CHAPTER - I
INTRODUCTION

1.1 General Background of the Study

Changing nature of competition and increasing pressure of globalization on today's business world, investment management has become the most critical determinant of the economy. The most important fact of international business operation is continuous change in economic, political and social dimensions. These changes are beyond the control of international business concern. In recent years international investors are attracted towards the financial markets of developing countries. As a result many joint ventures and multinational companies are being established in the country. Most of commercial banks doing well are also joint ventures banks.

The growth of economy depends on availability of funds to finance the increased needs, not only of government and business, but also of individuals. Private domestic investment can be the contributor to economic growth and employment generation in the developing country. For the economic development of any country, public participation plays a vital role. If the people are rich, the country will be rich and people will have enough to invest on development of the country. To the extent that public investment expenditure result in the provision of public services which reduce the cost of production of the private sector, they have a positive effect on private profitability and investment. An investment in any funds is made to have some positive rate of return. Nobody is ready to bear risk without any return but to have return one must ready to face some risk. To minimize the risk at the given rate of return the concept of portfolio diversification is necessary. Portfolio is simply a collection of securities gathered to achieve certain investment goals. Usually investors diversify their portfolios to have minimum risk and maximum the return. So, to meet the investment goals there should be well-managed portfolio. Most investors hope that if they hold several securities then even one goes bad; the others will provide some protection from an external loss.

"A systematic investment process should be followed to win the stock market. Investment process describes how an investor should go about making decisions 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 these decisions forms the basis of the investment process:

- Set investment policy
- Perform security analysis
- Construct a portfolio
- Revise the portfolio
- Evaluate the performance of the portfolio (Sharpe; 1995:9).

Among these investment processes the research is focused on security analysis and portfolio selection. Security analysis involves examine of individual securities or group of securities within the broad categories of financial assets. Portfolio construction identifies those specific assets in which to invest determining the proportion of the investor's wealth. Diversification should be done to minimize the risk and maximize the return. Portfolio performance involves determining periodically how the portfolio performs in terms of not only the return earned, but also the risk experienced by the investor" (Sharpe; 1995:10-14).

Financial market facilitates the flow of funds from surplus to deficit units. Those financial markets that facilitate the flow of short-term funds, that is, less than one year are known as money markets, while those that facilitate the flow of long-term funds are known as capital markets. There are two types of market securities. Securities having life less than one year are called money market securities and securities having life of more than one year are called capital market securities. Money market securities generally have higher liquidity whereas capital market securities are used to generate a higher annual return to investors.

"Stock market is a financial market which probably has the greatest glamour and is perhaps the least understood. Some observers consider it as a legalized heaven for gambling and many investors consider stock marker investing as a game in which the sole purpose is picking winners" (Lorie and Dodd; 1985:27).

The well functioning stock market allows stockholders to achieve efficient diversification, which reduces risk, which in turn, lowers the risk premium component

in the cost of capital. Stock markets lower the cost of capital by liquidating investors' investment. It encourages investors to retain their earning and convert it into cash by selling shares in the stock market. The stock market provides an opportunity to the portfolio managers and public for direct participating and sharing the gain of economic progress.

In Nepalese contest the concept of security market began with the set up of “Nepal Stock Exchange” former known as “Securities Exchange Center" in 1976. This is the only stock market in Nepal. In spite of considerable development of stock market there is lot more to be done for the development of stock market in Nepal. Many investors are still afraid to invest in securities because of inadequate knowledge in this field and most investors are exploited from market intermediaries. For this purpose potential investors must be able to analyze risk and return of individual stock to increase market efficiency and consequently speed up the economic development.

The concept of banking system was introduced in Nepal with the establishment of Nepal Bank ltd. in 1937 A.D. But the financial scenario of Nepal changed with the establishment of joint venture banks in 1984 A.D. Nabil Bank ltd. is the first joint venture bank introduced in Nepal. Since the joint ventures banks introduced in Nepal, the set up of joint ventures banks are increasing day by day and domestic banks like Nepal Bank ltd. and Rastriya Banijya Bank no longer been able to enjoy monopoly. There is cut throat competition among these banks, which is healthy sign for the economic development of the country. Among the established commercial banks ten are listed in NEPSE and for this research only eight joint ventures banks are taken.

There always exists perceptible difference among investors in terms of risk and return and more than often, every investors have their own unique way of response pattern while making investment decision. Generally, investors invest their current cash only to those areas where there is high return and low risk. An investor looking for the common stock investment usually pays the price for stock based on his estimation about future dividends and grown in stock price. Investors can earn in the form of dividend or interest income and the appreciation in the price of the stock hold in stock market investment. So common stock represents a commitment on the part of a

corporation to pay periodically whatever, its board of directors determine to assign as a cash dividend.

This study occupies an important role in the development of stock market. In the market, stock price can be affected by interest rate, inflation and strengths of the dollar. The risk of a stock can be measured by its price volatility and its beta, banking sector is the most dynamic part of economy, which collects unused funds and mobilizes it in needed sectors. It is the heart of trade, commerce and industry. In Nepal, foreign joint venture commercial bank perform better than other Nepalese commercial banks because of their higher management efficiency and capacity of proper risk management. Nowadays, there are number of commercial banks growing in the country and numbers of joint ventures among them are also significant. Besides commercial bank, development banks are investing their performance in Nepalese banking sector.

However this study of risk and return is basically focused on listed commercial banks of Nepal and this study analyze the risk and return associated with investment among these banks on the basis of market price of stock and dividend.

1.2 Focus of the Study

The main focus of this study is the risk and return analysis of the common stock investment of the listed commercial banks of Nepal. Common stock is comparatively risky assets than other security in the capital market. The main purpose of the study is to analyze how one can get sustainable profit by minimizing the risk. For this purpose, market return, expected return, total risk, systematic risk and unsystematic risk are analyzed to give an idea to get sustainable profit by diversifying the risk to avoid future loss of the common stock investment.

1.3 Statement of the Problems

Lack of information and up to date knowledge is main problem faced by individual investor who are manipulated and exploited by the financial institutions and their market intermediaries. The attitude and perception of investors play chief role in investment decision which is influenced by the information and access to the data required for analysis. Investors invest their wealth on the basis of guess and hunches

because they do not have any information about the financial assets and they also lack the idea to reach to ideal investment decision. Investors purchase stocks merely looking past trend of stock prices and sometimes they have to bear heavy loss due to inadequate knowledge and information related to the stock investment.

Capital market is not developed in Nepal so that most of people do not know about shares, bond, debenture and other securities. On other hand, there are no strong commitment towards increasing public investment in policy makers and government. Stock brokers and financial institutions have no effective programs to develop investor's knowledge. So, that moreover people are unfamiliar with the stock investment. They would rather prefer to invest in land, buildings, gold other unproductive items.

In an efficient market condition, stock price is equal to the intrinsic value of stock. When required rate of return and expected rate of return are not equal, then intrinsic value and market value of stock will not be equal. It is also assumed that all stock remain in security market line, and if the case is not so, they strive towards this line. But theoretical and practical knowledge may not always much each other.

Therefore it needs courage and at the sometime faith to invest in common stock. In most of the time which can be generated through proper evaluation with giving view to the prevailing market atmosphere. But what are the criteria for evaluation that the stock they are holding will give them favorable return? What should be the compensation they have to receive for bearing risk? How can investors make higher return through lower risk?

Some researches problems are as follows:

1. In what extent, the investors should be compensated for taking a certain degree of risk?
2. How do they know the scale and intensity of risk?
3. One expects favorable returns by holding stock. But what are the criteria for evaluation?
4. How one can make higher return assuming lower risk?

1.4 Objectives of the Study

On the ground of aforementioned problems being faced by Nepalese investors, the main objectives of this study is to assess the risk associated with return on common stock investment of the listed commercial banks on the basis of selective financial tools and techniques. Some objectives of this study are as follow:

- To examine risk, return in common stock of selected banks.
- To examine comparative study of listed commercial banks in Nepal, in terms of overpriced, under priced or equilibrium by analyzing the risk and return of the individual share.
- To analyze comparative risk and return position of these sectors.

1.5 Significance of the Study

The analysis of the risk and return is a significant in investment decision as well as managerial decision. It influences risk and return of the shareholders. Consequently the risk and return analysis influences the market price of the stock. So before making an investment decision, a person must analyze the risk and return from particular stock as well as they can make a good risk minimizing portfolio between their investments in the stock.

In Nepal context, there is lacking of wider investment opportunities, which provides good rate of return. So there have been huge amount of unutilized saving funds with general public. In the security market, MPS of joint venture commercial bank has higher than others so it attracts the investor. Therefore they are investing their saving funds in common stock of public companies with the good expectation of higher capital gain in future. But, there seems very least consciousness about the real financial conditions of the companies and degree of risk involved in their investment.

This research is not only fulfilling MBS course of T.U, but also to provide some knowledge about Nepalese stock market development along with providing ideas to minimize the risk on stock investment. This study will be helpful for other researcher in the area of investment as it provides suggestion to some extent.

1.6 Limitation of the Study

This study is to fulfill the requirement of Master Degree in Business Studies. It cannot cover all the dimension of the subject matter and resource. The major limitations of the study are as follows.

1. This research is concerned only risks and returns of common stock of the listed companies.
2. Analysis is based on secondary data only.

1.7 Organization of the Study

This research has been organized in five chapters. The titles of this chapters are listed below:

Chapter-I: Introduction

This chapter is introductory and deals with subject matter of the study including general background of the study, problem of the study, objectives of the study, significance of the study, limitation of the study, organizing of the study etc.

Chapter- II: Review of Literature

This chapter contains the profound review of available literature related to the area of this study. It is directed towards the review of conceptual framework and review of major related studies. Risk and return, its relationship, determinants, measuring techniques and methods etc. are reviewed from the various available literatures.

Chapter-III: Research Methodology

This unit presents research methodology used in the study which includes various tools and techniques of data. It consists of research method as library research and field research, sources of data, population and sample, research design, methods of data analysis etc.

Chapter- IV: Data Presentation and Analysis

This chapter presents the analysis and presentation of data by using various methods of statistical and financial tools. Tables, pie charts, etc. will be used accordingly.

Chapter-V: Summary, Conclusion and Recommendations

This chapter is for summary of main findings conclusion, recommendation and suggestions for further important.

CHAPTER - II
REVIEW OF LITERATURE

2.1 Introduction

This chapter provides some review on the literature that is available in the topic risk, return and portfolio analysis. This section covers those studies that are conducted by academicians and scholars. In this part books, research works, journals and articles are reviewed.

2.2 Conceptual Framework

Before getting into the core subject matter, it is necessary to have general knowledge of risk, return and portfolio. Major focus is on analysis of risk, return, and portfolio within the common stock of selected commercial banks.

2.2.1 Common Stock

Common equity in a corporation or partnership or proprietorship interests in a unincorporated firm constitute the first source of funds to a new business and the base of support for borrowing by existing firms (J. Fred Weston & Thomas E. Copeland, 1994:931). There are different instruments that include a capital structure such as common stock, preference stock, debt and so on. The most important one is common share or equity share or ordinary share. Common stock represents the ownership position in a corporation. Common stock is the first security of a corporation to be issued and in case of bankruptcy, the last to retired. They have the lowest-priority claim on earning and assets of all securities issue. Common stockholders have the power to elect the board of directors. Common stocks are generally fully pain and non-assessable i.e. the common stockholders may lose their initial investment, not more which means stockholders have limited liability to the share that they hold.

In case of liquidity or bankruptcy, common stockholders are in the principal entitled only to assets remaining after all prior claimants have been satisfied. As expressed above, common stock is the most risky security, so, must be in its expected return as well. When investors buy common stock, they receive certificate of ownership as a

part of there being part owners of the company. The certificate states the number of shares purchased and their par value" (V.K. Bhalla, 2000:196).

"Common stock has one important investment characteristic and one important speculative market price tends increase irregularly but persistently over the decades as their net worth builds through the reinvestment of undistributed earning. However, most of the time common stocks are subject to irrational and excessive price function in both directions, as the consequence of the ingrained tendency of most people to speculative or gamble, i.e. to give way to hope fear and greed" (J. Fred Western and Eugene F. Fama, 1999:93-94).

"Of all the other forms of securities, common stock appears to be the most romantic, while fixed income investment avenue may be more important to most of the investors, equity shares seems to capture their interest the most. The potential reward and penalties associated with the equity make them an interesting even exciting proportion, no wonder, equity investment is a favorite topic for conservation in parties and get together" (Chandra Prasanna, 1995:16).

Common stock holders of a corporation are its residual owners, their claim to income and assets comes after creditors and preferred stock holders have been paid in full. As a result, a stockholders return on investment is less certain than the return to lenders or to preferred stockholders. On the other hand, the shares of a common stock can be authorized either with or without par value. The par value of a stock is merely a stated figure in the corporate charter and is of little economic significance. A company should not issue stock at a price less than par value because stockholders who bought stock for less than par value would be liable to creditors for the difference between the below par price they paid and the par value (James C. Van Horne, 1997:560).

2.2.2 Security Market

A security market can be defined as a mechanism for bringing together buyers and sellers of financial assets in order to facilitate trading. Security market exists in order to bring together buyers and sellers of securities. It means the market where the securities are treated. One of the main functions is "price discovery" i.e. to cause prices to reflect currently available information.

Security market can be distinguished into

- Primary and Secondary Market
- Money and Capital Market

Primary Market

Securities offered for the first time to the general public through the primary securities markets. The issuer may be a brand new company or one that has been in business for many years. It is also known as New Issue Market (NIM).

Secondary Market

The Secondary Market is not keeping pace with the growth of the primary market. This is mainly due to lack of the needed efforts on the concerned authority to devise suitable package of measure to encourage the growth of broker networks in the country's growing stock exchange (Shrestha, 1992:18).

Money Market

Money Market is also called short term financial market which is the set of supplying short term debt or working capital needed for industries, business or incorporated etc. The instruments of money market are government securities, inter-bank deposits, banker's acceptance, certificate of deposit and commercial papers issued by non-financial institutions.

Capital Market

Capital Market is the market where the transaction of long-term finance is made. The funds collected in this market are raised and traded by long-term financial instruments such as equities and bonds. From the capital market, the maturity preference of lender and borrower is adjusted. The lender can immediately get cash in case of need and borrower also receives long-term credit.

2.2.3 Market Price of the Share

Market price of Shares as the output of the demand and supply interaction is the most influencing factor in determining the price of the stock (Ackerman, 1980:10). In relation to the interacting forces of demand and supply i.e. Market Price is determined

at given time and the prices and volumes of its past transaction are meaningful indication of probable relationship of future supply and demand pressure. And such relationship is the most important element in determining the probable direction of the price movements. If the demand exceeds the supply, the price will rise and if the supply exceeds the demand the price will fall.

2.2.4 Profit Maximization or Wealth Maximization

In the past, profit maximization was regarded as the only objective of business firms but in modern time, a firm has multiple objectives though some objectives may receive priority over other objectives. It is a rational behavior of the firm to maximize the profit. The financial manager should select the alternative having maximum monetary return. Profit maximization objective is short run objective where as wealth maximization objective is long run objective of the firm. When the time period is short and uncertainty is not much, profit maximization and wealth maximization are almost same. The wealth of the shareholders is measured by the share price of the stock. The share price depends on the timing of returns, cash flow and risk. Generally the value or wealth can be expressed more explicitly in following ways (I.M. Pandey, 1991:56).

$$W = \frac{A_1}{(1+K)} + \frac{A_2}{(1+K)^2} + \frac{A_3}{(1+K)^3} + \text{..... .....} + \frac{A_n}{(1+K)^n} - C$$

$$= \sum_{t=1}^{n} \frac{A_t}{(1+K)^n} - C$$

where,

A_1, A_2, A_3,...,A_n= stream of benefit expected to occur a course of action is adopted.

C = cash out lay or cost of action

K = Discount rate.

W = Value or worth

But the value of the company does not increase itself; there are a number of factors that may contribute to increase the value. The value is represented by the market price of the company's common stock, which in turn reflects the firm's investment

strategy, and dividend decisions. So, to maximize of the stock, the financial manager should consider following factors.

- Project earning per share
- Timing of the earning stream.
- Use of debt
- Dividend policy

Hence, the wealth maximization principal implies that the fundamental objective of a firm should be to maximize the market value of its shares.

2.2.5 Stock Valuation

Financial managers use different analytical techniques for valuing common stock. The stockholder expects regular earnings in the form of dividends and capital gain by upward movement of the stock price. To maximize the stock price stock valuation model can be used as important tools. Mainly three basic models are used to value stock.

Table 2.1

Stock Valuation Model

S. No	Model	Valuation Model
1	NAVM	NW=TA-(CL+LTD)
2	DVM	$P_o = \sum_{t=1}^{n} \frac{D_1}{(1+K_e)}$
3	EVM	P_o = P/E ratio x EPS

(Source: Richard Pike and Neale, 1996:76)

Where,

NVAM = Net Asset Value Model

DVM = Dividend Value Model

EVM = Earning Valuation Model

NW = Net Worth

TA = Total Asset

CL = Current Liabilities

LTD = Long Term Debt

P_o = Value of the stock today

D_1 = Dividend Expected in year 1.

K_e = Cost of Equity Capital

t = 1,2,3, ...,n yr.

P/E = Price earning Ratio

EPS = Earning per share.

2.2.6 The Expected Rate of Return on Common Stock

The expected rate of return is the increase in the expected after tax value of the initial investment over the holding period. The cash payoff to owners of common stock is of two kinds:-

- Cash dividend [Dividend component]
- Capital gain (loss) [capital appreciation]

Capital appreciation is the difference between ending value and beginning value of an investment. Returns are defined as the dividend yield plus capital gain/loss. Thus return comes from two sources, income and price appreciation.

Return is the main attraction for investor to invest in a risky security as stock (equity share) accepting a varying degree of risk tolerance. "The return from holding an investment over some period, say a year is simply any cash payment received due to ownership plus the change in market price, derived by the beginning price. From common stock we can define single period return as:

$$\text{Single Period Return (R)} = \frac{\text{Ending Price } (P_t) - \text{Begining Price } (P_{t-1}) + \text{Dividends } (D_t)}{\text{Begining Price } (P_{t-1})}$$

This formula can be used to determine both actual one period return (when based on historical figure), as well as expected one period return (when based on expected dividend and prices). Also note that the term in parenthesis in the number of above equation represents the capital gain or loss during the year" (James C. Van Horne and John M. Wachowicz, Jr., 1995:90).

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

Simple Arithmetic Mean $\quad HPR = \sum_{t=1}^{n} HPR_t / n$

The geometric mean $\quad HPR_g = \sum_{t=1}^{n} (1 + HPR)^{1/n} - 1$

Where, HPR=Holding Period Return, n = No. Of periods, HPR_g=Geometric mean holding Period return" (John M. Cheney & Edward A. Moses, 1992:746).

2.2.7 Risk on Common Stock

If one is going to invest in common stock, he/she is also going to face some risk for future return. High return on common stock involves high risk and vive-versa.

"The risk is defined in Webster's Dictionary as 'a hazard: A peril: exposure to loss or injury; thus for most, risk refers to the chance that some unfavorable event will occur. If you invest in speculative stocks (or, really, any stock), you are taking a risk in the hope of making an appreciable return" (J. Fred Weston & Eugene F. Brigham, 1995:182-183).

"Risk, defined more generally, is a probability the occurrence of unfavorable outcome. But risk has different meaning in different contexts. In our context two measures developed from the probability distribution have been used as initial measures of return and risk. They are the mean and standard deviation of the probability distribution" (Weston and Brigham, 1995:183).

Some of sources of uncertainty that contribute to risk of investment are cited below: (Jack Clark Francis, 1994: 3).

- **Interest Rate Risk**

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

- **Purchasing Power Risk**

Purchasing power risk is the variability of return an investor suffers because of inflation. When inflation takes place, financial assets such as cash, stocks, bonds, etc. may lose their ability to command the same amount of real goods and services they

did in the past. The real rate of return on financial assets may not adequately compensate the holder of financial assets for inflation.

- **Bull-Bear Market Risk**

When a security index rises fairly consistently from a low point for a period of time, this upward trend is called a bull market. The bull market ends when the market index reaches a peak and starts a downward trend. The period during which the market declines to the next trough is called a bear market.

- **Management Risk**

Though many top executives earn princely salaries, occupy luxurious offices, and wield enormous power within their organizations, they are mortal and capable of making a mistake or a poor decision. Furthermore, errors made by business managers can harm those who invested in their firms. Hence, it also is capable of poring risk to investment.

- **Default Risk**

Default risk is the portion of an investments total risk that results from changes in the financial integrity of the investment. For instance, when a company that issues securities moves further away from bankruptcy or closer to it, these changes in the firms financial integrity will be reflected in the market price of its securities. The variability of return that investors experience as a result of changes in the creditworthiness of a firm in which they invested is their default risk.

- **Liquidity Risk**

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

- **Callability Risk**

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

- **Convertibility Risk**

Convertibility risk is that portion of the total variability of return from a convertible bond or a convertible preferred stock.

- **Political Risk**

The portion of an asset's total variability of return caused by changes in the political environment that affect the asset's market value.

- **Industry Risk**

An industry is a group of companies that complete with each other to market a homogenous product. Industry risk is that portion of an investment's total variability of return caused by events that affect the products and firms that make up an industry.

2.2.7.1 The Range

The range is one of the traditional methods of measuring risk, which simply communicates the difference between the best possible returns and the worst possible return, it does not provide information about the distribution of the rates of return between the extremes.

Range=Best Possible Rate of Return-Worst Possible Rate of Return

The degree of risk of an underlying security is reflected in the magnitude of the differences. The smaller the difference the lower will be degree of risk" (Narayan Prasad Poudel, 2001).

2.2.7.2 Standard Deviation

Standard deviation is another parameter of return distribution measurement. It measures the tightness or variability of a set of outcomes. In another word, standard deviation measures the magnitude of the difference between best possible return and

worst possible return. Thus, it measures the degree of risk of common stock. Because we have defined risk as the variability of returns, we can measure risk by examining the tightness of the probability distribution associated with the possible outcomes. In general, the width of a probability distribution indicates the amount of scatter, or variability, of the possible outcomes. Therefore, the higher the probability distribution of expected returns, the less is its variability. Thus, the smaller the risk associated with the investment" (Weston & Brigham, 1996:182-183). The measure we probably use most often is the standard deviation. The symbol for which is σ (pronounced as sigma).

$$\sigma = \sqrt{\sum_{t=1}^{n} (R_i - \bar{R})^2 (P_i)}$$ where R_i = Expected rate of return

$P_{(i)}$ = Probability

σ = Standard Deviation

Thus the standard deviation is a weighted average deviation from the expected value, and it gives an idea of how far above or below expected value and the actual value is likely to be (Weston, Basely and Brigham, 1995: 182-183).

2.2.7.3 Systematic Risk and Unsystematic Risk

Systematic risk is the portion of the total risk of an individual security caused by market factors that simultaneously affect the prices of all securities. It cannot be diversified. It is also called market risk or unavoidable risk or non-diversifiable risk or beta risk. It stems from factors, which systematically affect all firms, such as war, inflation, recession, high interest rate, depressions, and long term changes in consumption in the economy.

Unsystematic risk is the portion of total risks that can be diversified. It is also called non-market risk or avoidable risk or company specific risk or diversifiable risk. It is caused by events particular to the firm. For example labor strikes, management errors, inventions, advertising campaigns, shifts in consumer taste, and lawsuits, etc.

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

Total risk = Systematic Risk + Unsystematic Risk

or, $\sigma_j=(\sigma_j) \times (\rho_{jm}) + (\sigma_j)(1-\rho_{jm})$

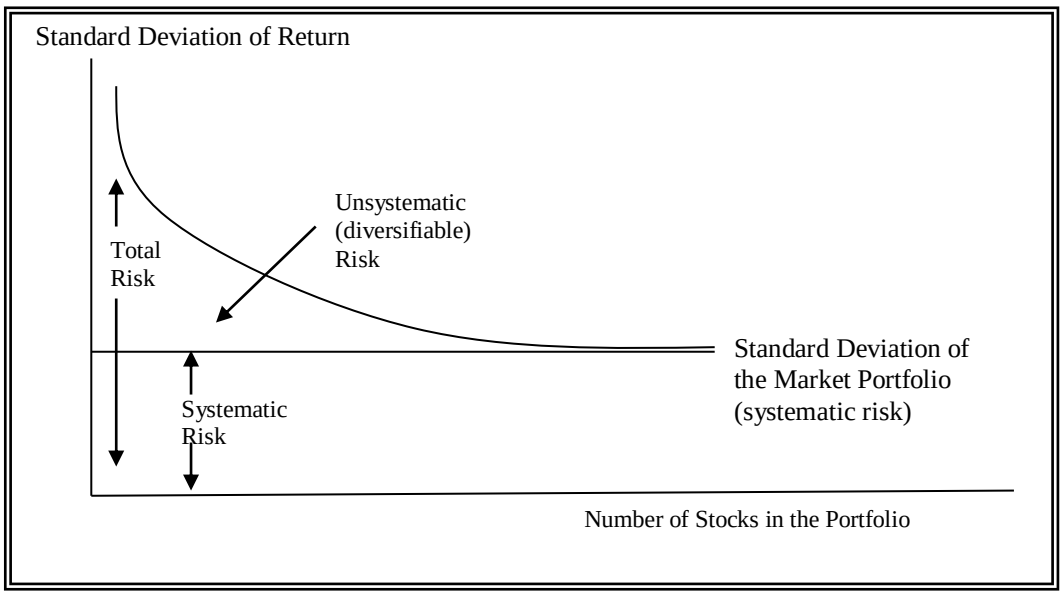
or, $\sigma_j= \beta^2 \times Var (r_m) + Var (e)$

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

The beta coefficient is an index of systematic risk. Betas can be used for a ranking of the systematic risk of assets. An asset with $\beta=1$ is moderate asset because market portfolio and asset's return is equal. An asset with $\beta> 1$ is an aggressive asset because it is more volatile than the market portfolio. If an assets has a $\beta<1$, the asset is defensive asset and the response of the asset will be less than that of the market.

Figure 2.1

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



(Source: Western and Brigham, 1995:185)

Systematic risk refers to that portion of total variability in return caused by factors affecting the prices of all securities. Economic, political, and sociological changes are sources of systematic risk. Their effect is to cause prices of nearly all individual common stocks and/or all individual bonds to move together in the same manner (Donald et al., 2002: 70).

Systematic risk includes Market risk, Interest rate risk and purchasing power risk. "Market risk and interest rate risk can be defined in terms of uncertainties as to the amount of current dollars to be received by an investor's purchasing power risk is the uncertainty of the purchasing power of the amounts to be received. In more, every day terms, purchasing power risk refers to the impact of inflation or deflation on an investment" (Donald et al., 2002: 73).

Unsystematic risk is that portion of total risk that is unique to a firm or industry. Factors such as management capability, consumer preferences, and labor strikes can cause systematic variability of returns for in a firm. Unsystematic factors are largely independent of factors affecting securities markets in general. Because these factors affect one firm, they must be examined separately for each company (Donald et al., 2002: 72).

The uncertainty surrounding the ability of the issuer to make payments on securities seems from two sources: (1) The operating environment of the business, and (2) the financing of the firm. These risks are referred to as business risk and financial risk, respectively. They are strictly a function of the operating conditions of the firm and the way in which it chooses to finance its operations. Our intention here will be directed to the broad aspects and implications of business and financial risk" (Donald et al., 2002:74-75).

2.2.7.4 Portfolio

Conceptually portfolio is a collection of securities that have been gathered to achieve certain investment goals (Salavitabar, 1997: 173). Investors usually diversify their portfolio in order to minimize their risk given the rate of return. To minimize the risk of portfolio an individual invest in securities with different risk and return characteristics. This procedure is called diversification. The degree of diversification

varies depending on how risk avert the investor, is. This determines the level of risk and return of the portfolio. “An efficient portfolio is that portfolio which maximizes return for a given risk or minimizes, risk for a given return. The efficient frontier may be defined as the collection of all possible portfolios that are not dominated or that have the maximum possible expected return, given a level of risk or standard deviation” (Donald et al., 2002:173).

Portfolio can be classified into

a. Growth oriented portfolio and
b. Income oriented portfolio

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

There are two types of objectives of portfolio:

Primary Objectives	Secondary Objectives
○ Maximization of Profit ○ Minimization of risk.	○ Regular return ○ Stable income ○ Appreciation of Capital ○ Ever liquidity ○ Easy marketability ○ Safety of investment ○ Tax Benefits

2.2.8 Capital Assets Pricing Model (CAPM)

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

Sharpe & Litner (1991) developed ‘Capital assets pricing Model’ (CAPM). This model provides the intellectual basis for a number of the current practices in the investment industry. Although many of these practices are based on various extensions and modifications of the CAPM, a sound understanding of the original

version is necessary in order to understand them, CAPM is based on the following assumptions (Litner, 1990: 13-37).

1. Investors evaluate portfolios by looking at the expected returns and standard deviations of the portfolio over a one-period horizon.
2. Investors are risk averse, so when given a choice between two otherwise identical portfolios, they will choose the one with the higher expected return.
3. Investors are never satisfied, so when given a choice between two otherwise identical portfolios, they will choose the one with lower standard deviation.
4. Individual assets are infinitely divisible meaning that an investor can buy a fraction of a share if he or she so desires.
5. There is a risk–free rate, at which an investor may either lend (that is invest) money or borrow money.
6. Taxes & transactions costs are irrelevant.
7. All investors have the same for one period horizon.
8. The risk–free rate is the same one period horizon.
9. Information is freely and instantly available to all investors.
10. Investors have 'homogeneous expectation' meaning they have the same perception in regard to the expected returns, standard deviations, and covariance of Securities.

The equation for CAPM is

$E(r_i)= R + [E(r_m) – R] b_i$

where

$E(r_i)$ is the expected return for an assets.

R is the risk-free rate (usually assumed to be short term T-bill rate).

$E(r_m)$ is the expected market return.

b_i is the systematic or market related risk.

It means the sensitivity of a stock's returns. It changes in returns on the market portfolio. The beta of portfolio is simply a weighted average of the individual stock beta in the portfolio".

"CAPM model based on the proposition that any stock's required rate of return is equal to the risk-free rate of return plus a risk premium where risk reflects diversification" (Weston et al., 1996:193).

"Remember the relevant risk associated with an individual stock is based on its systematic risk, which depends on how sensitive the firm's operations are to economic events such as interest rate changes and inflationary pressures. Because the general movements in the financial market reflect movement in the economy, the market risk of the stock can be measured by observing its tendency to move with the market, or with an average stock that has the same characteristics as the market. The measure of the stock's sensitivity to market fluctuations is called its beta coefficient. Beta is a key element of the CAPM" (Weston, et al., 1996:202).

"Based on the behavior of the risk averse investor, there is implied an equilibrium relationship between risk and expected return for each security. In market equilibrium, a security will be expected to provide a return commensurate with its unavoidable risk. This is simply the risk that cannot be avoided by diversification. The greater the unavoidable risk of a security, the greater the return that investor will expect from the security. The relationship between expected return and unavoidable risk, and the valuation of securities that follows, is the essence of the capital asset pricing model (CAPM)" (Van Horne, 1997:64-65).

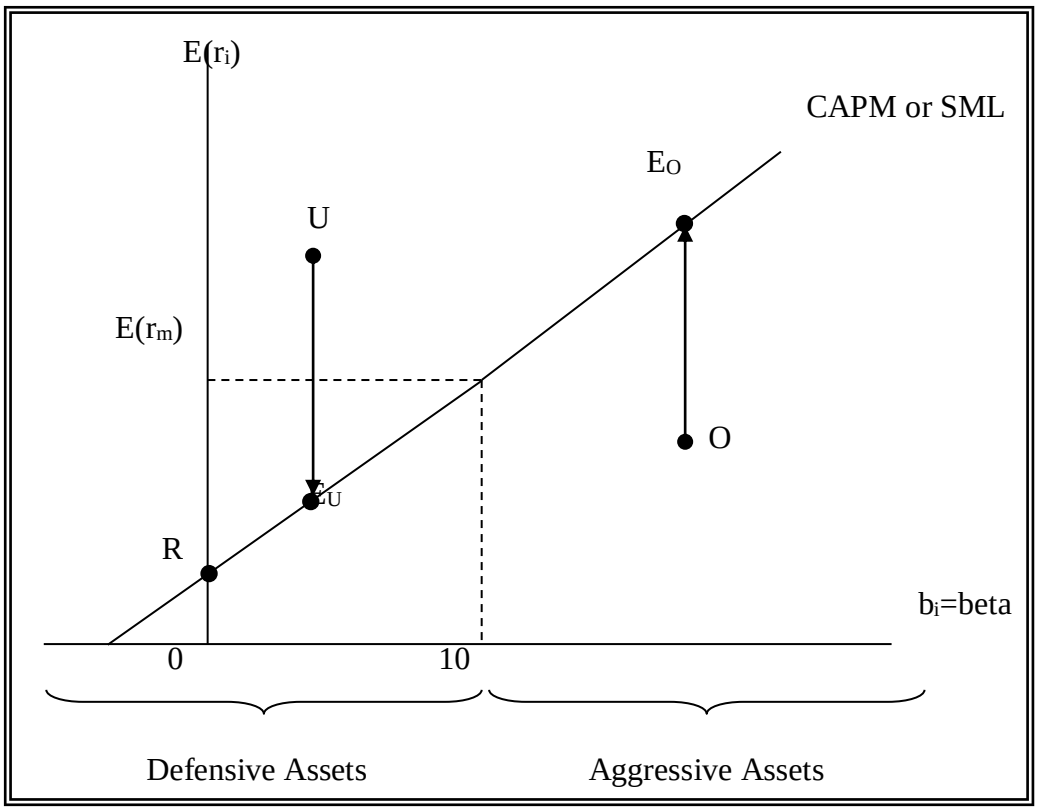
"The major implication of the CAPM is that the expected return of an asset will be related to a measure of risk for that asset known as beta (β). The exact manner in which expected return and beta are related is specified by the CAPM. The model provides the intellectual basis for a number of the current practices in the investment industry" (William et al., 1996: 261-262).

Beta measures undiversifiable risk. Beta shows how the price of a security responds to market forces. In effect, the more responsive the price of a security is to changes in the market, the higher will be its beta. Beta is calculated by relating the returns on a security with the returns for the market.

In summary, CAPM expresses the relationship between an asset's return and its systematic risk. The relevant risk for an individual asset is systematic risk (or market-related risk) because of non-market can be eliminated by diversification. The CAPM is an equilibrium model for measuring the risk-return tradeoff for all assets including both inefficient and efficient portfolio.

Figure 2.2

The Capital Assets Pricing Model



(Source: Francis, 1991: 276)

A vertical line in the Figure 2.2 shows a risk class for systematic risk. The CAPM relates an expected return to each of the systematic risk. These expected returns can be interpreted as the appropriate discount rates, as the cost of capital, or as equilibrium rate of return that investors expect for that amount of systematic risk. In the figure, U and O are not in equilibrium on the CAPM. Asset U is undervalued and therefore desirable to own the asset. The price of U will rise in the market as more investors purchase it. When price goes up of asset U, its return falls. When U's return falls to the return consistent with its beta on the SML, equilibrium is attained. The asset O is overvalued. Investors will attempt to sell O, and therefore puts the downward pressure on O's price. When the return on asset O increases to the rate that

is consistent with the beta risk level given by the SML, equilibrium will be achieved and downward price pressure will cease.

Hence, the CAPM or SML is relationship in which the expected rate of return of the individual asset is a linear function of that asset's systematic risk as represented by beta (β), symbolically. According to Sharpe & Litner (CAPM) study: the greater the beta of a security, the greater the risk and the greater the expected return required. The lower the beta, the lower will be the risk.

2.2.9 Capital Market Line (CML)

If borrowing and lending opportunities are included in the chart analysis, a linear set of investment opportunities is appeared called capital market line (CML) emerges. It is the locus of the portfolios that wealth seeking risk-averse investors will find more desirable than any other portfolios. CML illustrates the positive relationship between risk and average return. So, it is always be positive sloped because investors are risk averse i.e. sleepless.

The assumptions underlying capital market theory are as follows:

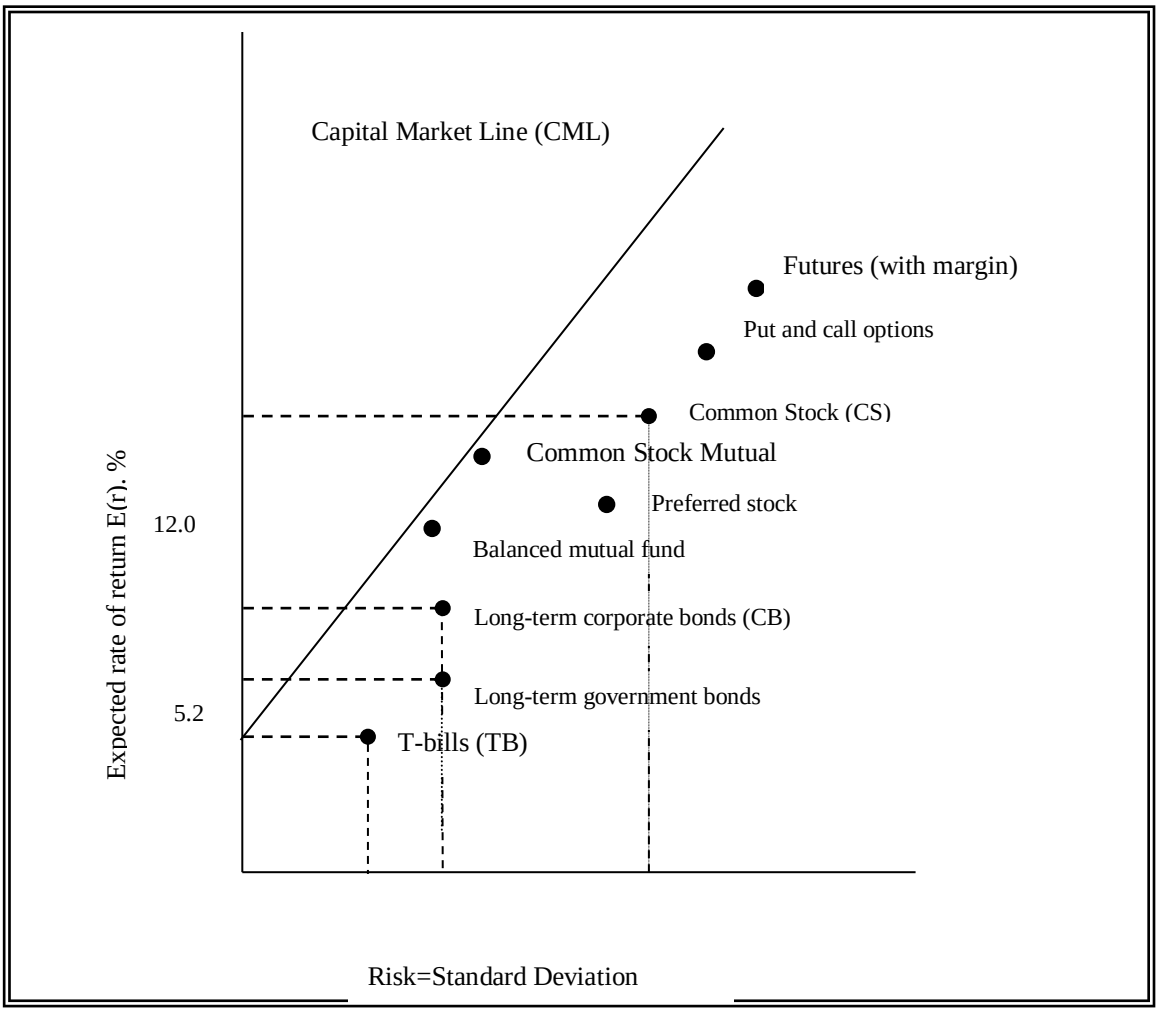
1. Money can be borrowed and lent at the risk-free rate.
2. All investors have homogenous expectations concerning expected returns and risks on securities.
3. Investments are infinitely divisible.
4. No taxes or transaction costs exist.
5. No inflation exists.
6. Capital markets are in equilibrium.

The main focus of investment graphed in risk-return space which has (1) the maximum expected rate of return in their risk class or (2) the maximum risk at whatever rate of return is selected. The efficient investments are called efficient portfolios because individual assets are dominated and will not be able to attain the efficient frontier (William et al., 1996: 19). So, if it is constructed, it will be found convex towards expected rate of return axis in risk rate space.

The portfolio having risk reducing power of diversification is needed to reach a positive in risk-return space that is on or near the CML. Only diversified portfolio can attain the CML. The CML is assumed to be the market equilibrium situation and is the locus of the most desirable, or most dominant, investment portfolios. CML concentrates how to form a portfolio that is efficient enough to lay on the CML.

Figure 2.3

The capital Market Line (CML) and Other Investment Opportunities



(Source: Francis 1991:19)

The dots that lie below the CML represent individual stocks, bonds, commodity futures, puts, calls, and other investments. The dots labeled CS, CB, and TB represents the average common stock (CS), corporate bond (CB), and Treasury bill (TB) investments that were shown in the Figure 2.3 (Francis, 1991:19).

2.3 Portfolio Analysis among Multiple Assets

Source:- A Post Doctoral research paper, developed by scholars of Tianjin University, Tianjin, Xiangtan University, Hunan and Peking University http://www.china-review.com.

The capital-asset pricing model (CAPM) discovered by Sharpe (1964), Litner (1965) and Mossin (1966) is a general equilibrium model. It not only allows improved understanding of market behavior, but also provides practical benefits. At the same time, it also provides a practical mechanism for evaluating performance in a risk-adjusted mode. This model thus provides the initial basis for the practical implementation of the many aspects of portfolio analysis. However, Richard Roll (1977) has directed some biting criticism at the tests in affirming the CAPM. This criticism is aimed at one of the critical notions "the identifying of the efficient market portfolio". This paper solves the highly difficult problem by a geometrical way. It first denotes the efficient frontier of Markowitz model with the weights vector of portfolio. Then, it denotes the capital market line (CML) with the weights vector too. By the definition of the CML, the efficient market portfolio thus can be identified.

In the path-breaking work on Portfolio Selection, Markowitz (1952) developed the concept of an efficient portfolio in terms of the expected return and standard deviation of return. It analyses the ingenerate relation between the return and risk for portfolio quantification. The Markowitz model is the foundation for portfolio. It make people be able to describe and solve the optimization question of a portfolio by the numbers. The Markowitz model is normative it shows how investors ought to behave. Given that investors behave in the fashion suggested by Markowitz, there are implications for

- The behavior of security prices,
- The sort of risk-return relationship that one would expect, and
- The appropriate measure of risk for securities.

The capital-asset pricing model (CAPM) discovered by Sharp (1964), Litner (1965) and Mossin (1966) is a general equilibrium model that attempts to provide more explicit answers for those implications.

The CAPM not only allows improved understanding of market behavior, but also provides practical benefits. At the same time, it also provides a practical mechanism for evaluating performance in a risk-adjusted mode. This model thus provides the initial basis for the practical implementation of the many aspects of portfolio analysis. However, Richard Roll (1977) has directed some biting criticism at the tests in affirming the CAPM. This criticism is aimed at one of the critical notions "the concept of a market portfolio".

2.3.1 Efficient Frontier of Markowitz Model

Portfolio construction can be viewed as a matter of selecting securities to include in a portfolio and then determining the appropriate weighting: proportional representation of the securities in the portfolio. The Markowitz model indicates that the proper goal of portfolio construction should be to generate a portfolio that provides the highest return at a given level of risk or the minimum risk at a given level of return. A portfolio having this characteristic is known as an efficient portfolio and lie in the solution set of the below model.

$$(\mathrm{I})\begin{cases} \min \sigma_p^{\,2} = X^T \Sigma X \\ \max E(r_p) = X^T R \\ \text{s.t.} \sum_{i=1}^{n} xi = 1 \end{cases}$$

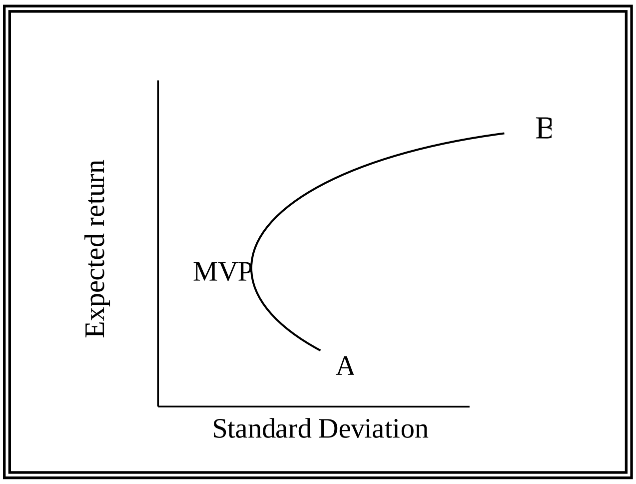
$R = [R_1, R_2, \Lambda, R_n]^T, R_i = E(r_i)$ is the expected return rate of the i^{th} asset.

$X = [X_1, X_2, \Lambda, X_n]^T$ is the weight vector of the portfolio. $\Sigma = [\sigma_{ij}]_{n\times n}$ is the covariance matrix of n assets. $R_p = E(r_p)$ and $\sigma_p^{\,2}$ are the expected return rate and its variance of portfolio. The σ_p, which is used to measure the risk of portfolio by Markowitz and called the standard deviation of the return rate, express the scope between the return rate of portfolio r_p and $E(r_p)$.

It is common knowledge that the solution of the model (I) is the curve $\overline{AB}$ in $\sigma_p - R_p$ space (figure 2.4) and is called the efficient frontier of portfolio.

Figure 2.4

Standard Deviation



Because $x_1 + x_2 + \Lambda + x_n = 1, x_n = 1 - x_1 - x_2 - \Lambda - x_{n-1}$. The expected return $R_p = E(r_p)$ and its variance $\sigma_p{}^2$ of portfolio can be represented:

$$R_p = x_1 R_1 + x_2 R_2 + \Lambda + x_{n-1} R_{n-1} + (1 - x_1 - \Lambda - x_{n-1}) R_n \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \ (2.1)$$

$$\begin{aligned}\sigma_p{}^2 &= x_1{}^2 \sigma_{11} + x_2{}^2 \sigma_{22} + \Lambda + x_{n-1}{}^2 \sigma_{n-1n-1} + (1 - x_1 - \Lambda - x_{n-1})^2 \sigma_{nn} \\ &+ 2x_1 x_2 \sigma_{12} + \Lambda 2 x_1 x_{n-1} \sigma_{1n-1} + 2x_1(1 - x_1 - \Lambda - x_{n-1}) \sigma_{1n} \\ &+ \Lambda + 2_{n-1}(1 - x_1 - \Lambda - x_{n-1}) \sigma_{n-1n} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2.2)\end{aligned}$$

The covariance matrix Σ is a definite matrix. So the formula (2.2) stands for an equal variance ellipsoid in the weights-space(x_1, x_2, Λ x_{n-1}). With regard to different $\sigma_p{}^2$, we can get a family of equal-variance ellipsoids that have a concentric MVP. The center MVP expresses the portfolio that has the least risk in the set of feasible portfolios. In the weights-space (x_1, x_2, Λ x_{n-1}), the formula (2.1) stands for an equal-expected-return super-plane. With regard to different R_p, we can obtain a family of parallel super-plane. So the optimal weights of the portfolio that includes n assets should be the tangential point between the equal -expected-return super-plane (2.1) and the equal-variance ellipsoid (2.2). Joining these tangential points, we can obtain straight line that is called the critical-line of the portfolio of n assets. In fact, the critical-line is the manifestation of the efficient frontier in weights-space.

Knowing from differential geometry, the normal vector of the formula (2.1) at point (x_1, x_2, Λ x_{n-1}) is:

$$(R_1 - R_n, R_2 - R_n, \Lambda, R_{n-1} - R_n)$$

The normal vector of the formula (2.1) at point (x_1, x_2, Λ x_{n-1}), is

$$\begin{Bmatrix} (\sigma_{11} + \sigma_{nn} - 2\sigma_{1n})x_1 + \Lambda + (\sigma_{1k} + \sigma_{nn} - \sigma_{1n} - \sigma_{kn})x_k + \Lambda \\ + (\sigma_{1n-1} + \sigma_{nn} - \sigma_{1n} - \sigma_{n-1n})x_{n-1} + \sigma_{1n} - \sigma_{nn} \end{Bmatrix}$$

$$\Lambda\Lambda\Lambda\Lambda\Lambda\Lambda\Lambda\Lambda\Lambda$$

$$(\sigma_{1n-1} + \sigma_{nn} - \sigma_{1n} - \sigma_{n-1n})x_1 + \Lambda + (\sigma_{kn-1} + \sigma_{nn} - \sigma_{kn} - \sigma_{n-1n})x_k + \Lambda$$
$$+ (\sigma_{n-1n-1} + \sigma_{nn} - 2\sigma_{n-1n})x_{n-1} + \sigma_{n-1n} - \sigma_{nn}$$

Let

$$P_1 = [1,0,0,\Lambda,0,0,-1]$$
$$P_2 = [0,1,0,\Lambda,0,0,-1]$$
$$\Lambda\ \Lambda\ \Lambda\ \Lambda\ \Lambda$$
$$P_{n-1} = [0,0,0,\Lambda,0,1,-1]$$

$$Q = \begin{bmatrix} 1 & 0 & \Lambda & 0 & 0 \\ 0 & 1 & \Lambda & 0 & 0 \\ M & M & o & M & M \\ 0 & 0 & \Lambda & 1 & 0 \\ -1 & -1 & \Lambda & -1 & 1 \end{bmatrix} \qquad W = \begin{bmatrix} x_1 \\ x_2 \\ M \\ x_{n-1} \\ 1 \end{bmatrix}$$

Then the normal vector of the formula (2.1) at point (x_1, x_2, Λ x_{n-1}) can be simplified to $(P_1\Sigma QW, P_2\Sigma QW, \Lambda, P_k\Sigma QW, \Lambda, P_{n-1}\Sigma QW)$ According to the definition of the critical-line, we can obtain the equation of the critical-line (i.e. the efficient frontier of Markowitz Model) that is:

$$\frac{P_1\Sigma QW}{R_1 - R_n} = \frac{P_2\Sigma QW}{R_2 - R_n} = \Lambda = \frac{P_k\Sigma QW}{R_k - R_n} = \Lambda = \frac{P_{n-1}\Sigma QW}{R_{n-1} - R_n} \text{.....(2.3)}$$

By the formula (2.3), we can obtain a linear equations group that is composed of n-1 linear equations.

$$\begin{cases} a_{11}x_1 + a_{12}x_2 + \Lambda + a_{1n-1}x_{n-1} = b_1 \\ a_{21}x_1 + a_{22}x_2 + \Lambda + a_{2n-1}x_{n-1} = b_1 \\ \Lambda\Lambda\Lambda\Lambda\Lambda \\ a_{n-2,1}x_1 + a_{n-2}x_2 + \Lambda + a_{n-2n-1}x_{n-1} = b_{n-2} \text{.....(2.4)} \end{cases}$$

Here,

$$a_{ij} = \frac{\sigma_{ij} + \sigma_{nn} - \sigma_{in} - \sigma_{jn}}{R_i - R_n} - \frac{\sigma_{i,n-1} + \sigma_{nn} - \sigma_{jn} - \sigma_{n-1,n}}{R_{n-1} - R_n}$$

$$b_i = -\frac{\sigma_{in} - \sigma_{nn}}{Ri - R_n} + \frac{\sigma_{n-1,n} - \sigma_{nn}}{R_{n-1} - R_n} \text{ (i=1, 2, } \Lambda \text{ n-2, j=1, 2, } \Lambda \text{ ,n-1)}$$

2.3.2 Capital Market Line (CML) and the Market Portfolio

The CAPM is usually derived on the assumption that there exists a risk less asset available for investment. It is further assumed that investor can borrow or lend as much as desired at risk-free rate. Given this opportunity, investors can then mix risk-free assets with a portfolio of risky assets M to obtain the desired risk-return combination. Let W represents the proportion invested in risk-free assets and 1-W the proportion invested in the risk assets, we can use a formula to calculate the expected return on the combination of portfolio R_p:

$$R_p = E(r_p) = Wr_f + (1-W)E(r_M) = Wr_f + (1-W)R_M \text{.....(3.1)}$$

The variance of the portfolio is:

$$\sigma_p{}^2 = W^2\sigma_p{}^2 + (1-W)^2\sigma_M{}^2 + 2W(1-W)\rho)_f\sigma_M = (1-W)^2\sigma_M{}^2 \text{.....(3.2)}$$

So,

$$\sigma_p = (1-W)\sigma_M \text{.....(3.3)}$$

Taking the formula (3.3) into formula (3.1), we get:

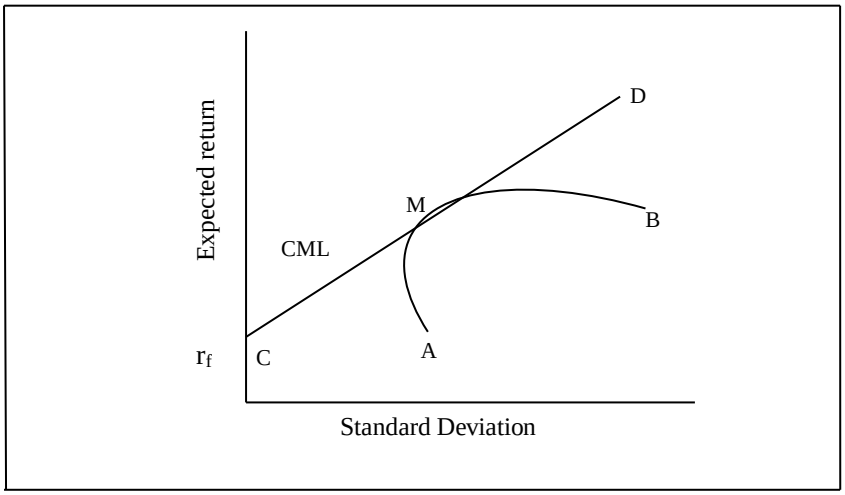
$$R_p = r_f + \frac{R_M - r_f}{\sigma_M}\sigma_p \text{.....(3.4)}$$

This is the capital market line (CML)

The possibility of lending and borrowing changes the original efficient frontier AMB to the straight line CMD, as shown in Figure 2.5. This line, rising from the interest rate point C on the vertical axis and tangential to the curve at point M, sets out all the alternative combinations of the risky portfolio M with risk-free borrowing and lending. The portfolio M is called the efficient portfolio, it is an efficient portfolio.

Figure 2.5

Efficient Portfolio



Changing the formula (3.4) into:

$$R_p = r_f + k\sigma_p \text{.....(3.5)}$$

We can then obtain

$$\sigma_p^{\,2} = \frac{1}{k^2}(R_p^{\,2} - 2R_p r_f + r_f^{\,2}) \text{.....(3.6)}$$

Taking $R_p = X^T R$ and $\sigma_p^{\,2} = X^T \Sigma X$ into the formula (3.6), we can get:

$$X^T \Sigma X = \frac{1}{k^2}\left[r_f^{\,2} - 2r_f X^T R + (X^T R)^2\right] \text{.....(3.7)}$$

The rank of the linear equations group (2.4) is n-2, so the number of its basic set of solutions is 1. That is saying that $x_2, x_3, \Lambda, x_{n-1}$ can all be expressed by x_1. Knowing from the formula (2.5), therefore, x_n can be expressed by x_1 too. Taking $x_2, x_3, \Lambda x_n$ into the formula (3.6), we get a quadratic equation with one unknown concerning x_1. The point M is a tangential point, so x_1 has only one root. According to the extract roots formula, we can find the values of x_1 and k. Then we can get naturally the value of $x_2, x_3, \Lambda x_n$. By the value of k, we can also get the equation of the capital market line (CML). According to the following formulas:

$$R_p = X^T R \text{..... .....(3.7)}$$

$$\sigma_p^{\,2} = X^T \Sigma X \text{..... ...(3.8)}$$

We can obtain the expected return R_M and the variance $\sigma_M^{\,2}$ of the efficient market portfolio respectively.

2.4 Review of Previous Studies

2.4.1 Review of Journal and Articles

Although, there are very less articles published about the risk and return analysis of Nepalese commercial banks, some of the related articles published in national and international newspapers and journals are extracted below.

Ravenscraft, (1999) in *"The Performance of Hedge Funds: Risk and Return, and Incentive"* journal of finance have examined that Hedge funds may be enhancing returns by taking on extra risk. Many hedge funds use tools designed to reduce systematic rather than total risk. Though this is obviously true for short sellers and market neutral funds techniques such as short sales are employed by most hedge funds. Combination of incentives alignment and investment flexibility gives hedge funds a clear performance advantage over funds. Incentives funds are the most important and significant determinants of risk adjusted return using 2, 4,6and 8 year sample all ending in December 1995 with 547,272,150 and 79 hedge funds observations, main finding of this study are the average hedge fund sharp ratio is higher than comparable mutual funds sharp ratio and this performance advantage increase when we match fund by reign hedge funds achieve this sharp ratio superiority despite their higher total risk. In this study, the average total risk is higher for hedge funds. Thus, some of the characteristics that enhance hedge fund performance may not be appropriate for mutual funds that attract undiversified, risk averse clients.

The hedge fund conclude that the flexible investment options employed by hedge funds make it difficult to classify hedge funds identify the correct benchmarks and thus measure relative performance standard deviation of returns measure of total risk may not fully capture the complex risk taking from hedge funds dynamic highly levered strategies monthly incentive fees, therefore contain an unknown reporting bias that may be as important as depreciation and transfer pricing issues in accounting profits.

"There is growing empirical evidence that multiple factors are cross-sectionally correlated with average returns in the United States. Measured over a long time, stocks of small firms earn higher average returns than that of the bigger firms. Fama French (1992, 1996) and Lakonishock, Shleifer and Vishny (1994) show that

value/stocks with high book-to-market, earning to price, on cash-flow to price outperform growth stocks with low book-to-market, earning-to-price , on cash-flow to price. Moreover, stocks with high return over the year continue to outperform stocks with poor prior performance. The evidence that beta is also compensated for average returns is weaker.

The interpretation of evidence is strongly debated. Some believe that the premium are a compensation for pervasive risk factors, others attribute them to firm characteristics or an inefficiency in the way market incorporate information into prices. Yet others average that the premiums may be biased by survivorship or data snooping. Again from the perspective of collecting independent samples, emerging market countries are particularly interesting because of their relative isolation from the capital markets of other countries. Compared to the developed markets, the correlation between most emerging markets and other stock markets has historically been low (Harvey, 1995) and until recently many emerging countries restricted investment by foreign investors.

Interestingly, Bekaert and Harvey found that despite the recent trend toward abolition of these restrictions and the substantial inflows of foreign capital, some emerging equity markets have actually become more segmented from world capital markets. A large portion of the equity capital of emerging economies is held by local investors who are likely to evaluate their portfolios in light of local economies and market condition (Rouwenhorst, 1999:1439-40).

Shrestha, (2055) has given a short glimpse on the *"Portfolio Management in Commercial Bank, Theory and Practice".* Shrestha has highlighted the following issues in the articles. The portfolio Management becomes very important both for individuals as well as institutional investors. Investors would like to select a best mix of investment assets subject to the following aspects:

- Higher return which is comparable with alternative opportunities available according to the risk class of investors.
- Good Liquidity with adequate safety of investment.
- Certain capital gains.

- Maximum tax concession.
- Flexible investment.
- Economic, efficient and effective investment mix.
- In view of above aspects, following strategies are adopted.
- Do not hold any single security i.e. try to have a portfolio of different securities.
- Do not put all the eggs in one basket i.e. have a diversified investment (making investment in different sectors)
- Chose such a portfolio of securities, which ensures maximum return with minimum risk or lower of return but with added objectives of maximization.

However, Shrestha has also presented the following approaches to be added for designing a good portfolio and its investment.

- To find out the invisible assets (generally securities) having scope for the returns depending upon individual characteristics like age, health, disposition, liquidity, tax liability.
- To find out the risk of securities depending upon the attitude of investor toward risk.
- To develop alternative investment strategies for selecting a better portfolio, this will ensure a trade off between risk and return. So as to attach primary objective of wealth maximization at lowest risk.
- To identify securities for investment to refuse volatility of return and risk. In the context, Shrestha has presented two types of investment analysis techniques i.e. fundamental analysis and technical analysis to consider any securities such as equity debentures or bond and other money and capital market instruments.

He has suggested that the banks having international network can also offer access to global financial market. Shrestha has also pointed out the required skilled manpower research and analysis and proper Management Information System (MIS) in any type of commercial banks to get success in portfolio management and customer's confidence.

Shrestha, **(**2057**)** in his artical *"Commercial Banks Comparative Performance Evaluation"* concluded that the Joint Venture Banks are new operationally more

efficient, having superior performance while comparing with local banks that are operating in Nepal. Better performance of joint venture banks is due to their sophisticated technology, modern banking method and skill. Their better performance is also due to the government's branching policy in rural areas. Local banks are efficient and expertise in rural sectors but having number of deficiencies. Thus, local banks are facing growing constraints of socio-economic, political system on one hand spectrum and that of the issues and challenge of joint venture banks commanding significant banking business on other spectrum.

A study on *"How theories of Financial Intermediation of Corporate Risk-Management Influence Bank Risk-Taking Behavior*" has based on the relation for the risk taking and risk management behavior from a both corporate finance and banking perspective. That data set covers the period from 1986-94, 1986-90 and 1991-94 but overall time of the study is 9 year period. In this study, the research scholar has used mathematical tools that are the model beta, standard deviation, total risk (systematic and unsystematic risk), and interest rate risk. The main objective of the study is to examine the relation for risk taking and risk management behavior for both corporate financial and a banking perspective. After combining the theoretical insights from the corporate finance and banking literatures related to hedging and risk taking the paper reviewed empirical tests based on these theories to determine which of these theories are best supportive by the data (Pegano, 2001:277-323).

Management incentives appear to be must consistently supported rational for the describing how bank manage risk. In particular, moderate/high levels of equity ownership reduce bank risk while positive amount of stock option grants increase bank risk-taking behavior. The empirical tests of theory of corporate risk management need to consider individual subcomponents of total risk and the bank ability to trade these risks in a component financial market.

Various researchers have analyzed the class of stochastic volatility diffusions for assets returns to encompass poison jumps of time varying intensity. Any reasonably descriptive continuous – time index returns must allow for discrete jumps as well as stochastic volatility with a pronounced negative relationship between return and

volatility innovations. They also tend that dominant empirical characteristics of the return process appear to be priced by the option market. Their analysis indicates a general correspondence between the evidence extracted from daily equity and the stylized features of the corresponding options market prices. They conclude that much assets and derivative pricing theory is based on diffusions models for primary securities. Yet, there are very few estimates of satisfactory continuous time models for equity returns. The objectives of the paper is to identify a class of jump - diffusions that are successful in approximating the S&P 500 returns dynamics and therefore should constitute an adequate basis for continuous tine assets pricing applications. They also explore alternative models both within and outside of the popular fine class. Estimation is performed by careful implementation of the EMM that provides powerful model diagnostic and specification tests. Finally, they explore the relationship between their estimated models and option prices. They contrast those of their parameter estimated that are invariant to adjustments for volatility a hump risk to those reported in the option literature, and provide a qualitative comparison of the pricing implications of their estimate system and the stylized evidence from actual option data. They find that every variant of their stochastic volatility diffusions without jumps fails to jointly accommodate the prominent characteristics of the daily S&P 500 returns. Further, ever specification that does not incorporate a strong negative correlation between return innovations and diffusions volatility fails as well. In contrast, two versions of our SVJDS that incorporate discrete jumps and stochastic volatility, with return innovations and diffusion volatility strongly and negatively correlated, accommodate the main features of the daily S&P 500 returns. This is true not only of the models estimated union sub samples. The models therefore appear to get structurally stable. Finally, they find that those parameter estimates that ate invariant to adjust mints for volatility and jump risk generally are similar to those reported in the option literature and they documented that small risk premium suffice to produce pronounced patterns in Black and Scholes option implied volatilities markets. Thus, the main characteristics of the stock price process by option data independently identified as highly significant components of the underlying S and P 500 returns dynamics (Anderson, Benzoni and Lund, 2002:211).

Mahat (2004) has published an article regarding *"Efficient Banking"* in the Kathmandu Post Daily" on April 28 2004. He writes, after the restoration of

democracy, Nepal has adopted more liberal and open economic policies. The open and liberal policy of the government in the financial sector has helped in establishing many banks and financial institution in the country. These banks have contributed towards introduction new technology, new banking systems and efficient service delivery in the country.

Banking industry was booming until recent past. But, the recent economic slowdown they started affecting the performance of commercial banks. the principle of survival of the fittest will hold good under such a scenario. Therefore, a bank has to increase efficiency to win the competition. The efficiency of banks can be measured using different parameters. The concept of productivity and profitability can be applied while evaluating efficiency of banks. The term productivity refers to the relationship between the quantity of inputs and outputs. If more output can produced from the same inputs or the same outputs can be produced from fewer inputs, it is said that productivity has increased. As the government banks are at distress, these banks are left out for evaluation. Similarly, Siddhartha bank, Laxmi Bank and Kumari Bank are late entrants in the industry and are in the process or increasing business volume to achieve economics of therefore, figures of these banks also may lead to misinterpretation. SCBL and HBL are well ahead in terms of other income to interest income ratio. On the other had LUBL, MBL, NCCB and NSBI have poor other income to interest income ratio. Banks with higher ratio can be considered efficient, but also vulnerable in the sense that a reduction in other income will hit the profitability. Interest expenses to interest income ratio reflects the efficiency in the use of funds. SCBL could be considered the most efficient bank under this parameter while LUBL is the most efficient bank. LUBL and MBL stand efficient as they have higher operating profit to total income ratio. The operating profit to total income ratio helps in assessing whether banks are doing the right internally.

The analysis of operational efficiency of banks will help to understand the extent of vulnerability of banks under the changed scenario and in deciding whom to bank upon. This may also help the inefficient banks to upgrade their efficiency and be winner in the situation developing due to slowdown in the economy. The regulars should also be concerned on the fact that the banks with unfavorable ratios may bring catastrophe in the banking industry.

Akhigbe and Whyte (2004) in their research paper, *"The Gram-Leach-Billey Act"* of 1999: Risk implications for the Financial Service Industry have focused on risk implication of banking and private sectors. The research paper has included many other studies some of the stufies find that banj expansion into banking activities can affect of events that permitted only limited entry by banks into nonbanking activities. The study is conducted on systematic, unsystematic and total risk, such risk are calculated by using statistical tools i.e. variance and standard deviation, T-statistical and signed rank which is recently by Aminud, Delong and Saunder in 2002. The study has included 340 banks for the sample size than they partition two sub- samples: 46 large banks and 294 small banks. The major finding of the study is that evidence of a significant decline in systematic risk for the banks securities firmand insurance companies but a significant increase in total and unsystematic risk for the banks and insurance companies. The study has included five years period data. The study also found that bank and insurance companies are less risk than other securities business. If security wants to decline in risk, security firm can be explained by their ability to diversify into less risky banking and insurance activities. The research paper result suggests that regulators should carefully monitor and supervise banking activities in new era of financial modernization to migigate adverse effects from the increase in risk.

2.4.2 Review of Thesis

Pradhan, (1993) carried out study on "*Stock market behavior on small capital market"* a case study. The study was based on data collection for seventeen enterprises from 1983 through 1990. One of the major objectives which are related to this study was too access the stock market behavior in Nepal.

Findings:

- Dividend per share and MPS was positively correlated.
- Higher the earning on study the ratio of dividend per share to MPS.

Shrestha, (1999) in his study "*Portfolio Management in Commercial Banks: Theory and Practice"* revealed the portfolio management becomes very important both for

individual as well as institutional investors. Investors would like to select a best mix of investment assets subject to the following aspects.

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

In view of above aspect Shrestha stated that the investors try to hold a well diversified portfolio that helps to achieve those benefits. Investors want to increase their return by making investment in different sectors with certainty.

However, Shrestha presented approaches to find out the risk of securities depending upon the attitude of investor toward risk, to develop alternative investment strategies for selecting a better portfolio, which will ensure a trade off between risk and return so as to attach the primary objective of wealth maximization at lowest risk and finally to identify securities for investment to refuse volatility of return and risk.

He further stated that the commercial banks need competent manpower for continuous research and analysis and proper management information system to get success in portfolio management and customers confidence regarding the portfolio management in Nepalese joint venture banks, he concludes that the portfolio management activities of Nepalese commercial banks at present are in nascent stage due to less developed capital market, unavailability of sufficient financial instrument in financial market, lack of proper techniques to run portfolio management activities in the best and successful manner, its have constrained the portfolio management of most of the joint venture bank.

Upadhaya, (2001) his study *"Risk and Return Investment of Commercial Banks in Nepal."* Concluded that most people see stock market investment as a black art that they know little about. Many people have unrealistically optimistic a pessimistic

expectations about stock market investment or perhaps a fear of the unknown. As overall economy. Nepalese stock market is in emerging state. Its development accelerating since the political change in 1990 in effect of openers and liberalization in national economy. But, due to lack of information and poor knowledge. Nepalese individual investors cannot analyze the security as well as market properly.

In addition, Upadhaya added that proper analysis of individual security, industry and overall market is always needed general knowledge about economic, political and technological trend will be advantageous. To win market share should be held when the market is raising and safer investment when it is falling.
Through the study conducted by the Upadhaya did not focus on the relationship between closing MPS and EPS and this study does not also focus on the view point of individual investors as well as the company.

Shakya, (2004) *"Analysis of Risk & Return and application of SML on common stock commercial bank in Nepal."* In this study she has taken three banks as a sample size from listed commercial banks of NEPSE The main objective of the study is to analyze the risk, return and other relevant variable that help in making decision about investment on securities of the commercial bank.

The specific objectives of the study are:

- To analyze and awareness of individual investors regarding common stock investment.
- To solve the SML (Security Market line) and to analyze whether the stock is under priced or overpriced
- To show the security characteristics line (SCL) of individual stock.

Major Findings

1. 30.12% respectively, Return is an income received by investors for bearing risk within the stock. Expected return on common stock of NBB has the highest with 0.4705 i.e. 47.05%, SCBL and NABIL bank has the expected return of 39.02%.

2. Where there is return, there will be risk also. Common stock of NBB is most risky with standard deviation of 0.5542 whereas NABIL bank has standard deviation of 0.6162.
3. C.V. Measures the risk in unitary basis that means it shows how many unit of risk should be bear to gain one unit if return. In terms of C.V. SCBL has lowest C.V. i.e. 1.4203 and highest in NABIL bank with 0.0458.
4. Among the three stock, NBB's stock is more volatile having beta of 2.1785 and least volatile stock is SCBL's stock with 1.2142 beta co-efficient. In fact all of them are volatile than the market portfolio or aggressive stock having beta greater than 1.
5. All three stock are under priced having greater s. D. i.e. 0.5045 and lowest S.D. in trading sector with 0.0833.
6. Among the sectors, banking sector is more volatile with market having highest beta with 1.0728 and the stock of trading sector is defensive having lowest beta with 0.0372. After banking sector, other sector has the maximum beta with 0.7201
7. Nepalese stock market is in the emerging stage in our country. Nepalese investors are not able to analyze the securities as well as market properly due to lack of information and poor knowledge on common stock.

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 determined 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 tock 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. B y 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.

Sapkota, (2004) has performed an analysis of risk and return on common stock investment with special reference to banking sector. *"The main objective of this study is to analyze the risk and return of the common stock of commercial banks."* In his findings, Banking Industry is the biggest one in terms of market capitalization and turnover. Expected return on common stocks of Nepal Bank Ltd is found minimum. In this regard, common stock of Nepal Bank Ltd is more risky and common stock of SBI Bank Ltd is least risky. In the context of industries expected return of finance and insurance industry is found highest. Expected return of banking industry is 60.83%

the portfolio standard deviation is less than each individual stock's standard deviation. Hence the portfolio approach of investment is better way to win stock market.

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

The major findings of his study are summarized below:

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

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

Theme of Joshi's study is summarized as below:

- As analyzing the Coefficient of variation, he suggests that the banking industry is the best one for investment. Similarly, while analyzing individual securities, SCBL is the best for investment due to highest return and lowest C.V.
- Based on the findings and conclusion of the study, it is recommended to the investor that if they wish to generate higher return, then they should bear higher risk and invest in the shares of SCBL. But if they are risk averters and they want

to invest in single assets, then they can invest in the share of NIBL or HBL because these two stocks have lower risk than that of portfolio risk.

- Portfolio analysis shows that the portfolio investment can reduce risk significantly. Thus, portfolio investment is recommended to receive high return at minimum risk.

Pokharel, **(**2008**)** has under taken a study entitled *"Risk & Return on Common Stock Investment of Commercial Banks, With Reference to Six Commercial Banks."* Among various objectives of his study, some majors basic objectives of his research are to analyze, whether the common stock of commercial banks are correctly priced or not, by analyzing the required rate of return and to study systematic and unsystematic risk associated with securities of the commercials banks.

Majors finding of his study are given below:

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

0.1312 and 0.0021 respectively. As his study shows that the common stock of NIBL is overpriced and rest of all's common stocks are under priced. At the end of study, Pokharel recommended that before making investment decision, the investor should visit and discussion with investment Companies, with export and researchers because sharing experience, idea and view of export will provide grater help. also advice that the investors need to diversify their investment to reduce risk. Proper construction of portfolio never takes any considerable loss.

Mainali, (2009) has performed another study entitled *"Risk and Return Analysis on common stock investment".* In this study performed an analysis of risk and return on common stock investment with special reference to banking industry. In this study, his writs, the main objective of the study is to determine whether the shares of selected commercial banks are over-priced, under-priced or correctly valued by analyzing the risk and return. others objectives of the study are evaluate the common stock, to analyze the risk and return and to provide relevant suggestion to concerned authority based on analysis of data. His major findings on his study are given below in details:

- Among the selected commercials banks, he writs that the SCBNL has highest (i.e.32%) market capitalization which indicates that the size of the stock market of SCBNL is grater one.
- Regarding the expected rate of return among the selected commercial banks, the highest expected rate of return of SBI is 19.9% and lowest expected return on common stock of NBBL is –27.99%. So, it indicates that the investment in SBI will earn best return.
- Among the selected banks, the highest C.V. on common stock of NABIL is 12.23 and lowest C.V. common stock of SCBNL is 3.0191. It indicates NABIL stock is more risky and SCBNL stock is less risky than other. Similarly, bet coefficient of SBI is highest (i.e.3.30) and the NIBL has lowest beta coefficient (i.e.0.5831). So, it means C.S. of SBI is most aggressive stock and C.S. of NIBL is most defensive stock than other.
- At the last, he writes at major finding of his study that the correlation between NIBL and SBI is in negative. It indicates making portfolio investment in these two stocks will

Budhathoki, (2009) in this study *"Risk and Return Analysis on Common Stock Investment"* (an analysis of listed commercial banks) concluded that majority of the stock investment has been taking place without base the logical financial evaluation, for most of the investors it is the blind game. Many people have unrealistically optimistic or pessimistic expectations about stock market investments or perhaps the fear of the unknown. This study enables investors to put the return they can expect and the risks they may take into better perspective.

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

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

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 though 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 2004/05-2008/09. 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, other relevant data will be collected from individual banks, Security Board of Nepal (Thapathali) 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.
- Related URL
- Materials published in Newspapers and Magazines.
- Other related journals, periodicals, books and booklets.
- Central library T.U., Shanker Dev 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 27 commercial banks registered under Nepal Rastra Bank. The number of listed commercial banks in NEPSE is seventeen. For this, study three commercial banks Himalayan Bank Limited (HBL), Everest Bank limited (EBL) and Standard Charted Bank Nepal Limited (SCBNL) 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:

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

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 grained. 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 throughout.

Total dividend amount = Cash Dividend + Stock Dividend % $\times$ 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.

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

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 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.

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

Where,

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

n = Number of years that the return is taken.

$\sum$ = 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 (σ) sigma. It is the measure the total risk on stock investment.

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

If data is probability distribution

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

Where,

σ_j = Standard deviation on of return stock j during the time period

P_j = Probability distribution of the observation.

R_j = Probability distribution of the observation.

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

n = Number of years that the returns are taken.

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.

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

Where,

C.V. = Coefficient of variation of stock.

σ_j = Standard deviation of return on stock j.

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

5. Beta Coefficient (β)

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

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

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

Where,

β_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.

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

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

Where,

σ_i and σ_j are the standard deviations of returns for assets i and j and ρ_{ij} is correlation coefficient for asset i and j. there are various cases of correlation and risk condition which are presented below.

i) Perfectly Positive Correlation (ρ_{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 (ρ_{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 (ρ_{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 (ρ_{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.

$$Rm = \frac{\sum R_m}{n}$$

Where,

$\sum$ = sign of summation.

R_m =Market return

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.

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

Where,

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

W_i = Proportion of wealth invested in i assets.

W_j = Proportion of wealth invested in j assets.

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

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

- **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:

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

Where,

σ_p = Standard deviation of stock i & J

W_i =Proportion of asset i

W_j =Proportion of assets j

σ_i^2 =Variance of assets i

σ_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:

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

Where,

Wj = 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.

$$W_A = \frac{\sigma^2_B - Cov(R_A.R_B)}{\sigma^2_A + \sigma^2_B - Cov(R_A.R_B)}$$

Where,

W_A = Weight of proportion of stock A that minimize the portfolio risk.

$W_A + W_B = 1$, $W_B = 1 - W_A$

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, if 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

β_j = An index of systematic risk of stock j (beta coefficient)

3.5.3 Statistical Tools

Test of Hypothesis (T-test)

All the companies listed in the NEPSE index is 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 the study is less than 30, t-test is the best way for testing the hypothesis.

(a) Testing of Hypothesis (I)

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

Null Hypothesis (H_o)

$\overline{R_i} = \overline{R_m}$, i.e. there is no significant difference between the expected return of selected banks and overall market return.

Alternative Hypothesis (H_1)

$\overline{R_i} \neq \overline{R_m}$, i.e. there is significant difference between the expected return of selected banks and overall market return.

Under the H_o

The test statistics (t) is $t = \dfrac{\overline{R_i} - \overline{R_m}}{\sqrt{S^2\left(\dfrac{1}{n_1} + \dfrac{1}{n_2}\right)}}$

Where,

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

$\overline{R_m}$ = Average return of market

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

$n_1 = n_2$ = 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.

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 detail 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 28 commercial banks in operation in Nepal and among them only 17 are listed in NEPSE. Among them 3 commercial banks are taken as a sample for the study. They are Standard Chartered Bank Nepal Limited (SCBNL), Himalayan Bank Ltd. (HBL) and Everest Bank Ltd. (EBL). Common stock of each listed commercial banks, their risk and return analysis are included in this study.

4.1.1 Standard Charted Bank Nepal Limited (SCBNL)

SCBNL was established in 1985, A.D. as second joint venture bank under the company act, 1964, A. D. Standard Chartered Bank, England is managing the bank under joint venture and technical services agreement signed between banks and Nepalese promoters. The authorized issued and paid up capital of the bank is Rs. 33, 95, 48,8000.00, Rs.41, 32, 54,800.00 and Rs, 413254800.00respectvely, per value per share is Rs.100. It has is branches all over the country in operation.

4.1.1.1 Analysis of Total Dividend

Table 4.1

MPS, Dividend, EPS and P/E Ration of SCBNL

Fiscal Year	Closing MPS	Cash DPS (Rs.)	Stock Dividend (%)	Total Dividend (Rs.)	EPS	P/E ratio
2004/05	1640	110	10	274	149.30	10.98
2005/06	1745	110	0	110	143.55	12.16
2006/07	2345	120	0	120	143.14	16.38
2007/08	3775	130	10	720.00	175.84	21.47
2008/09	5900	80	50	3580.00	167.37	35.25

(Source: AGM Report of SCBNL)

According to table 4.1 SCBNL in paying cash dividend every year. And it is paying stock dividend in some year as well in year 2004/2005, 2007/2008 and 2008/2009 both cash and stock dividend. Highest total dividend is paid in the year 2008/2009 and lowest is in the year 2005/2006.

Figure 4.1

Year and Price Movement of the CS of SCNBL

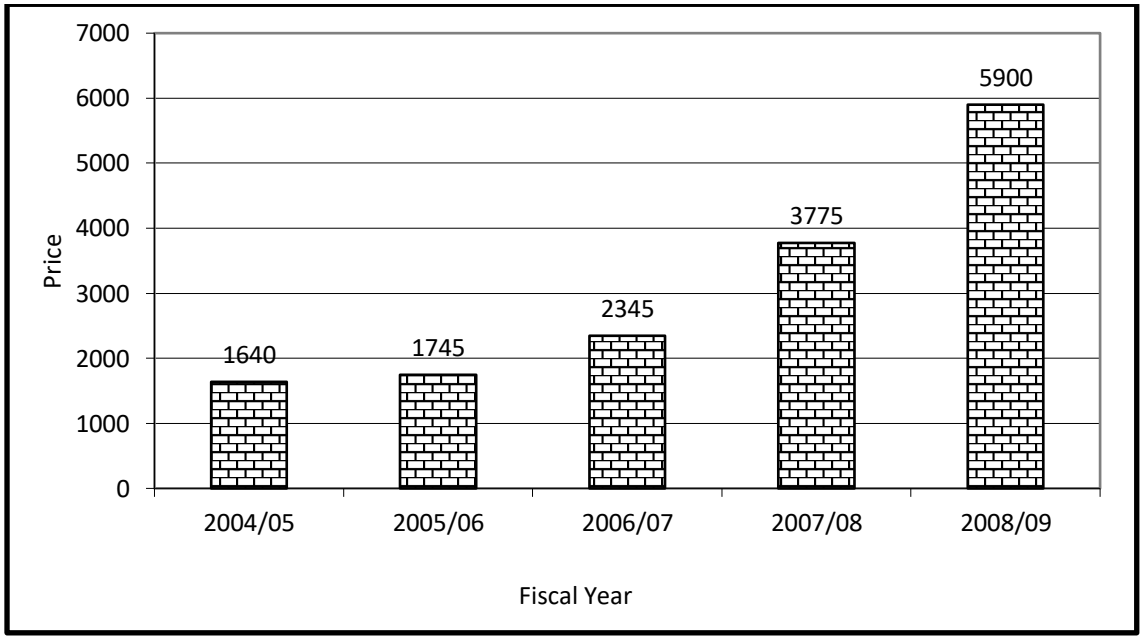


Figure 4.1 shows the interesting trend in the price of the stock. It is clearly presented that there is slow growth in the year 2004/05 and 2005/06 and the trend line shows the rapid growth after 2005/06. There is minimum price in the year 2004/05 and maximum in the year 2008/9.

Expected return of SCBNL is 0.7430 with total risk of 0.6067. The C.V. of SCBNL is 0.8166 which denotes that to get per unit return 0.8166 risk must be sacrifice. So, higher the C.V. higher will be the return.

4.1.1.2 Expected Return ($\overline{R}_j$), Standard Deviation (σ_j) and Coefficient of Variation (C.V.) of SCBNL

Table 4.2

Expected Return, S.D. and C.V. of C.S. of SCBNL

Fiscal Year	Closing MPS	Total dividend	Rj=$\frac{Dt+Pt-Pt-1}{Pt}$	(Rj-$\overline{Rj}$)	$(Rj-\overline{Rj})^2$
2004/05	1640	284.50	-	-	-
2005/06	1745	110	0.1311	-0.6115	0.3744
2006/07	2345	120	0.4126	-0.3304	0.1092
2007/08	3775	720	0.9168	0.1738	0.0302
2008/09	2345	3528	1.5113	0.7683	0.5903
			∑Rj=2.9718		$\sum(Rj-\overline{Rj})^2$=1.1041

Source: AGM Report of SCBNL

Where,

Expected return $(\overline{Rj}) = \frac{\sum Rj}{n} = \frac{2.9718}{4} = 0.7430$

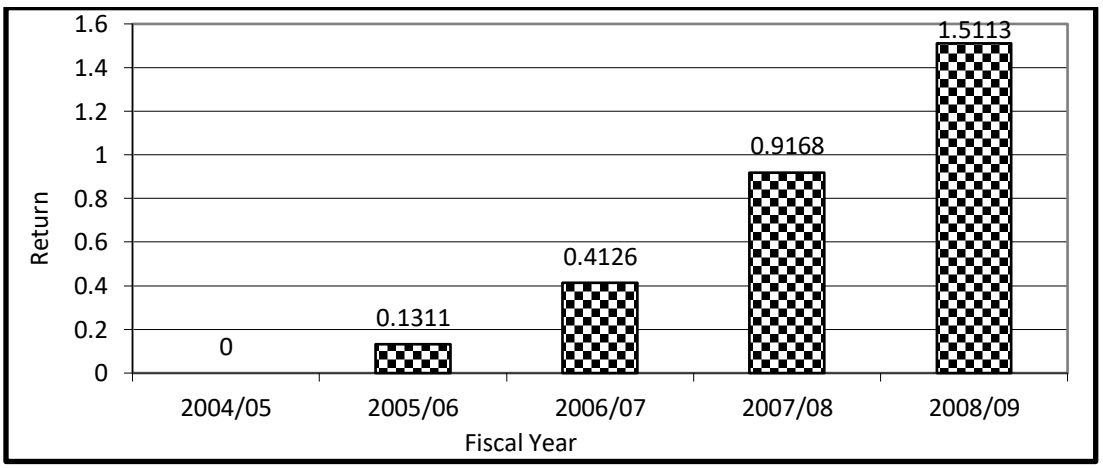
Standard Deviation $(\sigma) = \sqrt{\frac{\sum(Rj-\overline{Rj})^2}{n-1}} = \sqrt{\frac{1.1041}{3}} = 0.6067$

Coefficient of variance (C.V.) $= \frac{\sigma}{\overline{Rj}} = \frac{0.6067}{0.7430} = 0.8166$

The figure shows that the rate of return of c. s of SCBNL is in increasing trend till 2007/8 while in 2008/9 its rate of return in decreasing trend.

Figure 4.2

Annual Rate of Return C.S. of SCBNL



The figure 4.2 shows that the annual rate of return of C.S. of SCBNL is increasing trend. The rate of return is maximum on 2008/2009. Which shows highest return profitable while the return in 2005/06 is minimum.

4.1.2 Himalayan Bank Ltd. (HBL)

HBL was established in 1993 in joint venture with Himalayan 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.)

4.1.2.1 Analysis of Total Dividend

Table 4.3

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

Fiscal Year	Closing MPS	Cash DPS (Rs.)	Stock Dividend (%)	Total Dividend (Rs.)	EPS	P/E Ratio
2004/05	836	1.32	23.68	200.23	49.45	16.91
2005/06	840	0.00	20.00	184.00	49.05	17.12
2006/07	920	11.58	20.00	231.58	47.91	19.20
2007/08	1100	30.00	5.00	117.00	59.24	18.57
2008/09	1740	15.00	25.00	543.00	50.66	28.69

Source: AGM Report of HBL

The table shows that, HBL is paying cash and stock dividend every year. Highest total dividend is paid in the year 2006/07 and lowest is in the year 2004/05 P/E ratio of HBL is maximum in the year 2008/09 and minimum of year 2004/05. The closing mps of HBL is maximum of Rs.1740 in year 2008/09 and minimum of 863 in the year of 2004/05.

Figure 4.3

Annual Rate of Return C.S. of HBL

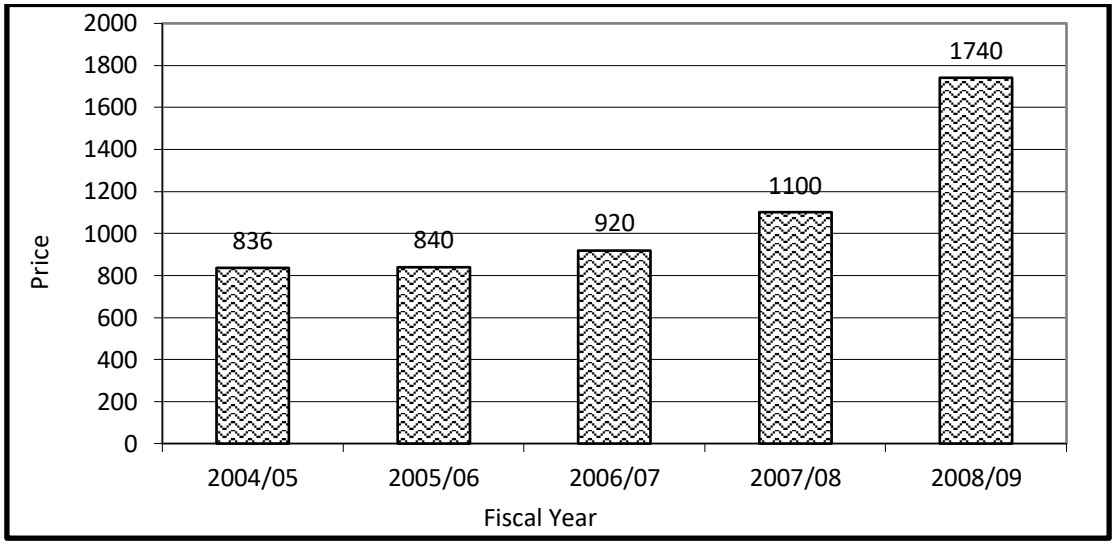


Figure 4.3 shows the trend line of price of MPS of HBL. Which is in increasing trend. The minimum is in the year 2004/05 and maximum in the year 2008/09. It is shown that there is slow growth from year 2004/05 to 2006/07 and rapid growth from 2006/07.

4.1.2.2 Return ($\overline{R_j}$), Standard Deviation (σ_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	$R_j = \frac{D_t + P_t - P_{t-1}}{P_{t-1}}$	$(R_j - \overline{R}_j)$	$(R_j - \overline{R}_j)^2$
2004/05	836	200.23	-	-	-
2005/06	840	184	0.2249	-0.2741	0.0751
2006/07	920	231.58	0.3709	0.1281	0.0164
2007/08	1100	117	0.3228	0.1762	0.0310
2008/09	1740	545	1.0773	0.5783	0.3344
			$\sum R_j = 1.9959$		$\sum (R_j - \overline{R}_j)^2 = 0.4569$

Source: AGM Report of SCBNL

Where,

Expected Return $(\overline{R}_j) = \frac{\sum R_j}{n} = \frac{1.9959}{4} = 0.4990$

Standard Deviation $(\sigma_j) = \sqrt{\frac{\sum (R_j - \overline{R}_j)^2}{n-1}} = \sqrt{\frac{0.4569}{3}} = 0.3903$

Coefficient of Variation $(C.V.) = \frac{\sigma_j}{\overline{R}_j} = \frac{0.3903}{0.4990} = 0.7822$

The expected return of HBL is 0.4990 with the total risk (Measured by S.D.) of 0.3903. The C.V. of HBL is 0.7822 which indicates that 0.7822 risks must be bearded to get per unit return. It can be shown clearly in the figure 4.2.

Figure 4.4

Annual Rate of Return of C.S. of HBL

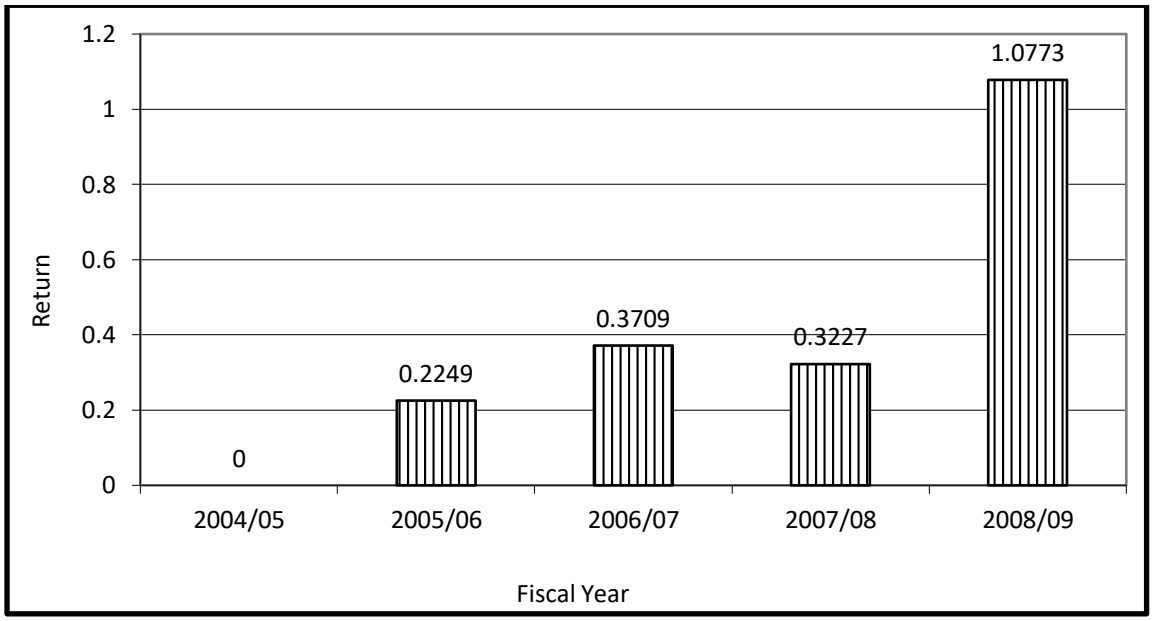


Figure 4.4 shows returns of HBL in years. There is positive and fluctuating return in years. The highest return is in the year 2008/09 i.e. 1.0779 and lowest return of 2005/06 i.e. 0.2249.

4.1.3 Everest Bank Ltd.

EBL started its operation in 1994, A.D., with a view and objective of extending professionalized and efficient banking service to various segments of the country and society as well. The bank is providing customer friendly service through a network of 28 branches.

EBL is joint venture partner with Punjab National Bank holding 20 % of equity in the bank. The bank has been conferred with "Bank of the year 2006, Nepal" by the banker a publication of financial times, London.

Overall management of the bank is managed by foreign counterpart. Its authorized, issued and paid up capital is Rs. 75,00,00,000.00, Rs. 37,80,00,000.00 and Rs. 37,80,00,000.00 respectively. The par value per share is Rs. 100. It was listed on NEPSE in 1905 A.D.

4.1.3.1 Analysis of Total Dividend

Table 4.5

MPS, Dividend, EPS and P/E Ratios of EBL

Fiscal Year	Closing MPS	Cash DPS (Rs.)	Stock Dividend (%)	Total Dividend (Rs.)	EPS (Rs.)	P/E Ratio
2004/05	445	20	-	20.00	29.90	14.90
2005/06	680	20	-	20.00	45.60	14.90
2006/07	870	-	20	275.80	54.20	16.00
2007/08	1379	25	-	25.00	62.80	22.00
2008/09	2430	10	30	862.00	78.40	31.00

Source: AGM Report of EBL

According to the table there is no cash dividend in the year 2004/05, 2006/07 and 2008/09.

Figure 4.5

MPS, Dividend, EPS and P/E Ratios of EBL

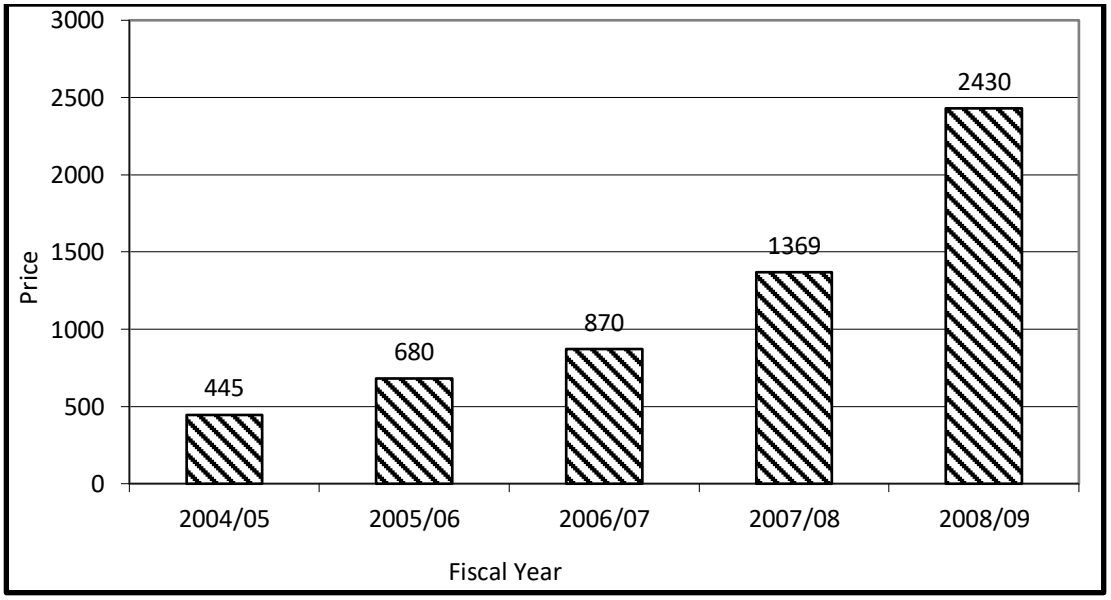


Figure 4.5 shows the trend line of price or MPS of EBL which is in increasing trend. The price is minimum in the year 2004/05 and maximum in the year 2008/09. It is shows that there is slow growth from year 2004/05 to 2006/07 and rapid growth from

2006/07. Overall price of the EBL seems as satisfactory with their growth in the market price.

4.1.3.2 Expected Return ($\overline{R}_j$), Standard Deviation (σ_j) and Coefficient of Variation (C.V.) of C.S. of EBL

Table 4.6

Expected Return, S.D. and C.V. of C.S. of EBL

Fiscal Year	Closing MPS	Total Dividend	$R_j = \frac{D_t + P_t - P_{t-1}}{P_{t-1}}$	$(R_j - \overline{R}_j)$	$(R_j - \overline{R}_j)^2$
2004/05	445	20	-	-	-
2005/06	680	20	0.5730	-0.02418	0.0587
2006/07	870	275.80	0.6850	-0.1290	0.0168
2007/08	1379	25	0.6138	-0.201	0.0404
2008/09	2430	862	1.3872	0.5724	0.3276
			$\sum R_j = 3.259$		$\sum (R_j - \overline{R}_j)^2 = .4433$

Source: AGM Report of EBL

Where,

Expected Return $(\overline{R}_j) = \frac{\sum R_j}{n} = \frac{3.259}{4} = 0.8148$

Standard Deviation $(\sigma_j) = \sqrt{\frac{\sum (R_j - \overline{R}_j)^2}{n-1}} = \sqrt{\frac{0.4433}{4-1}} = 0.3844$

Coefficient of Variation $(C.V.) = \frac{\sigma_j}{\overline{R}_j} \times 100 = \frac{0.3844}{0.8148} \times 100 = 47.17$

The expected return of EBL is 0.8148 with total risk (measured by S.D.) of 0.3844. The C.V. of EBL is 47.17% which indicates the investor needs to sacrifice 47.17% unit of risk for per unit return.

Figure 4.6

Annual Return of C.S. of EBL

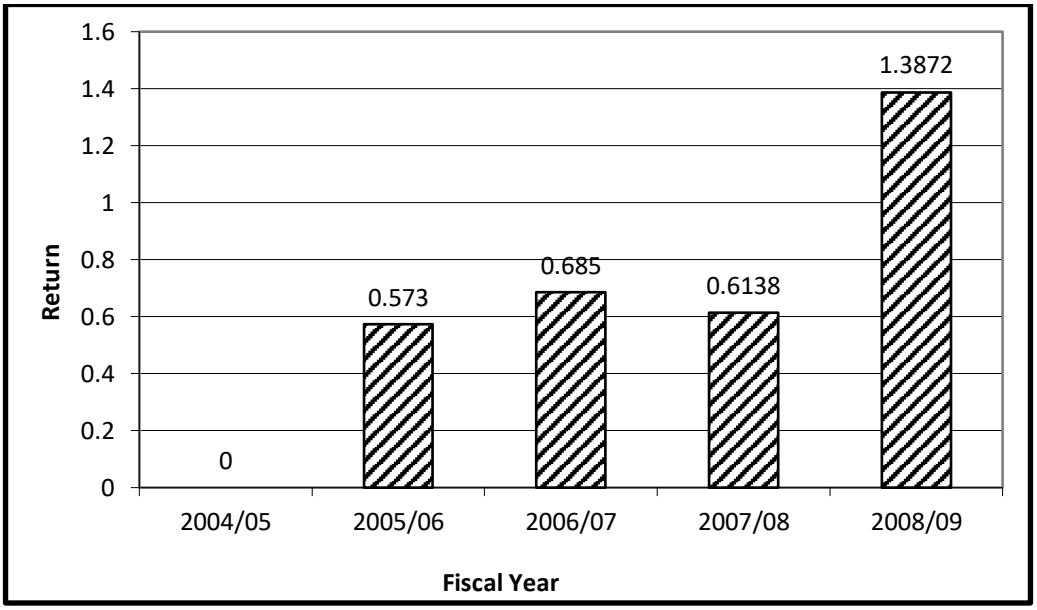


Figure 4.6 shows the return of EBL which is positive in years. There is highest return of 1.3872 in year 2008/09 and lowest return of 0.5730 in year 2004/05. There is fluctuation of returns.

4.2 Inter Sampled 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 2004/05 to 2008/09 are given in the table.

Table 4.7

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

Bank	Expected Return ($\overline{R}_j$)	Standard Deviation(σ)	Coefficient of Variation (C.V.)	Remarks		
				Return	Risk	C.V.
SCBNL	0.7430	0.6067	81.66%	-	Highest	Highest
HBL	0.4990	0.3903	78.22%	Lowest		-
EBL	0.8148	0.3844	47.17%	Highest	Lowest	Lowest

Source: Table 4.2, 4.4, 4.6

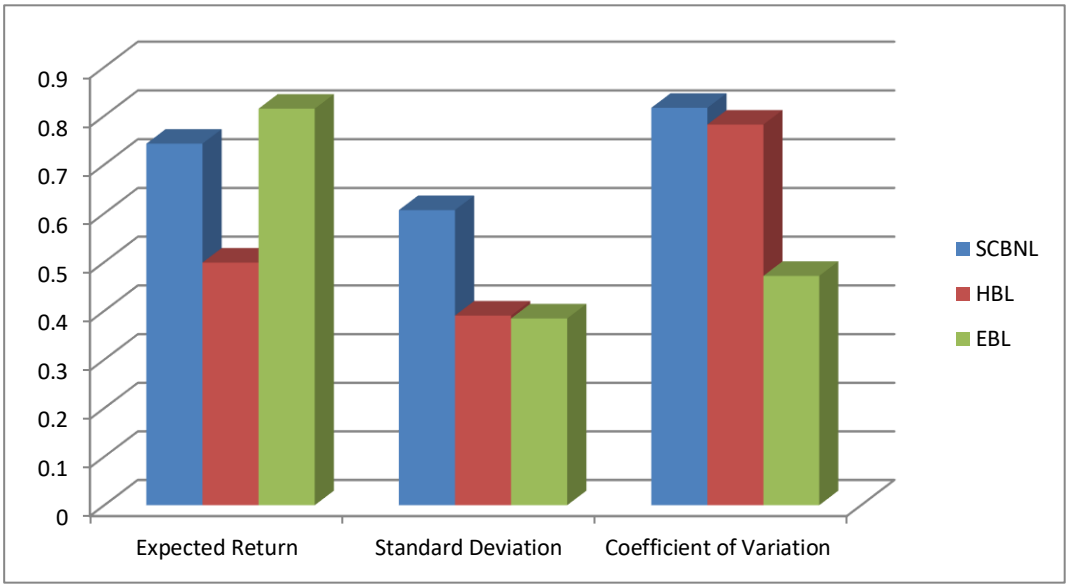
The above table shows the overall return and risk of the individual banks. Here, the investor can get the highest return from EBL i.e. 0.8148 and lowest return from HBL

i.e. 0.4990. Total risk (measured by standard deviation) is observed maximum of the C.S. of SCBNL i.e. 0.6067 and minimum of EBL i.e. 0.3844. This means that quantitative of total risk is very high in SCBNL. Higher the C.V. higher the risk and C.V. of SCBNL is highest i.e. 0.8166 than that of other commercial banks. So common stock of SCBNL is more risky than that of other banks. Investment in EBL is desirable because its return is higher and risk is lowest compared to others.

To make the comparison easily understandable Figure is presented below.

Figure 4.7

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



The above figure clarifies 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 SCBNL has highest market capitalization with Rs. 32,001.08 million and Everest Bank Ltd has lowest market capitalization with Rs.14,525.78 million among these three companies at 2008/09. So, SCBNL is the biggest and EBL is the smallest company on the basis of market capitalization. The table 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, 2009 to July 15, 2009

Bank	Market capitalization (In millions)	Percentage
SCBNL	32,001.08	44.78 %
HBL	24,932.41	34.89 %
EBL	14,525.78	20.33 %
Total	84,798.40	100.00 %

Source: Trading Report (2009 July-2009 July) SEBO/N

Comparative proportion of market capitalization of listed three commercial banks is shown in given in the following figure.

Figure 4.8

Comparative Proportion of Market Capitalization of Listed Commercial Banks

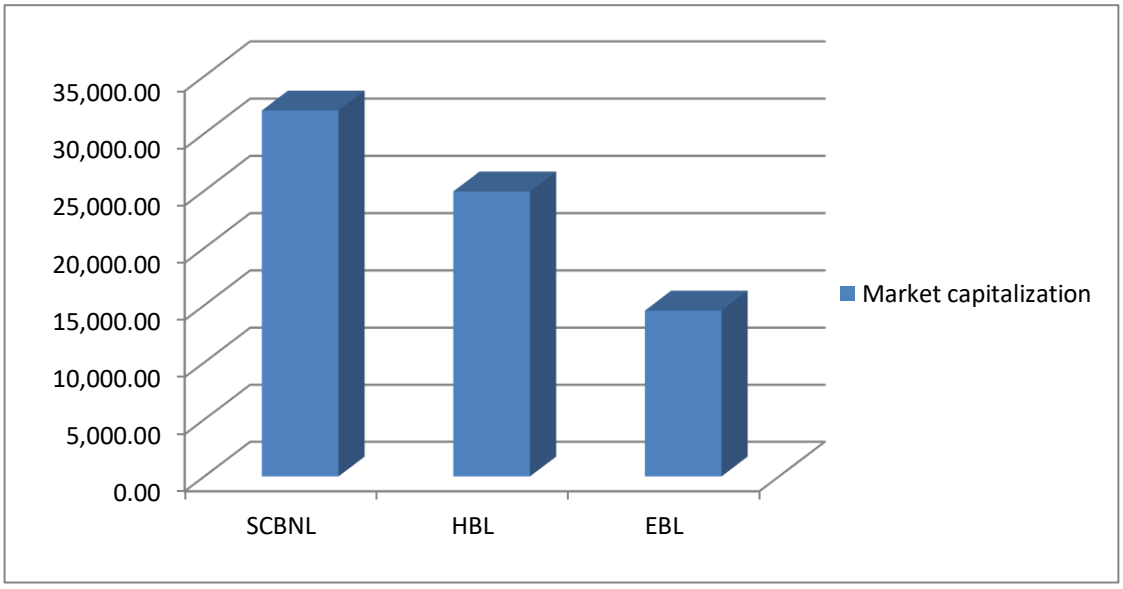


Figure 4.8 shows the share of each bank in the market. SCBNL is in the highest position by occupying 44.78% share in the market and EBL is in the lowest positing by occupying 20.33% of share in the market among others.

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. 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	$\mathbf{R_m = \frac{NI_t - NI_{t-1}}{NI_{t-1}}}$	$(\mathbf{R_m - \overline{R}_m})$	$(\mathbf{R_m - \overline{R}_m})^2$
2004/05	205.46	-	-	-
2005/06	222.04	0.0807	-0.2916	0.0850
2006/07	286.67	0.2911	-0.0812	0.0666
2007/08	638.83	0.3494	0.1222	0.0005
2008/09	386.95	0.7681	0.3958	0.1567
		$\sum R_m = 1.4893$		$\sum (R_m - \overline{R}_m)^2 = 0.3088$

Source: Trading Report (2009 July-2009 July) SEBO/N

We have,

Expected Return $(\bar{R}_m) = \frac{\sum R_m}{n} = \frac{1.4893}{4} = 0.3723$

Standard Deviation $(\sigma_m) = \sqrt{\frac{\sum (R_m - \overline{R}_m)^2}{n-1}} = \sqrt{\frac{0.3088}{4-1}} = 0.3208$

Coefficient of Variation (C.V.) $= \frac{\sigma_m}{\bar{R}_m} \times 100 = \frac{0.3208}{0.3723} \times 100 = 86.17\%$

The above table shows the return of market in several years. There is highest return of market in the year 2008/09 i.e. 0.7681 and there is lowest return of market in the year 2004/05 is 0.0807.

The expected return of the market is 0.3723 with the total risk (Measured by S.D.) of 0.3208. C.V of market is 0.8617 which means, 86.17% risks must be sacrificed to get per unit market return.

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 SCBNL

Fiscal Year	$(R_m - \overline{R}_m)$	$(R_j - \overline{R}_j)$	$(R_m - \overline{R}_m)(R_j - \overline{R}_j)$
2004/05	-	-	-
2005/06	-0.2916	-0.6115	0.1784
2006/07	-0.0812	-0.3304	0.0268
2007/08	-0.0229	0.1738	-0.0040
2008/09	0.3958	0.7683	0.3041
			$\sum[(R_m - \overline{R}_m)(R_j - \overline{R}_j)] = 0.5035$

Source: Table 4.9

We have,

$\text{Cov}(R_m, R_j) = \frac{\sum[(R_m - \overline{R}_m)(R_j - \overline{R}_j)]}{n-1} = \frac{0.5053}{4-1} = 0.0.1684$

Again,

$\beta_m = \frac{\text{Cov}(R_m, R_j)}{\sigma_m^2} = \frac{0.1684}{(0.3208)^2} = 1.6363$

Where,

n = number of observation

σ_m^2 = Variance of market

R_j = Return of Sock of SCBNL

R_m = Return of Market

From sensitivity analysis of SCBNL, the beta coefficient is 1.6363, which is more than 1, shows that SCBNL 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	$(R_m - \overline{R}_m)$	$(R_j - \overline{R}_j)$	$(R_m - \overline{R}_m)(R_j - \overline{R}_j)$
2004/05	-	-	-
2005/06	-0.2916	-0.2741	0.0799
2006/07	-0.0812	-0.1281	0.0104
2007/08	-0.0229	-0.1762	0.0040
2008/09	0.3958	0.5783	0.2289
			$\sum[(R_m - \overline{R}_m)(R_j - \overline{R}_j)] = 0.3232$

Source: Table 4.9

We have,

Cov. (R_m,R_j) $= \frac{\sum[((R_m-\overline{R}_m)(R_j-\overline{R}_j)]}{n-1} = \frac{0.3232}{4-1} = 0.1077$

Again,

β_m $= \frac{Cov\,(R_m,R_j)}{{\sigma_m}^2} = \frac{0.1077}{(0.3208)^2} = 1.0465$

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 1.0465 which is more than 1. The company which has got more than 1 is very much volatile and aggressive investor can purchase this type of investment. From the side of investment, it is risky investment.

Table 4.12

Beta Coefficient of the C.S. of EBL

Fiscal Year	$(\mathbf{R_m - \overline{R}_m})$	$(\mathbf{R_j - \overline{R}_j})$	$(\mathbf{R_m - \overline{R}_m})(\mathbf{R_j - \overline{R}_j})$
2004/05	-	-	-
2005/06	-0.2916	-0.2418	0.0705
2006/07	-0.0812	-0.1290	0.0105
2007/08	-0.0229	-0.2010	0.00046
2008/09	0.3958	0.5724	0.2266
			$\sum[(R_m - \overline{R}_m)(R_j - \overline{R}_j)] = 0.3122$

Source: Table 4.9

We have,

Cov (R_m,R_j) $= \frac{\sum[((R_m-\overline{R}_m)(R_j-\overline{R}_j)]}{n-1} = \frac{0.3122}{4-1} = .0.1041$

Again,

β_m $= \frac{Cov\,(R_m,R_j)}{{\sigma_m}^2} = \frac{0.1041}{(0.3208)^2} = 1.0115$

Where,

n = number of observation

${\sigma_m}^2$ = Variance of Market

R_j = Return of Sock of EBL

From sensitivity analysis of EBL, the beta coefficient is 1.0115, which is less than 1, which shows that EBL is less volatile and risk averter can purchase this type of investment. From the side of investment, it is less risky investment.

Table 4.13

Beta Coefficient of each Bank

Banks	Beta Coefficient	Remarks
SCBNL	1.6363	Most Aggressive
HBL	1.0465	-
EBL	1.0115	Least Aggressive

Source: Table 4.10, 4.11, 4.12

Here, as shown in the above table, SCBNL and HBL have higher beta coefficient than the beta coefficient of market. The stock of these banks is aggressive and EBL has lower beta coefficient than market so it is a defensive stock. The stock of HBL seems most aggressive than other stocks where as EBL 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 Treasury bill rate of rate is taken as a risk free rate from website of NRB. This is approximately 5.13%.

Table 4.14

Required Rate of Return, Expected Return and Price Evaluation

Banks	R_f	$E(R_m)$	Beta (β_j)	$E(R_j) = R_f + [E(R_m) - R_f]\beta_j$	$(\bar{R}_j)$	Price Evaluation
SCBNL	0.0513	0.3723	1.6363	0.5766	0.7430	Underpriced
HBL	0.0513	0.3723	1.0465	0.3872	0.4990	Underpriced
EBL	0.0513	0.3723	1.0115	0.3760	0.8148	Underpriced

Where,

R_f = Risk free rate of return (0.0513)

$E(R_m)$ = Market rate or return (0.3723)

β_j = Beta of individual sample Banks.

$(\overline{R}_j)$ = Expected rate of return

In the table we get the expected rate of return is higher than the required rate of return, so all commercial banks stock are underpriced. 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 underpriced, 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 SCBNL (say stock A), HBL (say stock B) and EBL (say stock C) is analyzed.

Covariance between Sampled Stocks

$COV(R_{A,}R_B)$	0.2079
$COV(R_{B,}R_C)$	0.1497
$COV(R_{A,}R_C)$	0.1985

Where,

COV $(R_{A,}R_B)$ = Covariance returns of SCBNL and HBL

COV $(R_{B,}R_C)$ = Covariance returns of HBL and EBL

COV $(R_{A,}R_C)$ = Covariance returns of SCBNL and EBL

Banks	**S.D. of Stocks**	**Expected Return of Stocks**
SCBNL	$\sigma_A = 0.6067$	$E(R_A) = 0.7430$
HBL	$\sigma_B = 0.3903$	$E(R_B) = 0.4990$
EBL	$\sigma_C = 0.3844$	$E(R_C) = 0.8148$

4.5.1.1 Portfolio of stock SCBNL (A) and HBL (B)

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

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

$$W_B = 1 - W_A$$

Where,

W_A = Optimal weight to invest in stock of SCBNL

W_A = Optimal weight to invest in stock of HBL

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

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

Now,

$$W_A = \frac{0.3903^2 - 0.2079}{0.6067^2 + 0.3903^2 - 0.2079} = -0.1778$$

$$W_B = 1 - W_A = 1 - (-0.1057) = 1.1778$$

As we know that the proportion of stock in the portfolio is constructed with -17.78 of SCBNL and 117.78 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.

Expected Return on portfolio $E(R_p) = W_A \times E(R_A) + W_B \times E(R_B)$

$= -0.1778 \times 0.4990 + 1.1778 \times 0.8148$

$= 0.8709$

= 87.09

Where,

$E(R_p)$ = Expected Return on Portfolio of stock SCBNL and HBL

$E(R_A)$ = Expected Return of SCBNL

$E(R_B)$ = 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.

$$\sigma_p = \sqrt{W_A{}^2 \times \sigma_A{}^2 + W_B{}^2 \times \sigma_B{}^2 + 2COV_{AB} \times W_A \times W_B}$$

$$= \sqrt{(-.1778)^2 \times (0.6067)^2 + (1.1778)^2 \times (0.3903)^2 + 2 \times 0.2079 \times (-0.1778) \times 1.1778}$$

= 36.86

Where,

σ_p = The standard deviation of portfolio return of stock SCBNL and HBL

From the above calculation the portfolio return and risk for SCBNL and HBL are 87.09% and 36.86% respectively.

4.5.1.2 Portfolio of Stock HBL (B) and EBL (C)

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

$$W_B = \frac{\sigma_C{}^2 - Cov\,(R_B, R_C)}{\sigma_B{}^2 + \sigma_C{}^2 - Cov\,(R_B, R_C)}$$

$$W_C = 1 - W_B$$

Where,

W_B = optimal weight to invest in stock of HBL

W_C = optimal weight to invest in stock of EBL

$\sigma_B{}^2$ = variance of HBL

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

Now,

$W_B = \frac{0.3844^2 - 0.1497}{0.3803^2 + 0.3844^2 - 0.1497} = 0.5351$

$W_C = 1 - W_B = 1 - (-0.0129) = 1.0129$

As we know that the proportion of stock in the portfolio is constructed with -1.29% of HBL and 101.29% of EBL 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.

Expected Return on portfolio $E(R_p) = W_B \times E(R_B) + W_C \times E(R_C)$

$= -0.0129 \times 0.4990 + 1.0129 \times 0.8148$

= 0.8189

= 81.89

Where,

$E(R_p)$ = Expected Return on Portfolio of stock HBL and EBL

$E(R_B)$ = Expected Return of HBL

$E(R_C)$ = Expected Return of EBL

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.

$\sigma_p = \sqrt{W_B{}^2 \times \sigma_B{}^2 + W_C{}^2 \times \sigma_C{}^2 + 2COV_{BC} \times W_B \times W_C}$

$= \sqrt{(-0.0129)^2 \times (0.3903)^2 + (1.0129)^2 \times (0.3844)^2 + 2 \times 0.1497 \times (-0.0129) \times 1.01294649}$

$= \sqrt{0.1477}$

= 0.3843

= 38.43

Where,

σ_p = The standard deviation of portfolio return of stock HBL and EBL

From the above calculation the portfolio return and risk for HBL and EBL are 81.89% and 38.43 % respectively.

4.5.1.3 Portfolio of Stocks SCBNL (A) and EBL (C)

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

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

$$W_C = 1 - W_A$$

Where,

W_A = optimal weight to invest in stock of SCBNL

W_C = optimal weight to invest in stock of EBL

σ_A^2 = variance of SCBNL σ_C^2 = Variance of EBL

Now,

$$W_A = \frac{0.3844^2 - 0.1985}{0.6067^2 + 0.3844^2 - 0.1985} = 0.4123$$

$$W_C = 1 - W_A = 1 - (-0.1991 = 1.2599$$

As we know that the proportion of stock in the portfolio is constructed with -15.99% of SCBNL and 125.99% of EBL 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.

Expected Return on portfolio $E(R_p) = W_A \times E(R_A) + W_C \times E(R_C)$

$$= -0.1599 \times 0.4990 + 1.1599 \times 0.7430$$

$$= 0.7820$$

= 78.20%

Where,

$E(R_p)$ = Expected Return on Portfolio of stock SCBNL and EBL

$E(R_A)$ = Expected Return of SCBNL

$E(R_C)$ = Expected Return of EBL

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.

$$\sigma_p = \sqrt{W_A{}^2 \times \sigma_A{}^2 + W_C{}^2 \times \sigma_C{}^2 + 2COV_{AC} \times W_A \times W_C}$$

$$= \sqrt{(-0.1599)^2 \times (0.6067)^2 + (1.1599)^2 \times (0.38444)^2 + 2 \times 0.1985 \times (-0.1599 \times 1.1599}$$

$$= 36.68$$

Where,

σ_p = The standard deviation of portfolio return of stock SCBNL and EBL

From the above calculation the portfolio return and risk for SCBNL and EBL are 78.20 % and 36.68 % respectively.

Table 4.15

Portfolio Risk and Return

Banks	$E(R_P)$	σ_p	Remarks	
			Return	Risk
SCBNL and HBL	87.09%	36.86%	Lower	Highest
HBL and EBL	81.89%	38.43%	-	Lower
SCBNL and EBL	78.20%	36.68%	Highest	-

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 following table shows presented below shown the various consolations between each sample banks.

Table 4.16

Correlation Matrix

Sample	SCBNL	HBL	EBL
SCBNL	1		
HBL		1	
EBL			1

The above, table 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 are '-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 SCBNL and EBL 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 macroeconomic factor like inflation, GDP, interest etc. Systematic risk can be expressed in formula as:

$$SR = \frac{COV(R_{j,}R_m)}{\sigma_m}$$

Where,

SR = Systematic Risk

$COV(R_{j,}R_m)$ = Covariance returns of stock with market

σ_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

$= \sigma_j - SR$

Where,

USR	=	Unsystematic Risk
SR	=	Systematic Risk
σ_j	=	S.D. of stock of sample bank

4.7.3 Systematic and Unsystematic Risk of SCBNL with Market

$$SR = \frac{COV(R_j, R_m)}{\sigma_m} = \frac{0.1581}{0.3875} = 0.4080$$

$$USR = \sigma_j - SR = 0.6167 - 0.4080 = 0.2087$$

Note: $COV(R_j, R_m)$, σ_m, σ_j are taken from table 4.10, 4.9 and 4.2 respectively.

Where,

$COV(R_j, R_m)$	=	Covariance returns of SCBNL with market
σ_j	=	S.D. of SCBNL

4.7.3.1 Proportion of Systematic and Unsystematic Risk

$$\text{Proportion of SR} = \frac{SR}{TR} = \frac{0.4080}{0.6167} = 0.6616 = 66.16\%$$

$$\text{Proportion of USR} = \frac{USR}{TR} = \frac{0.2087}{0.6167} = 0.3384 = 33.84\%$$

Out of total risk in stock of SCBNL; 66.16% is undiversifiable risk and created from systematic factor or market factor and the remaining 33.84% is diversifiable risk and created from company related factor.

4.7.4 Systematic and Unsystematic Risk of HBL with Market

$$SR = \frac{COV(R_j, R_m)}{\sigma_m} = \frac{0.1689}{0.3875} = 0.4359$$

$$USR = \sigma_j - SR$$
$$= 0.4471 - 0.4359$$
$$= 0.0112$$

Note: $COV(R_{j,}R_m)$, σ_m, σ_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

σ_j = S.D. of HBL

4.7.4.1 Proportion of Systematic and Unsystematic Risk

$$\text{Proportion of SR} = \frac{SR}{TR} = \frac{0.4359}{0.4471} = 0.9749 = 97.49\%$$

$$\text{Proportion of USR} = \frac{USR}{TR} = \frac{0.0112}{0.4471} = 0.0251 = 2.51\%$$

Out of total risk in stock of HBL; 97.49% is undiversifiable risk and created from systematic factor or market factor and the remaining 2.51% is diversifiable risk and created from company related factor.

4.7.5 Systematic and Unsystematic Risk of EBL with Market

$$SR = \frac{COV(R_{j,}R_m)}{\sigma_m} = \frac{0.0485}{0.3875} = 0.1252$$

$$USR = \sigma_j - SR = 0.5486 - 0.1252 = 0.4234$$

Note: $COV(R_{j,}R_m)$, σ_m, σ_j are taken from table 4.12, 4.9 and 4.6 respectively.

Where,

$COV(R_{j,}R_m)$ = Covariance returns of EBL with market

σ_j = S.D. of EBL

4.7.5.1 Proportion of Systematic and Unsystematic Risk

$$\text{Proportion of SR} = \frac{SR}{TR} = \frac{0.1252}{0.5486} = 0.2282 = 22.82\%$$

$$\text{Proportion of USR} = \frac{USR}{TR} = \frac{0.4234}{0.5486} = 0.7718 = 77.18\%$$

Out of total risk in stock of EBL; 22.82% is undiversifiable risk and created from systematic factor or market factor and the remaining 77.18% is diversifiable risk and created from company related factor.

Table 4.17

Proportion of SR and USR

Bank	SR	USR
SCBNL	66.16%	33.84%
HBL	97.49%	2.51%
EBL	22.82%	77.18%

4.8 Testing of Hypothesis

The hypothesis is based on the text 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 SCBNL with overall Market Return

For SCBNL Banks	**for Market**
Sample size (n_1) = 5 years	n_2 = 5 years
Expected Return ($\overline{R}_J$) = 0.3795	$\overline{R}_m$ = 0.1742
Standard Deviation (S_1) = 0.6167	S_1 = 0.3875

Null Hypothesis(H_0)

$\overline{R}_j = \overline{R}_m$ I.e. there is no significance difference between the Expected return of SCBNL 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

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

Where,

$\overline{R}_J$ = Expected Return of C.S. of SCBNL bank = 0.3795

$\overline{R}_m$ = Expected Return of market = 0.1742

n_1=n_2 = Numbers of years in Sample = 7

S^2 = Estimated variance of population

$$S^2 = \frac{(n_1 - 1){S_1}^2 + (n_2 - 1){S_2}^2}{n_1 + n_2 - 2} = \frac{(7-1)(0.6167)^2 + (7-1)\ (0.3875)^2}{7 + 7 - 2}$$

$$= 0.2652$$

${S_1}^2$ = Variance of C.S. of SCBNL banks

${S_2}^2$ = Variance of market return

Hence

$$t = \frac{0.3795 - 0.1742}{\sqrt{0.2652\left({}^1/_7 + {}^1/_7\right)}} = 0.7458$$

Degree of freedom = $n_1 + n_2 - 2$ = 7+7-2 = 12

Level of Significance = 5 %

The tabulated value of t at 5 % level of significance and 12 degree of freedom is 2.179

Decision

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

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

For HBL Banks	**For Market**
Sample size (n_1) = 5 years	n_2 = 5 years
Expected Return ($\overline{R}_J$) = 0.2952	$\overline{R}_m$ = 0.1742
Standard Deviation (S_1) = 0.4471	S_1 = 0.3875

Null Hypothesis(H_0)

$\overline{R}_j = \overline{R}_m$ 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

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

Where,

$\bar{R}_J$ = Expected Return of C.S. of HBL bank = 0.2952

$\bar{R}_m$ = Expected Return of market = 0.1742

$n_1 = n_2$ = Numbers of years in Sample = 7

S^2 = Estimated variance of population

$$S^2 = \frac{(n_1 - 1){S_1}^2 + (n_2 - 1){S_2}^2}{n_1 + n_2 - 2} = \frac{(7-1)(0.4471)^2 + (7-1)\,(0.3875)^2}{7 + 7 - 2}$$

$$= 0.1750$$

${S_1}^2$ = Variance of C.S. of HBL banks

${S_2}^2$ = Variance of market return

Hence

$$t = \frac{0.2952 - 0.1742}{\sqrt{0.1750\left(1/7 + 1/7\right)}} = 0.5411$$

Degree of freedom = $n_1 + n_2 - 2$ = 7+7-2 = 12

Level of Significance = 5 %

The tabulated value of t at 5 % level of significance and 12 degree of freedom is 2.179

Decision

Since the calculated value "t" is less than tabulated value. 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 EBL with overall Market Return

For EBL Banks	**For Market**
Sample size (n_1) = 5 years	n_2 = 5 years
Expected Return ($\overline{R}_J$) = 0.5279	$\overline{R}_m$ = 0.1742
Standard Deviation (S_1) = 0.5486	S_1 = 0.3875

Null Hypothesis(H_0)

$\overline{R}_j = \overline{R}_m$ I.e. there is no significance difference between the Expected return of EBL and overall market return.

Alternative Hypothesis (H_1)

$\overline{R}_j \neq \overline{R}_m$ I.e. there is significance difference between the Expected return of EBL and overall market return.

The test statistics (t) is

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

Where,

$\overline{R}_J$ = Expected Return of C.S. of EBL bank = 0.5279

$\overline{R}_m$ = Expected Return of market = 0.1742

n_1=n_2 = Numbers of years in Sample = 7

S^2 = Estimated variance of population

$$S^2 = \frac{(n_1 - 1){S_1}^2 + (n_2 - 1){S_2}^2}{n_1 + n_2 - 2} = \frac{(7-1)(0.5486)^2 + (7-1)\ (0.3875)^2}{7 + 7 - 2}$$
$$= 0.2256$$

${S_1}^2$ = Variance of C.S. of EBL banks

${S_2}^2$ = Variance of market return

Hence

$$t = \frac{0.5279 - 0.1742}{\sqrt{0.2256(1/7 + 1/7)}} = 1.393$$

Degree of freedom = $n_1 + n_2 - 2$ = 7+7-2 = 12 and Level of Significance = 5 %

The tabulated value of t at 5 % level of significance and 12 degree of freedom is 2.179

Decision

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

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 EBL is maximum (52.97%). Similarly expected return of C.S. of HBL is (29.52%) and SCBNL is 37.95%.
- Risk is the variability of returns which is measured in terms of standard deviation. On the basis of S.D., common stock of SCBNL is most risky since it has high S.D. i.e. 0.6167 C.S of HBL is least because of its lowest S.D. of 0.4671, 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 EBL is best among all other banks. EBL has 1.0392 unit of risk per 1 unit of return. But C.S. of SCBNL 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 HBL is most volatile I.e. β = 1.1251 and common stock of EBL is least volatile i.e. β = 0.3230. The bank's stock, having the beta less than beta coefficient of market i.e. defensive stock. We find SCBNL and HBL have aggressive type of common

stock. Among them most aggressive seems to be HBL with highest beta and least aggressive is EBL with lowest beta among three bank's common stock.

- SCBNL is in the highest position (Rs. 32,001.08 in million) and EBL is in lowest position (Rs. 14525.78 in million) according to their interbank 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 SCBNL and EBL is high i.e. 46.78% and SCBNL & HBL is lower i.e. 30.41%.
- The portfolio risk between SCBNL and HBL is high i.e. 43.98% and HBL and EBL is lower i.e. 39.69%.
- Since the entire bank has positive correlation so bank doesn't reduce any unsystematic risk. Among them, SCBNL and EBL have lower correlation, so it can be favorable for the investors.
- Systematic risk cannot be diversified through creation of portfolio. It is occurred due to market factor. Unsystematic risk can be diversified through creation of portfolio. It is occurred due to internal management factor. This study shows that EBL has high proportion of unsystematic risk i.e. 77.18% which can be minimized from internal management. Whereas HBL has high proportion of systematic risk i.e. 97.49%. This cannot be minimized from internal management. C.S. of EBL is best among these banks due to its highest proportion of unsystematic risk.
- Testing of hypothesis expected return of selected banks with overall market return. There are no significance difference between expected return of selected banks and overall market return.

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

Central focus of finance is trades 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 tradeoff 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 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 stock market. The study is focused on reference to analyze the risk and return in common stock investment. 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 as well as personal judgment. Secondary data are collected from the NEPSE, NRB, SEBO/N and other related banks and their 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.

5.2 Conclusion

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 EBL 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 underpriced. It shows that all the banks have stock with good investment opportunity. It is also concluded that SCBNL and EBL is higher portfolio return and HBL and EBL is lower portfolio risk.

This study shows that EBL has high proportion of unsystematic risk i.e. 77.18% and HBL has high proportion of systematic risk i.e. 97.49% which cannot be minimized from internal factor. Common stock of EBL is best among these banks.

5.3 Recommendations

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

- 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.
- Different financial and statistical tools are to analyze the data in this study. C.V. suggests that while analyzing individual security EBL seems undoubtedly the best for investment with considering the full time horizon of the study. C.S. of EBL 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 EBL for individual stock investment due to its lowest C.V. and beta coefficient.
- Investors need to diversify their fund to reduce risk. Proper construction of portfolio will reduce considerable potential loss which can be defined in terms of risk. But portfolio construction is dynamic job. For the portfolio construction select the stock that has higher return will not correlated or negatively correlated stock. So the construction of portfolio between the C.S. of SCBNL and EBL is recommended to invest due to their higher portfolio return.
- 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 worthwhile 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 don't have full authority to do all NEPSE's related work. 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 outside 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 otherwise it will be meaningless. 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.

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APPENDICES

Appendix - I

Calculation of Total Dividend

Total Dividend in Rs.=Cash Dividend+%stock Dividend * Next Year MPS
=110+10% *1640=Rs.284.5 **=110+0% * 1745=110** **=120+0%*3745=Rs120***** **=130+10%*3775=Rs720.00****** **=80+50%*5900=Rs3580.00**

Appendix- II

Calculation of Total Dividend

Total Dividend in (Rs.)=	Cash Dividend	+	% of Stock Dividend	×	Next Year MPS	
2004/05	= 20	+	0%	×	940	= Rs. 20.00
2005/06	= 15	+	0 %	×	800	= Rs. 15.00
2006/07	= 12.5	+	0%	×	1260	= Rs. 12.50
2007/08	= 20	+	35.46%	×	1729	= Rs. 633.10
2008/09	= 5	+	25%	×	2660	= Rs. 670

Appendix - III

Calculation of Total Dividend

Total Dividend in (Rs.) =	Cash Dividend	+	% of Stock Dividend	×	Next Year MPS		
2004/05	= 1.32	+	23.68%	×	Rs. 840	=	Rs.200.23
2005/06	= 0.00	+	20.00%	×	Rs. 920	=	Rs.184.00
2006/07	= 11.58	+	20.00%	×	Rs. 1100	=	Rs.231.58
2007/08	= 30.00	+	5.00%	×	Rs. 1740	=	Rs. 117.00
2008/09	=15.00	+	25.00%	×	Rs. 2120	=	Rs.545.00

Appendix - IV

Calculation of Total Dividend

Total Dividend in (Rs.)=	Cash Dividend	+	% of Stock Dividend	×	Next Year MPS	
2004/05	= 20	+	0%	×	680	= Rs. 20.00
2005/06	= 20	+	0%	×	870	= Rs. 20.00
2006/07	= 0	+	20%	×	1379	= Rs. 275.80
2007/08	= 25	+	0%	×	2430	= Rs. 25.00
2008/09	= 10	+	30%	×	2840	= Rs. 862.00

Appendix - V

Calculation of Correlation between SCBNL (A) and HBL (B)

Calculation of covariance of return of given two stocks

Fiscal Year	$(R_A - \overline{R}_A)$	$(R_B - \overline{R}_B)$	$(R_A - \overline{R}_A)(R_B - \overline{R}_B)$
2004/05	-0.3071	-0.2590	0.0795
2005/06	-0.1782	-0.0703	0.0125
2006/07	-0.5151	0.757	-0.0390
2007/08	0.9869	0.0276	0.0272
2008/09	0.5245	0.7821	0.4102
			$\sum(R_A - \overline{R}_A)(R_B - \overline{R}_B) = 0.7747$

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

We have,

$$COV(R_A, R_B) = \frac{\sum[(R_A - \overline{R}_A)(R_B - \overline{R}_B)]}{n - 1} = \frac{0.7747}{6 - 1} = 0.1549$$

Now,

Correlation between SCBNL and HBL

$$\rho_{AB} = \frac{COV(R_A, R_B)}{\sigma_A \times \sigma_B} = \frac{0.1549}{0.6167 \times 0.4471} = 0.5619$$

Note: σ_A from table 4.2 and σ_B from table 4.4

Where,

$COV(R_A, R_B)$ = Covariance of return between SCBNL and HBL

ρ_{AB} = Correlation between SCBNL and HBL

σ_A = S. D. of SCBNL σ_B = S. D. of HBL

Appendix - VI

Calculation of Correlation between HBL (B) and EBL (C)

Calculation of Covariance of Return of Given Two Stocks

Fiscal Year	$(R_B - \overline{R}_B)$	$(R_C - \overline{R}_C)$	$(R_B - \overline{R}_B)(R_C - \overline{R}_C)$
2004/05	-0.2590	-0.3798	0.0984
2005/06	-0.0703	0.0451	-0.0033
2006/07	0.757	0.1571	0.0119
2007/08	0.0276	0.0859	0.0024
2008/09	0.7821	0.8593	0.6721
			$\sum(R_B - \overline{R}_B)(R_C - \overline{R}_C) = 0.3545$

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

We have,

$$COV(R_B, R_C) = \frac{\sum[(R_B - \overline{R}_B)(R_C - \overline{R}_C)]}{n-1} = \frac{0.3545}{6-1} = 0.0709$$

Now,

Correlation between HBL and EBL

$$\rho_{BC} = \frac{COV(R_B, R_C)}{\sigma_B \times \sigma_C} = \frac{0.0709}{0.4471 \times 0.5486} = 0.2891$$

Note: σ_B from table 4.4 and σ_C from table 4.6

Where,

$COV(R_B, R_C)$ = Covariance of return between HBL and EBL

ρ_{BC} = Correlation between HBL and EBL

σ_B = S. D. of HBL

σ_C = S. D. of EBL

Appendix - VII

Calculation of Correlation between SCBNL (A) and EBL (C)

Calculation of covariance of return of given two stocks

Fiscal Year	$(R_A - \overline{R}_A)$	$(R_C - \overline{R}_C)$	$(R_A - \overline{R}_A)(R_C - \overline{R}_C)$
2004/05	-0.3071	-0.3798	0.1166
2005/06	-0.1782	0.0451	-0.0080
2006/07	-0.5151	0.1571	-0.0809
2007/08	0.9869	0.0859	0.0848
2008/09	0.5245	0.8593	0.4507
			$\sum(R_A - \overline{R}_A)(R_C - \overline{R}_C) = 0.1706$

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

We have,

$$COV(R_A, R_C) = \frac{\sum[(R_A - \overline{R}_A)(R_C - \overline{R}_C)]}{n - 1} = \frac{0.1706}{6 - 1} = 0.0341$$

Now,

Correlation between SCBNL and EBL

$$\rho_{AC} = \frac{COV(R_A, R_C)}{\sigma_A \times \sigma_C} = \frac{0.0341}{0.6167 \times 0.5486} = 0.1008$$

Note: σ_A from table 4.2 and σ_C from table 4.6

Where,

$COV(R_A, R_C)$ =Covariance of return between SCBNL and EBL

ρ_{AC} = Correlation between SCBNL and EBL

σ_A = S. D. of SCBNL

σ_C = S. D. of EBL