CHAPTER - 1
INTRODUCTION

1.1 General Background of the Study

Commercial Bank plays a vital role in the economic development of the country. It occupies an important place in the framework of the every economy. It provides capital for the development of industry, trade, business and other resource deficit sector by investing the savings collected as deposits, beside this, commercial banks provide numerous services to their customers in view of facilitating their economic and social life. The other services performed by banks are payment of subscription, purchase and sale of securities, remittance of money, advisory services and assistance in foreign trade etc. Hence, the commercial bank plays an important role in the modern economy.

Financial management is a basic element that underlies for successful operation of every industry and organization. Management of money directs, determines and enhances the health and productivity of total financial sector hence reciprocating its performance directly to the growth of economy. So, financial development of country largely depends upon effective mobilization of its resources and investment upon good return. But it is often unreasonable to predict and realize the normal return on business investment due to the competitive market and other environment constraints which may serve sometime as opportunity and other times threat. 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 market of developing countries. As a result many joint ventures and multinational companies are being established in the country.

Risk is related to future and future is uncertain. But risk is manageable rather than uncertain. Company – specific risk (earning variability) and companies ability to service its debt burden are intimately related to the particular characteristics of the business in

which the company operators. Moreover, they are affected by economic condition-apart management's ability to generate satisfactory operating performance. It is common problem of investment manager how to maximize the expected return of the portfolio subject to some target level of volatility. This is investment is made to have best performance for an expected level of standard deviation. The targeted standard deviation is determined by the investor's tolerance for risk. Expected returns depend upon the firm's life cycle and return of major (mature) firm's with those of growth of mature firm than of growth firms. Effective risk and return management strategy should be applied in order to manage portfolio risk and return.

1.2 Statement of the Problem

"Although there are various institutions involved in capital market, they have not been able to show good performances according to the fact that investors are responsible for lacking self-control, self -judgment in the choice of securities for investment. Thus, due to lack of adequate knowledge about the securities of companies, investors are haphazardly investing in shares.

Similarly most of the organizations are found ignoring investor's preference and are also indifferent about secondary market like information dissemination system and transparency in operation. Similarly insufficient skilled manpower and development of human resources are problems in the capital market. Again low price and low trading volume of the companies have directly related to market value of firm. Thus, the investors whether professional or amateur, should analyze the securities in terms of price and volume before investing on them regarding the share price movement in the market, one assumes that market is inefficient in pricing of shares. During technical analysis, they argue that the analysis of the historical prices and trading of stocks provides meaningful information, which provides a picture of future price movements to the investors. It attempts to explain and forecast changes in security prices by studying the market data rather than information about a company or its prospects.

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.

More specifically the statement of problems are:

- What is the condition of common stock in terms of Risk and Return?
- Whether the stock of selected commercial banks are overpriced, under priced or correctly priced?
- How to analyze the diversifiable and un-diversifiable risk of common stock of the selected banks?
- What is optimum portfolio for common stock investment for the banks?

1.3 Objective of the Study

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

- To explore the common stock of the selected banks in terms of risk and return.
- To identify whether stock of selected commercial banks are overpriced, under priced or correctly priced.
- To analyze the diversifiable and un-diversifiable risk of common stock of the banks.
- To construct optimum portfolio of the common stock of the selected banks.

1.4 Significance of the Study

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

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

Further this research will attempt to clarify concrete picture of different aspects of risk and return which will be beneficial to the investor for taking right investment decision.

The study will be maximum significant for exploring and increasing stock investment. It will also provide little contribution to Nepalese stock market development.

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

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

1.5 Limitation of the Study

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

- Data published from various sources differ from the figures published by NEPSE and respective commercial banks. However, published annual report data of the respective banks are taken into accounts as the basic sources of data in this study.
- The study only focus on the analysis of risk and return associated with common stock investment of selected commercial banks. The finding on the study is based on the performance of listed banks for the period of five years starting from fiscal year 2007/08-2011/12.

1.6 Organization of the Study

This study is organized into five chapters:

Chapter one: The first chapter is introduction chapter. It consists of general background, statement of problems, objective of the study, significance of the study, focus of study, limitation of the study and organization of the study.

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

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

Chapter four: This chapter contains presentation and analysis of data.

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

CHAPTER – II

REVIEW OF LITERATURE

In this chapter theoretical aspect of risk and return has been explored. The role of risk on financial management and financial decision-making is great. In this chapter some academic course book, journals and other related studies have also been reviewed to give the research a clear vision, past study and knowledge provides foundation to the present day.

This chapter has been divided into two main sections. First section deals with conceptual & theoretical framework and second section deals with reviews of empirical studies under taken in Nepal

2.1 Conceptual Framework

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

2.1.1 Investment

In general sense, investment means to pay out money to get more but in the broadest sense, investment a present commitment for the future benefits. While the commitment takes place with certainty, the future benefits are shrouded in uncertainty. The uncertainty creates risk to investors and they desire to minimize return by minimizing such risk.

Therefore, taking decision about proper investment is crucial to the investor and it requires a specific investment decision process, analysis of securities, identification of overpriced, under priced securities, making appropriate investment strategies as well as construction of efficient portfolio (Bhalla, 1997).

Investment is concerned with the management of an investor's wealth, which are the sum of current income and the present value of all future income. The term investment is conceptualized as income, saving or other collected fund. It covers wide range of activities. T is commonly known fact that an investment is possible only when there are adequate saving. Therefore both saving and investment are interrelated (Bhalla, 1997).

Investment is an exchange of financial claim stocks and bonds etc. investment if the employment of funds with the rim of achieving additional income or growth in value it involves the commitment of resources that have been saved or pot away from current consumption in the hope that some benefit will occur in future. Investment involves long term commitment and waiting for a reward (Bhalla, 1997).

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

2.1.2 Common Stock

"The study is focused on the common stock investment that's why light is thrown on it. It is sources of long term financing and an ownership security. Common stock certificates are legal documents that evidence ownership or equality in a company that is organized as a corp. ratio, and they are also marketable financial instruments.

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

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

But in Nepal, as per the provision of Nepal Company Act 2057, no common stocks are allowed to issue without par value. The par value must be either Rs. 10 or Rs. 100. Common stock has one important investment characteristics and is important speculative characteristics. Their investment value and average market price tend to increase regularly but persistently over the decreases as their net worth builds through the reinvestment of undistributed earnings. However, most of the time common stocks are subject to irrational and excessive price fluctuation in both directions, as most people to speculate or gamble i.e. give way to hope fear and greed.

2.1.3 The Return of Common Stock

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

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

For investors, return is considered as the main attraction to invest in a risky security as a stock (equity) accepting a varying degree of risk tolerance. "The return from holding an investment over some period says a year is simply and cash payments received due to ownership plus the change in market price dividend by the beginning price. Thus the return comes from source, income and price appreciation (Cheney and Mases, 1996).

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

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

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

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

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

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

The simple arithmetic means:

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

The Geometric mean

$$\overline{HPR}\,\text{g} = \sum_{t=1}^{n} (1 + HPRt)^{1/2} - 1$$

2.1.4 The Risk on Common Stock

2.1.4.1 Risk

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

Risk is a complicated subject and needs to be properly analyzed. The relationship between risk and return is described by investor perception about risk and their demand for compensation. Generally, Investors are mostly interested in the project yielding higher returns in less risk. Therefore, it is the investors required risk premium that establishes a link between risk and return. In a market dominated by rational investor higher risk will command by rational investor's higher risk will be commanded by rational premium and the trade-off between the two assumed linear relationships between risk and risk premium. "The observe difference in both the levels and variability of the rates of return across. Securities are indicative of the underlying risk and return relation in the market" (Loric, Dodd and Kimpton; 1991).

Risk defines most generally is the probability of the occurrence of unfavorable outcomes. But risk had different meaning in the different context in our context; two measure developments from the probability distribution have been used as initial measure of return and risk. There are the mean and the standard deviation of the probability distribution (Weston and Brigham; 1982).

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

Beta coefficient

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

Standard Deviation

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

Subjected Estimates

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

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

a. Business Risk

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

b. Financial Risk

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

Sources of Risk

According to Clark; (1997) every investment involves uncertainty that contribute to investment risk are as follows:

Interest Rate Risk

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

Purchasing Power Risk

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

Bull-Bear Market Risk/Market Risk

As its name suggests, bull-bear market arises from the variability in market return resulting from alternation bull and bear market forces.

When a security index rises fairly consistently from a low point, called a trough, 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

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

Default Risk

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

Liquidity Risk

Liquidity risk is the portion of an assets total variability of return which results from price discounts given or sales commissions paid in order to sell the without delay. Perfectly liquid assets are highly marketable and suffer no liquidation cost. Illiquid assets are not readily marketable either price discounts must be given or sales commissions must be paid, or both of these costs must be incurred by the seller, in order to find a new investor for an illiquid asset. The more illiquid an asset is the large the price discounts and/or commissions which must be given by the seller in order to affect a quick sale.

Call – Ability Risk

Some bonds and preferred stocks are issued with provision that allows the issuer to call them in for repurchase. Issuers like the call provision because it allows them to buy lack outstanding preferred stocks and /or bonds with fund from a newer issue if market interest rates drop below the level being paid on the outstanding securities.

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. Call-ability risk commands risk premium that comes in the form of a slightly higher average rate of return. This additional return should increase as the risk that the issue will be called increase.

Convertibility Risk

Call-ability risk and convertibility risks are two similar in aspects. First, both are contractual stipulations that are included in the terms of the original security issue. Second, both of these provisions alter the variability of return from affected security. Convertibility risk is that portion of the total variability of return from convertible bond or a convertible preferred stock that reflects the possibility that the investment may be converted into issuer's common stock at a time or under terms harmful to the investor's best interests.

Political Risk

Political risk arises from the exploitation of politically weak group for the benefit of a politically strong group, with the efforts of various groups to improve their relative positions increasing the variability of return from the affected assets. Regardless of whether the changes that cause political risk are sought by political or by economic interests, the resulting variability or return is called political risk if it is accomplished through legislative, judicial or administrative branches of the government. Political Risk can be future classified as international political risk and domestic political risk.

Industry Risk

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

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

2.1.5 Relationship between Risk and Return

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

"The observe difference in both the levels and variability of the rate of return across securities are indicative of the underlying risk and relation in the market" (Loric, Dodd and Kempton; 1995).

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

2.1.6 Portfolio

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

Primary Objective

- To minimize risk
- To maximize return.

Secondary objectives:

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

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

$$\overline{R_p} = \sum_{j=1}^{n} W_j \overline{R_j}$$

Where,

$\overline{R_p}$ = Expected return of a portfolio

$\overline{R_j}$ = Expected return for security j

W_j = Proportion of total funds invested in security j

n = Total no. of different securities in the portfolio

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

$$\sigma_p = \sum_{j=1}^{n}\sum_{k=1}^{n} W_j . W_k . Cov_{j.k}$$

Where,

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

W_j = Proportion of total funds invested in security j.

W_k = Proportion of total funds invested in security k.

$Cov_{j.k}$ = Covariance between the possible return of securities j and k.

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

$$Cov_{jk} = r_{jk}\sigma_i\sigma_k$$

Where,

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

σ_j = S.D. of the security j.

σ_k = S.D. of the security k.

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

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

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

2.1.7 Systematic Risk and Unsystematic Risk

Systematic and unsystematic risks are the terms frequently used in the portfolio context. Combining securities that are not perfect positively correlated helps us to reduce the risk of a portfolio to some extent. How much risk reduction is reasonable to expect and how many different security holding in portfolio would be required? Answer to the question will be explained in following paragraphs: (Rabindra, 2006).

In the case of single stock, the risk of a portfolio is the standard deviation of that stock. As the randomly selected stocks held in the portfolio are increased, the total risk of the portfolio is reduced. Such a reduction is at a decreasing rate. Thus a substantial proportion of the portfolio risk can be eliminated with a relatively moderate amount of diversification.

Systematic risk has its source factors the affect all the marketable assets and this cannot be diversified way. Systematic risk is due to the risk factor that affects the overall market such as changes in national economy, tax reform by the government or changes in the world energy situation. The sources of systematic risk are market pervasive. The measure of systematic risk permits an investor to evaluate an assets required rate of return relative to the systematic risk of the stock. In other words over an investor who holds a well diversified portfolio will be exposed to this type of risk (Rabindra, 2006).

Unsystematic risk is risk unique to a particular company or industry. It is independent of economic, political and other factor that affect all securities in systematic manner. A wild cat risk may affect only one company a new competitor may begin to produce essentially the same product or a technological breakthrough can make an existing product absolute. "For most stocks, unsystematic risk accounts for between 60 to 70 percent of stocks total risk or standard deviation (Van Horne and Wachowicz; 1997).

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

Total risk (σ_j) = Systematic risk + unsystematic risk

Systematic Risk and unsystematic Risk can be written as

Systematic Risk (SR)

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

Where,

SR = Systematic Risk

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

σ_m = Standard Deviation of Market

Unsystematic Risk (USR)

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

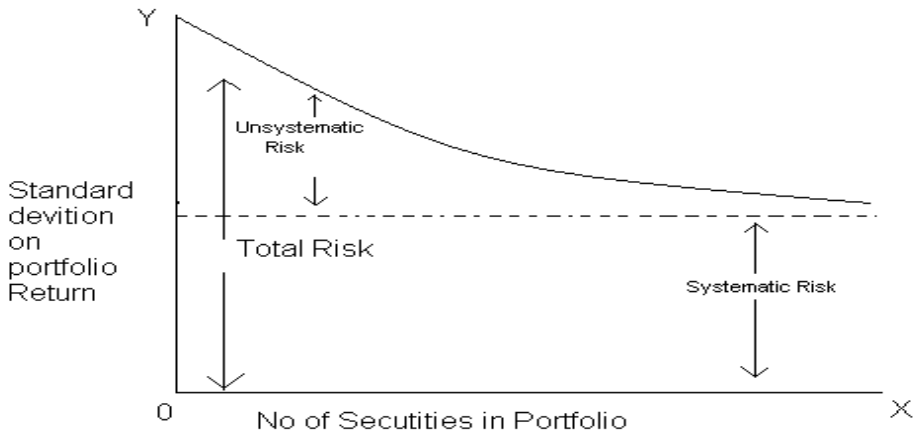
σ_j = Standard Deviation of Stock j

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

Where,

TR = Total Risk

Proportion of USR = 1 −Proportion of SR



Where, systematic risk = σ_j Pjm and unsystematic risk = σ_j (1-Pjm). Here Pjm is the correlation coefficient between the return of given stock (j) k and the return on market portfolio.

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

2.1.8 Capital Asset Pricing Model (CAPM)

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

Based on the behavior of the risk adverse investors, there is implied on equilibrium relationship between risk and expected return to provide a return on common stock with its unavoidable risk. This is simply the risk that cannot be avoided by diversification. The great unavoidable risk of security, the greater the return that investor will expected from the security (Van Horne; 1997).

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

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

Where,

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

R_f = Risk free rate

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

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

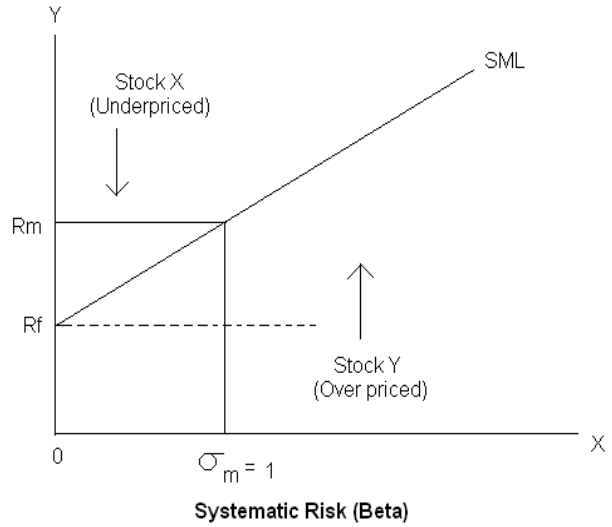
"Beta measures the sensitivity of a stock's returns to change in the returns on the market portfolio. The beta of a portfolio is simply a weighted average of the individual stock betas in the portfolio" (Van Horne, 1997).

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

"The 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 practice in the investment industry" (Sharpe; 1995).

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

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



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

This situation would drive the price up and expected return comes down. It would continue until the market price was seen that the expected return would row lies on the SML. In the case of stock Y, investors holding this stock will start to sell it, recognizing that they could obtain a higher return for some amount of systematic risk with other stocks. This selling pressure would drive market price down and its expected return goes up until the expected return matches on the SML. When the expected return for these two stocks returns to SML, market equilibrium will again prevail (Van Horne and Wachowicz; 1995).

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

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

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

2.2 Review from Books

So far focus is given in basic well known books, which are academically accepted in most of the world. In this section reviewing procedure will slightly twist as we review the journals.

The book entitled as "An introduction to investment theory" by William N' Goetz Mann in the year 1999 is also relevant to this study. Here, he explained finance from the investor's perspective as, "Investors, whether they are individuals or institutions such as pension funds, mutual funds, or college endowments hold portfolio i.e. they hold a collection of different securities. Much of the innovation in investment research over the past forty years has been the development of a theory of portfolio management and this model is principally an introduction to their new methods. It will answer the basis question, what rate or return will investors demand to hold risky security in their portfolio. To answer this question we first must consider what investors want how we define return, and what we mean by risk (William, 1999).

Investors want to make more money in the future. The key measure of benefit derived from a security is the rate or return. "The investor return is a measure of growth in wealth resulting from that investment. This growth measure is expressed in percentage forms to make it comparable across large and small investors. Stock returns may be riskier or more volatile, but this concept is a difficult one to express simply. To do so, we borrow a concept from statistics called standard deviation. It is a single measure, allowing us to quantity assets returns by risk and it also provides the basis for investor decisions about portfolio choice (William, 1999).

In emerging markets: Research, strategic and Benchmarks, Keppler and Lenchner (1993) focus on the examination of the performance of specific investment strategies. Second, the presentation format, comprising emerging market investment strategies with previously published work by the authors (e.g. Keppler and Traub, 1993) in the developed markets in effective. Third another examines a wide range of measure of the portfolio risk in addition to standard deviation, which has not been analyzed in other work. Such measure includes the probability and expectation of monthly loss, number of losing months and lowest monthly return. The keepler Ratio is introduced as an

alternative to the Sharpe Ratio, replacing the standard deviation by the expectation of monthly loss. In many cases, the standard risk measures such as standard deviation shows to be misleading when compared to those other measures. Even though, it is well known that emerging market returns are not normally distributed, however, the comparison of various risk measures helps the practitioner to understand more effectively how it impacts portfolio allocation decisions. These measures complement the extensive analysis of country risk measures, such as institutional Investor Credit Rating, reviewed in Erb. Harvergy and Viskanta (1997).

Keppler and Lechner (1993) shows that return on values strategies based in part on looking at dividend yields and price to cash flows of different markets; are even greater than those based on the small country effect. Although risk is higher according to standard deviations other risk measures show that this portfolio can also be less risky. The analysis is then extended to forming regional portfolios. Strategies based on industry selection and company selections are less promising. A strategy based on equally weighting individual companies within a market gives small excess returns. After a reviewing the historical growth experience across regions, the authors give and in depth discussion into why emerging markets have grown faster than developed markets in the past, and they offer projections for the future. Among the factors analyzed are liberalization of capital markets, reduced debt servicing burden, expanding global trade, and improving education and infrastructure. Although higher growth rates have been achieved, the risk of investing in these markets are also greater Keppler and Lechner explore risk caused by political instability and corruption, high levels of foreign debt commodity prices and short term speculators. The causes of higher cash flow and greater risk are then analyzed in the context of the risk and return characteristics of the markets, followed by discussion of the different emerging market benchmarks.

In emerging Markets Portfolio Diversification and Hedging Strategies, (1997) focus more on regulatory issues and derivatives instrument in emerging markets, following a number of chapter on risk characteristics and potential diversification opportunities. Their book will be or greater interest to policy makers or a more academically including people and portfolio managers concerned with quantifying and managing risk in emerging markets.

Although the stated objective of the book is to "develop a framework for portfolio management" in emerging markets, many chapters focus on topics of direct concern to policy makers. Topic that have received less attention on the literature, such as market based measures to manage commodity price risk and the preconditions for the development of derivatives markets in emerging economics. The book analyze four broad themes: investment risk and opportunities in emerging markets, structural features and the role of government in the market development, the impact of return, correlation and the development and use of derivatives markets in emerging economics by government and investors.

Although the chapters are separated into seven different parts, they don't fit very well into their grouping. A chapter on optimal asset allocation provides a useful analysis of how the portfolio allocation to emerging markets should vary under different assumptions for expected return correlation and investor's risk tolerance. Amongst with investment opportunities, additional risk such as volatility, currency and political risk, lack of liquidity and information, market access and repatriation restrictions serve as a deterrent to investing in these markets. The chapter also discusses the role of policy makers in encouraging market development and concludes that the role of government is to provide a legal structure and promotes policies that allow market forces to work. Recent institutional reforms and liberalization efforts should help to promote their development.
Political portfolio diversification benefits are assessed by examining linkages in returns and volatility, co-relation among markets and factor models. Although, the chapters are informative, they often simply correlated the results of earlier studies, with a notable lack of data from recent years. These factors limit the value added to the chapters. The empirical studies support the view that diversification benefits of investing in emerging markets are present but have been reduced in recently years as a result of growing foreign institutional investor involvement and are less effective during periods of large market movements.

These two books provide a useful compliment to the existing literature. They provide investors with valuable tools for investment strategies in emerging markets and they provide policy makers with a framework for analyzing the benefits and costs of

developing derivatives markets and using market based techniques for managing risk in emerging markets.

2.3 Review from Journals

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

"Financial economics is defined by Smith (1996) as the application of economic theory to financial markets. It is a large body of theory including. Such well known models as "Modern Portfolio Theory" of Markowitz (1953), The Capital Asset Pricing Model (CAPM) of Sharpe (1964), The Efficient Market Hypothesis (EMH) of Sammelson (1965) and Fama (1965) and the option pricing model of Blank and Scholes (1973). Although these models are all included in institute of faculty education Ltd. (1995), their acceptance or use is controversial (Bbouse, 1997).

An article entitled "Expected return, Realized returns and assets pricing tests" (Edwin J. Elton, 1999) is journal of finance in the year 1999 is relevant to this study. In this proper he points out the fundamental issues in finance like that what the factors are that affect expected return on assets, the sensitivity of expected return to those factors, and the reward for bearing this sensitivity. There is a long history of testing in this area and it is clearly one of the most investigated assess in finance.

Almost all of the testing being aware of using realized returns as a process for expected returns. The sue of a average realized relies on a belief that information surprises tent to out over the period of a study and realized returns are therefore an unbiased estimate of expected returns. However, he believes that there is ample evidence that there is ample evidence that this belief is misplaced. There are period's longer than 10 years during which stock market realized returns are one average less than the risk free rate (1973 to 1984). There are periods longer than 50 years in which risk long term bonds on average

under-perform the risk free rate (1927 to 1981). Having a risky asset with expected return above the risk less rate is an extremely weak condition for realized returns to be an appropriate process for expected return, and 11 and 50 years is an awful longtime for such a weak condition not to be satisfied. In the recent past, the United States has had stock market returns of higher than 30% per year while Asian Markets have had negative returns.

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

He attempts two set of question to answer. The first set of three questions concern the existence of expected return premiums. (i) Do the factors that explain expected return difference in developed equity markets also describe the cross section or expected returns of emerging market firms?(ii) Are the returns factors in Emerging markets primarily local or they have global components as well? (iii) How does the emerging market evidence contribute to the international evidence form developed markets that similar return factors are present in markets around the world? The set of questions of the paper include, (iv) is there a cross sectional relation between liquidity and average, returns in emerging markets? Are the return factors in emerging markets cross sectional correlated with liquidity? (Gou Warhorse (1999).

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

In this proper Rouwenhorst (1999) has made detail analysis of the data and he interprets the result in each section. Lastly, he has concluded his findings as "The first conclusion is

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

After reviewing, an article entitled American Association of Individual Investors, Investing basis reveals importance to understand how personal circumstance affect investment decision. (If these factors make no difference we could simply publish one suggested portfolio for everyone to follow). Investment profile is the beginning of the asset allocation process, which consists of dividing portfolio among the major asset categories of stocks, bonds and cash. The asset allocation decision will have a far more effect on portfolio return.

Make allocation decision with the major categories. For instance stock portfolio can be divided among large capitalization stock, small capitalization stocks and international stocks. Once these decisions are reached, you will be ready to make selection among the various investment options. Lastly, once you have set up your investment portfolio you must monitor it, making changes when appropriate (Rouwenhorst; 1999).

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

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

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

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

2.4 Review from Thesis

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

Mishra (2002) analyzed “Risk and Return on common stock investment of commercial Banks in Nepal” with special reference to five listed commercial banks. The major objective of this study was to promote and protect the interest of the investor by regulation the issuance sales and distribution of securities and purchases, sale or exchange of securities. He also intends to supervise and monitor the activities of the stock

exchange and of other related firms carrying on securities business. In addition he tried to render contribution to the development of capital market by making securities transactions fair health, efficient and responsible.

It was noticed that there is a positive correlation between risk and return character of the Bank. Nepalese capital market being inefficient, the price index itself is not sufficient to give the information about the prevailing market. Situation and the company proper regulation should be introduced so that there is more transparency in issuance, sales and distribution of the securities. Investors do not have any idea about the procedures of the securities issuance. Neither company nor the stock brokers transmit any information to the investors about the current market situation and hence it becomes difficult for a common investors to invest in the securities. Both government authorities and the stock exchange regulator body should try to promote healthy practices so that the stock brokers do not give false information to the investors for their personal benefit which is a common practice in Nepal. Investors should get regular information about the systematic Risk (Beta), Return on Equity and P/E Ratio of various listed companies in some way; it is given in economic times for the companies listed in Nepal Stock Exchange. Security exchange Board of Nepal should make this mandates that it is easier for the investors to calculate risk and return of portfolio and transparency is increased.

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

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

Followings are the findings of Mrs. Manandhar's study:

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

Another study conducted by 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 share prices 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 appears to be defensive as beta coefficients 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.

Another study conducted by Manandhar (2005) "A Study of Risk and Return analysis on Common Stock Investment" with special reference to six listed commercial banks. The main objective of the study is to evaluate common stock of listed commercial bank in terms of risk and return and to perform sector wise comparison on the basis of market capitalization, to identify whether the share of commercial banks are overpriced, under priced or at equilibrium price, to identify the correlation between returns of commercial banks, & to construct optimum portfolio from listed common stock.

Major findings of the study are as follows:

- The return is the income received on a stock investment, which is usually expressed in percentage. Expected return on the common stock of EBL is maximum (44.44%) which is very high rate of return. in reality this rate exists only due to effect of unrealistic annual return because of the issues of banks share and increase in share price. Similarly expected return of the CS of NIB is found minimum (24.21%).

- Risk is the variability of return which is measured in terms of standard deviation on the basis of S.D. common stock of NSBI is most risky since it had high S.D. and C.S. of NIBL is least risky because of its lowest S.D. on the other hand, we know that coefficient of variation is more Rational basis of investment decision. Which measures the risk per unit of return on the basis of CV; CS of NIBL is the best among all banks. NIBL has 1.4977 unit of risk per 1 unit of return. But CS of SBI has the highest risk per unit return i.e. 3.5495.
- Diversification of fund by making a portfolio can reduce unsystematic risk of individual security significantly. If investors select the securities for investment, which have highly negative correlation of returns, the risk can be returns of two stocks in highly positive, risk reduction is not so significant. So, portfolio between the C.S. of same industry cannot reduce risk properly. In this study, SBI and EBL have negative correlation between their returns, which is favorable with the viewpoint of the diversification. And all other banks have positive correlation among their returns. So, the portfolio construction among their returns. So, the portfolio construction of the common stock of these banks will not completely reduce any risk, which is not favorable as portfolio construction is concerned.

2.5 Research Gap

Although some previous MBS students have conducted their thesis in the same topic the present researcher has selected, there is fundamental difference between those and this present one. The previous researchers focused only on the risk and return aspect of selected commercial banks from investors perspectives. This research has further tried to identify the correlation among returns of the commercial banks under study which plays a significant role in risk reduction by portfolio construction and systematic and unsystematic risk has been identified for each bank which is not done by previous researchers.

Most of the previous researches reviewed have been carried out with less than seven year data. Here, in this research seven year's data has been taken for analysis. Similarly, the number of sample firms takes by the previous researchers is five or more. But this research has been conducted with reference to three sample firms which give the clear

vision for all the investors who invest in common stock investment of commercial banks listed in NEPSE. However, almost effort has been put upon to save it from allegation of being copy of previous research works done in the same topic.

CHAPTER – III

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is the systematic way of solving research problems and which ultimately refers 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 throughout 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, it is a historical research. It covers the data from 2007/08-2011/12. 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. Various statistical and financial tools have 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 and movement of NEPSE index has been taken from the trading report published by NEPSE, other relevant data has been 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 of banks provided by NRB webpage.
- Trading manual published by Nepal Stock Exchange Limited.
- Related websites.

- Materials published in Newspapers and Magazines.
- Other related journals, periodicals, books and booklets.
- Central library T.U., Lumbini Banijya 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 31 commercial banks that are listed in NEPSE. There are a total of 31 commercial banks registered under Nepal Rastra Bank. The number of listed commercial banks in NEPSE is 29. For this, study three commercial banks Himalayan Bank Limited (HBL), Everest Bank limited (EBL) and Nepal Investment Bank Limited (NIBL) are taken as sample.

3.5 Factors and Methods of Analysis

The study employs various financial tools and statistical tools such as percentage graph, Pearson's coefficient of correlation, standard deviation. Likewise some financial tools such as holding period return, expected rate of return and CAPM to analyze the data collected from various sources. Before, analysis, data has been presented in the tabular format, charts and graphs.

The collected 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 Du Ratio 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:

$$\text{DPS} = \frac{\text{The total amount of dividend paid}}{\text{No. of common shares outstandin g}}$$

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

The various financial tools used are as follows:

3.5.2 Financial Tools

3.5.2.1. Holding Period Return (HPR)

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

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

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.

3.5.2.2. Expected Rate of Return

One of the main aims of the study is to determine the expected return on the investment in common stock. 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.

3.5.2.3. 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 measurement of total risk on stock investment.

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

If data is probability distribution

Or, $$\sigma_j = \sqrt{\sum_{t=1}^{n} \left[R_j - E(R_j)\right]^2 P_j}$$

Where,

σ_j = Standard deviation of return on 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 of return on stock j.

n = Number of years that the returns are taken.

3.5.2.4. 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. We know that 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.

3.5.2.5. Beta Coefficient (β)

Beta coefficient shows the market sensitivity of stock. We know that 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.

3.5.2.6. 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.

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

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

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 risky as the individual stocks. Thus, diversification to reduce risk if does nothing, 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 reduces risk but does not eliminated at completely.

3.5.2.7. 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

3.5.2.8. 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.

a. Portfolio Return

The expected return on a portfolio is simply the weighted average of expected returns on the individual assets in the portfolio with the 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.

b. 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:

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

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.

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

3.5.2.9. Portfolio Beta

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

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

Where,

Wj = proportion of the portfolio.

b_j = beta coefficient of asset j.

b_p = portfolio beta coefficient.

3.5.2.10. 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.

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

3.5.2.11. 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)

3.6 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 ratio 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 31 commercial banks in operation in Nepal and among them only 29 are listed in NEPSE. Among them 3 commercial banks are taken as a sample for the study. They are Nepal Investment Bank Ltd. (NIBL), Himalayan Bank Ltd. (HBL) and Everest Bank Ltd. (EBL). Common stock of each listed commercial banks, their risk and return are analyzes are included in this study.

4.1.1 Nepal Investment Bank Ltd. (NIBL)

4.1.1.1 Analysis of Total Dividend

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

Fiscal Year	Closing MPS	Total DPS (Rs.)	EPS (Rs.)	P/E Ratio
2007/08	2450	7.50	57.87	42.34
2008/09	1388	20	37.41	37.10
2009/10	705	2.58	52.55	13.43
2010/11	515	20	39.07	13.18
2011/12	511	4	27.59	18.52

Data Source: AGM Report of NIBL

According to table 4.1, NIBL is paying highest dividend i.e. Rs. 20 in the fiscal year 2008/09 & 2010/11 and lowest dividend in 20011/12. P/E ratio of NIBL is maximum in the year 2007/08 i.e. Rs. 42.34 and minimum in the year 2010/11 i.e. Rs. 13.18. The closing MPS of NIBL is maximum of Rs. 2450 in the year 2007/08 and minimum of Rs. 511 in the year 2011/12.

Figure 4.1

Year and Price movement of the Common Stock of NIBL

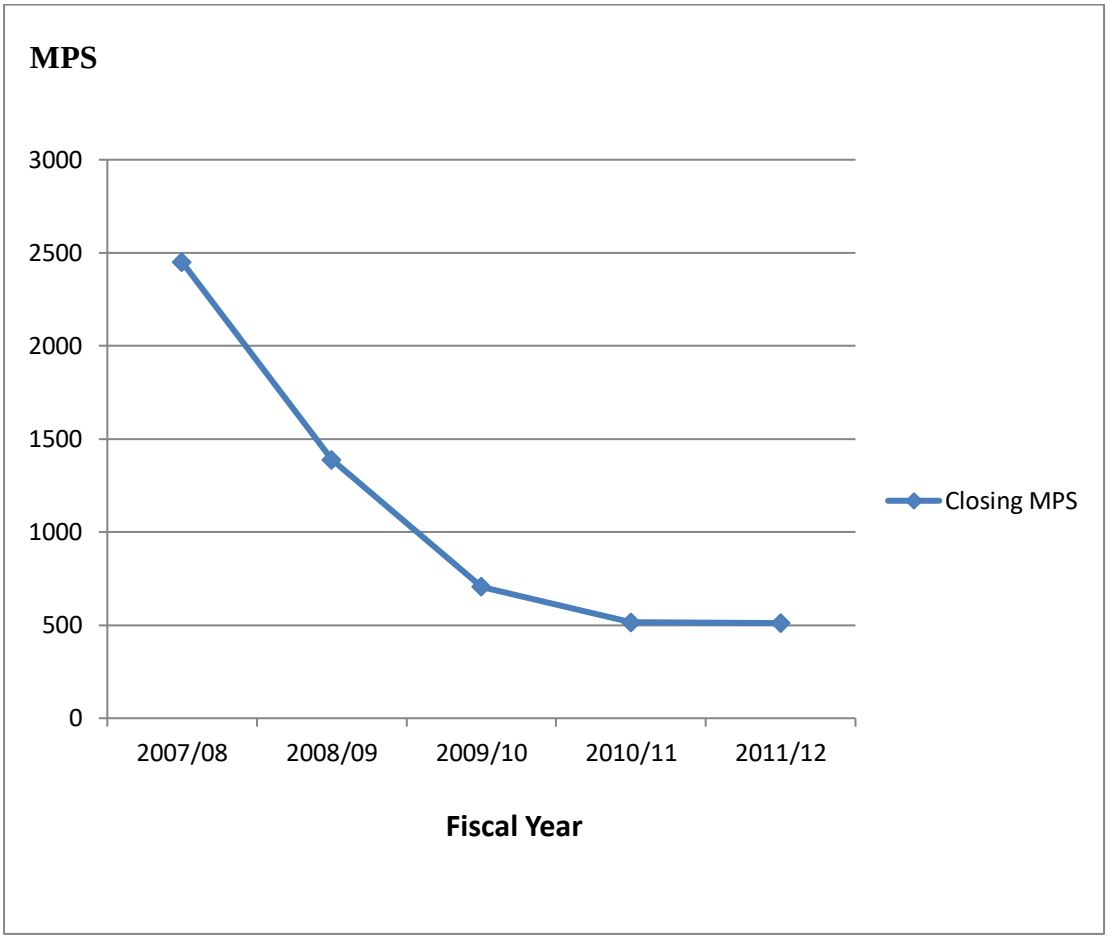


Figure 4.1 shows the trend line of market price in several year of NIBL. It can be seen that there is gradual decline of market price from year 2007/081 to till 2011/12. There is minimum price in the last fiscal year 2011/12 i.e. Rs. 511 per share and maximum in the first fiscal year 2007/08 i.e. Rs. 2450 per share.

4.1.1.2 Expected Return $E(\bar{R}_j)$, Standard Deviation (σ_j) and Coefficient of Variation (C.V.) of C.S. of NIBL

Table 4.2

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

Fiscal Year	Closing MPS	Total Dividend	$R_j = \frac{D_t + P_t - P_{t-1}}{P_{t-1}}$	$(R_j - \bar{R}_j)$	$(R_j - \bar{R}_j)^2$
2007/08	2450	7.50	0.4213	0.5684	0.3231
2008/09	1388	20	-0.4253	-0.2782	0.0774
2009/10	705	2.58	-0.4902	-0.3431	0.1177
2010/11	515	20	-0.2411	-0.0940	0.0084
2011/12	511	4	0	0.1471	0.0216
			$\sum Rj = -0.7353$		$\sum (Rj - \bar{R}j)^2 = 0.5482$

Where,

Expected Return $E(\bar{R}_j) = \frac{\sum R_j}{n} = \frac{-0.7353}{5} = -0.1471$

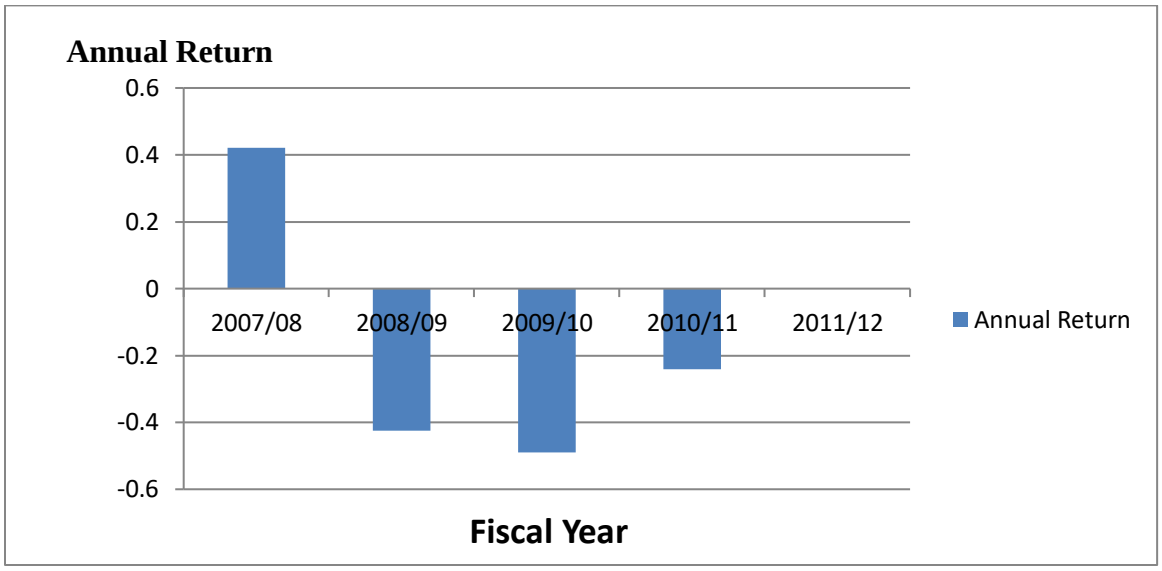
Standard Deviation $(\sigma_j) = \sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{n-1}} = \sqrt{\frac{0.5482}{4}} = 0.3702$

Coefficient of Variation $(C.V.) = \frac{\sigma_j}{R_j} = \frac{0.3702}{-0.1471} = -2.5167$

Expected return of NIBL is -0.1471 with the total risk (measured by S.D.) of 0.3702. The C.V. of NIBL is -2.5167 which denotes that 2.5167 unit of risk must be beard to get one unit of return. So, higher the C.V., higher will be the risk.

Figure 4.2

Annual Rate of Return of C.S. of NIBL



The Figure 4.2 shows the annual rate of return of C.S. of NIBL in several years. The rate of return is positive on 2007/08 i.e. 0.4213 which shows return profitable while the rest fiscal year returns are negative as shown in the above figure.

4.1.2 Himalayan Bank Ltd. (HBL)

4.1.2.1 Analysis of Total Dividend

Table 4.3

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

Fiscal Year	Closing MPS	Total DPS (Rs.)	EPS	P/E Ratio
2007/08	1980	25	62.74	31.56
2008/09	1760	91.21	470.50	3.74
2009/10	816	9.50	25.44	32.07
2010/11	575	14.03	37.21	15.45
2011/12	653	11.67	34.73	18.80

Data Source: AGM Report of HBL

According to table 4.3, HBL is paying highest dividend i.e. Rs. 91.21 in year 2008/09 and lowest dividend i.e. Rs 9.50 in 2009/10. P/E ratio of HBL is maximum in the year 2009/10 i.e. 32.07 and minimum in the year 2008/09 i.e. 3.74. The closing MPS of HBL

is maximum of Rs. 1980 in the year 2007/08 and minimum of Rs. 575 in the year 2010/11.

Figure 4.3

Year and Price Movement of C.S. of HBL

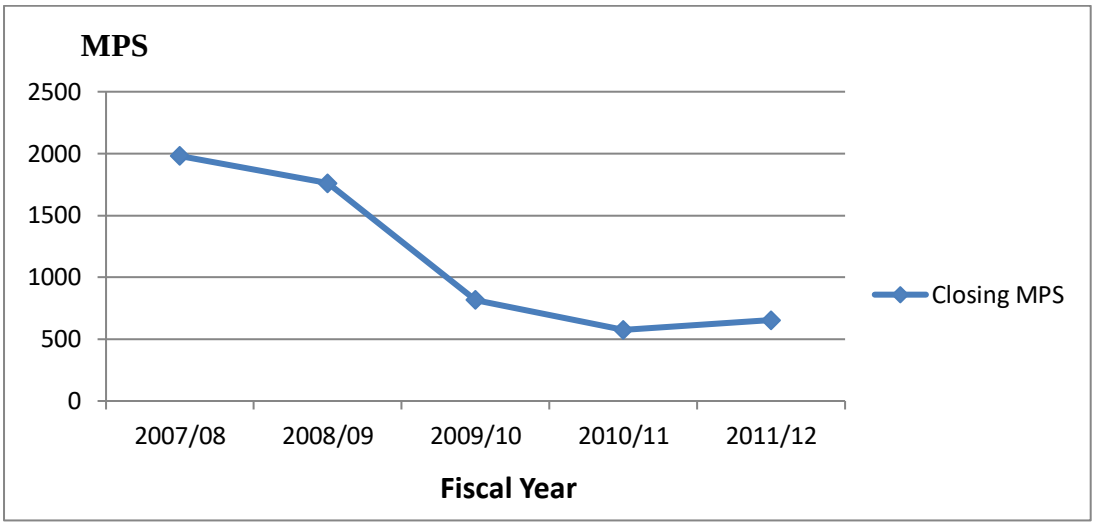


Figure 4.3 shows the trend line of price or MPS of HBL in the decreasing trend. The MPS has declined from 2007/08 to 2010/11 continuously from Rs. 1980 to Rs. 575. However, there is some progress in 2011/12 with Rs.653.

4.1.2.2 Expected Return $E(\bar{R}_j)$, 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	$R_j = \frac{D_t + P_t - P_{t-1}}{P_{t-1}}$	$(R_j - \bar{R}_j)$	$(R_j - \bar{R}_j)^2$
2007/08	1980	25	0.1392	0.2550	0.0650
2008/09	1760	91.21	-0.0650	0.0508	0.0026
2009/10	816	9.50	-0.5310	-0.4152	0.1724
2010/11	575	14.03	-0.2781	-0.1623	0.0263
2011/12	653	11.67	0.1559	0.2717	0.0738
			$\sum R_j = -0.5789$		$\sum (Rj - \bar{R}j)^2 = 0.3401$

Where,

Expected Return $$E(\bar{R}_j) = \frac{\sum R_j}{n} = \frac{-0.5789}{5} = -0.1158$$

Standard Deviation $$(\sigma_j) = \sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{n-1}} = \sqrt{\frac{0.3401}{4}} = 0.2916$$

Coefficient of Variation $$(C.V.) = \frac{\sigma_j}{R_j} = \frac{0.2916}{-0.1158} = -2.52$$

The expected return of HBL is -0.1158 with the total risk (measured by S.D.) of 0.2916. The C.V. of HBL is -2.52 which indicates that 2.52 unit of risk must be bearded to get one unit of return. It can be shown clearly in the figure 4.4.

Figure 4.4

Annual Rate of Return of C.S. of HBL

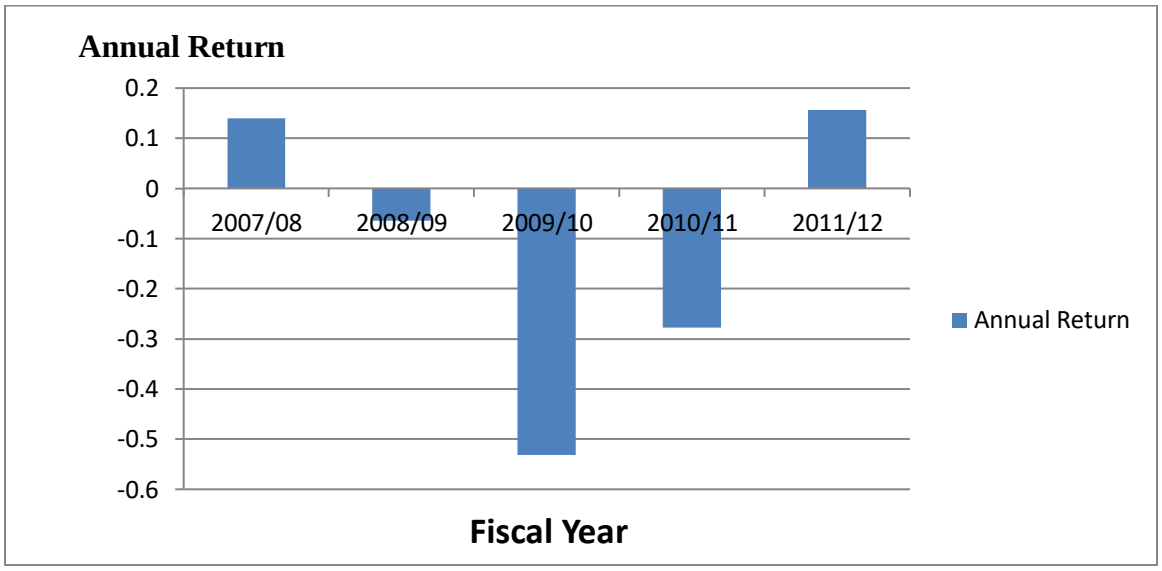


Figure 4.4 shows returns of HBL in the several years. There is positive and negative fluctuating return in several years. The highest return is in the year 2011/12 i.e. 0.1559 and lowest negative return of -0.650 in 2009/10.

4.1.3 Everest Bank Ltd.

4.1.3.1 Analysis of Total Dividend

Table 4.5

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

Fiscal Year	Closing MPS	Total DPS (Rs.)	EPS (Rs.)	P/E Ratio
2007/08	3132	13.25	55.47	56.46
2008/09	2455	19.57	61.98	39.61
2009/10	1630	20.50	65.00	25.07
2010/11	1094	40.65	66.92	16.35
2011/12	1033	1.10	61.92	16.68

Data Source: AGM Report of EBL

According to table 4.5, EBL is paying highest dividend i.e. Rs. 40.65 in year 2010/11 and lowest dividend i.e. Rs 1.10 in 2011/12. P/E ratio of EBL is maximum in the year 2007/08 i.e. 56.46 and minimum in the year 2010/119 i.e. 16.35. The closing MPS of EBL is maximum of Rs. 3132 in the year 2007/08 and minimum of Rs. 1033 in the year 2010/11.

Figure 4.5

Year and Market Price Movement of the C.S. of EBL

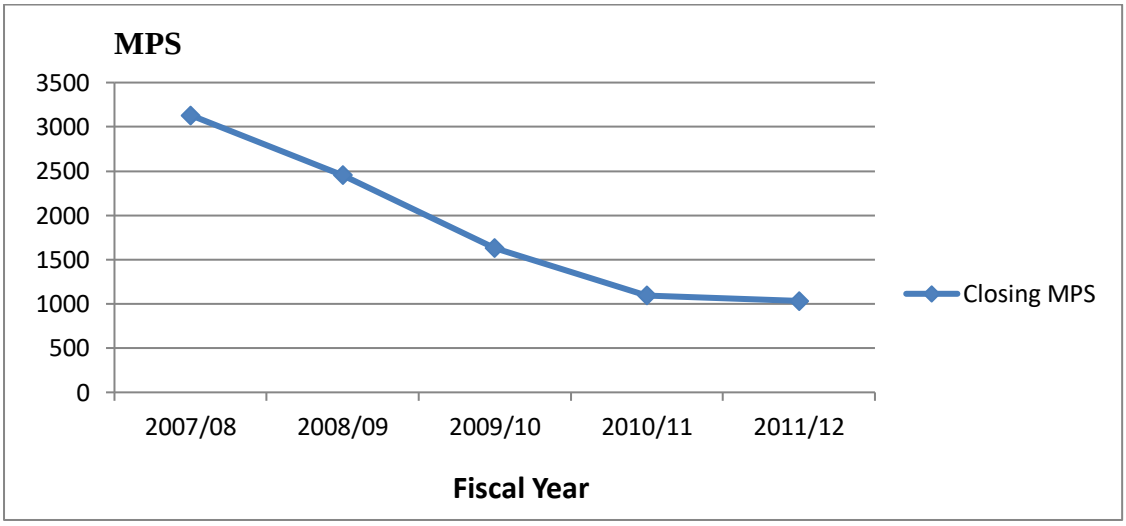


Figure 4.5 shows the trend line of price or MPS of HBL in the decreasing trend. The MPS has declined from 2007/08 to 2010/11 continuously from Rs. 1980 to Rs. 575. However, there is minor decline in MPS which result in less steep slope with Rs. 1033.

4.1.3.2 Expected Return $E(\bar{R}_j)$, 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	$R_j = \frac{D_t + P_t - P_{t-1}}{P_{t-1}}$	$(R_j - \bar{R}_j)$	$(R_j - \bar{R}_j)^2$
2007/08	3132	13.25	0.2943	0.4147	0.1719
2008/09	2455	19.57	-0.2100	-0.0896	0.0081
2009/10	1630	20.50	-0.3277	-0.2073	0.0429
2010/11	1094	40.65	-0.3039	-0.1835	0.0337
2011/12	1033	1.10	-0.0547	0.0657	0.0043
			$\sum R_j = -0.6020$		$\sum (Rj - \bar{R}j)^2 = 0.2609$

Where,

Expected Return $$E(\bar{R}_j) = \frac{\sum R_j}{n} = \frac{-0.6020}{5} = -0.1204$$

Standard Deviation $$(\sigma_j) = \sqrt{\frac{\sum (R_j - \bar{R}_j)^2}{n-1}} = \sqrt{\frac{0.2609}{4}} = 0.2554$$

Coefficient of Variation $$(C.V.) = \frac{\sigma_j}{R_j} = \frac{0.2554}{-0.1204} = -2.1210$$

The expected return of EBL is 0.4196 with total risk (measured by S.D.) of 0.5299. The C.V. of EBL is 1.2629 which indicates that1.2629 unit of risk should be beard for getting one unit of return.

Figure 4.6

Annual Return of C.S. of EBL

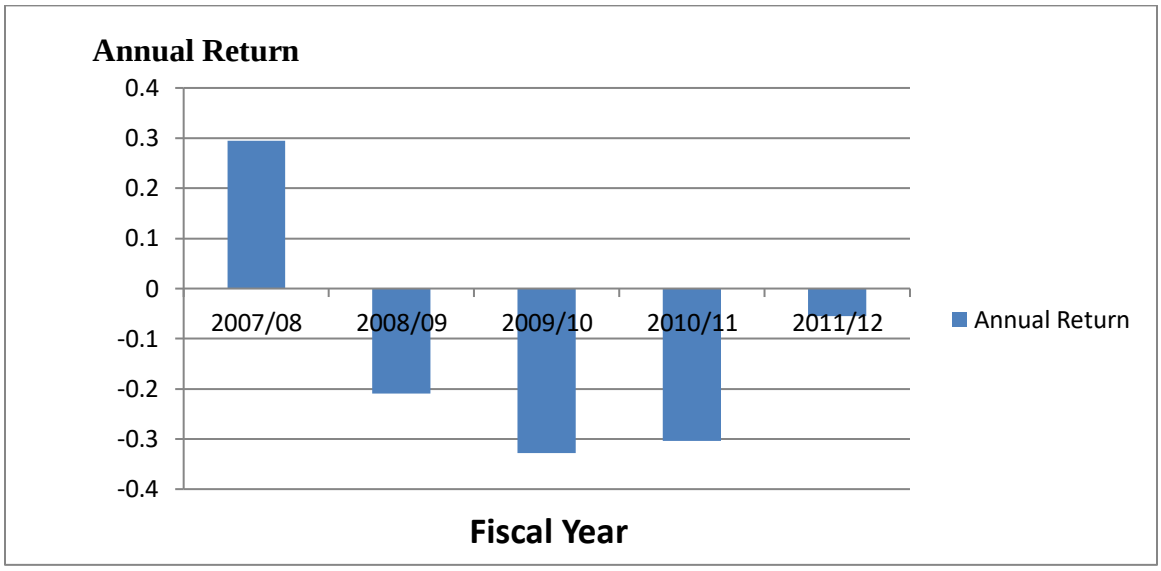


Figure 4.6 shows the return of EBL which is positive in the year 2007/08 and negative in following years. There is lowest return of 0.3237 in the year 2009/10. However, there is only small percentage of negative return of -0.0547 in the year 2011/12.

4.2 Inter Bank Comparison

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

Table 4.7

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

Bank	Expected Return E $(\bar{R}_i)$	Standard Deviation (σ)	Coefficient of Variation (C.V.)	Remarks		
				Return	Risk	C.V.
NIBL	-0.1471	0.3702	-2.5167	Lowest	Highest	Moderate
HBL	-0.1158	0.2916	-2.5200	Highest	Moderate	Lowest
EBL	-0.1204	0.2554	-2.1210	Moderate	Lowest	Highest

Source: Table 4.2, table 4.4 and table 4.6

The table 4.7 shows the overall return and risk of the individual banks. Here, the investor can get the highest return from EBL i.e. 0.4196 and lowest return from HBL i.e. 0.2741. Total risk (measured by standard deviation) is observed maximum of the C.S. of NIBL

i.e. 0.6111 and minimum of HBL i.e. 0.3876. This means that quantitative of total risk is very high in NIBL. Higher the C.V. higher the risk and C.V. of NIBL is highest i.e. 1.9242 than that of other commercial banks. So common stock of NIBL is more risky than 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 4.7 is presented below.

Figure 4.7

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

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

4.3 Comparison with Market

4.3.1 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 4.8

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

Fiscal Year	**Market Index**	$R_m = \frac{NI_t - NI_{t-1}}{NI_{t-1}}$	$(R_m - \bar{R}_m)$	$(R_m - \bar{R}_m)^2$
2007/08	963.36	0.4084	0.4769	0.2274
2008/09	749.10	-0.2224	-0.1539	0.0237
2009/10	477.73	-0.3622	-0.2937	0.0862
2010/11	362.90	-0.2404	-0.1719	0.0295
2011/12	389.70	0.0738	0.1423	0.0202
		$\sum R_m = -0.3427$		$\sum (R_m - \bar{R}_m)^2 = 0.3870$

We have,

Expected Return $E(\bar{R}_m) = \frac{\sum R_m}{n} = \frac{-0.3427}{5} = -0.0685$

Standard Deviation $(\sigma_m) = \sqrt{\frac{\sum (R_m - \bar{R}_m)^2}{n-1}} = \sqrt{\frac{1.1542}{4}} = 0.3111$

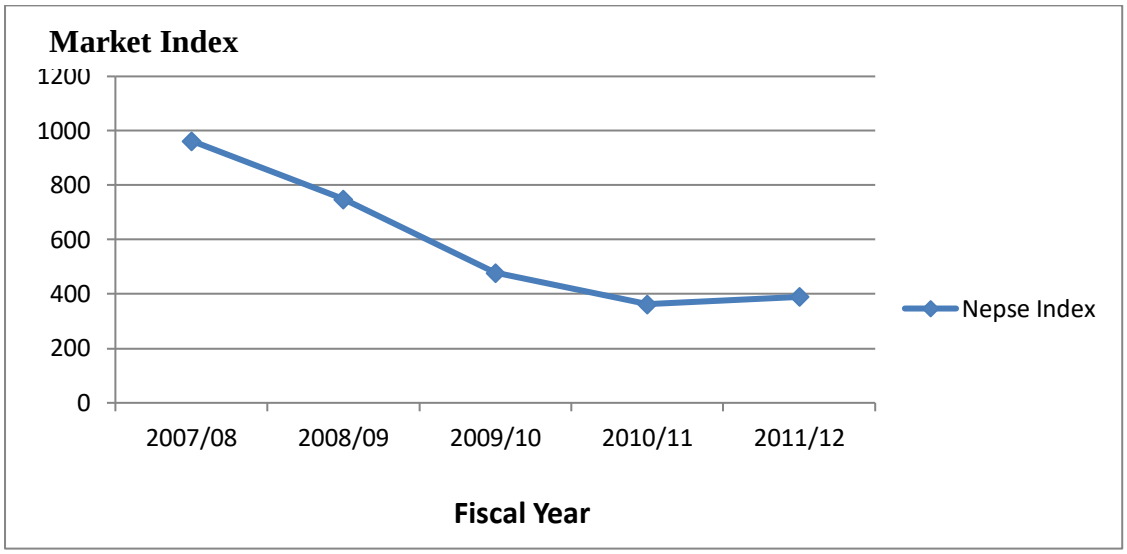
Coefficient of Variation (C.V.) $= \frac{\sigma_m}{R_m} = \frac{0.3111}{-0.0685} = -4.541$

Table 4.8 shows the return of market in several years. There is negative return of market throughout all the fiscal years with lease negative return of 0.0738 in 2011/12.

The expected return of the market is -0.0685 with the total risk of 0.3111. C.V of market is -4.541 which means, 4.541 unit of risk must be borne to get one unit of market return.

Figure 4.8

NEPSE Index Movement



The figure 4.8 shows the movement of NEPSE Index. It is gradually decreasing from the fiscal year 2007/08 to 2010/11 with a continuous downward slope. However, there is slightly index improvement in last fiscal year with Rs. 389.70 in compared to fiscal year 2010/11 i.e. Rs. 362.90.

Figure 4.9

Market Return Movement

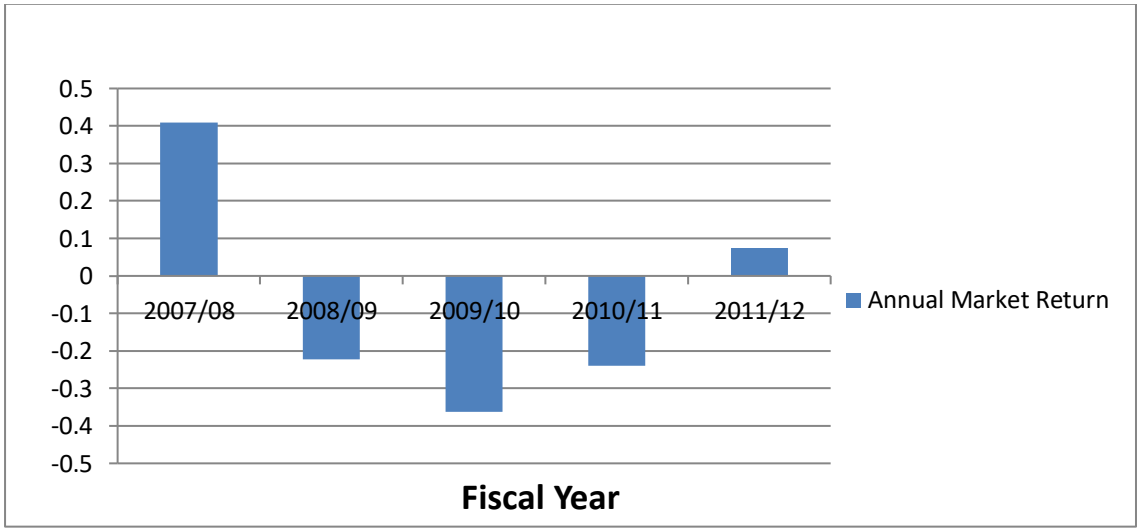


Figure 4.9 shows that the market return is positive in year 2007/08 & 2011/12 and negative in three consecutive years 2008/09, 2009/10 and 2010/11 with -0.2224, -0.3662 and -0.2404 respectively.

4.3.2 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 4.9

Beta coefficient of C.S. of NIBL

Fiscal Year	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)(R_j - \bar{R}_j)$
2007/08	0.4769	0.5684	0.2711
2008/09	-0.1539	-0.2782	0.0428
2009/10	-0.2937	-0.3431	0.1008
2010/11	-0.1719	-0.0940	0.0162
2011/12	0.1423	0.1471	0.0209
			$\sum[(R_m - \bar{R}_m)(R_j - \bar{R}_j)] = 0.4518$

We have,

$$\text{Cov}((R_m, R_j) = \frac{\sum[(R_m - \bar{R}_m)(R_j - \bar{R}_j)]}{n-1} = \frac{0.4518}{4} = 0.1129$$

Again,

$$\beta_m = \frac{Cov(R_m, R_j)}{\sigma_m^2} = \frac{0.1129}{(0.3111)^2} = 1.1665$$

Where,

n	=	number of observation
σ_m^2	=	Variance of market
R_j	=	Return on Stock of NIBL
R_m	=	Return of Market

From sensitivity analysis of NIBL, the beta coefficient is 1.1665, which is more than 1, shows that NIBL is very much volatile and aggressive Investor can purchase this type of investment. From the view of investment, it is risky.

Table 4.10

Beta Coefficient of the C.S. of HBL

Fiscal Year	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)(R_j - \bar{R}_j)$
2007/08	0.4769	0.2550	0.1216
2008/09	-0.1539	0.0508	-0.0078
2009/10	-0.2937	-0.4152	0.0279
2010/11	-0.1719	-0.1623	0.0278
2011/12	0.1423	0.2717	0.0387
			$\sum[(R_m - \bar{R}_m)(R_j - \bar{R}_j)] = 0.2082$

We have,

$$\text{Cov}\ (R_m, R_j) = \frac{\sum[(R_m - \bar{R}_m)(R_j - \bar{R}_j)]}{n-1} = \frac{0.2082}{4} = 0.0521$$

Again,

$$\beta j = \frac{Cov(R_m, R_j)}{\sigma_m^{\,2}} = \frac{0.0521}{(0.3111)^2} = 0.5378$$

Where,

n = number of observation

$\sigma_m^{\,2}$ = Variance of market

R_j = Return on Sock of HBL

From sensitivity analysis of HBL, the beta coefficient is 0.5378, which is less than 1, shows that HBL is less volatile and risk averter can purchase this type of investment. From the view of investment, it is less risky.

Table 4.11

Beta Coefficient of the C.S. of EBL

Fiscal Year	$(R_m - \bar{R}_m)$	$(R_j - \bar{R}_j)$	$(R_m - \bar{R}_m)(R_j - \bar{R}_j)$
2007/08	0.4769	0.4147	0.1978
2008/09	-0.1539	-0.0896	0.0140
2009/10	-0.2937	-0.2073	0.0601
2010/11	-0.1719	-0.1835	0.0315
2011/12	0.1423	0.0657	0.0093
			$\sum[(R_m - \bar{R}_m)(R_j - \bar{R}_j)] = 0.3127$

[

We have,

$$\text{Cov}\ (R_m, R_j) = \frac{\sum[(R_m - \bar{R}_m)(R_j - \bar{R}_j)]}{n-1} = \frac{0.3127}{4} = 0.0782$$

Again,

$$\beta_m = \frac{Cov(R_m, R_j)}{\sigma_m^{\,2}} = \frac{0.2019}{(0.3111)^2} = 0.8077$$

Where,

n	=	number of observation
$\sigma_m^{\,2}$	=	Variance of Market
R_j	=	Return on Stock of EBL

From sensitivity analysis of EBL, the beta coefficient is 0.8077, which is less than 1, shows that EBL is very less volatile and risk averter can purchase this type of investment. From the view of investment, it is less risky.

Table 4.12

Beta Coefficient of each Bank

Banks	Beta Coefficient	Remarks
NIBL	1.1665	Aggressive
HBL	0.5378	Defensive
EBL	0.8077	Defensive

Source: Table 4.10, 4.11 and 4.12

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

4.3.3 Required Rate of Return $(\bar{R}_j)$, Expected Rate of Return $[E(R_j)]$ 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 is taken as a risk free rate from website of NRB. This is approximately 6.35%.

Table 4.13

Required Rate of Return, Expected Return and Price Evaluation

Banks	R_f	$E(R_m)$	**Beta** (β_j)	$E(R_j) = R_f + [E(R_m) - R_f]\beta_j$	$(\overline{R}_j)$	**Price Evaluation**
NIBL	0.0635	-0.0685	1.1665	-0.0904	-0.1471	Overpriced
HBL	0.0635	-0.0685	0.5378	-0.0075	-0.1158	Overpriced
EBL	0.0635	-0.0685	0.8077	-0.0431	-0.1204	Overpriced

Where,

R_f = Risk free rate of return (0.0635)

$E(R_m)$ = Market rate or return (-0.0685)

(β_j) = Beta of individual sample Banks.

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

In the table 4.14, the expected rate of return is lower than the required rate of return, so the stocks of NIBL, HBL and EBL are overpriced. It shows that these banks do not have stock with good investment opportunity and the stocks are not in the demand. Their stock value may decrease in the near future providing the investors a lower return. Since all stocks are overpriced, investors can loss from buying those stocks. These stocks are recommended to short-sell.

4.4 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%).

4.4.1 Analysis of Risk Diversification

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

Covariance between Stocks

$COV(R_{A,}R_{B})$	0.0821
$COV(R_{B,}R_{C})$	0.0587
$COV(R_{A,}R_{C})$	0.0897

Source: Appendix IV, V, VI

Where,

$COV(R_{A,}R_{B})$ = Covariance between returns of NIBL and HBL

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

$COV(R_{B,}R_{C})$ = Covariance between returns of NIBL and EBL

Banks	S.D. of Stocks	Expected Return of Stocks
NIBL	$\sigma_A = 0.3702$	$E(R_A) = -0.1471$
HBL	$\sigma_B = 0.2916$	$E(R_B) = -0.1158$
EBL	$\sigma_C = 0.2554$	$E(R_C) = -0.1204$

Source: Table 4.7

4.4.1.1 Portfolio of stock NIBL (A) and HBL (B)

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

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

$$W_B = \mathbf{1} - W_A$$

Where,

W_A	=	optimal weight to invest in stock of NIBL
W_B	=	optimal weight to invest in stock of HBL
σ_A^2	=	variance of NIBL
σ_B^2	=	Variance of HBL

Now,

$$W_A = \frac{0.2916^2 - 0.0821}{0.3702^2 + 0.2916^2 - 0.0821} = 0.021$$

$$W_B = 1 - W_A = 1 - 0.2014 = 0.979$$

As we know that the proportion of stock in the portfolio is constructed with 2.1% of NIBL and 97.9% 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 $E(R_P) = W_A \times E(R_A) + W_B \times E(R_B)$

= 0.021 x (-0.1471) + 0.979 x (- 0.1158)

= -0.1164

= -11.64 %

Where,

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

$E(R_A)$ = Expected Return of NIBL

$E(R_B)$ = Expected Return of HBL

Portfolio Risk

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

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

$$= \sqrt{0.021^2 \times 0.3702^2 + 0.979^2 \times 0.2916^2 + 2 \times 0.0821 \times 0.021 \times 0.979}$$

$$= \sqrt{0.0849}$$

$$= 0.2914$$

$$= 29.14\%$$

Where,

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

From the above calculation the portfolio return and risk for NIBL and HBL are -11/64% and29.14% respectively.

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

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

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

$$W_C = \mathbf{1} - W_B$$

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

σ_C^2 = Variance of EBL

Now,

$$W_B = \frac{0.2554^2 - 0.0587}{0.2916^2 + 0.2554^2 - 0.0587} = 0.071$$

$$W_C = 1 - W_B = 1 - 0.071 = 0.929$$

As we know that the proportion of stock in the portfolio is constructed with 7.1% of HBL and 92.9% 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 $E(R_p) = W_B \times E(R_B) + W_C \times E(R_C)$

= 0.071 x (-0.1158) + 0.0.929 x (-0.1204)

= -0.1200

= -12.00%

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.

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

$$= \sqrt{0.071^2 \times 0.2916^2 + 0.929^2 \times 0.2554^2 + 2 \times 0.0587 \times 0.071 \times 0.929}$$

$= \sqrt{0.0645}$

= 0.2539

= 25.39%

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 -12.0 % and 25.39 % respectively.

4.4.1.3 Portfolio of Stocks NIBL (A) and EBL (C)

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

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

$$W_C = \mathbf{1} - W_A$$

Where,

W_A = optimal weight to invest in stock of NIBL

W_C = optimal weight to invest in stock of EBL

σ_A^2 = variance of NIBL

σ_C^2 = Variance of EBL

Now,

$$W_A = \frac{0.2554^2 - 0.0897}{0.3702^2 + 0.2554^2 - 0.0897} = -0.217$$

$$W_C = 1 - W_A = 1 - (-0.217) = 1.217$$

As we know that the proportion of stock in the portfolio is constructed with -2.17% of NIBL and 1.217% 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 $E(R_P) = W_A \times E(R_A) + W_C \times E(R_C)$

= -0.217 x (-0.1471) + 1.217 x (-0.1204)

= -0.1146

= -11.46%

Where,

$E(R_p)$	=	Expected Return on Portfolio of stock NIBL and EBL
$E(R_A)$	=	Expected Return of NIBL
$E(R_c)$	=	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.

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

$$= \sqrt{(-0.217)^2 \times 0.3702^2 + 1.217^2 \times 0.2554^2 + 2 \times 0.0897 \times (-0.217) \times 1.217}$$

$$= \sqrt{0.0557}$$

= 0.2358

= 23.58%

Where,

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

From the above calculation the portfolio return and risk for NIBL and EBL are -11.46 % and 23.58% respectively.

Table 4.14

Portfolio Risk and Return

Banks	E(R_P)	σ_p	Remarks	
			Return	Risk
NIBL and HBL	-11.64%	29.14%	-	Highest
HBL and EBL	-12.00%	25.39%	Most Lower	-
NIBL and EBL	-11.46%	23.58%	-	Lower

4.5 Correlation between Banks' Securities

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

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

Table 4.15

Correlation Matrix

Sample	NIBL	HBL	EBL
NIBL	1	0.7605	0.9483
HBL		1	0.7887
EBL			1

Source: Appendix IV, V and VI

Since, table 4.15 (correlation matrix) has shown the positive correlation between the banks. If correlation between stocks is +1, any part of risk cannot be reduced by diversification. On the other hand, if correlation between stocks 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 NIBL and EBL is much better than any other combination because the combination has the lowest correlation.

4.6 Systematic and Unsystematic Risk

4.6.1 Systematic Risk

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

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

Where,

SR	=	Systematic Risk
$COV(R_{j,}R_m)$	=	Covariance returns of stock with market
σ_m	=	S. D. of market

4.6.2 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

4.6.3 Systematic and Unsystematic Risk of NIBL with Market

$$SR = \frac{COV(R_j, R_m)}{\sigma_m} = \frac{0.1129}{0.3111} = 0.3629$$

$$USR = \sigma_J - SR = 0.3702 - 0.3629 = 0.0073$$

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

Where,

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

σ_j = S.D. of NIBL

4.6.3.1 Proportion of Systematic and Unsystematic Risk

$$\text{Proportion of SR} = \frac{\text{SR}}{\text{TR}} = \frac{0.3629}{0.3702} = 0.9802 = 98.02\%$$

$$\text{Proportion of USR} = \frac{\text{USR}}{\text{TR}} = \frac{0.0073}{0.3702} = 0.0198 = 1.98\%$$

Out of total risk in stock of NIBL; 98.02% is un-diversifiable risk and created from systematic factor or market factor and the remaining 1.98% is diversifiable risk and created from company related factor.

4.6.4 Systematic and Unsystematic Risk of HBL with Market

$$SR = \frac{COV(R_j, R_m)}{\sigma_m} = \frac{0.0521}{0.3111} = 0.1674$$

$$USR = \sigma_J - SR = 0.2916 - 0.1674 = 0.1241$$

Note: $COV(R_jR_m)$, 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

4.6.4.1 Proportion of Systematic and Unsystematic Risk

$$\text{Proportion of SR} = \frac{\text{SR}}{\text{TR}} = \frac{0.1674}{0.2916} = 0.5741 = 57.41\%$$

$$\text{Proportion of USR} = \frac{\text{USR}}{\text{TR}} = \frac{0.1241}{0.2916} = 0.4259 = 42.59\%$$

Out of total risk in stock of HBL; 57.41% is un-diversifiable risk and created from systematic factor or market factor and the remaining 42.59% is diversifiable risk and created from company related factor.

4.6.5 Systematic and Unsystematic Risk of EBL with Market

$$SR = \frac{COV(R_j, R_m)}{\sigma_m} = \frac{0.0782}{0.3111} = 0.2513$$

$$USR = \sigma_J - SR = 0.2554 - 0.2513 = 0.0041$$

Note: $COV(R_jR_m)$, σ_m, σ_j are taken from table 4.12, 4.9 and 4.6 respectively.

Where,

$COV(R_jR_m)$ = Covariance returns of EBL with market

σ_j = S.D. of EBL

4.7.5.1 Proportion of Systematic and Unsystematic Risk

$$\text{Proportion of SR} = \frac{\text{SR}}{\text{TR}} = \frac{0.2513}{0.2554} = 0.9839 = 98.39\%$$

$$\text{Proportion of USR} = \frac{\text{USR}}{\text{TR}} = \frac{0.0041}{0.2554} = 0.0161 = 1.61\%$$

Out of total risk in stock of EBL; 98.39% is un-diversifiable risk and created from systematic factor or market factor and the remaining 1.61% is diversifiable risk and created from company related factor.

Table 4.16

Proportion of SR and USR

Bank	SR	USR
NIBL	36.29%	0.73%
HBL	16.74%	12.41%
EBL	25.13%	0.41%

4.7 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 NIBL is the least one with negative return of -14.71%. Similarly expected return of C.S. of HBL is -11.58% and EBL is -12.04%
- Risk is the variability of returns which is measured in terms of standard deviation. On the basis of S.D., common stock of NIBL is most risky since it has high S.D. i.e. 0.3702. C.S of EBL is least risky because of its lowest S.D. of 0.2554. 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 2.1210 unit of risk per 1 unit of return. But C.S. of HBL 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 NIBL is most volatile i.e. $\beta = 1.1665$ and common stock of HBL and EBL are least volatile with. $\beta = 0.5378$ and 0.8077 respectively. We find NIBL more aggressive type of common stock with highest CV and HBL lease volatile with lowest CV.
- 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 overpriced. That means their stock value will decrease in a near future. All the stocks are not in demand. So, investor can short sell the common stock of any bank.
- The portfolio return between NIBL and HBL is more negative i.e. -12% and NIBL & EBL is less negative. 11.46% in compared to three portfolio return.
- The portfolio risk between NIBL and HBL is high i.e. 29.14% and NIBL and EBL is lower i.e. 23.58%.
- Since the entire bank has positive correlation so bank doesn't reduce any unsystematic risk. Among them, NIBL 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 HBL has high proportion of unsystematic risk i.e. 12.41% which can be minimized from internal management. Whereas, NIBL has high proportion of systematic risk i.e. 36.29%. This cannot be minimized from internal management. C.S. of EBL is best among these banks due to its lowest proportion of unsystematic risk.

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

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 explore the risk and return in common stock investment. While analyzing the risk and return, brief review of related studies has been performed. Financial tools are used in data analysis. Tables, graphs and diagrams are used to present the data and results more clearly. The attempt has been made to analyze the diversifiable and un-diversifiable risk of the common stock of the banks and to identify if the stock of the selected commercial banks are overprice, underpriced or correctly priced. 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 coefficients of all the banks are defensive except NIBL stock. The study shows that required rate of return is more than expected rate of return of all selected banks, so all stocks are overpriced. It shows that none of the banks have stock with good investment opportunity. It is also concluded that NIBL and HBL has less negative portfolio return and NIBL and EBL is lower portfolio risk.

This study shows that HBL has high proportion of unsystematic risk i.e. 12.41% and NIBL has high proportion of systematic risk i.e. 36.29% 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.

- Different financial and statistical tools are used 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 HBL and 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 HBL for individual stock investment due to its lowest 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 NIBL and EBL is recommended to invest due to their higher portfolio return with lowest portfolio risk in compared to other two portfolios.
- 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 ratio should be made to maximize the value of the firm and value per share.

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APPENDIXES

Appendix I

Calculation of DPS and EPS of NIBL

I	II	III	IV	V	VI
Fiscal Year	Net Income	No. of Outstanding Shares	Year End Dividend	DPS =1V/III	EPS =II/III
2007/08	696731516	12039154	90239655	7.50	57.87
2008/09	900619172	24070689	481413780	20	37.41
2009/10	1265949588	24090977	602274425	2.58	52.55
2010/11	1176641031	30113721	602274425	20	39.07
2011/12	1039275613	37661552	150646210	4	27.59

Source: Final Financial Statements of NIBL

Appendix II

Calculation of DPS and EPS of HBL

I	II	III	IV	V	VI
Fiscal Year	Net Income	No. of Outstanding Shares	Year End Dividend	DPS =1V/III	EPS =II/III
2007/08	635868519	10135125	253378125	25	62.74
2008/09	752834735	1600000	145945800	91.21	470.50
2009/10	508798193	20000000	189473600	9.50	25.44
2010/11	893115143	24000000	336842000	14.03	37.21
2011/12	958638260	27600000	322106400	11.67	34.73

Source: Final Financial Statements of HBL

Appendix III

Calculation of DPS and EPS of EBL

I	II	III	IV	V	VI

Fiscal Year	Net Income	No. of Outstanding Shares	Year End Dividend	DPS =1V/III	EPS =II/III
2007/08	451218613	8134000	107773011	13.25	55.47
2008/09	638732757	10304673	201732948	19.57	61.98
2009/10	831765632	12796075	262252832	20.50	65.00
2010/11	931303628	13915704	565697427	40.65	66.92
2011/12	1090564222	17611264	19466879	1.10	61.92

Source: Final Financial Statements of EBL

Appendix IV

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

Calculation of covariance of return of given two stocks

Fiscal Year	$(R_A - \overline{R}_A)$	$(R_B - \overline{R}_B)$	$(R_A - \overline{R}_A)(R_B - \overline{R}_B)$
2007/08	0.5684	0.2550	0.1449
2008/09	-0.2782	0.0508	-0.0141
2009/10	-0.3431	-0.4152	0.1424
2010/11	-0.0940	-0.1623	0.0153
2011/12	0.1471	0.2717	0.0399
			$\sum(R_A - \overline{R}_A)(R_B - \overline{R}_B) = 0.3284$

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

We have,

$$COV(R_A, R_B) = \frac{\sum[(R_A - \overline{R}_A)(R_B - \overline{R}_B)]}{n-1} = \frac{0.3284}{5-1} = 0.0821$$

Now,

Correlation between NIBL and HBL

$$\rho_{AB} = \frac{COV(R_A, R_B)}{\sigma_A \times \sigma_B} = \frac{0.0821}{0.3702 \times 0.2916} = 0.7605$$

Note: σ_A from table 4.2 and σ_B from table 4.4

Where,

$COV(R_{A,}R_B)$ = Covariance of return between NIBL and HBL

ρ_{AB} = Correlation between NIBL and HBL

σ_A = S. D. of NIBL

σ_B = S. D. of HBL

Appendix V

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

Calculation of covariance of return of given two stocks

Fiscal Year	$(R_B - \bar{R}_B)$	$(R_C - \bar{R}_C)$	$(R_B - \bar{R}_B)(R_C - \bar{R}_C)$
2007/08	0.2550	0.4147	0.1057
2008/09	0.0508	-0.0896	-0.0045
2009/10	-0.4152	-0.2073	0.0861
2010/11	-0.1623	-0.1835	0.0298
2011/12	0.2717	0.0657	0.0178
			$\sum(R_B - \bar{R}_B)(R_C - \bar{R}_C) = 0.2349$

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

We have,

$$COV(R_B, R_C) = \frac{\sum[(R_B - \bar{R}_B)(R_C - \bar{R}_C)]}{n-1} = \frac{0.2349}{4-1} = 0.0587$$

Now,

Correlation between HBL and EBL

$$\rho_{BC} = \frac{COV(R_B, R_C)}{\sigma_B \times \sigma_C} = \frac{0.0587}{0.2916 \times 0.2554} = 0.7887$$

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 VI

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

Calculation of covariance of return of given two stocks

Fiscal Year	$(R_A - \overline{R}_A)$	$(R_C - \overline{R}_C)$	$(R_A - \overline{R}_A)(R_C - \overline{R}_C)$
2007/08	0.5684	0.4147	0.2357
2008/09	-0.2782	-0.0896	0.0249
2009/10	-0.3431	-0.2073	0.0711
2010/11	-0.0940	-0.1835	0.0173
2011/12	0.1471	0.0657	0.0097
			$\sum(R_A - \overline{R}_A)(R_C - \overline{R}_C) = 0.3586$

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

We have,

$$COV(R_A, R_C) = \frac{\sum[(R_A - \overline{R}_A)(R_C - \overline{R}_C)]}{n-1} = \frac{0.35867}{5-1} = 0.897$$

Now,

Correlation between NIBL and EBL

$$\rho_{AC} = \frac{COV(R_A, R_C)}{\sigma_A \times \sigma_C} = \frac{0.897}{0.3702x0.2554} = 0.9483$$

Note: σ_A from table 4.2 and σ_C from table 4.6

Where,

$COV(R_{A,}R_C)$ =Covariance of return between NIBL and EBL

ρ_{AC} = Correlation between NIBL and EBL

σ_A = S. D. of NIBL

σ_C = S. D. of EBL