the public limited companies and financial institutions.

Writer has found the overall shareholders democracy in terms of the protection of their interest, is basically focused on the payment of satisfactory wealth by appreciating the value or share they hold.

“In many cases the existing authoritarian mentality of management seems to have not considered the share holders in deciding managerial plans and policies. Top level decision often by pass the interest of shareholders. As the management lacks

serious concerns about the protection of shareholders rights and expectations. The annual general meeting has become a platform for shareholders to express their opinions and grievance in front of the management and board of directors.

Many general meeting feedback reveal no serious response so the feelings of shareholders. Thus it reflects unwillingness of the management and board of director to change their traditionally held activities towards shareholders.

Dr. Shrestha has expressed his deep concern to the government for not taking any initiative formulating the separate act which protects the shareholders right despite the increase in population of shareholders in Nepal and questioned the need of separate act are regarding the protection of shareholders right.

He has further quoted as writing company and other acts relating to financial and industrial sector have provisioned rights of the shareholders as: (1) voting rights, (2) participation in general meeting, (3) rights of getting information, (4) Electing as a board of director, (5) participation in the profit and loss of the company, (6) transferring share, (7) priority representation.

The collective rights of the shareholders are

- 1) Amend the internal by laws
- 2) Authorized the sales of assets
- 3) Enter into merger
- 4) Change amount of authorized capital

As reviewed above, Nepalese stock being in emerging state; study conducted previously in Nepal in relation with the subject was not in specific issues but in broad manner.



An article published in business age by Nawaraj Pokharel (Oct.-Nov. 1999) “*Stock Market doing Pretty Well*” is reviewed here.

In this article he has that the investment on the shares of manufacturing and processing was more attractive than of the banks. He found that the share of individual companies showed very good performance from October 1998 to 1999. NEPSE index showed upward trend for all the shares in this period. He gave following reasons behind the appreciation of share price.

- Companies have rewarded shareholders.
- Reduction of interest rate of money market.
- Healthy speculation and loan has made the market interesting by providing loan to the stock investors their share as collateral.
- Investors are appearing more rational in their investment decision.

Finally, he concludes that the capital market needs more infrastructure investment than institution investment once the required infrastructure can facilitate the market, the size of the market could be made even bigger by introducing new instruments such as government bonds.

Next here is an article published in business age magazine by Atma Ram Ghimire (June 2001) “*Nepal share market and investors prospect*”. In this study he has pointed out some important trends of our capital market. He has concluded that the Nepalese share price is decreasing because of many unbalanced factors. The major reason behind the movement in the index is the domination of the banking sector script in the Nepalese stock market transactions. Mismanagement practices cannot help the growth of share market. The general public has invested recklessly. They just believe what one broker or the investor says about scrip. One of the prime motives for the investment is to earn return on it. Finally he concludes that the

general investors should be alert and aware of the situation. They must receive the financial information before they make investment and act rationally.

Similarly, Narayan Prasad Poudel (2001) also carried out another study in a topic of “*Investing in shares of Return and Risk elements*”. The study was based on the data collected for eight banks from mid July 2001. The main objectives of the study was to determine whether the shares of commercial banks in Nepal are over or under priced by analyzing risk and return characteristics of the individual share.

Mr. Poudel summarized the following finding:

- Most of the individual share’s appeared to be defensive as beta coefficients were less than one, indicating that the share was less volatile than market as a whole. Only the return of share of Bank of Kathmandu had beta coefficient of greater than one, indicating that the share was more risky than the market.
- Nepal Arab Bank Ltd., Nepal Indosuez Bank Ltd., Himalayan Bank Ltd. Had higher expected equilibrium return than expected rate or return. And standard Chartered Bank Ltd., Nepal SBI Bank Ltd., Nepal Bangladesh Bank Ltd., Bank of Kathmandu Ltd. Had lower equilibrium return than expected rate or return.
- From this study we get Nepal Arab Bank Ltd., Nepal Indosuez Bank Ltd. and Himalayan Bank Ltd. was overpriced and other were under priced.

#### **2.4 Reviews from Thesis**

However risk and return is not a new concept for financial analysis, in context of Nepal and its very slow growing capital market, few studies are made regarding this topic. Some studies related to the topic of risk and return has been conducted for the fulfillment of master degrees in T.U. In this study only relevant subject matters are reviewed which are as follows.

Gopal Prasad Bhatta (1996) in his study “*A Study on Securities Investment in Nepal*” is related to this study to some extent. Bhatta’s study is performance of listed companies is based on 10 listed companies’ data from 1990 to 1995. One of the major objectives that concern with this research topic is “to analyze the performance of listed companies in terms of risk and return i.e. 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. Bhatta addressed the following findings in risk return behavior from the analysis of different stock.

“A highly significant positive co-relationship has been addressed between risk and return character of the company. Investor expects higher returns from those stocks, which associates 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. Neither investor analyzes the overall relevant information shows high priced stocks such as BBC, NIB, NIC has higher beta than others. These companies required higher returns to satisfy the investors for their risk premiums.

Investors in Nepal have not yet practice to invest in portfolio of securities. Portfolio shows that risk can be totally minimized if correlation is perfectly negative. In this situation, the risk can totally be diversified but when there is perfectly positive correlation between the return of the two securities, the risk in undiversifiable. The analysis shows some has negative correlation and some has positive. Negative correlation between security return is preferred for diversification of risk.

On the basis of findings Bhatta concluded: “An Analysis of risk and return shows that many companies have higher unsystematic or specific risk. There is a need of

expert institution, which will provide consultancy services to the investors to maximize their wealth through rational investment decision.

Lastly, Bhatta found the following points to improve market efficiency:

- Develop institutions to consult investors for risk minimization.
- Establish an information channel in NEPSE.
- Make proper amendment of Trading Roles.

To some extent Bhatta focused in the analysis of risk and return in common stock investment. But due to so many other aspects of analysis investor cannot easily assess the result. Indeed, study did not focus the viewpoint of investor rather in concentrates the companies and stock market. However, this study also explores some dimension for further research in this subject.

Shanker Kumar Mishra (2002) analyzed “*Risk and Return on common stock investment of commercial Banks in Nepal*” with special reference to five listed commercial banks. The major objective of this study was to promote and protect the interest of the investor by regulation the issuance sales and distribution of securities and purchases, sale or exchange of securities. He also intends to supervise and monitor the activities of the stock exchange and of other related firms carrying on securities business. In addition he tried to render contribution to the development of capital market by making securities transactions fair health, efficient and responsible.

Followings are the finding of the Study

It was noticed that there is a positive correlation between risk and return character of the company. Nepalese capital market being inefficient, the price index itself is not sufficient to give the information about the prevailing market. Situation and the company proper 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 stock brokers transmit any information to the investors about the current market situation and hence it becomes difficult for a common investors to invest in the securities. Both government authorities and the stock exchange regulator body should try to promote healthy practices so that the stock brokers do not give false information to the investors for their personal benefit which is a common practice in Nepal. Investors should get regular information about 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 should make this mandates that it is easier for the investors to calculate risk and return of portfolio and transparency is increased.

Manilata Manandhar (2003) in her study “*Analysis of Risk and Return analysis on Common Stock Investment*” with special reference to five listed commercial banks. The main objective of the study is to examine risk and return of common stock in Nepalese stock market, the study is focused on the common stock of commercial banks.

In her findings “Banking industry is the biggest one in F/Y 057/058 in terms of market capitalization and turnover expected return of the common stock of BOKL is maximum (i.e. 1.1267) due to effect of unrealistic annual return and Capital Structure of NIBL is found minimum. In the context of industries, expected return on banking sector (i.e. 67.39) is highest and other sector is the least (0.65%). Expect NIBL, other banks other banks common stocks are more volatile (aggressive with market stocks). All banks in the study are said to be under priced. Capital Structure of BOKL is most risky and Capital Structure is least risky.

Followings are the findings of Mrs. Manandhar's Study

- Stocks have greater volatility risk than other investment, which take a random and unpredictable path. Stock market is risky in the short term and it is necessary to prepare the investors for it.
- One of the most important things to consider when choosing investment strength is the balance between risk and return that you are comfortable with
- Investors should diversify their fund to reduce risk with the help of optimal portfolio concept.
- It is better to buy something that is going up and sell something that is going down.
- Investor's attitude, perception and risk handling capacity also play essential role in rational investment decision.

Ram Hari Khadka (2004) in his study "*Analysis of Risk and Return on selected Nepalese Commercial Banks listed in NEPSE*" with special reference to 7 listed commercial banks is also relevant to this study. The main objective of the study is to analyze the risk, return and other relevant variables that help in making decision about investment on securities of the listed commercial banks. This study will also target to determine whether the share of commercial banks are correctly priced or not by analyzing the required rate of return using the CAPM. Khadka addressed the following findings in risk return behavior from the analysis of different stock.

The share of Bangladesh Bank offered highest realized rate or return. Amongst them NABIL bank is the lowest having 5.23% which is less than required rate or return. NBL, which is hard hit by the events (Return = -0.8809), the ranking of the bank is placed as the highest return earner. The study showed that the realized rate or returns of the samples banks do not have the same features being within the range of 5.23% to 16.12%. Return on the average stock is 5.51% over the period.

All the shares under review generated higher rate of return than the market portfolio except NABIL Bank Ltd. The price of shares of banks under review except NABIL Bank Ltd. are under priced. The unsystematic risk of NBL is the highest one amongst the shares under review which is 95.59% and SCB of Nepal has the lowest one being 45.14%. The negative correlation coefficient of NBL (-0.21) revealed that the return on the bank goes down if the market goes up. The rest of the shares moved in the direction the market moves. By observing the individual shares beta coefficient, most of the shares appear to be defensive as beta coefficient are less than one. However, beta of the stocks NB bank SCB are greater than one indicating that the shares are more riskier than the market..

On the basis of finding, Khadka concluded that in Nepalese capital market, the contribution of real sector is negligible. Though the shares of commercial Banks of Nepal are heavily traded in NEPSE, none of the share NABIL Bank will have positive trend towards the equilibrium.

He outlined following Recommendations:

- Adoption of comprehensive and Advance Regulatory framework.
- Awareness campaign for the investor.
- Regular publication of financial information.
- Improvement in the infrastructure facilities.
- Effective use of banking system.
- Deregulation of foreign exchange.

Surendra Manandhar (2005) in his study report “*A Study of Risk and Return Analysis on Common Stock Investment*” with special reference to six listed commercial banks. The main objective of the study is to evaluate common stock of listed commercial bank in terms of risk and return and to perform sector wise comparison on the basis of market capitalization, to identify whether the share of

commercial banks are overpriced, under priced or at equilibrium price, to identify the correlation between returns of commercial banks, & to construct optimum portfolio from listed common stock.

Major findings of the study are as follows:

- The return is the income received on a stock investment, which is usually expressed in percentage. Expected return on the common stock of EBL is maximum (44.44%) which is very high rate of return. In reality this rate exists only due to effect of unrealistic annual return because of the issues of banks share and increase in share price. Similarly expected return of the CS of NIB is found minimum (24.21%).
- Risk is the variability of return which is measured in terms of standard deviation on the basis of S.D. common stock of NSBI is most risky since it had high S.D. and C.S. of NIBL is least risky because of its lowest S.D. on the other hand, we know that coefficient of variation is more rational basis of investment decision. Which measures the risk per unit of return on the basis of CV; CS of NIBL is the best among all banks. NIBL has 1.4977 unit of risk per 1 unit of return. But CS of SBI has the highest risk per unit return i.e. 3.5495.
- Diversification of fund by making a portfolio can reduce unsystematic risk of individual security significantly. If investors select the securities for investment, which have highly negative correlation of returns, the risk can be returns of two stocks in highly positive, risk reduction is not so significant. So, portfolio between the C.S. of same industry cannot reduce risk properly. In this study, SBI and EBL have negative correlation between their returns, which is favorable with the viewpoint of the diversification. And all other banks have positive correlation among their returns. So, the portfolio construction among their returns. So, the portfolio construction of



the common stock of these banks will not completely reduce any risk, which is not favorable as portfolio construction is concerned.

Hari Prasad Neupane (2008), in his study report -“Risk and Return analysis of common stock investment of listed commercial banks” with special reference to three listed commercial banks. The main objective of the study is to identify whether stock of selected commercial banks are overpriced, under priced and equilibrium price. To identified optimum portfolio of the banks and analyze the diversifiable and undiversifiable risk of the banks.

Major findings of the study are as follows:

- The return is the income received on a stock investment, which is usually expressed in percentage. Expected return on common stock of EBL is maximum (52.97%). Similarly expected return of C.S. of HBL is (29.52%) and NIBL is 37.95%.
- Beta coefficient explains the sensitivity or volatility of the stock with market. Higher the beta higher the volatility in the contest, common stock of HBL is most volatile I.e.  $\beta = 1.1251$  and common stock of EBL is least volatile i.e.  $\beta = 0.3230$ . The bank's stock, having the beta less than beta coefficient of market i.e. defensive stock. We find NIBL and HBL have aggressive type of common stock. Among then most aggressive seems to be HBL with highest beta and least aggressive is EBL with lowest beta among three bank's common stock.
- Systematic risk can not 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. This study shows that EBL has high proportion of unsystematic risk i.e. 77.18% which can be minimized from internal management. Where as HBL has high proportion of systematic risk i.e. 97.49%. This can not be minimized from internal management. C.S. of EBL is best among these banks due to its highest proportion of unsystematic risk.

## **2.6 Research Gap**

Although some previous MBS students have conducted their thesis in the similar topic the present researcher has selected, there is fundamental difference between those and this present one. The previous researcher focused only on the risk and return aspect of selected commercial banks from investors perspectives. This research has further tried to identify the correlation among returns of the commercial banks under study which plays a significant role in risk reduction by portfolio construction for investor. By knowing systematic and unsystematic risk, organization wise comparison, those organization managers will be sensible for improving their organization. It is not done by previous researchers. Under this research work Hypothesis test - tested both return test and risk test which is not done by previous research worker in the same research work.

Most of the previous researches reviewed have been carried out with less than seven year data. Here, in this research nine year's data has been taken for analysis. Similarly, the number of sample firms takes by the previous researchers is five or more. But this research has been conducted with reference to three sample firms which give the clear vision for all the investors who invest in common stock investment of commercial banks listed in NEPSE.

## **CHAPTER – III**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

Research methodology is the systematic way of solving research problems and which ultimately refer to the overall research process. It includes all the procedures from theoretical framework to the collection and analysis of the data. As most of the data are quantitative the research is based on the specific models. It is composed of both parts of technical aspect and logical aspect, on the basis of historical data. Research is systematic and organized effort to investigate a specific problem that needs a solution. This process of investigation involves a series of well thought out activities of gathering recording, classifying, analyzing and interpreting the data with the purpose of finding answer to the problem. Thus the entire process by which we attempt to solve problems is called research.

#### **3.2 Research Design**

The research is based on the recent historical data, so simply it is a historical research. It covers the data from 2000/01-2008/09. It deals with the common stock of commercial banks on the basis of available information. For the portfolio analysis, the common stocks of the selected commercial banks are taken into account. This study is more analytical and empirical and less descriptive. Financial analysis with various statistical and financial tools and testing of hypothesis has also been used for analysis aspect.

#### **3.3 Sources of Data**

All the data necessary for the research will be collected from secondary sources. Data related to market prices of shares (MPS), market capitalization, movement of NEPSE index and etc will be taken from the trading report published by NEPSE, Market Price of Share will be taken from annual report of related bank and other

relevant data will be collected from individual banks, Security Board of Nepal and from their web sites.

The collection procedure is summarized below: -

- Financial document and summary sheets provided by companies.
- Trading manual published by Nepal Stock Exchange Limited.
- Materials published in Newspapers and Magazines.
- Other related journals, periodicals, books and booklets.
- Central library T.U., Makawanpur Campus library.

### **3.4 Population and Sample**

This study is based on the comparative study of risk and return on the basis of common stock investment of three commercial banks listed in NEPSE. Population is all the listed companies in NEPSE. Concentration of this study is listed commercial banks only. There are a total of 26 commercial banks registered under Nepal Rastra Bank. The number of listed commercial banks in NEPSE is 21. For this, study three commercial banks Nepal Investment Bank Limited (NIBL), Himalayan Bank Limited (HBL) and Nabil Bank Limited (NABIL) are taken as sample.

### **3.5 Factors and Methods of Analysis**

The study employs various financial tools and statistical tools to analyze the data collected from various sources. Before, analysis, data will be presented in the tabular format, charts and graphs.

The collection data are analyzed by using various factors and financial as well as statistical tools which are given and defined below.

### **3.5.1 Factors for Analysis**

The factors that are used for analysis of risk and return are as follows:

#### **3.5.1.1 Market Price of Shares (MPS)**

Here in this study, each year closing price is taken as the market price of stock which has specific time span of one year and the study has focused in annual basis. To get the real average, volume and price of each transaction in the stock and duration of time of each transaction in the whole year are essential, which is tedious and impossible too, considering the data availability and maintenance.

Market value in the secondary market is determined by the supply and demand factors and reflects the opinion of investors and trader concerning the values of the stock closing price is used as market price of stock because it is very different to obtain and include these all information and average of high and low price may not be reliable and representative information.

#### **3.5.1.2 Dividend per Share (DPS)**

Dividend is the part of earning that is distributed to the share holders as a part of their investment. Dividend is return to equity capital that consist price of time and price of risk taking by the investors. The total amount of dividend out of earning available to the shareholder if distributed, the common stock's portion is said Dividend per share (DPS). Symbolically DPS can be expressed as follows:

$$\text{DPS} = \frac{\text{The Total Amount of Dividend Paid}}{\text{No. of Common Shares Outstanding}}$$

Dividend is relevant during computation of rate of return, which is reward to the shareholders for their investment, which can be given in different for, for

investment, which can be given in different form. For instance cash dividend and stock dividend etc. if company declares only cash dividend. There is no problem while taking the exact amount of dividend that is relevant. But if the company declares stock dividend (Bonus share), it is difficult to obtain the amount that really shareholders has gained. In this case, they get extra numbers of shares as dividend and simultaneously price of the stock declines as a result of increased number of stocks. To get a real amount of dividend following model has been used through out the solution

Total dividend amount = Cash Dividend + Stock Dividend % | Next Year MPS

The various financial and statistical tools used are as follows:

### 3.5.2 Financial Tools

#### 1. Holding Period Return (HPR)

Holding period return indicates the summation of price appreciation and dividend gain. Here price appreciation means gain on capital investment.

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

Where,

R = 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.

#### 2. Expected Rate of Return

One of the main aims of the study is to determine the expected return on the investment is CS. Expected rate or return is the arithmetic mean of the post years returns.

$$\overline{(R_j)} \times \frac{R_j}{n}$$

Where,

$\overline{R_j}$  = Expected rate or return on stock j.

$R_j$  = Return on stock j

$n$  = Number of years that the return is taken.

$\Sigma$  = sign of summation.

### 3. Standard Deviation

Standard deviation is a statistical measure and is widely used to measure risk from holding a single asset. It is also a statistical measure of the variability of a set of observations. The standard deviation represents a large dispersion of return and is a high risk and vice versa. The symbol is called (  $\sigma$  ) sigma. It is the measure the total risk on stock investment.

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

If data is probability distribution

$$\text{Or, } \sigma_j = \sqrt{\sum (R_j - E \overline{R_j})^2 P_j}$$

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.

$E \overline{R_j}$  = Expected rate or return on stock j.

$n$  = Number of years that the returns are taken.

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

It is the relative measurement of risk and return. It measures the risk per unit of return. It provides a more meaningful basis for comparison when the expected returns on two alternatives are not the same. The higher coefficient of variation, higher the risk.

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

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.

#### 5. Beta Coefficient ( $\beta_j$ )

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.

$$\beta_j = \frac{COV R_j, R_m}{\sigma_m^2}$$

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

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.

#### 6. Correlation Coefficient

Two variables are correlated when they are related that the change in the value of one variable is accompanied by change in the value of other. Correlation may be



positive or negative. If return on two securities is negatively correlated which combined in portfolio reduces the risk. If securities are positively correlated risk cannot be reduced.

Correlation coefficient measures 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 returns from two securities generally move in the same direction and vice versa.

Correlation coefficient and covariance are related by the following equation.

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

Where,

$\sigma_i$  = standard deviations of returns for assets i

$\sigma_j$  = standard deviations of returns for assets j

$\rho_{ij}$  = 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 perfect negative correlation 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.

### iv) Intermediate Risk ( $\rho_{ij} = +0.5$ )

Most of the stocks are positively correlated but not perfectly. On average the returns on two stocks would lie on the range of +0.4 and +0.75 under this condition combining stock into portfolio reduced risk but not eliminate it completely.

## 7. Return on Market ( $R_m$ )

It is the percentage increase in NEPSE index. Market return is the average return of the market as a whole.

$$R_m = \frac{1}{n} \sum_{t=1}^n \frac{NI_t - NI_{t-1}}{NI_{t-1}}$$

Where,

$R_m$  = Return on Market

NI = NEPSE Index

t = time period

Expected Market Return ( $E(R_m)$ ):

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

Where,

$\sum$  = sign of summation.

$R_m$  = Market return of individual year

n = Number of samples period

## 8. Portfolio Risk and Return

Portfolio is combination of individual or a 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.

### ➤ 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.

$$E(\bar{R}_p) = XW_i | E(\bar{R}_i) + \Gamma W_j | E(\bar{R}_j)$$

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.

### ➤ Portfolio Risk

It is the combined standard deviation of individual stock return. it is the risk of individual securities plus covariance between the securities. It can be written as:

$$\sigma_p = \sqrt{W_i^2 \sigma_i^2 + W_j^2 \sigma_j^2 + 2W_i W_j \text{COV}_{ij}}$$

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

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

## 9. Portfolio Beta

The beta of portfolio can be easily estimated by using beta of individual assets it includes. Symbolically, it is represented by:

$$\text{Portfolio beta } (b_p) = \sum_{j=1}^n W_j b_j$$

Where,

$W_j$  = proportion of the portfolio

$b_j$  = beta coefficient of asset j

$b_p$  = portfolio beta coefficient

## 10. Risk Minimizing Portfolio

It is the ratio of stock that will minimize the possible unsystematic risk. The risk-minimizing portfolio is calculated by using following formula.

$$W_j = \frac{\sum_{i=1}^n W_i^2 \text{COV}(R_i, R_j)}{\sum_{i=1}^n W_i^2 + \sum_{j=1}^n W_j^2 + 2 \sum_{i=1}^n \sum_{j=1}^n W_i W_j \text{COV}(R_i, R_j)}$$

Where,

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

i.e.  $W_i + W_j = 1, W_i = 1 - W_j$

## 11. Required Rate of Return

Required rate of return is minimum expected rate of return needed to induce an investor to invest his/her fund. It is always more than risk less rate of return. Normally, when an individual investment is given higher return, i.e. realized rate of return then its required rate of return, this type of investment is known as under priced investment. Such under priced assets should be purchased. On the other

hand, if realized rate or return is less than required rate of return of a particular asset, it is said to be overpriced assets, such assets should be purchased, instead if one is holding such asset, it should be sold immediately. The required rate of return is calculated by using following formula.

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

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)

### 3.5.3 Statistical Tools

#### Test of Hypothesis (T-test)

##### Hypothesis I $\tilde{E}$ Return Hypothesis Test

All the companies listed in the NEPSE index are population of this study, which in other words can be said market. The sample is the selected companies. At the sample for the study is less than 30, t-test is applied for hypothesis test.

The hypothesis is based on the test of significance for difference of mean (t-test)

##### Null Hypothesis ( $H_0$ ):

$\bar{R}_i \times \bar{R}_m$ , i.e. there is no significant difference between the expected return of selected banks and overall market return.

##### Alternative Hypothesis ( $H_1$ ):

$\bar{R}_i \neq \bar{R}_m$ , i.e. there is significant difference between the expected return of selected banks and overall market return.

**Under the Ho,** The test statistics (t) is

$$t = \frac{\overline{R}_i - \overline{R}_m}{\sqrt{S^2 \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Where,

$\overline{R}_i$  = Average return of the portfolio of C.S. of Selected banks

$\overline{R}_m$  = Average return of market

$$S^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$$

$n_1 = n_2$  = Number of observation.

$s_1^2$  = Variance returns of selected banks.

$s_2^2$  = Variance of market returns.

**Test result:** If  $t$  calculated value is less or equal to tabulated value, the null hypothesis is accepted and vice versa.

## **Hypothesis II $\hat{\beta}$ Risk Hypothesis Test**

**Null Hypothesis ( Ho):**

$\hat{\beta} = \hat{\beta}_0$ , i.e. there is no significance difference between the portfolio beta of sample banks common stock and the market beta. In other word average portfolio beta of commercial banks is equal to 1.

**Alternative Hypothesis ( H1):**

$\hat{\beta} \neq \hat{\beta}_0$ , i.e. there is significance difference between the portfolio beta of sample banks common stock and the market beta.

**Under Ho test statistics (t) is :**

$$t = \frac{\bar{X} - \mu}{\frac{S}{\sqrt{n}}} = \frac{b_p - b_m}{\frac{s}{\sqrt{n}}}$$

Where,

- $b_p$  = Portfolio beta of individual banks CS
- $b_m$  = Market beta = 1
- $S$  = Whole population SD ( it is for large sample)
- $s$  = Estimated population standard Deviation
- $n$  = No. of Sample Bank
- $\mu$  = Population mean ( it is equal with market beta)

**Test result:** If  $t$  calculated value is less or equal to tabulated value, the null hypothesis is accepted and vice versa.

### 3.6 Methods of Analysis and Presentation

All the methods of analysis and presentation are applied as simple as possible. Proper financial and statistical tools are used and results are presented in table and also shown in diagram. Interpretation is made in very simple way. Detailed of calculation which cannot be shown in the main body part, are presented in appendices at the end, summary, conclusion and recommendation are presented finally.

## **CHAPTER - IV**

### **DATA PRESENTATION AND ANALYSIS**

This chapter includes analysis of data collected and their presentation. In this chapter the effort has been made to analyze “Risk and Return on Common Stock Investment of Commercial Banks’. Detail data of MPS, EPS, P/E ration and dividend of each bank and NEPSE index and their interpretation and analyses is done with reference to the various reading and literature review in the preceding chapter effort is made to analyze and diagnose the recent Nepalese stock market movement, with a special reference to the listed commercial banks. The analysis of data consists of organizing tabulating and assessing financial and statistical result from different tables and diagrams are drawn to make the result more simple and understandable.

#### **4.1 Analysis of Individual Commercial Banks**

The study is focused on analyzing the common stock of listed commercial banks separately as the scope of the study concentrated only on listed commercial banks of Nepal. There are currently 26 commercial banks in operation in Nepal and among them only 21 are listed in NEPSE. Among them 3 commercial banks are taken as a sample for the study. They are Nepal Investment Bank Ltd. (NIBL), Himalayan Bank Ltd. (HBL) and NABIL Bank Ltd. Common stock of each listed commercial banks, their risk and return are analyzes are included in this study.

##### **4.1.1 Nepal Investment Bank Ltd. (NIBL)**

###### **4.1.1.1 Introduction**

NIBL, Previously Nepal Indosuez Bank Ltd., was established in 1986 as a joint venture between Nepalese and French partners. The French partner (holding 50 % of the capital of NIBL) was credit Agricole Indosuez a subsidiary of one of the largest banking group in the world. With the decision of credit Agricole Indosuez to divest, a group of companies comprising of bankers, professionals, industrialists



and businessmen, has acquired on April 2002 the 50% shareholding of credit Agricloe Indosuez in Nepal Indosuez Bank Ltd.

The name of the bank has been changed to Nepal Investment Bank Ltd. upon approval of banks AGM, NRB and company Register's office with the following shareholding structure.

- )] A group of companies holding 50 % of the capital.
- )] Rastriya Banijya Bank holding 15 % of the capital.
- )] Rastriya Bima Sasthan holding 15 % of the capital.
- )] The remaining 20 % being held by the general public (which means that NIBL is a company listed on the Nepal Stock Exchange)

Now this bank is operating under the full ownership of Nepalese promoters and shareholders. Authorized, Issued and Paid up capital of Rs. 1,00,00,00,000.00, Rs. 80,13,52,600.00, Rs. 80,13,52,600.00 respectively. Par value per share was Rs. 100. The bank was listed in the NEPSE at B.S. 2054/12/25. The central office of this organization is in Darbarmarg Kathmandu.

#### 4.1.1.2 Analysis of Total Dividend

**Table 4.1**  
**MPS, Dividend, EPS and P/E Ratio of NIBL**

<b>Fiscal Year</b>	<b>Closing MPS</b>	<b>Cash DPS (Rs.)</b>	<b>Stock Dividend (%)</b>	<b>Total Dividend (Rs.)</b>	<b>EPS</b>	<b>P/E Ratio</b>
2000/01	1150	-	-	-	33.18	34.65
2001/02	760	-	30	238.50	33.59	22.62
2002/03	795	20	-	20	39.56	20.10
2003/04	940	15	-	15	51.70	18.18
2004/05	800	12.5	-	12.5	39.50	20.25
2005/06	1260	20	35.46	633.10	59.35	21.23
2006/07	1729	5	25	617.5	62.57	27.63
2007/08	2450	7.5	33.33	470.12	57.87	42.33
2008/09	1388	20	-	20.00	37.42	37.10

*Data Source: AGM Report of NIBL*

According to table 4.1, NIBL is not paying cash and stock dividend every year. In the year 2005/06, 2006/07 and 2007/08 it is paying both cash and stock dividend. Highest total dividend is paid in the year 2005/06. P/E ratio of NIBL is maximum in the year 2008/09 i.e. 37.10 and minimum in the year 2003/04 i.e. 18.18. The closing MPS of NIBL is maximum of Rs.2450 in the year 2007/08 and minimum of Rs.760 in the year 2001/02.

**Figure 4.1**

**Year and Price movement of the Common Stock of NIBL**

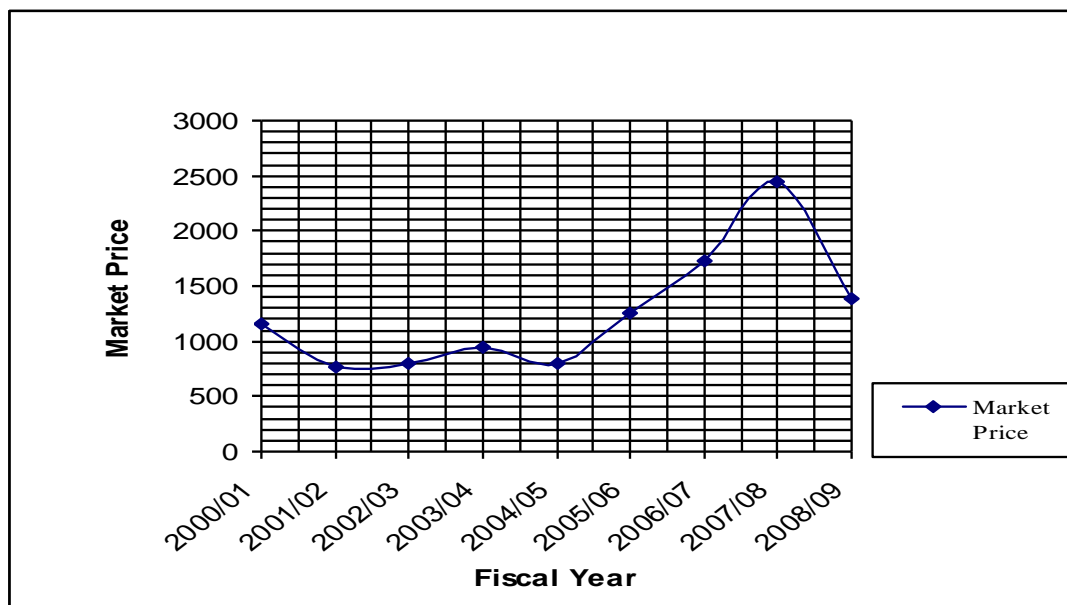


Figure 4.1 shows the trend line of market price in several year of NIBL. It can be seen that there is fluctuation of market price from year 2000/01 to till 2004/05, and the trend line shows the rapid growth after 2004/05 to till 2007/08, and the trend line shows the downward movement of the price in 2008/09. There is minimum price in the year 2001/02 i.e. Rs.760 and maximum in the year 2007/08 i.e. Rs.2450.

**4.1.1.3 Expected Return ( $\bar{R}_j$ ), Standard Deviation ( $\sigma_j$ ) and Coefficient of Variation (C.V.) of C.S. of NIBL**

**Table 4.2**

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

Fiscal Year	Closing MPS	Total Dividend	$R_j = \frac{D_t + P_t - P_{t-1}}{P_{t-1}}$	$(R_j - \bar{R}_j)$	$(R_j - \bar{R}_j)^2$
2000/01	1150	-	-	-	-
2001/02	760	238.50	-0.1317	-0.444	0.1971
2002/03	795	20	0.0724	-0.2399	0.0576
2003/04	940	15	0.2013	-0.111	0.0123
2004/05	800	12.5	-0.1356	-0.4479	0.2006
2005/06	1260	633.10	1.3664	1.0541	1.1111
2006/07	1729	617.5	0.8623	0.55	0.3025
2007/08	2450	470.12	0.6889	0.3766	0.1418
2008/09	1388	20.00	-0.4253	-0.7376	0.5441
			$R_j = 2.4987$		$(R_j - \bar{R}_j)^2 = 2.5671$

Where,

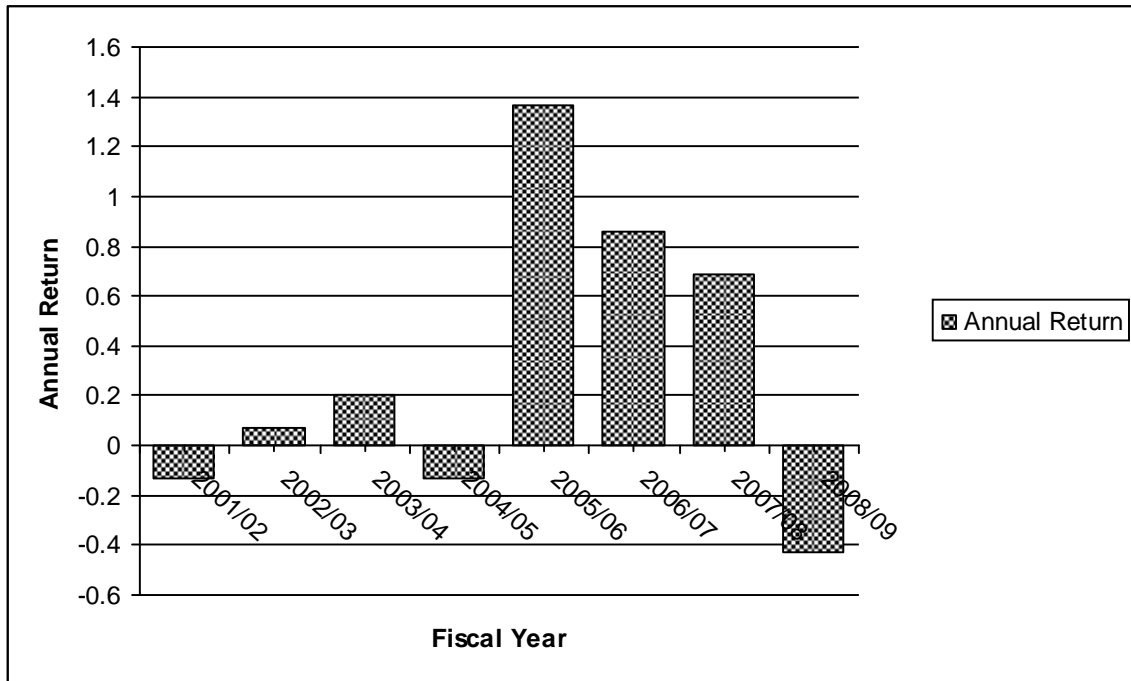
$$\text{Expected Return } (\bar{R}_j) = \frac{\sum R_j}{n} = \frac{2.4987}{8} \times 0.3123$$

$$\text{Standard Deviation } (\sigma_j) = \sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{(n-1)}} \times \sqrt{\frac{2.5671}{8}} \times 0.6056$$

$$\text{Coefficient of Variation (C.V.)} = \frac{\sigma_j}{\bar{R}_j} = \frac{0.6056}{0.3123} \times 1.9392$$

Expected return of NIBL is 0.3123 with the total risk (measured by S.D.) of 0.6056. The C.V. of NIBL is 1.9392 which denotes that to get per unit return 1.9392 risk must be sacrifice. So, higher the C.V. higher will be the risk.

**Figure 4.2**  
**Annual Rate of Return of C.S. of NIBL**



The Figure 4.2 shows that the annual rate of return of C.S. of NIBL in several years. The rate of return is maximum on 2005/06 i.e. 1.3664 which shows highest return profitable while the return is negative in the year 2001/02 and 2004/05 i.e. -0.1317 and -0.1356 respectively.

## **4.1.2 Himalayan Bank Ltd. (HBL)**

### **4.1.2.1 Introduction**

HBL was established in 1993 in joint venture with Habib Bank Limited of Pakistan, with the Bank's main objective to become the bank of first choice. The authorized, Issued and paid of capital is Rs. 1,000,000,000.00, Rs. 810,810,000.00 and Rs. 810,810,000.00 respectively. The par value of per share is Rs. 100.00. The bank was listed in NEPSE in 2050/03/21 (1993 A.D.)

#### 4.1.2.2 Analysis of Total Dividend

**Table 4.3**

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

<b>Fiscal Year</b>	<b>Closing MPS</b>	<b>Cash DPS (Rs.)</b>	<b>Stock Dividend (%)</b>	<b>Total Dividend (Rs.)</b>	<b>EPS</b>	<b>P/E Ratio</b>
2000/01	1500	27.5	30.00	327.50	93.75	16.03
2001/02	1000	25.00	10.00	108.60	60.26	16.59
2002/03	836	1.32	23.68	200.23	49.45	16.91
2003/04	840	0.00	20.00	184.00	49.05	17.12
2004/05	920	11.58	20.00	231.58	47.91	19.20
2005/06	1100	30.00	5.00	117.00	59.24	18.57
2006/07	1740	15.00	25.00	510.00	60.66	28.69
2007/08	1980	25.00	20.00	377.00	62.74	31.56
2008/09	1760	12.00	31.56	474.99	61.90	28.43

*Data Source: AGM Report of HBL*

Table 4.3 shows that, HBL is paying cash and stock dividend every year except 2003/04. Highest total dividend is paid in the year 2006/07 i.e. Rs.510 and lowest is in the year 2001/02 i.e. Rs.108.60. P/E ratio of HBL is maximum in the year 2007/08 i.e. 31.56 and minimum in the year 2000/01 i.e. 16.03. P/E ratio is in increasing trend from starting year 2000/01 to year 2004/05 and decreasing increasing up-to the ending year 2008/09. The closing MPS of HBL is maximum of Rs.1980 in the year 2007/08 and minimum of Rs.836 in the year 2002/03.

**Figure 4.3**  
**Year and Price Movement of C.S. of HBL**

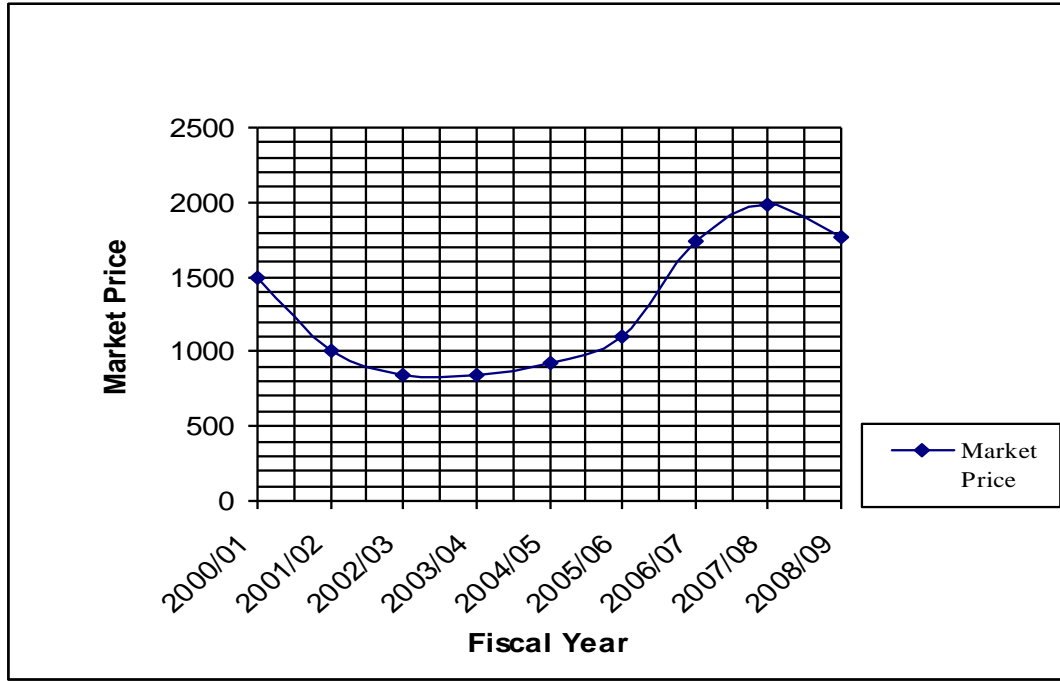


Figure 4.3 shows the trend line of price or MPS of HBL in the fluctuating trend. The minimum is in the year 2002/03 i.e. Rs. 836 and maximum in the year 2007/08 i.e. 1980. It can be seen that there is decreasing from the year 2000/01 and growing slowly from the year 2003/04 and rapid growth from the year 2005/06 to 2007/08 after then decreasing.

**4.1.2.3 Return ( $\bar{R}_j$ ), Standard Deviation ( $\sigma_j$ ) and Coefficient of Variation (C.V.) of C.S. of HBL**

**Table 4.4**  
**Expected Return, S.D. and C.V. of C.S. of HBL**

Fiscal Year	Closing MPS	Total Dividend	$R_j = \frac{D_t + P_t - P_{t-1}}{P_{t-1}}$	$(R_j - \bar{R}_j)$	$(R_j - \bar{R}_j)^2$
2000/01	1500	327.50	-	-	-
2001/02	1000	108.60	-0.2609	-0.5388	0.2903
2002/03	836	200.23	0.0362	-0.2417	0.0584
2003/04	840	184.00	0.2249	-0.0530	0.0028
2004/05	920	231.58	0.3709	0.0930	0.0086
2005/06	1100	117.00	0.3228	0.0449	0.0020
2006/07	1740	510.00	1.0455	0.7676	0.5893
2007/08	1980	377.00	0.3546	0.0767	0.0059
2008/09	1760	474.99	0.1288	-0.1491	0.0222
			<b><math>R_j = 2.2228</math></b>		<b><math>(R_j - \bar{R}_j)^2 = 0.9795</math></b>

Where,

$$\text{Expected Return } (\bar{R}_j) = \frac{\sum R_j}{n} = \frac{2.2228}{8} = 0.2779$$

$$\text{Standard Deviation } (\sigma_j) = \sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{n}} = \sqrt{\frac{0.9795}{8}} = 0.3741$$

$$\text{Coefficient of Variation (C.V.)} = \frac{\sigma_j}{\bar{R}_j} = \frac{0.3741}{0.2779} = 1.3462$$

The expected return of HBL is 0.2779 with the total risk (measured by S.D.) of 0.3741. The C.V. of HBL is 1.3462 which indicates that 1.3462 risks must be bearded to get per unit return. It can be shown clearly in the figure 4.4.

**Figure 4.4**  
**Annual Rate of Return of C.S. of HBL**

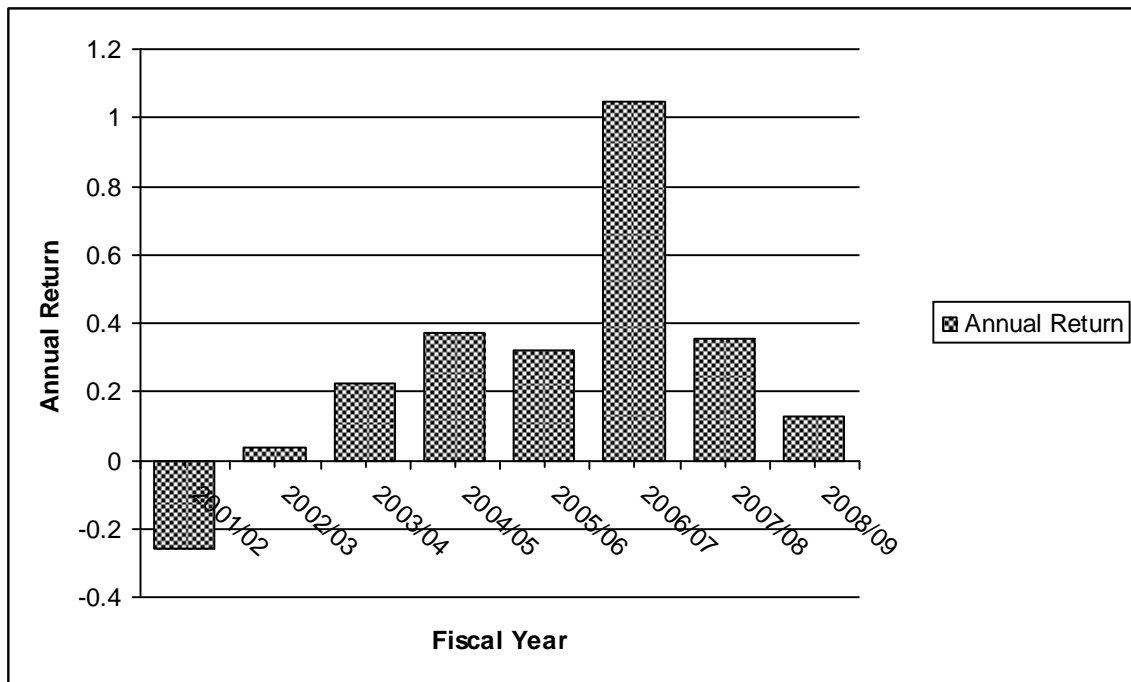


Figure 4.4 shows returns of HBL in the several years. There is negative return only appears in year 2001/02 and positively fluctuating return in several years. The highest return is in the year 2006/07 i.e. 1.0455 and lowest return of 2001/02 i.e. -0.2609.

### **4.1.3 NABIL Bank Ltd.**

#### **4.1.3.1 Introduction**

Nabil Bank Limited, the first foreign joint venture bank of Nepal, started operations in July 1984. Nabil was incorporated with the objective of extending international standard modern banking services to various sectors of the society. Pursuing its objective, Nabil provides a full range of commercial banking services through its 19 points of representation across the kingdom and over 170 reputed correspondent banks across the globe. Nabil, as a pioneer in introducing many innovative products and marketing concepts in the domestic banking sector,



represents a milestone in the banking history of Nepal as it started an era of modern banking with customer satisfaction measured as a focal objective while doing business.

Operations of the bank including day-to-day operations and risk management are managed by highly qualified and experienced management team. Bank is fully equipped with modern technology which includes ATMs, credit cards, state-of-art, world-renowned software from Infosys Technologies System, Bangalore, India, Internet banking system and Telebanking system.

#### 4.1.3.2 Analysis of Total Dividend

**Table 4.5**

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

<b>Fiscal Year</b>	<b>Closing MPS</b>	<b>Cash DPS (Rs.)</b>	<b>Stock Dividend (%)</b>	<b>Total Dividend (Rs.)</b>	<b>EPS</b>	<b>P/E Ratio</b>
2000/01	1500	40	20.11	180.77	59.26	25.31
2001/02	700	30	0	30.00	55.25	12.67
2002/03	740	50	0	50.00	84.66	8.74
2003/04	1000	65	0	65.00	92.61	10.80
2004/05	1505	70	0	70.00	105.49	14.27
2005/06	2240	85	0	85.00	129.21	17.34
2006/07	5050	100	40	2210.00	137.08	36.84
2007/08	5275	60	40	2019.60	108.31	48.70
2008/09	4899	35	50	1417.50	106.76	45.89

*Data Source: AGM Report of NABIL*

According to table 4.5, there is no stock dividend in the year 2001/02,2002/03,2003/04,2004/05 and 2005/06. And it is paying cash dividend in every year from 2000/01 to 2008/09. Highest total dividend is paid in the year 2006/07 i.e. Rs.2210.00 and lowest total dividend is paid in the year 2001/02 i.e.

Rs.30. P/E ratio of NABIL is maximum in the year 2007/08 i.e. 48.70 and minimum in the year 2002/03 i.e. 8.74. P/E ratio is in increasing trend from year 2002/03 to 2007/08 and fluctuating in 2000/01,2001/02 and 2008/09. The closing MPS of NABIL is maximum of Rs.5275 in the year 2007/08 and minimum of Rs.700 in the year 2001/02.

**Figure 4.5**  
**Year and Market Price Movement of the C.S. of NABIL**

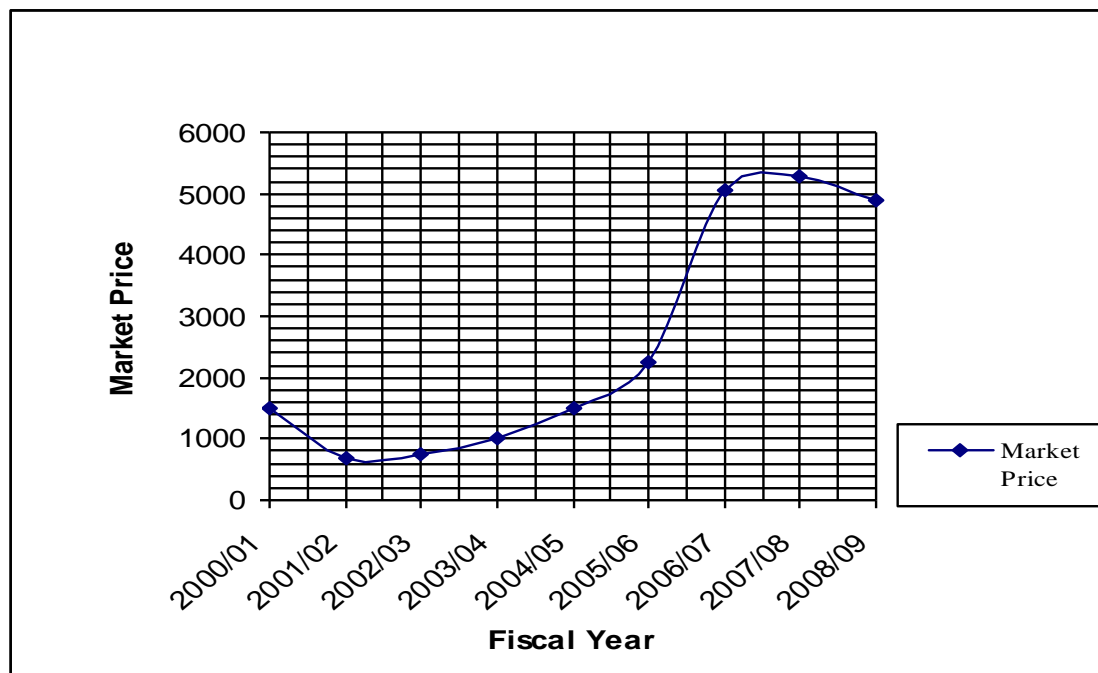


Figure 4.5 shows the trend line of price or MPS of NABIL which is in increasing trend from 2001/02 to 2006/07 after then decreasing. The price is minimum is in the year 2001/02 i.e. Rs.700 and maximum of Rs.5275 in the year 2007/08. It is shown that there is slow growth from year 2001/02 to 2005/06 and rapid growth from 2005/06 to 2007/08. Overall price of the NABIL seems as satisfactory with their growth in the market price.

### 4.1.3.3 Expected Return ( $\bar{R}_j$ ), Standard Deviation ( $\sigma_j$ ) and Coefficient of Variation (C.V.) of C.S. of NABIL

**Table 4.6**  
**Expected Return, S.D. and C.V. of C.S. of NABIL**

Fiscal Year	Closing MPS	Total Dividend	$R_j = \frac{D_t + P_t - P_{t-1}}{P_{t-1}}$	$(R_j - \bar{R}_j)$	$(R_j - \bar{R}_j)^2$
2000/01	1500	180.77	-	-	-
2001/02	700	30.00	-0.5133	-1.0205	1.0414
2002/03	740	50.00	0.1286	-0.3786	0.1433
2003/04	1000	65.00	0.4392	-0.068	0.0046
2004/05	1505	70.00	0.5750	0.0678	0.0046
2005/06	2240	85.00	0.5449	0.0377	0.0014
2006/07	5050	2210.00	2.2411	1.7339	3.0064
2007/08	5275	2019.60	0.4445	-0.0627	0.0039
2008/09	4899	1417.50	0.1974	-0.3098	0.0960
			<b><math>R_j = 4.0573</math></b>		<b><math>(R_j - \bar{R}_j)^2 = 4.3016</math></b>

Where,

$$\text{Expected Return } (\bar{R}_j) = \frac{R_j}{n} = \frac{4.0573}{8} = 0.5072$$

$$\text{Standard Deviation } (\sigma_j) = \sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{(n-1)}} = \sqrt{\frac{4.3016}{8}} = 0.7839$$

$$\text{Coefficient of Variation (C.V.)} = \frac{\sigma_j}{R_j} = \frac{0.7839}{0.5072} = 1.5455$$

The expected return of NABIL is 0.5072 with total risk (measured by S.D.) of 0.7839. The C.V. of NABIL is 1.5455 which indicates the investor needs to sacrifice 1.5455 unit of risk for per unit return.

**Figure 4.6**  
**Annual Return of C.S. of NABIL**

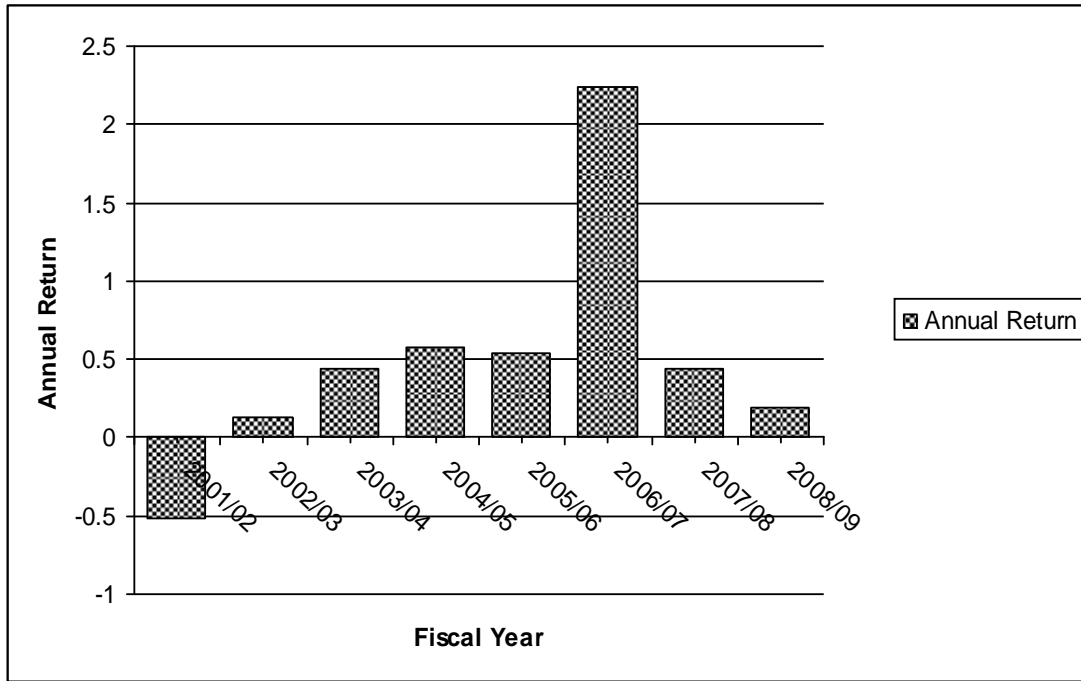


Figure 4.6 shows the return of NABIL which is negative in the year 2001/02 and positive in following years. There is highest return of 2.2411 in the year 2006/07 and lowest return of -0.5133 in the year 2001/02. There is fluctuation of returns.

#### **4.2 Inter Bank Comparison**

According to the result from analysis part, a comparative analysis of return, total risk and risk per unit performed here. Expected return, standard deviation of return and coefficient of variation of each bank for the year 2001/02 to 2008/09 are given in the table 4.7.

**Table 4.7**

**Expected Return, S.D. and C. V. of each Bank**

Bank	Expected Return ( $\bar{R}_j$ )	Standard Deviation( $\sigma$ )	Coefficient of Variation (C.V.)	Remarks		
				Return	Risk	C.V.
NIBL	0.3123	0.6056	1.9392	-	-	Highest
HBL	0.2779	0.3741	1.3462	Lowest	Lowest	Lowest
NABIL	0.5072	0.7839	1.5455	Highest	Highest	-

*Source: Table 4.2, table 4.4 and table 4.6*

The table 4.7 shows the overall return and risk of the individual banks. Here, the investor can get the highest return from NABIL i.e. 0.5072 and lowest return from HBL i.e. 0.2779. Total risk (measured by standard deviation) is observed maximum of the C.S. of NABIL i.e. 0.7893 and minimum of HBL i.e. 0.3741. This means that quantitative of total risk is very high in NABIL. Higher the C.V. higher the risk and C.V. of NIBL is highest i.e. 1.9392 than that of other commercial banks. So common stock of NIBL is more risky than that of other banks. Investment in NABIL is desirable because its return is higher and risk is also higher compared to others. Risk Averse Investor should choose HBL CS because HBL has lower risk and lower return.

To make the comparison easily understandable Figure 4.7 is presented below.

**Figure 4.7**

**Expected Return, S.D. and C.V. of each Commercial Banks**

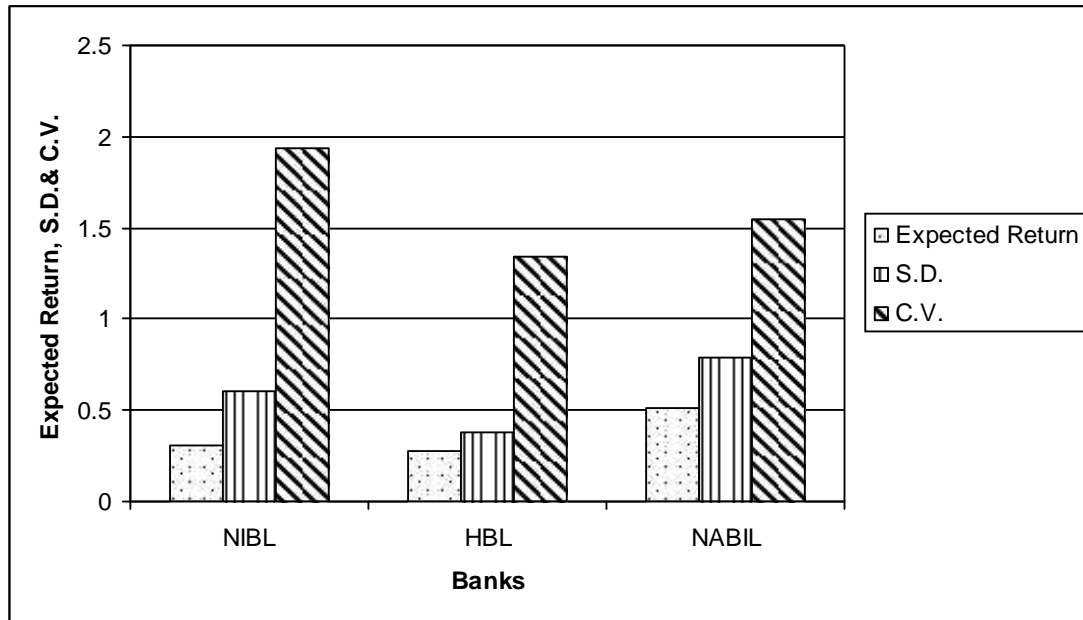


Figure 4.7 clarify the expected return, standard deviation and coefficient of variation of each individual bank. It is showing the comparison of these banks in terms of risk and return.

**4.3 Market Capitalization**

On the basis of Market Capitalization at the end of 2008/09, size of each bank is presented in table 4.8 that NABIL has highest market capitalization with Rs.33675.38 million and NIBL has lowest market capitalization with Rs.13916.56 million among these three companies at 2008/09. So, NABIL is the biggest and NIBL is the smallest company on the basis of market capitalization. The figure 4.8 shows that the comparative proportion of the market capitalization of listed three banks.

**Table 4.8**

**Market Capitalization of listed Banks at July 16, 2008 to July 15, 2009**

Bank	Market capitalization ( Rs . in million)	Percentage
NIBL	13916.56	22.496
HBL	14270.26	23.068
NABIL	33675.38	54.436
Total	61862.2	100.00

Source: company wise yearly transaction Report (2008 July-2009 July)SEBON

Comparative proportion of market capitalization of listed three commercial banks is shown in given figure 4.8

**Figure 4.8**

**Comparative Proportion of Market Capitalization of Listed Commercial Banks**

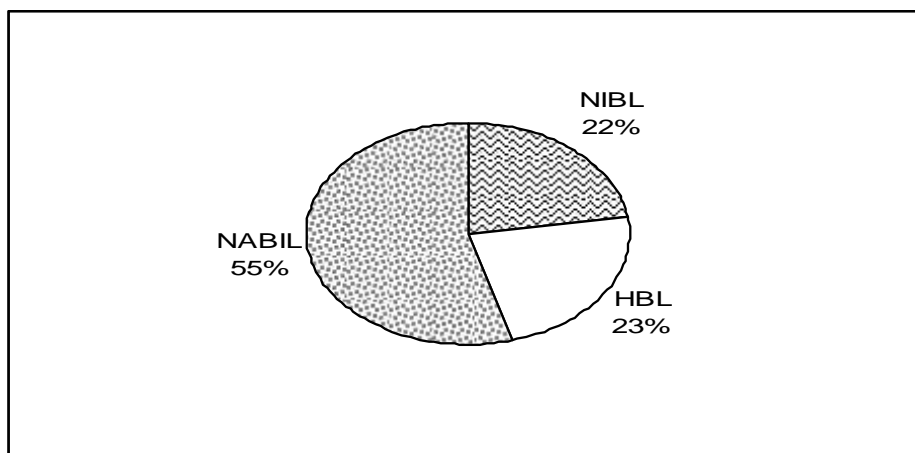


Figure 4.8 shows the share of each bank in the market. NABIL is in the highest position by occupying 54.436% share in the market and NIBL is in the lowest position by occupying 22.496% of share in the market among others.

#### 4.4 Comparison with Market

##### 4.4.1 Market Risk and Return Analysis

Nepal Stock Exchange Ltd. (NEPSE) is only stock market in Nepal. Overall market movement is represented by market index (i.e. NEPSE Index). The NEPSE index is adjusted and changed continuously. The given Market Index is taken from annual summary of NEPSE. With this NEPSE base market portfolio return its standard deviation and coefficient of variation is presented below :

**Table 4.9**  
**Calculation of Return, S.D. and C.V. of Overall Market**

Fiscal Year	Market Index	$R_m = \frac{NI_t - NI_{t-1}}{NI_{t-1}}$	$(R_m - \bar{R}_m)$	$(R_m - \bar{R}_m)^2$
2000/01	348.43	-	-	-
2001/02	227.54	-0.3470	-0.5009	0.25090081
2002/03	205.46	-0.0970	-0.2509	0.06295081
2003/04	222.04	0.0807	-0.0732	0.00535824
2004/05	286.67	0.2911	0.1372	0.01882384
2005/06	386.83	0.3494	0.1955	0.03822025
2006/07	683.95	0.7681	0.6142	0.37724164
2007/08	963.36	0.4085	0.2546	0.06482116
2008/09	749.10	-0.2224	-0.3763	0.14160169
		$R_m = 1.2314$		$(R_m - \bar{R}_m)^2 = 0.9599$

Where,

$$\text{Expected Return} = \bar{R}_m = \frac{R_m}{n} = \frac{1.2314}{8} = 0.1539$$

$$\text{Standard Deviation} = \sigma_m = \sqrt{\frac{(R_m - \bar{R}_m)^2}{(n-1)}} = \sqrt{\frac{0.9599}{8-1}} = 0.3703$$

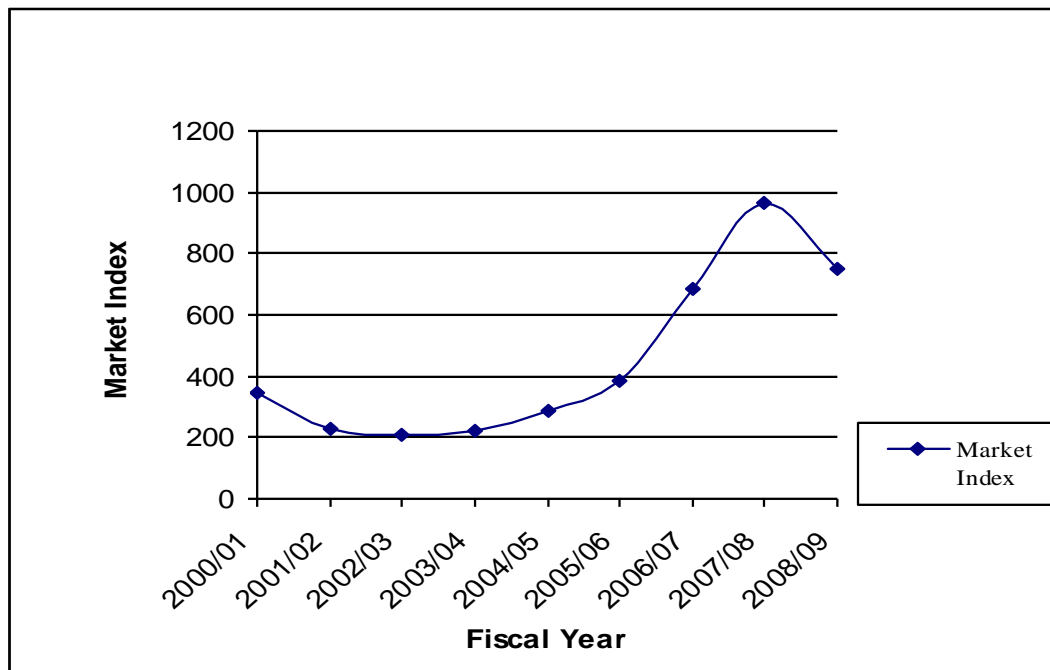


$$\text{Coefficient of Variation (CV.)} = \frac{\sigma_m}{R_m} = \frac{0.3703}{0.1539} = 2.4061$$

Table 4.9 shows the return of market in several years. There is highest return of market in the year 2006/07 i.e. 0.7681 and there is negative return of market in the year 2001/02, 2002/03 and 2008/09 i.e. -0.3470, -0.0970 and -0.2224 respectively.

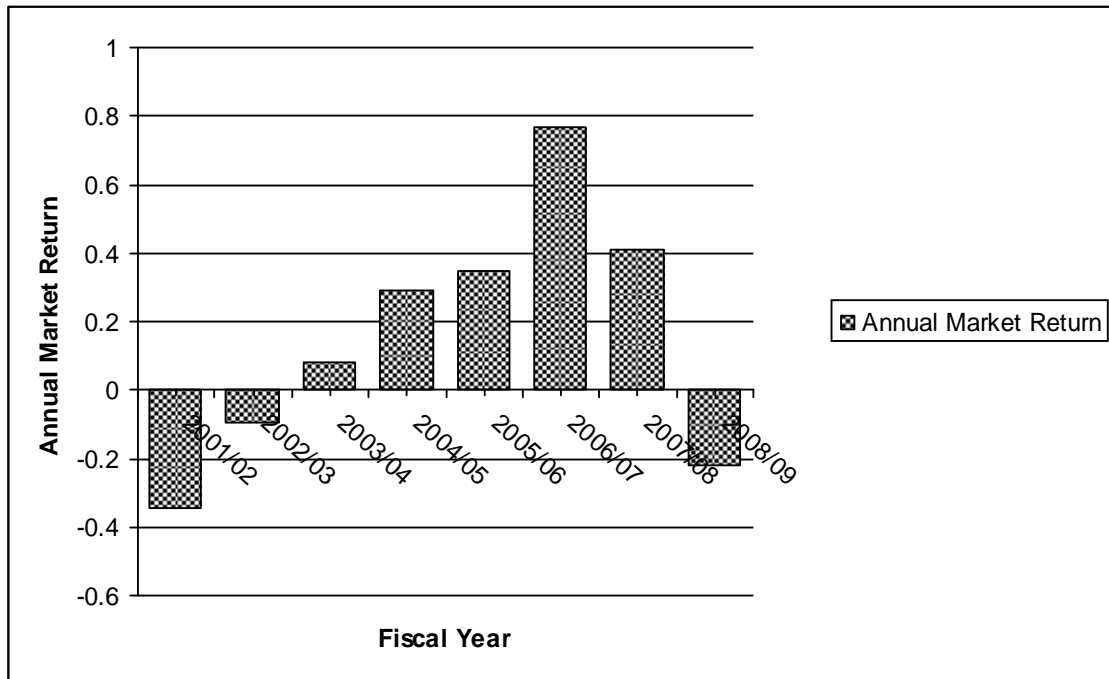
The expected return of the market is 0.1539 with the total risk (measured by S.D.) of 0.3703. C.V of market is 2.4061 which means, 2.4061 risks must be sacrificed to get per unit market return.

**Figure 4.9**  
**NEPSE Index Movement**



The figure 4.9 shows that the movement of NEPSE Index. It is in decreasing trend from the fiscal year 2000/01 to 2002/03 and increasing trend from 2002/03 to 2007/08 after then decreasing trend. The minimum market index is 205.46 in the year 2002/03 and maximum index is 963.36 in the year 2007/08.

**Figure 4.10**  
**Market Return Movement**



From figure 4.10 shows that the market return is negative in year 2001/02 and 2002/03 and there is positive return with increasing trend starting from 2003/04 to 2007/08. Market return is negative in year 2008/09 also.

#### **4.4.2 Market Sensitivity Analysis**

Market sensitivity of stock is explained by terms of beta coefficient. Beta coefficient can be use for an ordinal ranking of the systematic 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 the risk beta coefficient of systematic risk, which eliminated through the means of diversification.

**Table 4.10**

**Beta coefficient of C.S. of NIBL**

Fiscal Year	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)(R_j - \bar{R}_j)$
2001/02	-0.5009	-0.444	0.2224
2002/03	-0.2509	-0.2399	0.0602
2003/04	-0.0732	-0.111	0.0081
2004/05	0.1372	-0.4479	-0.0615
2005/06	0.1955	1.0541	0.2061
2006/07	0.6142	0.55	0.3378
2007/08	0.2546	0.3766	0.0959
2008/09	-0.3763	-0.7376	0.2776
			$((R_m Z \bar{R}_m) (R_j Z \bar{R}_j)) \times 1.1466$

We have,

$$\text{Cov}(R_m, R_j) = \frac{((R_m Z \bar{R}_m) (R_j Z \bar{R}_j))}{n Z 1} \times \frac{1.1466}{8 Z 1} \times 0.1638$$

Again,

$$\beta_m = \frac{\text{Cov}(R_m, R_j)}{\sigma_m^2} \times \frac{0.1638}{(0.3703)^2} \times 1.1946$$

Where,

- n = number of observation
- $\sigma_m^2$  = Variance of market
- $R_j$  = Return of Sock of NIBL
- $R_m$  = Return of Market

From sensitivity analysis of NIBL, the beta coefficient is 1.1946, which is more than 1, shows that NIBL is very much volatile and aggressive Investor can purchase this type of investment. From the side of investment, it is risky investment.

**Table 4.11**

**Beta Coefficient of the C.S. of HBL**

Fiscal Year	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)(R_j - \bar{R}_j)$
2001/02	-0.5009	-0.5388	0.2699
2002/03	-0.2509	-0.2417	0.0606
2003/04	-0.0732	-0.0530	0.0039
2004/05	0.1372	0.0930	0.0128
2005/06	0.1955	0.0449	0.0088
2006/07	0.6142	0.7676	0.4715
2007/08	0.2546	0.0767	0.0195
2008/09	-0.3763	-0.1491	0.0561
			$((R_m Z \bar{R}_m) (R_j Z \bar{R}_j)) \times 0.903$

We have,

$$\text{Cov}(R_m, R_j) = \frac{((R_m Z \bar{R}_m) (R_j Z \bar{R}_j))}{n Z 1} \times \frac{0.903}{8 Z 1} \times 0.1290$$

Again,

$$\beta_m = \frac{\text{Cov}(R_m, R_j)}{\sigma_m^2} \times \frac{0.1290}{(0.3703)^2} \times 0.9408$$

Where,

- n = number of observation
- $\sigma_m^2$  = Variance of market
- $R_j$  = Return of Sock of HBL

From sensitivity analysis of HBL, the beta coefficient is 0.9408 which is less than 1. This shows that HBL CS is less volatile and risk averter can purchase this type of investment. From the side of investment, it is less risky investment.

**Table 4.12**  
**Beta Coefficient of the C.S. of NABIL**

Fiscal Year	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)(R_j - \bar{R}_j)$
2001/02	-0.5009	-1.0205	0.5112
2002/03	-0.2509	-0.3786	0.095
2003/04	-0.0732	-0.068	0.005
2004/05	0.1372	0.0678	0.0093
2005/06	0.1955	0.0377	0.0074
2006/07	0.6142	1.7339	1.065
2007/08	0.2546	-0.0627	-0.016
2008/09	-0.3763	-0.3098	0.1166
			$((R_m - \bar{R}_m) (R_j - \bar{R}_j)) \times 1.7934$

We have,

$$\text{Cov}(R_m, R_j) = \frac{((R_m - \bar{R}_m)(R_j - \bar{R}_j))}{n - 1} \times \frac{1.7934}{8} = 0.2562$$

Again,

$$\beta_m = \frac{\text{Cov}(R_m, R_j)}{\sigma_m^2} \times \frac{0.2562}{(0.3703)^2} = 1.8684$$

Where,

- n = number of observation
- $\sigma_m^2$  = Variance of Market
- $R_j$  = Return of Sock of NABIL

From sensitivity analysis of NABIL, the beta coefficient is 1.8684, which is more than 1, shows that NABIL CS is very much volatile and aggressive Investor can purchase this type of investment. From the side of investment, it is risky investment.

**Table 4.13**  
**Beta Coefficient of each Bank**

<b>Banks</b>	<b>Beta Coefficient</b>	<b>Remarks</b>
NIBL	1.1946	-
HBL	0.9408	Least Aggressive
NABIL	1.8684	Most Aggressive

*Source: Table 4.10, 4.11 and 4.12*

Here, as shown in the table 4.13, NIBL and NABIL have higher beta coefficient than the beta coefficient of market. The stock of these banks is aggressive and HBL has lower beta coefficient than market so it is a defensive stock. The stock of NABIL seems most aggressive than other stocks where as HBL seems least aggressive.

#### **4.4.3 Required Rate of Return $[E(R_j)]$ , Expected Rate of Return $(\bar{R}_j)$ and Price Evaluation Analysis**

CAPM is model that assumes stock's required rate of return is equal to the risk free rate plus its risk premium where risk is measured by the Beta Coefficient. Beta Coefficient plays a vital role in CAPM approach. If the required rate of return is greater than expected rate of return; the stock is said to be over priced and investors tend to sell this type of stock. For this analysis the risk free rate of return is needed which is taken from the interest rate of Treasury bill issued by NRB. NRB issued Treasury bill 91 days duration as on 4 Jan 2010 (i.e. Kantipur daily 6

Jan 2010) has Treasury bill rate 9.68% which is taken as a risk free rate of return . Hence Risk free rate of return is approximately 9.68%.

**Table 4.14**

**Required Rate of Return, Expected Return and Price Evaluation**

<b>Banks</b>	$R_f$	$E(R_m)$	<b>Beta</b> $(\beta_j)$	$R(R_j) X$ $R_f \Gamma E(R_m) Z R_f ' S_j$	$(\bar{R}_j)$	<b>Price</b> <b>Evaluation</b>
NIBL	0.0968	0.1539	1.1946	0.1650	0.3123	Under Priced
HBL	0.0968	0.1539	0.9408	0.1505	0.2779	Under Priced
NABIL	0.0968	0.1539	1.8684	0.2035	0.5072	Under Priced

Where,

- $R_f$  = Risk free rate of return (0.0513)
- $E(R_m)$  = Market rate of return (0.1539)
- $\beta_j$  = Beta of individual sample Banks.
- $(\bar{R}_j)$  = Expected rate of return
- $R(R_j)$  = Required rate of return

In the table 4.14, we get the expected rate of return is higher than the required rate of return, so all commercial banks stock are under priced. It shows that all the banks have stock with good investment opportunity and all the stocks in the demand. Their stock's value will be increased in the near future providing the investors higher return. Since all the stocks are under priced, investor can gain profit from buying those stocks. These stocks are recommended to buy.

## 4.5 Portfolio Analysis

A portfolio is a combination of investment assets. Portfolio theory was proposed by Harry M. Markowitz which gives the concept of diversification of risk by investing total funds in more than a single asset or single stock. Markowitz diversification helps the investor to attain a higher level or expected utility than with any other risk reduction technique. In a very simple way we can understand it as not keeping all the eggs in a single basket. The risk of individual securities can be reduced without losing considerable return. The main objective of portfolio is reduction of unsystematic risk from which investors can take more benefit by making efficient portfolio. Therefore a brief analysis of risk and return is extended in portfolio context. The portfolio expected return is straight forward weighted average of return on the individual securities. The weight is equal to the proportions of the total fund invested in each security (the weight must sum to 100%).

### 4.5.1 Analysis or Risk Diversification

The analysis is based on two assets portfolio and the tools for analysis are presented in the third chapter (research methodology). Here the portfolio of common stock of NIBL (say stock A), HBL (say stock B) and NABIL (say stock C) is analyzed.

#### Covariance between Stocks

$COV(R_A, R_B)$	0.1243
$COV(R_B, R_C)$	0.2893
$COV(R_A, R_C)$	0.2456

*Source: Appendix IV, V, VI*



Where,

- COV ( $R_A, R_B$ ) = Covariance returns of NIBL and HBL
- COV ( $R_B, R_C$ ) = Covariance returns of HBL and NABIL
- COV ( $R_A, R_C$ ) = Covariance returns of NIBL and NABIL

Banks	S.D. of Stocks	Expected Return of Stocks
NIBL	$\sigma_A = 0.6056$	$E(R_A) = 0.3123$
HBL	$\sigma_B = 0.3741$	$E(R_B) = 0.2779$
NABIL	$\sigma_C = 0.7839$	$E(R_C) = 0.5072$

Source: Table 4.7

#### 4.5.1.1 Portfolio of stock NIBL (A) and HBL (B)

The optimal portfolio weight of stock A and B, which minimizes the risk, is given below:

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

$$W_B = 1 - W_A$$

Where,

- $W_A$  = optimal weight to invest in stock of NIBL
- $W_B$  = optimal weight to invest in stock of HBL
- $\sigma_A^2$  = variance of NIBL
- $\sigma_B^2$  = Variance of HBL

Now,

$$W_A = \frac{0.3741^2 \times 0.1243}{0.6056^2 \times 0.3741^2 + 2 \times 0.1243 \times 0.3741 + 0.0606^2} \times 0.0606$$

$$W_B = 1 - W_A = 0.0606 \times 0.9394$$

As we know that the proportion of stock in the portfolio is constructed with 6.06% of NIBL and 93.94% of HBL common stock that will minimize risk and ideal proportion. In above proportion, equity shareholder can minimize risk to get maximum return.

### Portfolio Return

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

$$\begin{aligned} \text{Expected Return on portfolio } E(R_p) &= W_A \times E(R_A) + W_B \times E(R_B) \\ &= 0.0606 \times 0.3123 + 0.9394 \times 0.2779 \\ &= 0.2800 \\ &= 28\% \end{aligned}$$

Where,

- $E(R_p)$  = Expected Return on Portfolio of stock NIBL and HBL
- $E(R_A)$  = Expected Return of NIBL
- $E(R_B)$  = Expected Return of HBL

### Portfolio Risk

Portfolio risk is a function of the proportions invested in the common stocks. It is measured by standard deviation and calculated by using following formula.

$$\sigma_p = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B \text{COV}_{AB}}$$

$$\begin{aligned} & \sqrt{(0.0606^2 + 0.6056^2 \Gamma 0.9394^2 + 0.3741^2 \Gamma 2 + 0.1243 + 0.0606 + 0.9394)} \\ & \sqrt{0.1390} \\ & = 0.3728 \\ & = 37.28 \% \end{aligned}$$

Where,

$\sigma_p$  = The standard deviation of portfolio return of stock NIBL and HBL

From the above calculation the portfolio return and risk for NIBL and HBL are 28 % and 37.28 % respectively.

#### 4.5.1.2 Portfolio of Stock HBL (B) and NABIL (C)

The optimal portfolio weight of stock B and C, which minimized the risk, is given below.

$$W_B = \frac{\sigma_C^2 \text{COV}(R_B, R_C)}{\sigma_B^2 \Gamma \sigma_C^2 \text{COV}(R_B, R_C)}$$

$$W_C = 1 - W_B$$

Where,

- $W_B$  = optimal weight to invest in stock of HBL
- $W_C$  = optimal weight to invest in stock of NABIL
- $\sigma_B^2$  = variance of HBL
- $\sigma_C^2$  = Variance of NABIL

Now,

$$W_B = \frac{0.7839^2 \times 0.2893}{0.3741^2 \Gamma 0.7839^2 \times 2 + 0.2893} = 1.8493$$

$$W_C = 1 - W_B = 1 - 1.8493 = -0.8493$$

As we know that the proportion of stock in the portfolio is constructed with 184.93% of HBL and -84.93% of NABIL common stock that will minimize risk and ideal proportion. The Negative Weight represent that NABIL Stock borrow and Short sell In above proportion, equity shareholder can minimize risk to get maximum return.

### Portfolio Return

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

$$\begin{aligned} \text{Expected Return on portfolio } E(R_p) &= W_B \times E(R_B) + W_C \times E(R_C) \\ &= 1.8493 \times 0.2779 + (-0.8493) \times 0.5072 \\ &= 0.0832 \\ &= 8.32\% \end{aligned}$$

Where,

- $E(R_p)$  = Expected Return on Portfolio of stock HBL and NABIL
- $E(R_B)$  = Expected Return of HBL
- $E(R_C)$  = Expected Return of NABIL

### Portfolio Risk

Portfolio risk is a function of the proportions invested in the common stocks. It is measured by standard deviation and calculated by using following formula.

$$\begin{aligned} \sigma_p &= \sqrt{W_B^2 \sigma_B^2 + W_C^2 \sigma_C^2 + 2W_B W_C \text{COV}_{BC}} \\ &= \sqrt{(1.8493)^2 (0.374)^2 + (-0.8493)^2 (0.7839)^2 + 2(1.8493)(-0.8493)(0.2893)} \\ &= \sqrt{0.013109} \\ &= 0.1145 \end{aligned}$$

= 11.45 %

Where,

$\sigma_p$  = The standard deviation of portfolio return of stock HBL and NABIL

From the above calculation the portfolio return and risk for HBL and NABIL are 8.32 % and 11.45 % respectively.

#### 4.5.1.3 Portfolio of Stocks NIBL (A) and NABIL (C)

The optimal portfolio weight of stock A and C, which minimizes the risk, is given below

$$W_A = \frac{\sigma_C^2 \text{COV}(R_A, R_C)}{\sigma_A^2 \sigma_C^2 + \text{COV}(R_A, R_C)}$$

$$W_C = 1 - W_A$$

Where,

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

$W_C$  = optimal weight to invest in stock of NABIL

$\sigma_A^2$  = variance of NIBL

$\sigma_C^2$  = Variance of NABIL

Now,

$$W_A = \frac{0.7839^2 \times 0.2456}{0.6056^2 + 0.7839^2 + 2 \times 0.2456} = 0.7528$$

$$W_C = 1 - W_A = 1 - 0.7528 = 0.2472$$

As we know that the proportion of stock in the portfolio is constructed with 75.28% of NIBL and 24.72% of NABIL common stock that will minimize risk

and ideal proportion. In above proportion, equity shareholder can minimize risk to get maximum return.

### Portfolio Return

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

$$\begin{aligned} \text{Expected Return on portfolio } E(R_p) &= W_A \times E(R_A) + W_C \times E(R_C) \\ &= 0.7528 \times 0.3123 + 0.2472 \times 0.5072 \\ &= 0.3605 \\ &= 36.05\% \end{aligned}$$

Where,

- $E(R_p)$  = Expected Return on Portfolio of stock NIBL and NABIL
- $E(R_A)$  = Expected Return of NIBL
- $E(R_C)$  = Expected Return of NABIL

### Portfolio Risk

Portfolio risk is a function of the proportions invested in the common stocks. It is measured by standard deviation and calculated by using following formula.

$$\begin{aligned} \sigma_p &= \sqrt{W_A^2 \sigma_A^2 + W_C^2 \sigma_C^2 + 2W_A W_C \text{COV}_{AC}} \\ &= \sqrt{(0.7528^2 \times 0.6056^2 + 0.2472^2 \times 0.7839^2 + 2 \times 0.2456 \times 0.7528 \times 0.2472)} \\ &= \sqrt{0.3368} \\ &= 0.5803 \\ &= 58.03\% \end{aligned}$$

Where,

$\sigma_p$  = The standard deviation of portfolio return of stock NIBL and NABIL

From the above calculation the portfolio return and risk for NIBL and NABIL are 36.05 % and 58.03 % respectively.

**Table 4.15**  
**Portfolio Risk and Return**

Banks	E(R <sub>p</sub> )	$\sigma_p$	Remarks	
			Return	Risk
NIBL and HBL	28%	37.28%	-	-
HBL and NABIL	8.32%	11.45%	Lower	Lower
NIBL and NABIL	36.05%	58.03%	Higher	Higher

#### 4.6 Correlation between Banks

Two variables are correlated when they are related that the change in the value of one variable is accompanied by change in the value of other. Correlation may be positive or negative. If return on two securities is positively correlated then risk cannot be reduced.

Correlation coefficient measures the relationship between two variables in quantitative terms. Correlation coefficient indicated that the return from two securities generally move in the same direction and vice versa.

Table 4.16 shows presented below shown the various consolations between each sample banks.

**Table 4.16**  
**Correlation Matrix**

<b>Sample</b>	<b>NIBL</b>	<b>HBL</b>	<b>NABIL</b>
NIBL	1	0.5487	0.5173
HBL	0.5487	1	0.9865
NABIL	0.5173	0.9865	1

*Source: Appendix IV, V and VI*

Since, table 4.16 (correlation matrix) has shown the positive correlation between the banks. If correlation between stocks is +1, any part of risk cannot be reduced by diversification. On the other hand, if correlation between stocks is -1 the proper combination of two stocks can be reduces all the risk. In conclusion it can be say that as long as correlation between securities return is negative, construction of portfolio is beneficial.

Among the above correlation combination, combination between NIBL and NABIL is much better than any other combination because the combination has the lowest correlation.

#### **4.7 Systematic and Unsystematic Risk**

##### **4.7.1 Systematic Risk**

This is a part of total risk and cannot be diversified through creation of portfolio. This risk creates from systematic factor or market factor or macro economic factor like inflation, GDP, interest etc. Systematic risk can be expressed in formula as:

$$SR = \frac{COV (R_j, R_m)}{\sigma_m^2}$$

Where,

SR = Systematic Risk



$COV(R_j, R_m)$  = Covariance returns of stock with market

$\sigma_m$  = S. D. of market

#### 4.7.2 Unsystematic Risk

This is diversifiable risk and can be diversified through creation of portfolio. This risk creates from micro economic factor or unique factor to a firm like management efficiency, strikes and production policy etc.

USR = Total Risk - SR

$$= \sum_j \sigma_j^2 ZSR$$

Where,

USR = Unsystematic Risk

SR = Systematic Risk

$\sigma_j$  = S.D. of stock of sample bank

#### 4.7.3 Systematic and Unsystematic Risk of NIBL with Market

$$SR = \frac{COV(R_j, R_m)}{\sigma_m} \times \frac{0.1638}{0.3703} \times 0.4423^2 \times 0.1957$$

$$USR = \sum_j \sigma_j^2 ZSR = 0.6056^2 \times 0.1957 \times 0.1711$$

Note:  $COV(R_j, R_m)$ ,  $\sigma_m$ ,  $\sigma_j$  are taken from table 4.10, 4.9 and 4.2 respectively.

Where,

$COV(R_j, R_m)$  = Covariance returns of NIBL with market

$\sigma_j$  = S.D. of NIBL

#### 4.7.3.1 Proportion of Systematic and Unsystematic Risk

Proportion Of SR =

$$\frac{SR}{TR} \times \frac{b_j^2 \sigma_m^2}{\sigma_j^2} \times \frac{1.1946^2 \times 0.3703^2}{0.6056^2} \times 0.5336$$

$$OR, \quad \frac{SR}{TR} \times \frac{0.1957}{0.6056^2} \times 0.5336$$

$$\text{Proportion of USR} = \frac{USR}{TR} \times \frac{0.1711}{\sigma_j^2} \times \frac{0.1711}{0.6056^2} \times 0.4664$$

Out of total risk in stock of NIBL; 53.36 % is un-diversifiable risk and created from systematic factor or market factor and the remaining 46.64% is diversifiable risk and created from company related factor.

#### 4.7.4 Systematic and Unsystematic Risk of HBL with Market

$$SR \times \frac{COV(R_j, R_m)}{\sigma_m} \times \frac{0.1290}{0.3703} \times 0.3484^2 \times 0.12136$$

$$USR \times \sigma_j^2 \times SR \times 0.3741^2 \times 0.12136 \times 0.01859$$

Note:  $COV(R_j, R_m)$ ,  $\sigma_m$ ,  $\sigma_j$  are taken from table 4.11, 4.9 and 4.4 respectively.

Where,

$COV(R_j, R_m)$  = Covariance returns of HBL with market

$\sigma_j$  = S.D. of HBL

#### 4.7.4.1 Proportion of Systematic and Unsystematic Risk

Proportion of SR =

$$\frac{SR}{TR} \times \frac{b_j^2 \sigma_m^2}{\sigma_j^2} \times \frac{0.9408^2 \times 0.3703^2}{0.3741^2} \times 0.8672$$

$$OR, \quad \times \frac{SR}{\sigma_j^2} \times \frac{0.12136}{0.3741^2} \times 0.8672$$

$$\text{Proportion of USR} = \frac{USR}{TR} \times \frac{0.01859}{\sigma_j^2} \times \frac{0.01859}{0.3741^2} \times 0.1328$$

Out of total risk in stock of HBL; 86.72% is undiversifiable risk and created from systematic factor or market factor and the remaining 13.28% is diversifiable risk and created from company related factor.

#### 4.7.5 Systematic and Unsystematic Risk of NABIL with Market

$$SR \times \frac{COV(R_j, R_m)}{\sigma_m} \times \frac{0.2562}{0.3703} \times 0.6919^2 \times 0.4787$$

$$USR \times \sigma_j^2 \times SR \times 0.7839^2 \times 0.4787 \times 0.1358$$

Note:  $COV(R_j, R_m)$ ,  $\sigma_m$ ,  $\sigma_j$  are taken from table 4.12, 4.9 and 4.6 respectively.

Where,

$COV(R_j, R_m)$  = Covariance returns of NABIL with market

$\sigma_j$  = S.D. of NABIL

#### 4.7.5.1 Proportion of Systematic and Unsystematic Risk

Proportion of SR =

$$\frac{SR}{TR} \times \frac{b_j^2 + \sigma_m^2}{\sigma_j^2} \times \frac{1.8684^2 + 0.3703^2}{0.7839^2} \times 0.7790$$

$$OR, \quad \times \frac{SR}{\sigma_j^2} \times \frac{0.4787}{0.7839^2} \times 0.7790$$

$$\text{Proportion of USR} = \frac{USR}{TR} \times \frac{0.1358}{\sigma_j^2} \times \frac{0.1358}{0.7839^2} \times 0.2210$$

Out of total risk in stock of NABIL; 77.90% is undiversifiable risk and created from systematic factor or market factor and the remaining 22.10% is diversifiable risk and created from company related factor.

**Table 4.17**

**Proportion of SR and USR**

<b>Bank</b>	<b>SR</b>	<b>USR</b>
NIBL	53.36%	46.64%
HBL	86.72%	13.28%
NABIL	77.90%	22.10%

## 4.8 Testing of Hypothesis

### Hypothesis I $\bar{R}_j \neq \bar{R}_m$ Return Hypothesis Test

The hypothesis is based on the test of significance for difference of mean (t-test).

For this expected return of selected banks are calculated in following table.

#### 4.8.1 Testing of Hypothesis Expected Return of NIBL with overall Market

##### Return

##### For NIBL Bank

Sample size ( $n_1$ ) = 8 years

Expected Return ( $\bar{R}_j$ ) = 0.3123

Standard Deviation ( $s_1$ ) = 0.6056

##### For Market

$n_2$  = 8 years

$\bar{R}_m$  = 0.1539

$s_2$  = 0.3703

##### Null Hypothesis ( $H_0$ )

$\bar{R}_j = \bar{R}_m$ , i.e. there is no significance difference between the Expected return of NIBL and overall market return.

##### Alternative Hypothesis ( $H_1$ )

$\bar{R}_j \neq \bar{R}_m$ , i.e. there is significance difference between the Expected return of NIBL and overall market return.

The test statistics (t) is

$$t = \frac{\bar{R}_j - \bar{R}_m}{\sqrt{S^2 \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Where,

$\bar{R}_j$  = Expected Return of C.S. of NIBL bank = 0.3123

$\bar{R}_m$  = Expected Return of market = 0.1539

$n_1 = n_2$  = Numbers of years in Sample = 8

$s^2$  = Estimated variance of population

Now,

$$S^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$$

$$= \frac{(8 - 1)(0.6056)^2 + (8 - 1)(0.3703)^2}{8 + 8 - 2}$$

$$= 0.2519$$

Where,

$s_1^2$  = Variance of C.S. of NIBL banks

$s_2^2$  = Variance of market return

Hence,

$$t = \frac{0.3123 - 0.1539}{\sqrt{0.2519 \left( \frac{1}{8} + \frac{1}{8} \right)}} = \frac{0.1584}{0.2509} = 0.6313$$

Degree of freedom =  $n_1 + n_2 - 2 = 8 + 8 - 2 = 14$

Level of Significance = 5 %

The tabulated value of t at 5 % level of significance and 14 degree of freedom is 2.145

**Decision:**

Since the calculated value "t" is less than tabulated value (i.e.  $0.6313 < 2.145$ ). The null hypothesis ( $H_0$ ) is accepted at 5 % level of significance i.e. there is no significance difference between the expected return of NIBL and overall market return.

#### 4.8.2 Testing of Hypothesis Expected Return of HBL with overall Market Return

##### For HBL Bank

Sample size ( $n_1$ ) = 8 years

Expected Return ( $\bar{R}_j$ ) = 0.2779

Standard Deviation ( $s_1$ ) = 0.3741

##### For Market

$n_2$  = 8 years

$\bar{R}_m$  = 0.1539

$s_2$  = 0.3703

##### Null Hypothesis ( $H_0$ )

$\bar{R}_j = \bar{R}_m$ , i.e. there is no significance difference between the Expected return of HBL and overall market return.

##### Alternative Hypothesis ( $H_1$ )

$\bar{R}_j \neq \bar{R}_m$ , i.e. there is significance difference between the Expected return of HBL and overall market return.

The test statistics (t) is

$$t = \frac{\bar{R}_j - \bar{R}_m}{\sqrt{S^2 \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Where,

$\bar{R}_j$  = Expected Return of C.S. of HBL bank = 0.2779

$\bar{R}_m$  = Expected Return of market = 0.1539

$n_1 = n_2$  = Numbers of years in Sample = 8

$S^2$  = Estimated variance of population

Now,

$$S^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$$

$$= \frac{(8 - 1)(0.3741)^2 + (8 - 1)(0.3703)^2}{8 + 8 - 2}$$

$$= 0.1385$$

Where,

$s_1^2$  = Variance of C.S. of HBL banks

$s_2^2$  = Variance of market return

Hence,

$$t = \frac{0.2779 - 0.1539}{\sqrt{0.1385 \left( \frac{1}{8} + \frac{1}{8} \right)}} = \frac{0.124}{0.1861} = 0.6663$$

Degree of freedom =  $n_1 + n_2 - 2 = 8 + 8 - 2 = 14$

Level of Significance = 5 %

The tabulated value of t at 5 % level of significance and 14 degree of freedom is 2.145

**Decision:**

Since the calculated value "t" is less than tabulated value (i.e.  $0.6663 < 2.145$ ). The null hypothesis ( $H_0$ ) is accepted at 5 % level of significance i.e. there is no significance difference between the expected return of HBL and overall market return.



### 4.8.3 Testing of Hypothesis Expected Return of NABIL with overall Market Return

#### For NABIL Bank

Sample size ( $n_1$ ) = 8 years

Expected Return ( $\bar{R}_j$ ) = 0.5072

Standard Deviation ( $s_1$ ) = 0.7839

#### For Market

$n_2$  = 8 years

$\bar{R}_m$  = 0.1539

$s_2$  = 0.3703

#### Null Hypothesis ( $H_0$ )

$\bar{R}_j = \bar{R}_m$ , i.e. there is no significance difference between the Expected return of NABIL and overall market return.

#### Alternative Hypothesis ( $H_1$ )

$\bar{R}_j \neq \bar{R}_m$ , i.e. there is significance difference between the Expected return of NABIL and overall market return.

The test statistics (t) is

$$t = \frac{\bar{R}_j - \bar{R}_m}{\sqrt{S^2 \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

Where,

$\bar{R}_j$  = Expected Return of C.S. of NABIL bank = 0.5072

$\bar{R}_m$  = Expected Return of market = 0.1539

$n_1 = n_2$  = Numbers of years in Sample = 8

$S^2$  = Estimated variance of population

Now,

$$S^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$$

$$= \frac{(8 - 1)(0.7839)^2 + (8 - 1)(0.3703)^2}{8 + 8 - 2}$$

$$= 0.3758$$

Where,

$s_1^2$  = Variance of C.S. of NABIL banks

$s_2^2$  = Variance of market return

Hence,

$$t = \frac{0.5072 - 0.1539}{\sqrt{0.3758 \left( \frac{1}{8} + \frac{1}{8} \right)}} = \frac{0.3533}{0.0940} = 3.7585$$

Degree of freedom =  $n_1 + n_2 - 2 = 8 + 8 - 2 = 14$

Level of Significance = 5 %

The tabulated value of t at 5 % level of significance and 14 degree of freedom is 2.145

**Decision:**

Since the calculated value "t" is more than tabulated value (i.e.  $3.7585 > 2.145$ ). The Alternative hypothesis ( $H_1$ ) is accepted at 5 % level of significance i.e. there is significance difference between the Expected return of NABIL and overall market return.

## Hypothesis II $\hat{\epsilon}$ Risk Hypothesis Test

### 4.8.4 Testing of Hypothesis of Risk

This Hypothesis Test is based on the test of single mean i.e. portfolio beta.

**Null Hypothesis ( Ho):**

$\hat{\mu} = \hat{\mu}_0$ , i.e. there is no significance difference between the portfolio beta of sample banks common stock and the market beta. In other word average portfolio beta of commercial banks is equal to 1.

**Alternative Hypothesis ( H1):**

$\hat{\mu} \neq \hat{\mu}_0$ , i.e. there is significance difference between the portfolio beta of sample banks common stock and the market beta.

**Under Ho test statistics (t) is :**

$$t = \frac{\bar{X} - \mu_0}{\frac{S}{\sqrt{n}}} \sim \frac{b_p - b_m}{\frac{s}{\sqrt{n}}}$$

Where,

- $b_p$  = Portfolio beta of individual banks CS = 1.5028
- $b_m$  = Market beta = 1
- S = Whole population SD ( it is for large sample)
- s = Estimated population standard Deviation = 0.2298
- n = No. of Sample Bank = 3
- $\mu$  = Population mean ( it is equal with market beta)

( Note :-detailed calculation is given on Appendix VII )

Hence,

$$t = \frac{\bar{X} - Z}{\frac{S}{\sqrt{n}}} = \frac{1.5028 - 1}{\frac{0.2298}{\sqrt{3}}} = 3.7897$$

Now,

$$\text{Degree of Freedom (d.f.)} = n-1 = 3-1 = 2$$

The tabulated value of t at 5 % level of significance and 2 degree of freedom is 4.303.

### Decision

Since the calculated value "t" is less than tabulated value (i.e.  $3.7897 < 4.303$ ). The null hypothesis ( $H_0$ ) is accepted at 5 % level of significance i.e. There is no significance difference between the portfolio beta of sample banks common stock and the market beta. In other word average portfolio beta of commercial banks is equal to 1.

#### 4.9 Major Findings of the Study

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

- The return is the income received on a stock investment, which is usually expressed in percentage. Expected return on common stock of NABIL is maximum (50.72%). Similarly expected return of C.S. of HBL is (27.79%) and NIBL is (31.23%).
- Risk is the variability of returns which is measured in terms of standard deviation. On the basis of S.D., common stock of NABIL is most risky since it has high S.D. i.e. 0.7839 and C.S of HBL is least because of its lowest S.D. of 0.3741, on the other hand we know that C.V. is more rational basis of investment decision, which measures the risk per unit of return. On the basis of C.V., C.S. of HBL is best among all other banks. HBL has 1.3462 unit of risk per 1 unit of return. But C.S. of NIBL has the highest risk per unit of return.
- Beta coefficient explains the sensitivity or volatility of the stock with market. Higher the beta higher the volatility. In the contest, common stock of NABIL is most volatile i.e.  $\beta = 1.8684$  and common stock of HBL is least volatile i.e.  $\beta = 0.9408$ . The bank's stock, having the beta less than beta coefficient of market (i.e.  $\beta_m = 1$ ), defensive stock. We find NIBL and NABIL have aggressive type of common stock. Among them most aggressive seems to be NABIL with highest beta and least aggressive is HBL with lowest beta among three bank's common stock.

- NABIL is in the highest position (Rs.33675.38 in million) and NIBL is in lowest position (Rs.13916.56 in million) according to their inter bank market capitalization comparison.
- One of the main significance of beta is in Capital Asset Pricing Model (CAPM). Comparison between expected rate of return and required rate of return identity whether the stock is overpriced or under price. If the required rate of return is greater than the expected rate of return the stock is overpriced and vice versa. This study shows that all the stocks of commercial banks, which are analyzed, are under priced. That means their stock value will increase in a near future. All the stocks are in demand. So, investor can buy the common stock of any bank.
- The portfolio return between NIBL and NABIL is high i.e. 36.05% and portfolio return between HBL & NABIL is lower i.e. 8.32%.
- The portfolio risk between NIBL and NABIL is high i.e. 58.03% and portfolio risk between HBL and NABIL is lower i.e. 11.45%.
- The portfolio Return and portfolio risk both are medium rank in between NIBL and HBL combination i.e. 28% and 37.28% respectively.
- Since the entire bank has positive correlation so bank doesn't reduce any unsystematic risk. Among them, correlation Between NIBL and NABIL has lower i.e.0.5173, so it can be favorable for the investors.
- Systematic risk can not 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. This study shows that NIBL has high proportion of unsystematic risk i.e. 46.64% which can be minimized from improving internal management. Where as HBL has high proportion of systematic risk i.e. 86.72%. This can not be minimized by improving internal management. C.S. of NIBL is best among these banks due to its highest proportion of unsystematic risk.

- Testing of hypothesis I expected return of selected banks with overall market return. There are no significance difference between expected return of NIBL and HBL and overall market return. But there is significance difference between the Expected return of NABIL and overall market return.
- Testing of hypothesis II is weighted beta of selected commercial banks CS with overall market beta. There is no significance difference between the portfolio beta of sample banks common stock and the market beta. In other word average portfolio beta of commercial banks is equal to 1. The beta coefficient, which is the measure of systematic risk, reveals that NABIL has highest beta and HBL has least beta. In a simple way we can say that the NABIL CS has high rate of volatility and HBL beta has low rate of volatility. Investors can easily find out which one has high rate of volatility and which one has low. Since Hypothesis Test II reveals that whole commercial banks in average have beta equal to market beta. Under this conclusion at 5% level of significance we can say that Investors are indifference to invest their money at any securities having equal to market beta i.e. Commercial banks or other market securities.
- Most of the investors invest only keeping the return in the mind but they are found unable to calculate the risk factors of the security. Most of the Nepalese private investors invest in single security. Some of the investors use their fund in two or more 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 the effect of portfolio. It seems that they don't have knowledge of the risk diversification by using portfolio of their investment.

## **CHAPTER - V**

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

In this chapter, the effort has been made first to present summary of major findings and conclusion drawn from the analysis. Last step proceeds with the recommendation.

#### **5.1 Summary**

An investment is a sacrifice of current money or other resources for future benefits. In financial market, we can find the different type of securities such as treasury bills, long term government bonds, long term corporate bonds, and common stocks. Among them Common stocks are the main sources of fund for the companies. The investors are the sources of resources of revenue as a customer for the stock brokers and financial institutions and ultimately they are the back bone of economic development of the nation. So every policy and plan of financial institution and government also have to encourage them to invest on common stock. For this there is great need of such institutions, which can give valuable information which accelerates the stock investment and market efficiency.

Common stocks are firstly marketed by the capital raising companies in the primary capital market and later on, these stocks are negotiable in secondary capital market. Common stock does not guarantee for annual returns nor it ensures for the return of price of stock thus is considerable risky. Hence it needs courage and at the same time faith to invest in common stock. Normally general people are interested to invest their small saving amount on the common stock. Mainly they prefer common stocks of financial institutions such as commercial banks and finance companies rather than Common stocks of other companies like production



companies and other non-service related companies. But the main problem is that they can not perfectly analyze the risk and return of common stocks with market and the portfolio concept of the risk minimizing approach. Without proper knowledge and information individual investors are suffering from losses. It means they are bearing high risk than high return and also there is no point to invest without proper calculation of risk and return of invest-able securities. The recent trend shows Nepalese investors are investing their saving money as small funds in single security rather than portfolio. They do not apply the concept of portfolio. The perfectly positively correlated securities tend to an investor to bear heavy losses but individual investors are lacking knowledge about the concept of correlation and portfolio. The small fund holding investors have no any consultancy institutions to take advantages for these knowledge and information about which securities are preferable to invest and portfolios are preferable to invest.

Central focus of finance is trade off between risk and return. Risk and return is getting, considerable attention in final management. And its major part stock market had greatest glamour, not only for the proportional or institutional investors but also for the individual or private investors. Development in the field of finance has led to the application of many new concepts and models to deal with various issues reported to financial management.

The relationship between risk and return is described by investor's perceptions about risk and their demand for compensation. No investors will like to invest in risky assets unless s/he is assured of adequate compensation for the acceptance of risk. Hence, risk plays a central role in the analysis of investment taking decision about proper investment decision process, analysis of securities, identification of overpriced, under priced securities making appropriate investment strategies as well as construction of efficient portfolio. Return, Risk and time are the elements of investment. It is the investor required risk premium that established a link between risk and return, in a market dominated by rational

investors, higher risk will command by rational premium and the trade off between the two assumes a liner relationship between risk and risk premium.

Common stock is the most risky security and life blood of stock market. Because of higher expected return on investment in common stock of a corporate from neither neither ensures on annual return nor ensures the return of principal. Therefore investment in the common stock is very sensitive on the ground of risk. Dividend to common stockholder is paid only if the firm makes on operative profit after tax preference dividend. Common stock has attracted more investors in Nepal. Rush in the primary market during the primary issue is one of the examples. But private investor plays a vital role in economic development of the nation by mobilizing the disposed capital in different from the society.

The main objective of the study is to analyze the risk and return in common stock investment of Nepalese commercial bank's stock market. The study is focused on reference to analyze the risk and return in common stock investment of commercial bank. While analyzing the risk and return, brief review of related studies has been performed. Scientific methods are used in data analysis. Tables, graphs and diagrams are used to present the data and results more clearly. Both quantitative and qualitative analysis have performed by using statistical tools as well as performed by using statistical tools and personal judgment. Secondary data are collected from the NEPSE, NRB, SEBO/N and other related banks websites. Other subjective types of information are collected through the officials of NRB, SEBO/N and NEPSE. Findings of analysis are summarized and conclusion is drawn as follows.

### Summary of major statistical and financial Result

<b>Banks</b>	<b>NIBL</b>	<b>HBL</b>	<b>NABIL</b>	<b>Market</b>
<b>Indicator</b>				
Expected Return (%)	31.23	27.79	50.72	15.39
Standard Deviation (%)	60.56	37.41	78.39	37.03
Coefficient of Variation	1.9392	1.3462	1.5455	2.4061
Beta coefficient	1.1946	0.9408	1.8684	1
Risk free rate of return (%)	9.68	9.68	9.68	
Required rate of return (%)	16.5	15.05	20.35	

### Portfolio summary

	<b>NIBL &amp; HBL</b>	<b>HBL &amp; NABIL</b>	<b>NIBL &amp; NABIL</b>
Portfolio Return (%)	28	8.32	36.05
Portfolio risk (%)	37.28	11.45	58.03
Correlation between	0.5487	0.9865	0.5173
Covariance return of	0.1243	0.2893	0.2456

### Systematic and Unsystematic Risk Summary

	<b>NIBL</b>	<b>HBL</b>	<b>NABIL</b>
Systematic Risk	0.1957	0.12136	0.4787
Unsystematic risk	0.1711	0.01859	0.1358
Proportion of SR (%)	53.36	86.72	77.90
Proportion of USR (%)	46.64	13.28	22.10

## 5.2 Conclusion

In Conclusion, this thesis paper helps to guide those small fund taking investors and all other investors who are searching the methods of calculating risk and return and portfolio construction and analysis. Under this thesis, some listed commercial banks Common stocks, i.e. NIBL, HBL, NABIL common stocks, are taken as a sample for visualize and analyze how to calculate the risk and return and how to understand which one is preferable than other .

Every investment has uncertainties. Uncertainties make future return risky. The sources of uncertainty that contribute to investment risk may be interest rate risk, purchasing power risk , Bull-bear market risk, default risk, liquidity risk, call-ability risk, political risk, industry risk, unsystematic risk, systematic risk or other risk. So Risk is defined as the variability of the returns of a period. The variability of returns from those that are expressed is defined as risk. That future rupees or reward for today's investment is called the return. Generally, investor expects higher return by taking lower risk. The uncertainty is the major risk to investor in stock market investment. A risk-return trade off is related to the preferences of the investors. The expected return from any investment proposal will be linked in a fundamental relationship to the degree of risk in the proposal. In order to be acceptable, a higher-risk proposal must offer a higher forecast return than a lower-risk proposal.

Being this study concerned with risk and return analysis. Here, Risk is defined as the variability of the return of a period. The investments are riskier if the variability of the returns is higher. An investment involves the sacrifice of current rupees for future rupees or reward, that future rupees or reward is called the return. It includes both current income and capital gains or losses that arise due to the increase or decrease on price of the securities.

Mainly Secondary data are used in this study. The data which are collected from the NEPSE, Nepal Rastra Bank, Selected commercial banks and web pages of their sites. Other subjective type information is collected through personal

contract with private investors, personnel of the companies and other friends with previous researcher.

From the study it is concluded that all the commercial banks, which are under study, are very much risky with fluctuated rate of return. From the findings of the different banks beta coefficient of all the banks are very much volatile except HBL stock. The study shows that all commercial banks under study required rate of return is less than expected rate of return, so all stocks are under priced. It shows that all the banks have stock with good investment opportunity. It is also concluded that portfolio between NIBL and NABIL has higher portfolio return and risk. And portfolio between HBL and NABIL has lower portfolio return and risk.

This study shows that NIBL has high proportion of unsystematic risk i.e. 46.64% and HBL has high proportion of systematic risk i.e. 86.72% which can not be minimized from internal factor. Common stock of NIBL is best among these banks due to its highest proportion of unsystematic risk.

**Test which one is better for Investor according to Indicator**

Banks $\tilde{E}$	NIBL	HBL	NABIL	Elite Indicator		
				RT	M	RA
Indicator $\tilde{E}$						
Expected Return (%)	31.23	27.79	50.72	50.72	50.72	50.72
Standard Deviation (%)	60.56	37.41	78.39	78.39	60.56	37.41
Coefficient of Variation	1.9392	1.3462	1.5455	1.9392	1.3462	1.3462
Beta coefficient	1.1946	0.9408	1.8684	1.8684	1.1946	0.9408
Where, RT- Risk Taker M- Medium Risk Taker RA –Risk Averse						

Investor may be risk taker, risk averse or average of them .Under this explanation investor either risk taker or risk averse both selects high return but they are opposite under selection of risk. Hence risk and return analysis is important for investor for their own purpose i.e. For high risk taking to achieve high return in future and/or For low risk taking to secure from unknown result. Always an investor calculates his/her investment risk and return to understand about trend and scientifically or logically know about - How risky the investment is---? The Research work only shows the calculation and interpretation the result for all types of investor who are seeking for investment alternatives.

### 5.3 Recommendations

On the basis of the analysis and findings of the study, following recommendations are suggested to overcome the weakness and inefficiency and to improve the present situation of the concern. Not only is this study focused on individual investors but also for institutional investor. Other related components of stock are also taken into account to some extent. Some specific and general recommendations and suggestions are as follows:

- The term return depends on the goal and long term vision of the organization. In the findings return of HBL seems to be low hence HBL should check and reform its management toward get a high rate of return.
- To take higher risk for higher return is a sign of competitive advantages and sound management so NABIL be a risk seeking organization. NABIL should be able to control the risk factor at an optimum level.
- The CS of NABIL is most volatile so it should be control risk factor at a limit or optimal condition. And HBL has a defensive beta that means it has a least competitive power. Hence HBL should try to take an optimal risk to stand with alive for long time in financial sector.
- Market capitalization should be about to equal as far as possible so NIBL should attract its CS holder to react as per change on a management decision.
- As an Investor, He/she always try to take a position under high return portfolio with low risk portfolio. He/ She should aware about management of the organization along with a portfolio risk & return.
- Since a positive correlation between banks so He/she should not try to invest such type of investment because it has same slope of getting a return and risk. He/she try to invest on negative correlation as far as possible due to control undiversified risk.

- Since the common stocks of NIBL, HBL and NABIL are under priced, the buying and holding strategy is appropriate.
- Coefficient of Variation ( CV) Suggest that the common stock of HBL is appropriate for investment because its CV is lowest than other.
- Different financial and statistical tools are to analyze the data in this study. C.V. suggests that while analyzing individual security HBL seems undoubtedly the best for investment with considering the full time horizon of the study. C.S. of HBL may be best investment opportunity for the investors whose beta is lower than the beta coefficient of market (i.e. 1). So it is less risky or defensive type of stock. Hence it is prescribed to select the C.S. of HBL for individual stock investment due to its lowest C.V. and beta coefficient.
- Due to highly positively correlate the portfolio between, NIBL & HBL, HBL & NABIL, NIBL & NABIL, the portfolio between them are not appropriate to invest as portfolio investment. But in Comparison the portfolio between NIBL & NABIL is less correlated than other. So it is recommended to construct a portfolio.
- Coefficient of determination is the proportion of systematic (diversifiable) risk of assets. It suggests that the C.S. of NIBL is best among these banks due to its highest proportion of unsystematic risk.
- Proper analysis of individual security is always essential to make possible to conquer the stock market. General knowledge about economic, political as well as technological trend will be advantageous. Which is performing better than before, sell share when the market is rising and buy share when market is falling and hold the share which will perform better than market.



- Investors need to diversify their fund to reduce risk. Efficient portfolio depends on market movement. For this portfolio construction investor should select the stocks that have higher return and negative correlation or moderate positive correlation between stocks of different companies and sectors. Similar stocks cannot diversify risk properly i.e. portfolio between stocks of commercial banks stocks. For the portfolio construction under certain limitation of selection portfolio between the C.S. of NIBL and NABIL is recommended to invest due to their higher portfolio return and lower positive correlation.
- Analysis of personal risk, attitude, needs and requirements will be helpful before making an investment in stock market. Investors should make several discussions with stock holder before reaching at the decision. Investors should make their decision on the basis of reliable information rather than the imagination and amours.
- Investment club or broker firms are good way to exchange and share investment ideas. Mutual fund is worth while for people with little interest in investment. Investors are recommended to share experience, ideas and taking view of expert before investing in stocks of individual banks.
- NEPSE needs to initiate and to develop different programs for private investors such as investors meeting and seminars indifferent subjective matters like “Trading Rules and Regulation” etc. Though these days NEPSE have opened its branches outside valley, they haven’t delegated full authority to do transaction of stock exchange. They need to take decision according to their head office. So, every branch should be authorized for the every decision related to investors so that all the investors will be benefited out side the valley.

- Government needs to amend the rules and regulation regarding stock market in time to time and to make the policy that protects the individual investor's right. And also need to follow up the implementation of rules and regulation and to make sure the objectives are achieved. On the regard, Nepal Government needs to monitor and to make active all the components of stock market properly. The government has to implement the rules and regulation strictly other wise it will be meaning less. The political problem of the country is another burning issue, which affects the economy of the nation adversely. So political leaders should think seriously on economic motive of country rather than their self motive.
- The corporate firm should disclose their actual financial condition so that insisted investors may analysis their performance and they only make a decision whether to invest on their stock or not. Value of assets and liabilities should not be manipulated to report the under or over profitability. Every decision of the corporation should be made to maximize the value of the firm and value per share.
- Nepalese stock market is small and growing slowly. Because of lack of information and knowledge of investment opportunities and growth, investors are making investment based almost on hunch or guts. These decisions generally lead to losses and create lasting negative impact on the investor's mind towards the stock market investment. So there should be continuous flow of information about the investment environment.
- Although there is chance of more return than that of expected, there is also a chance of heavy loss because stock market investment is a risky investment. So investor must be well aware of this fact and must be able to visualize and analyze the whole things.

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## APPENDIXES

### Appendix I

#### Calculation of Total Dividend (NIBL)

Fiscal Year	Total Dividend = Cash Dividend + % of Stock Dividend × Next Year MPS			
	Cash DPS (Rs.)	Stock Dividend (%)	Next Year MPS (Rs.)	Total Dividend (Rs.)
2000/01	0	0	760	0
2001/02	0	30	795	238.50
2002/03	20	0	940	20
2003/04	15	0	800	15
2004/05	12.5	0	1260	12.5
2005/06	20	35.46	1729	633.10
2006/07	5	25	2450	617.5
2007/08	7.5	33.33	1388	470.12
2008/09	20	0	<b>863*</b>	20.00
( * it is average price of Oct-Nov 2009)				

*Data Source: AGM Report of NIBL*

## Appendix II

### Calculation of Total Dividend (HBL)

<b>Fiscal Year</b>	Total Dividend = Cash Dividend + % of Stock Dividend × Next Year MPS			
	<b>Cash DPS (Rs.)</b>	<b>Stock Dividend (%)</b>	<b>Next Year MPS (Rs.)</b>	<b>Total Dividend (Rs.)</b>
2000/01	27.5	30.00	1000	327.50
2001/02	25.00	10.00	836	108.60
2002/03	1.32	23.68	840	200.23
2003/04	0.00	20.00	920	184.00
2004/05	11.58	20.00	1100	231.58
2005/06	30.00	5.00	1740	117.00
2006/07	15.00	25.00	1980	510.00
2007/08	25.00	20.00	1760	377.00
2008/09	12.00	31.56	<b>1467*</b>	474.99
( * it is average price of Oct-Nov 2009)				

*Data Source: AGM Report of HBL*



**Appendix III**  
**Calculation of Total Dividend (NABIL)**

<b>Fiscal Year</b>	Total Dividend = Cash Dividend + % of Stock Dividend × Next Year MPS			
	<b>Cash DPS (Rs.)</b>	<b>Stock Dividend (%)</b>	<b>Next Year MPS (Rs.)</b>	<b>Total Dividend (Rs.)</b>
2000/01	40	20.11	700	180.77
2001/02	30	0	740	30.00
2002/03	50	0	1000	50.00
2003/04	65	0	1505	65.00
2004/05	70	0	2240	70.00
2005/06	85	0	5050	85.00
2006/07	100	40	5275	2210.00
2007/08	60	40	4899	2019.60
2008/09	35	50	<b>2765*</b>	1417.50
( * it is average price of Oct-Nov 2009)				

*Data Source: AGM Report of NABIL*

## Appendix IV

### Calculation of Correlation between NIBL (A) and HBL (B)

Calculation of covariance of return of given two stocks

Fiscal Year	$(R_A - \bar{R}_A)$	$(R_B - \bar{R}_B)$	$(R_A - \bar{R}_A)(R_B - \bar{R}_B)$
2001/02	-0.444	-0.5388	0.2392
2002/03	-0.2399	-0.2417	0.058
2003/04	-0.111	-0.0530	0.0059
2004/05	-0.4479	0.0930	-0.0417
2005/06	1.0541	0.0449	0.0473
2006/07	0.55	0.7676	0.0422
2007/08	0.3766	0.0767	0.0289
2008/09	-0.7376	-0.1491	0.011
			$((R_A Z \bar{R}_A) (R_B Z \bar{R}_B)) =$ 0.8698

Note:  $(R_A - \bar{R}_A)$  from table 4.2 and  $(R_B - \bar{R}_B)$  from table 4.4

We have,

$$\text{COV}(R_A, R_B) = \frac{((R_A Z \bar{R}_A) (R_B Z \bar{R}_B))}{n Z 1} \times \frac{0.8698}{8 Z 1} \times 0.1243$$

Now,

Correlation between NIBL and HBL

$$\rho_{AB} = \frac{\text{Cov}(R_A, R_B)}{\sigma_A \sigma_B} = \frac{0.1243}{0.6056 \times 0.3741} = 0.5487$$

Note:  $\sigma_A$  from table 4.2 and  $\sigma_B$  from table 4.4

Where,

$\text{COV}(R_A, R_B)$  = Covariance of return between NIBL and HBL

$\rho_{AB}$  = Correlation between NIBL and HBL

$\sigma_A$  = S. D. of NIBL

$\sigma_B$  = S. D. of HBL

## Appendix V

### Calculation of Correlation between HBL (B) and NABIL (C)

Calculation of covariance of return of given two stocks

Fiscal Year	$(R_B - \bar{R}_B)$	$(R_C - \bar{R}_C)$	$(R_B - \bar{R}_B)(R_C - \bar{R}_C)$
2001/02	-0.5388	-1.0205	0.5498
2002/03	-0.2417	-0.3786	0.0915
2003/04	-0.0530	-0.068	0.0036

2004/05	0.0930	0.0678	0.0063
2005/06	0.0449	0.0377	0.0017
2006/07	0.7676	1.7339	1.3309
2007/08	0.0767	-0.0627	-0.0048
2008/09	-0.1491	-0.3098	0.0462
			$((R_B - \bar{R}_B)(R_C - \bar{R}_C)) = 2.0253$

Note:  $(R_B - \bar{R}_B)$  from table 4.4 and  $(R_C - \bar{R}_C)$  from table 4.6

We have,

$$\text{COV}(R_B, R_C) = \frac{((R_B - \bar{R}_B)(R_C - \bar{R}_C))}{n - 1} \times \frac{2.0253}{8 - 1} \times 0.2893$$

Now,

Correlation between HBL and NABIL

$$\rho_{BC} = \frac{\text{Cov}(R_B, R_C)}{\sigma_B \sigma_C} \times \frac{0.2893}{0.3741 \times 0.7839} \times 0.9865$$

Note:  $\sigma_B$  from table 4.4 and  $\sigma_C$  from table 4.6

Where,

$\text{COV}(R_B, R_C)$  = Covariance of return between HBL and NABIL

$\rho_{BC}$  = Correlation between HBL and NABIL

$\sigma_B$  = S. D. of HBL

$\sigma_C$  = S. D. of NABIL

## Appendix VI

### Calculation of Correlation between NIBL (A) and NABIL (C)

Calculation of covariance of return of given two stocks

Fiscal Year	$(R_A - \bar{R}_A)$	$(R_C - \bar{R}_C)$	$(R_A - \bar{R}_A)(R_C - \bar{R}_C)$
2001/02	-0.444	-1.0205	0.4531
2002/03	-0.2399	-0.3786	0.0908
2003/04	-0.111	-0.068	0.0075
2004/05	-0.4479	0.0678	-0.0304
2005/06	1.0541	0.0377	0.0397

2006/07	0.55	1.7339	0.9536
2007/08	0.3766	-0.0627	-0.0236
2008/09	-0.7376	-0.3098	0.2285
			$(R_A Z \bar{R}_A) (R_C Z \bar{R}_C) = 1.7194$

Note:  $(R_A - \bar{R}_A)$  from table 4.2 and  $(R_C - \bar{R}_C)$  from table 4.6

We have,

$$\text{COV}(R_A, R_C) = \frac{((R_A Z \bar{R}_A) (R_C Z \bar{R}_C))}{n Z 1} \times \frac{1.7194}{8 Z 1} \times 0.2456$$

Now,

Correlation between NIBL and NABIL

$$\rho_{AC} = \frac{\text{Cov}(R_A, R_C)}{\sigma_A \sigma_C} \times \frac{0.2456}{0.6056 \times 0.7839} = 0.5173$$

Note:  $\sigma_A$  from table 4.2 and  $\sigma_C$  from table 4.6

Where,

$\text{COV}(R_A, R_C)$  = Covariance of return between NIBL and NABIL

$\rho_{AC}$  = Correlation between NIBL and NABIL

$\sigma_A$  = S. D. of NIBL

$\sigma_C$  = S. D. of NABIL

## Appendix VII

### Calculation of Weighted beta of listed commercial banks beta

S. N o.	Comm ercial Bank	Be ta ( $b_i$ )	Market Capitali zation (Rs. In Million)	We ight ( $W_i$ )	$W_i$ $\hat{b}_i$
1	NIBL	1.1 94	13916.56	0.2 249	0.2 68

		6		6	7
2	HBL	0.9 40 8	14270.26	0.2 306 8	0.2 17 0
3	NABIL	1.8 68 4	33675.38	0.5 443 6	1.0 17 1
Total			61862.2	1	1.5 02 8

The beta of a portfolio is a weighted average of betas of the asset that includes,  
 $b_p = \sum W_i b_i = 1.5028$

#### Calculation of estimated population S.D. of beta

S. No.	Commercial Bank	Beta ( $b_i$ )	$(b_i - \bar{b})^2$	$(b_i - \bar{b})^2$
1	NIBL	1.1 946	-0.1400	0.0196
2	HBL	0.9 408	-0.3938	0.15507844
3	NABIL	1.8 684	0.5338	0.28494244
Total		4.0 038		0.4596

$$\text{Expected Beta} = \bar{b} = \frac{\sum b_j}{n} = \frac{4.0038}{3} = 1.3346$$



Standard Deviation  $(\pm) \sqrt{\frac{\sum (b_j - \bar{b}_j)^2}{(n-1)}} \times \sqrt{\frac{0.4596}{3 \times 1}} \times 0.2298$

## Appendix VIII

(Web Pages - Key Indicators)

