

CHAPTER ONE

INTRODUCTION

1.1 General Background of the Study

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

Investments are made in assets. Assets generally are of two types: Real assets (land, building, factories etc) and financial assets (stocks, Bonds, T-Bills etc). Real assets investment is generally less liquid than financial investment. Return on real asset investment is frequently more difficult to measure. But in our study we are concerned with financial investment especially with common stock investment.

Investment is the employment of funds with the aim of achieving additional income or growth in value. Investment involves long - term commitment and waiting for a reward. Every investment involves same degree of risk. The "Risk and Return" is the Fundamental part of the investment decision.

Risk

Risk is chances of happening loss due to uncertainty. It arises due to uncertain environment. In other words, it is the chances of happening something beyond the expectation is known as risk. It is the variability between the actual return and expected returns. Greater the variability higher the risk and lower the variability lower the risk. But to what some extent risk can be managed through the creation of portfolio of securities.

Return

Return is the motivating forces in the investment process, that is, it is the reward for undertaking the investment. Return on common stock investment consists of two components. The first component is the periodic cash receipts (either interest or dividend) this cash receipt is also known as ordinary gain on investment. The second component is the appreciation (or depreciation) in the price of the assets and this is commonly known as capital gain or loss. Therefore the total return on investment is the sum of the ordinary gain and capital gain and loss. Mathematically,

$$\text{Total return} = \text{capital gain (loss)} + \text{ordinary gain}$$

A stock reflects the uncertainty about future returns such that actual return may be less than expected. The main source of uncertainty is the price at which the stock will be sold. Dividends tend to be much more stable than stock prices, which contribute to the immediate return received by the investors and at the same reduce the amount of earning re-invested by the firm which limits its potential growth. The stock price is affected by economic as well as non - economic factors. The risk of a stock can be measured by its price volatility, its beta. A systematic investment process should be followed to win the stock market. Investment process describes how an investor should go about making decision with regard to what marketable to invest in how extensive the investment should be and when the investment should be made. A five step procedure for making these decisions forms the basis of investment process.

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

Among this investment process the research focused on security analysis and portfolio selection. Security analysis involves examine of individual

securities are group of securities with in the broad categories of financial assets .Portfolio construction identifies those specific assets in which to invest determining the proportion of the Investor's wealth. Diversification should be done to minimize the risk. Portfolio performance involves determining periodically how the portfolio performs in terms of not only the return earned, but also the risk experienced by the investor.

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

Let's turn back to the history of commercial banks in Nepal start from the establishment of Nepal bank limited in 1994 B.S. It completely enjoys the monopoly market before the starting of Rastrya Banijya Bank in 2002. Nepal has opened its door to foreign commercial banks to operate in the kingdom almost one and half decade back. Consequently Nepal Arab bank was established on 2041 under the commercial bank Act 2031. Nepal Indosuez bank was established as a joint venture between Nepal and France on 2042 and Nepal Grind laid banks on 2043.

After the economic liberalization, Himalayan Bank as a joint venture bank with Pakistan bank, Nepal SBI bank as a joint venture bank with reputed bank of India, State bank of India, Nepal Bangladesh bank as joint venture bank with Bangladesh Bank, Bank of Katmandu as joint venture bank with Thailand bank as well as Everest bank limited as a joint venture bank with Punjab national bank etc are some of the examples. There is cut throat competition among these banks, which is healthy sign for the economic

development of the country .Among the established commercial banks in Nepal, twenty banks are listed in NEPSE and for this research only five joint ventures banks are taken.

1.2 Joint Venture Bank

1.2.1 Meaning of Joint Venture Bank

A joint venture is the joining of force between two or more enterprises for the purpose of carrying out a specific operation i.e. industrial/commercial investment, production or trade. By this definition, any agreement between two or more than two parties for specific purpose is called joint-venture.

In global perspective, joint-ventures are the modes of credit through partnership among and also form of negotiations between various groups of traders and industries to achieve mutual exchange of goods and services for sharing competitive advantages. From the above definition, it is clear that a JV is a single business deal, which is jointly undertaken by two or more persons or parties with a view to making and sharing profit.

1.2.2 Feature of Joint Venture Banks

The specific features of JV are as follows:

-) It is confined to a single deal.
-) A JV is limited to a single business adventure.
-) Participants contribute capital for the JV and share profits and losses in proportion to their capital (investment) and
-) The work of joint venture may do by all the participants or by one of the participants.

Risk and return analysis is very important part of investment decision making. Investment decision is made by managers, shareholders and lenders. Return is firstly calculated and then risk is also calculated. Finally, they are compared and an approximate decision made.

1.2.3 Need of Joint Venture Banks

-) Capital Formation
-) Monetization of Economy
-) Price Stability
-) Control in Interest rate
-) Availability of Credit
-) Implementation of monetary policy
-) Development of neglected and deprived sectors
-) Safe custody of wealth
-) Promotion of Saving
-) Transfer of funds
-) Exchange of foreign currencies
-) Long-term Loan

1.3 Focus of the Study

It is concerned with selecting optimal portfolio by risk-averse investors. Risk-averse investors selects efficient portfolio that maximizes return at a given level of risk or minimizes risk at a given level of return. With the collection of those efficient portfolios, the optimal portfolios can be obtained for given investors .The level of risk and return is depended upon the investor's preferences.

1.4 Statement of the Problems

Recent trend shows that the general people are interested to invest their small money on the common stock of financial institutions like commercial banks. But due to the lack of proper information and poor knowledge about market status and situation, market intermediaries exploit investors. Some times people think that investing in common stocks is intolerably hazardous. Due to this many investors are scared to invest into stocks. This is the main problem that does not allow gearing up the capital market of the nation. The

main problem for the individual investors are lack of proper information about market whereas the problem for financial sector is to enhance the goodwill among the public due to frequent collapse of some finance companies being unable to utilize public funds properly. The investors are responsible to make rational investment decision. For this rational analytical knowledge is essential. The investor's attitude and perception also plays a vital role in rational decision regarding whether the investment should be made or not. We find in Nepal that most of the investor invests their funds in a single security. Rather they can be benefited by investing in portfolio of securities and archiving diversification of risk.

The major problems in the research work are follows: -

-) How the investment decisions are to be taken?
-) What are the factors affecting risks of the securities?
-) What are the comparative risk positions of selected Joint venture banks?
-) Does the risk and return of JV banks vary significantly?
-) What is the systematic risk position in relation to total risk?
-) Would portfolio construction within the selected Joint Venture banks be profitable?

Investment on common stock is the main sources of fund for the companies. The investors are the sources of revenue as a customer for the stockbrokers and financial institutions and ultimately they are the backbone of economic development of the nation. So every policy and plan of financial institutions and government also have to encourage them to invest on common stock. For this there is a great need of such institutions, which can give valuable information that accelerates the stock investment and market efficiency.

1.5 Objectives of the Study

The main objective of the study is to analyze the risk and return of common stock investment of listed companies i.e. joint venture banks. In this study there are some major objectives, which are as follows:

-) To analyze the volatility of different stock and other relevant variable that should be considered while deciding investment in stock.
-) To evaluate common stock of selected Joint Venture Banks in terms of risk and return and to perform sector comparison on the basis of market capitalization.
-) To provide suggestions, some practical ideas and recommendations based on the analysis of the data.

1.6 Research Question

-) What is the conceptual meaning of risk and return?
-) How to evaluate the risk and return of common stock investment?
-) How to obtain the return realized return and expected return for the purpose of comparing with market return?
-) How to analyze the volatility of the different stocks and other relevant variables?
-) What is the way of reducing risk?
-) What is the concept of portfolio?

1.7 Significance of the Study

This research study will give the reliable information about Nepalese stock market and may contribute in the analytical power of the investors. In Nepalese context, very few studies are made and there are no specific magazines and articles on the topic. So the study will be more significant for the exploring and increasing stock investment. The main significance of the study is as follows:

-) This study will provides some knowledge about the Nepalese stock market development along with providing ideas to minimize the risk on stock investment.
-) The study will have the clear conception over their investment. They will be able to distinct the right investment among all the investment opportunities.
-) This study will be beneficial for all the persons who are directly or indirectly related to the Nepalese stock market.
-) The study will be a matter of interest for academicians, students and investors.

1.8 Limitation of the Study

Everything has two fold i.e. Bright and Darkness, so as the any research study may not free from its own limitations. Mainly this study is made for the partial fulfillment of M.B.S. level. So there are couple of limitations which weaken the generalization, the main limitations are inadequate coverage of industries, time taken, reliability of statistical tools used and other variables which are not included in the study. The following are the limitations of the study.

-) The study only focuses on selected Joint Venture Banks covering the period of last six years, F/Y 2002/03 to 2007/08.
-) The data analyzed are from the fiscal year 2002/03 to 2007/08. At the time of research, fiscal year 2008/09 is not over so this studies unable to analyze the data of current fiscal year.
-) The study depends upon the data published by NEPSE; NEPSE has not published recent data. In spite of lacking data. The study includes the available data as far as possible.
-) The study is based on only four Nepalese Join Venture Banks.

-) The study is based on secondary data. So the reliability of the conclusion based upon the accuracy of secondary data.
-) Time and resources are also the limitations of the study.

1.8 Chapter Plan

This research study will include the following chapters are:

I Introduction

II Review of literature

III Research methodology

IV Presentation and analysis of data

V Conclusion, recommendation and suggestion

Chapter I

It deals with the general introduction of the entire research work.

Chapter II

It deals with review of the Literature, which was obtained during the Library searched.

Chapter III

It deals with the methodology of research work and introduces different tools and models for obtaining the result.

Chapter IV

It deals with the presentation and analysis of data as well as major facts of the study.

Chapter V

It deals with the main conclusion that flows from the study and offers some recommendation as well as suggestion for the further improvement.

CHAPTER TWO

REVIEW OF LITERATURE

This chapter is mainly concern with the past studies regarding to an analysis or the risk and return in common stock investment. Different individuals have conducted a lot of studies or research with different intention on this topic. It refers to the comprehensive review of recent four relevant literatures. The purpose of this chapter is to develop some expertise in once area to see what is discovered, what remains to be discovered and to receive some idea for developing a research design. This study follows the scientific research method. So, it doesn't ignore the past study, data and information. In this regard, so many related academic a case studies are reviewed. But so far nominal research has been performed in this topic in Nepal. Our stock market is emerging state and unable to provide the necessary information concerning to this study.

Some master degree thesis, journals based on Nepal as well as USA is also taken into account. Review of related web site is also viewed. This chapter review about nature of common stock investment, risk and return associated with these assets: concept of decertification and portfolio etc. A part from these independent studies carried out by well– known expert is also taken into consideration.

2.1 Conceptual / Theoretical Review

Various books relating to theoretical aspects of portfolio management and risk & return are taken into consideration. In this research, risk & return has been taken as special tool to analyze the rate of return that the investment gives.

People, nowadays are seen very much interested towards investing in the shares of various organization. In Nepalese context the major share trading companies are the financial institutions mainly the commercial banks. Besides,

The trading prices of these banks shares are also the highest. But though the shares price of various banks can be observed different, this variety in the market price of shares depends up on the risk of investment and the return the investors get from their investments.

Risk loving investors like to invest on the more risky banks only considering the return they get, whereas the security seeking investors like to invest on those banks shares, which are less risky in terms of the return. Moderate types of investors would like to invest in the medium risk and medium return. So the main focus is given on risk and return.

2.1.1 Return

Return is the motivating force for the investment. It is also the key method available to investor in comparing the alternative investment. Major purpose of investment is to get a return or income on the funds invested. This rate of return concept is important because it measured the speed at which investor's wealth increases or decreases. The rate of return either can express in terms of rupees or %. Rupees return is the absolute measure. However % return is the relative measure which is more useful for the investment decision. Total return combines both capital gain and the dividend. There are different types of returns they are:

a) Holding period Return

The rate of return which is earned from the investment of common stock during the holding period is known as holding period return. Holding period may be one day one week, one month six month or one year. This rate of return is measured as follows:

$$R = \frac{\text{Ending wealth} - \text{Beginning wealth}}{\text{Beginning wealth (Or purchase price)}}$$

An investor can obtained two kinds of income from an investment in a share of stock or a bond.

1. Income from price appreciation (or losses from price depreciation), some times called capital gains (or losses). This quantity is denoted as $P_t - P_{t-1}$
2. Regular return or income earned from cash dividend or coupon interest payments represented by C_t .

The sum of these two sources of income (or loss) equals to the change in the invested wealth during any given holding period. The single percentage rate of return formula can be restated in an appropriate form for almost any investment.

$$r_t = \frac{\text{price change} \Gamma \text{Cash flow (if any)}}{\text{price at beginning of the period}}$$

$$= \frac{(P_t - P_{t-1}) \Gamma C_t}{P_{t-1}}$$

Where,

P_t = Market price at the end of the period etc.

P_{t-1} = Price at the beginning of the period $t - 1$

C_t =Cash flow income receive during the t period (Francis, 1998:11)

b) **Realized rate of Return**

The rate of return which is already realized in the past period is known as realized rate of return. It is the fact return, return that was earned or it is historical return.

2.1.2 Expected Return

It is the rate of return that is expected to be realized in future. For this, rates of return in the past are used. So it is arithmetic average of returns realized in the past. The expected rate of return must be greater or equals to the required rate of return for the investors to find the investment acceptable (Cheney& Moses, 1993: 34), it is calculated as follows:

$$\sum_{t=1}^n R_j$$

Where,

R_j = Rate of return on stock j.

n = No. of years.

ϕ = Summation.

Investment decisions are based on expectations about future. The expected rate of return for any assets is the weighted average rate or return using the probability of each rate of return as the weight. The expected rate of return is calculated by summing the products of the rate of return and their respective probabilities (Francis, 1998: 11).

2.1.3 Risk

Risk can be defined simply as the chance of loss. It is the variation between the expected return and the actual return on common stock or also known as variability of actual return. It arises in uncertain environment. So, it is a part of uncertainty. Risk and uncertainty are an integral part of investment decision. Risk can be defined as the situation where the possible consequence of the decision that is to be taken is known. Uncertainty is generally, defined as to apply to situation where the probability can not be estimated. However risk and uncertainty are used interchangeably.

In finance, risk has a special meaning. It refers to the uncertainty associated with return on a particular investment. A risky investment is one whose returns are volatile.

2.1.3.1 Measurement of Risk

There are different types of the statistical tools which we can use to measure the financial risk are as follows;

-) Variance (σ^2)
-) Standard deviation (σ)
-) Coefficient of variation

Standard deviation (S.D.) and coefficient of variation is generally used to measure the risk. The square root of the variance is known as standard deviation (S. d.). S. d. is calculated as follows;

$$\text{S.d. } (\sigma) = \sqrt{\text{variance}} \times \sqrt{\sigma^2}$$

Where,

$$\text{Variance } (\sigma^2) = \frac{\sum (R - E(R))^2}{n}$$

Or

$$[R - E(R)]^2 \times P$$

R = Rate of return, E(R) = Expected rate of return

N = No. of observations or years

P = Probability

Coefficient of variation (C.V.), It measures the risk on per unit of return.

Coefficient of variation (C.V.) is calculated as follows

$$\dots \text{C.V.} = \frac{\sigma}{E(R)}$$

Since, higher the value of variances, S.d. and C.V. shows higher risk.

2.1.3.2 Process of Risk Management

-) Establishing the context
-) Identification
-) Assessment
-) Potential risk treatments
-) Create a risk-management plan
-) Implementation
-) Review and evaluation of the plan

2.1.3.3 Relationship between the Risk and Return

The relationship between risk and return is described by investor's perception about risk and their demand for compensation. No. investor will take invest in risky assets unless he is assured or adequate compensation for the assumption of risk. Therefore, it is the investors required risk premium that establishes a link between risk and return. There is the positive trade – off between the risk & return. Higher the risk, higher the return and lower the risk lower the return.

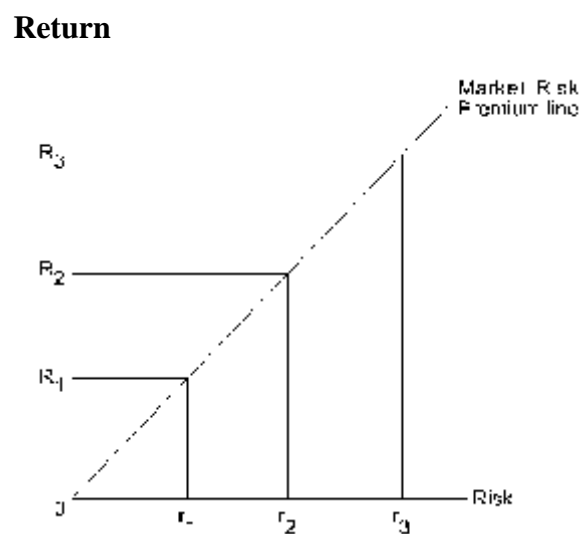


Figure 2.1: Relationship between Risk & return

The figure represents a higher premium for higher risk in a linear fashion indicating a premium or R_3 for r_3 degree or risk, R_2 for r_2 and so on backed by the assumption of linear relationship, the risk premium increases or decreases in proportion to a change in level or risk.

2.1.3.4 Portfolio Risk

The riskiness of a portfolio is measured by its standard deviation. But unlike expected return it is not the weighted average of the standard deviation of individual securities included in a portfolio. It is because a fundamental idea implied behind portfolio theory is that riskiness of a single security is completely different from the riskiness of that security held in portfolio. So it is

possible for a given security to be quite risk when held in isolation, but not very risky if it is held in a portfolio (Rana, 2000: 120).

The portfolio risk depends not only on the riskiness of the individual security included into portfolio but also on the relationship among those securities. Correlation measure the degree of relationship in which direction two securities move together. The numerical value of correlation ranges from + 1.0 to – 1.0. If two securities tend to move in the same direction, they are positively correlated. If it is negative the securities move in opposite directions. Thus when the return for one security decreases, the return for the other increases the magnitude of the correlation coefficient indicates the degree of relationship between the returns on two securities (Rana, 2000: 190 – 191).

The standard deviation of a portfolio is given by.

$$\sigma_p = \sqrt{\sum_i \sum_j W_i W_j \text{cov}_{ij}}$$

Where,

W_i = Proportion (weight) of investment in security i.

W_j = Proportion (weight) of investment in security j.

Cov_{ij} = co-variance of the returns between security I and security j.

N = Number of security included in a portfolio

σ_p = Portfolio standard deviation.

The above equation can be simplified in case of two assets portfolio as below;

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

The co-variance of portfolio is calculated as follows;

$$\text{Cov}_{ij} = \sum R_i Z E(R_i) * \sum R_j Z E(R_j)$$

If we know the correlation coefficient (r_{ij}), then we apply the following relationship for calculating co-variance.

$$\text{Cov } ij = r_{ij} \sigma_i \sigma_j$$

$$R_{ij} = \frac{\text{Cov } ij}{\sigma_i \sigma_j}$$

In practice, it is unusual to find the firms or securities with extreme correlation (i.e. +1 or -1). The correlation does not approach exactly +1 or -1, but ranges between these two extremes, therefore, the risk can be reduced but not totally eliminated by forming a portfolio. But to what extent can the risk be reduced?

This depends on the number of securities included into a portfolio. As depicted in figure 2.2, the total portfolio risk measured by its standard deviation, declines as more & more securities are added to portfolio.

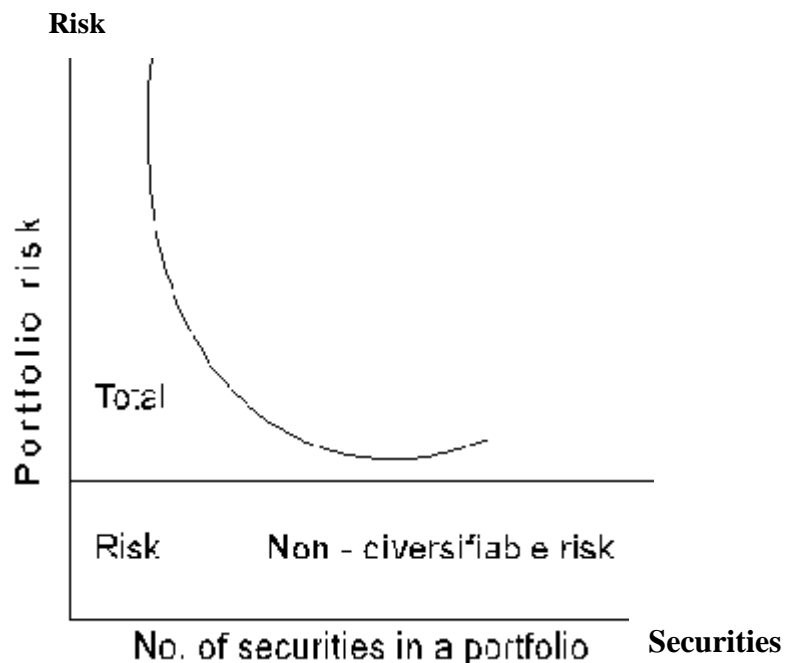


Figure 2.2: impact of number of securities on portfolio risk.

2.1.4 Portfolio Analysis

A portfolio is the combination of two or more than two units with different characteristics. An investment portfolio refers to the investment in

two or more assets such as Stocks/Bonds etc. Investors rarely place their entire wealth into a single assets or investment. Rather they construct a portfolio or group of investments, therefore it is needed to extend analysis of risk and return to include portfolio. Portfolio is formed mainly for the reason of minimizing risk on investment in aggregate. It helps to earn the same return at the less amount of risk.

The return on the security could be regarded as being linearly related to a single index like the market index. Therefore, the market index should consist of all the securities trading on the market. However, a popular average can be treated as a surrogate for the market index. Acceptance of the idea of a market index, Sharpe argued, would obviate the need for calculating the thousand of co variance between individual securities could be attributed to movements in a single underlying factor being measured by the market index. The simplification of the maskowitz model has come to be known as the market model or simple index model (SIM).

The desirability of any securities is direct related to its excess between to beta ratio. Where the average return is the expected return on the securities, risk less rate of interest is the return on a risk less assets, the beta is the expected change in the rate of return on security associated with a one percent change in the market return. If securities are rank by access return to beta from highest to lowest, the ranking represents the desirability of any securities inclusion in a portfolio. The no. of securities related depends on a unique cut off rate such that all securities with higher ratio of an access return will be included and all securities with lower rate excluded. (Bhalla, 2004: 590-601)

2.1.4.1 Expected Portfolio Return

It is the weighted average rate of return of an individual security. The expected portfolio return is calculated as follows:

$$E (R_p) = \sum_{i=1}^n W_i E(R_i)$$

Where,

$E(R_p)$ = Expected portfolio return

i = Security

n = No. of securities in a portfolio

$E(R_i)$ = Expected return on stock i

W_i = Weight of stock i

Thus, the total risk can be classified into two parts: diversifiable (unsystematic) and non-diversifiable (systematic) risk. Hence,

Total Risk = Systematic risk + unsystematic risk.

Diversifiable risk refers to the risk related only to the individual firm. It arises out of strikes, production lost and other activities unique to an individual firm. These events occur independently to any firm. Therefore, diversifiable risk can be eliminated forming a portfolio. Non-diversifiable risks are the result of the general states of economy, monetary and fiscal policy, inflation, which affect all the firm's equally. So, these can not be diversified by forming a portfolio.

Thus, a well-diversified portfolio has only the non-diversifiable portion of total risk. Therefore, only the non-diversifiable risk contributed by a security to the riskiness of a portfolio in which the security is included (Rana, 2000: 184).

2.1.5 Capital Market Line (CML)

The separation theorem of J. Tobin (1958) states that portfolio consist of risk - free assets and assets on the market portfolio. A rational investor will select an optimal portfolio on the capital market line (CML) which maximizes investor's preference. Capital market line (CML) represents the equilibrium relationship between the expected return and the standard deviation of efficient portfolios.

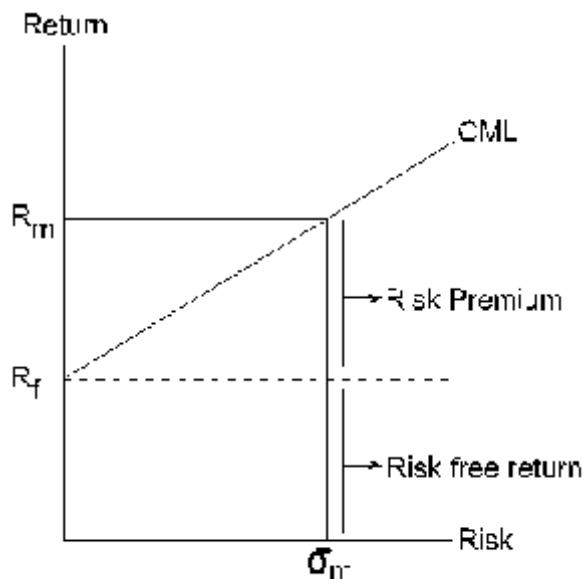


Figure 2.3: Capital market line

The equation for the capital market line (CML) can be expressed as;

$$E(R_p) = R_f + \frac{E(R_m) - R_f}{\sigma_m} \sigma_p$$

Where,

$E(R_p)$ = Expected return on a portfolio

R_f = Risk free rate

$E(R_m)$ = Expected return on a market portfolio

σ_p = Standard deviation of market portfolio

The slope of CML shows the an extra return over the risk free rate of return

$$\text{Slope of CML} = \frac{E(R_m) - R_f}{\sigma_m}$$

2.1.5.1 Capital Assets Pricing Model (CAPM) and Security Market Line (SML)

William F. Sharpe has presented his famous magnum opus capital assets pricing model in 1961. The CAPM was developed from portfolio theory as a more practical means of enabling investors to establish the rate of return, which

they require from their investment. The model is based upon the concept of risk being analyzed between “systematic” and unsystematic risk”. It is assumed that investors are widely diversified and therefore, investors can ignore the unsystematic (specific) risk, as it would be removed by a wide level of diversification. The measure of systematic risk relating to security can be measured by calculating the beta (B) factor for a security. Beta is the relative measure of systematic risk of a given security relative to the risk of the market portfolio. If beta, measuring only the systematic risk is substituted for total risk in capital market line diagram depicted above, the relationship between the return and beta is now called security market line (SML)

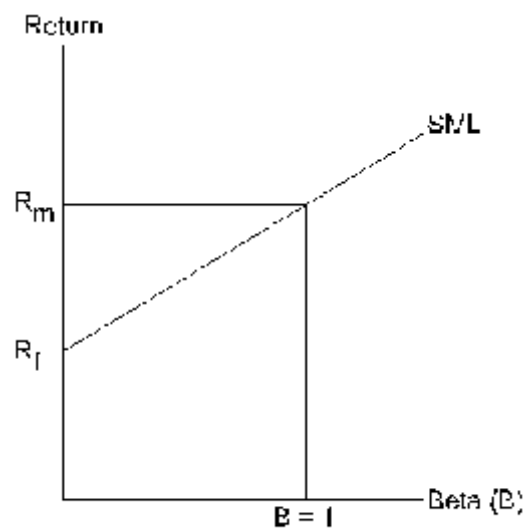


Figure 2.4: Security market line

The above equation showing the security market line (SML), explained by the CAPM is as follows;

$$E (R_i) = R_f + [E (R_m) - R_f] b_i$$

Where,

$E (R_i)$ = Required rate of return on stock i.

R_f = Risk free rate of return.

$E (R_m)$ = Expected rate of return on market portfolio.

b_i = Beta or systematic risk index of stock i.

The concept of beta is the ratio of covariance of stock return and market return to the variance of the market return. Beta is an index of systematic risk. Higher value of beta shows the higher systematic risk and lower value of beta shows the lower systematic risk. It can be calculated as follows;

$$b_i = \frac{Cov_{im}}{\sigma_m^2}$$

Where,

b_i = Beta of stock i.

Cov_{im} = co-variance between the return of stock of & market return (m).

σ_m^2 = variance of the market return.

Alternatively, the value of beta is calculated as follows;

$$b_i = \frac{\sigma_i \rho_{im}}{\sigma_m}$$

Where,

b_i = Standard deviation of stock i.

ρ_{im} = Correlation between the return.

σ_m = Standard deviation of market return.

2.1.6 Common Stock

Common stock represents equity, or an ownership position in a corporation. It is a residual claim, in the sense that creditors and preferred stockholders must be paid as scheduled before common stockholders are, in principal,, entitled to any value remaining after all other claims have been satisfied. The great advantage of the corporate form of organization is the limited liability of its owners. Common stocks are generally 'full paid and non-assessable'; meaning that common stockholder may lose their initial investment but not more than that. That is if the corporation fails to meet its obligations, the stockholders cannot be forced to give the corporation the funds that are needed to pay off the obligations. However, such failure will result in the stockholders having lost an amount equal to the price previously paid to buy the shares.

2.1.6.1 Return on Common Stock

The cash payoffs to owners of common stocks are of two kinds:

- I. Cash dividend
- II. Capital gain (loss)

If current price of a share is P_0 , the expected price at the end of a year is P_1 and that the expected dividend per share is Div_1 , the rate of return that investors expect from this share over the next year is defined as the expected dividend per share Div_1 plus the expected price appreciation per share $(P_1 - P_0)$, all divided by the price at the start of the year P_0 which can be shown in the form of;

$$R = \frac{Div_1 + P_1 - P_0}{P_0}$$

The return from holding an investment over some period, say a year is simply any cash payments received due to ownership, plus the change in market price. Thus, the return comes from two sources: income and price appreciation.

For common stock, we may define single-period return as:

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

Where,

R = Actual/expected return

T = Particular time period in the past (future)

D_t = Dividend received during the year t

P_t = Stocks price at time period t .

P_{t-1} = Stocks price at time period $t-1$

The above mentioned formula can be used to find out both actual single-period returns (when based on historical data) as well as expected single period (when based on future expected dividends and prices).

(The term in the numerator of above equation represents the capital gain or loss during period.)

"Holding period return measure mentioned above is useful with an investment horizon of one year or less. For longer periods, it is better to calculate rate of return as an investment yield. The yield calculation is present value-based and this considers the time value of money" (Barely and Myers, 1994:84)

2.1.6.2 The Risk on Common Stock

"Most people view risk in the manner we just described a chance of loss. In reality, risk occurs when we cannot be certain about the outcome of a particular activity or event, so we are not sure what will occur in the future. Consequently, risk result from the fact that an action such is investing can produce more than one outcome in future. To illustrate the risks of financial assets, suppose someone has a large amount of money to invest for one year. Someone could buy a Treasury security that ha an expected return equal to 8 percent. The rate of return expected from this investment can be determined quite precisely, because the chances of the government defaulting of treasury securities is negligible; the outcome essentially is guaranteed, which means this is a risk-free investment. On the other hand, someone could buy the common stock of a newly formed company that has developed technology to extract petroleum from the mountains in South America ha yet to be proven economically feasible, so it is not known what returns the common stockholders will receive in the future. Experts who have analyzed the common stock of the company have determined that the expected or average long-run, return for such an investment is 30 percent; each year, the investment could yield a positive return as high a 900 percent, but there is also the possibility that the company will not survive, in which can the entire investment will be lost.

Here the return investors receive each year cannot be determined precisely because more than one outcome is possible-this is a risky investment. Because of significant danger of actually earning considerably less than the expected return, investors probably would consider the stock to be quite risky. But there is also very good chance the actual return will be greater than expected, which, of course is an outcome we gladly accept. So, when we think of investment risk, along with the chance of actually receiving more than expected, we should consider the chance of actually receiving more than expected. If we should consider investment risk from this perspective, then we can define risk as the chance of receiving an actual return other than expected, which simply means, there is variability in the returns or outcomes from the investment. Therefore, investment risk can be measured by the variability of the investments returns. However, we can define risk more precisely, and it is useful to do so" (Weston and other, 1995:182-183)

2.2 Review of Related Studies

2.2.1 Review of Journals

These days information highway or the internet has become to the most easily accessible mediums to gain information in any subject matter. In the study period different web site related to our topic has been viewed some articles related to our topic explained as under.

“Do investors dislike risk? In economics in general and investment in particular, the standard assumption is that investors are rational investors prefer certainty to uncertainty. It is easy to say that investors dislike risk but more precisely, we would say that investor’s are risk – averse. Risk – averse investors is one who will not assume risk simply for its own sake and will not incur any given level of risk unless there is an expectation of adequate compensation of having done so,. Note carefully that it is not irrational to assume risk even very large risk, as long as we expect to be compensated for it. In fact, investor can not reasonably expect to earn larger returns without assuming larger risk.

Investors deal with risk by choosing (simplicity or explicitly) the amount of risk they are willing to incur. Some investors choose to incur high levels of risk with the expectation of high level of return. Other investors are unwilling to assume much risk and they should not expect to earn large returns.

We have said that investors would like to maximize their returns. Can we also say that investors, in general, will choose to minimize their risk? No! The reason is that there are cost to minimize the risk specifically a lower expected return. Taken to its logical conclusion, the minimization of risk would result in every one holding risk – free assets such as saving accounts and treasury bills. Thus, we need to think in terms of expected return risk trade – off that result from direct relationship between the risk and expected return of an investment (www.google.com).

“Investor need to think about the time period involved in their investment plans. The objectives being purchased may require a policy statement that speaks to specific planning horizons. In the case of an individual investor this could be a year or two in anticipation of a down payment on a home purchase or a life time if planning for retirement. Generally speaking the longer the time horizon the more risk can be incorporated into the financial planning” (www.google.com).

“The U.S. department of labor, pension and welfare benefits administration states that since 1926, the average annual returns of short – term US treasury bills, which roughly equals the returns of other cash equivalents such as saving accounts has been 3-8 percent. The annual return of long term government bonds over the same period has been 5.3 percent. Large – company stocks on the other hand, have averaged an annual return of 11.2 percent with these statistics available why wouldn’t everyone at all times be 100 percent invested in stock? The answer is of course, that while over the long-terms stocks have out performed. There have been many short – term period in which they have under performed. Add in fact have had negative returns. Exactly when short term periods of under performance will occur is unknown and thus

there is more risk in owning stocks if one has short – term horizon than if there exists a long- term horizon.” (www.google.com).

“The type of equity securities with which most people are familiar is stock. When investors buy stock, they become owner of the company’s assets. If a company is successful, the price that investors are willing to pay for its stock will often go up. Shareholders who bought stock at a lower price then stand to make a profit. If a company doesn’t do well, however its stock may decrease and shareholders can lose money. The rise in the price of the stock is termed appreciation or” capital gain” the stock holder is also entitled to dividends, which may be paid out from the company’s profit. Therefore, there are two sources of income from stock investment i.e. dividends & appreciation in the value of investment. Some stocks pay most of their earnings as dividends and may have little appreciation. These stocks are sometimes referred to as income stocks. Other stocks are sometimes referred to as income stocks. Other stocks may pay out little or no dividend, preferring to re - invest the earnings within the company. Since all the investor’s potential earnings come from appreciation. These stocks are sometimes referred to as growth stocks. Stock prices are also subject to both general economics and industry – specific market factors. There is no guarantee of a return from investing in stocks and hence there is risk, incurred in investing in this type of security. As owners shareholders generally have the right to vote on electing the board of directors and other certain matters of the particular significance to the company. Under the federal securities laws, most companies must send to shareholders proxy statement providing information on the business experience and compensation of nominees to the board of directors and on any other matter submitted for shareholder’s vote. This information is required so that stock holders can make an informed decision on whether to elect the nominees or on how to vote on matters submitted for their consideration. Stock investment is typically common stock, which is the basic ownership share of the company. Some companies also offer the preferred stock, which is another class of stocks preferred stock typically offers a certain rate of return (although it is still not guaranteed) and pays dividends before dividends are paid for common stock. If a company does really

well, preferred stock holders may received the same dividend as any other year while common stock holders reap the rewards of a great year.”

One of the fundamental issues in finance is what the factors are that affect the expected return on assets. The sensitivity of expected return to those factors and reward for bearing this sensitivity. There is a long history of testing in this area and it is clearly one of the most investigated areas in finance.

Almost all of the testing I am aware of involves using realized return as a proxy for expected returns. The use of average realized returns as a proxy for expected returns tend to cancel out over the period of a study and realized returns are therefore an unbiased estimate of expected returns. However, I believe that there is ample evidence that this belief is misplaced. There are periods longer than 10 years during which stock market realized returns are on average less than the risk free rate (1973 to 1984). There are periods longer than 50 years in which risky long – terms bonds on average under perform the risk – free rate (1927 to 1981). Having risky assets with an expected return above the risk – free rate is an extremely weak condition for realized returns to be an appropriate proxy for expected return and 11 and 50 years is an and fully long time for such a recent past, the united states has had stock market return higher than 30 percent per year while, Asian market have had negative returns. (Edwin, 1999: 100).

2.2.2 Review of Articles

Views expressed by different persons in their articles regarding risk and return of common stock of commercial banks are presented overviewed here in the topic.

Radhe Shyam Pradhan (1999) expressed his view in relation with subject to certain extent with the topic. “Stock market behaviour on a small capital markets a case in Nepal”. Pradhan has summarized the following findings.

-) Dividend per share and market price per share was positively correlated.
-) There are positive relationship between dividend payout and liquidity.

-) Higher the earning on the stocks. Larger the portion of dividend per share to market price per share.

Manohar Krishna Shrestha (2059B.S.) expressed his view in relation with subject to certain extent with the topic "shareholders democracy and General meeting feedback portfolio Analysis" Shrestha's findings are as follows:

-) Top –level decision often by passes the interest of shareholders.
-) The annual general meeting has become a plant-form for shareholders to express their opinion and grievance in front of the management and board of directors.

Many general meetings feedback reveals no serious response to the feelings of shareholders. Thus, it reflects, unwillingness of the management and board to change their traditionally held activities towards shareholders.

Khagendra Prasad Ojha (2000) in his research paper, "Financial performance and common stock pricing Concludes that "An investment in common of a corporate firm neither ensure annual return nor ensure the return of principle.

Therefore investment in common stock is very sensitivity on the ground of the risk. Dividend to common stockholder is paid only if the firm makes an operating profit after tax and preference dividend. The company can return the principle in case of its liquidation only to extent of the residual assets after satisfying to all of its creditors and preferential shareholders. Besides this investor have to sacrifice the return on their investment in common stock which could be earned investing fund else where in the next best opportunity".

Study focused on the financial performance. Where the financial activities involve decision regarding.

-) Forecasting and planning of financial requirement.
-) Investment decision.
-) Financial decision.

Further Ojha added that the stock price in Nepal determined more by other factor's rather than the financial performance of the concerned company.

2.2.3 Review of Thesis

Prior to this study various students have regarding the various aspects of risk and returns of the common stock have done several research works. In this study only relevant subject matter are reviewed, which are as follows:

Mohan Khatiwada (1999) in his thesis paper “A study on securities investment in Nepal” concludes that, 'leaving some exceptional cases aside, almost all the companies experienced that market share price going down by less than fifty percent in 1999. Even the Banking group could not spare the share price going down more specifically; the year 1999 was a disheartening period for the stock price. It is because, almost all the companies share price during the year were own even in some cases below the face value” (Khatiwada, 1999:1-89)

Through the study conducted by Khatiwada did not focus the analysis of individual security and the view point of investors. It explores some dimension to further research in this aspect.

Gopal Prasad Bhatta (2005) in his thesis paper, “Assessment of the performance of listed companies in Nepal” concludes that “A highly significant between risk and return character of the company. Investors expect is not efficient one. So the stock price doesn't contain all the information relating to market and company itself. Neither investor analyzes the overall relevant information of the stocks nor do the members of stock exchanges try to disseminate the information. So, the market returns and risk both may not show high priced stocks” (Bhatta, 2005:162-172)

Narayan Prasad Acharya (2002) in his thesis paper “An analysis of risk and return associates with common stock investment of joint venture banks in Nepal” concluded that generally average inventors are risk averse. They prefer to invest on such investment, which provided higher return at the given level of risk. It is widely known that investment on portfolio generates higher and constants return as compared to single assets. The reason is that the lower return on one asset off set the higher return from other assets. It is obvious that investor can avoid risk by adopting portfolio but the situation in Nepal is

different. The evidence shows that most of the investors prefer to invest in single security rather than portfolio. Concept of portfolio should be developed in their mind.” (Acharya, 2002:109)

In addition Acharya added, “stock market investment is not easy. Naturally it is very risk job because return on stock investment is not swell. Chance of heavy loss and gain are fifty. It is more risk in short term than long term so investor must prepare their mentality accordingly.

CHAPTER THREE

RESEARCH METHODOLOGY

Research methodology may be defined as a systematic process that is adopted by the researcher in studying problem with certain objectives in view in other words research methodology describes the methods and process applied in the entire aspect of the study, focus of the data, data gathering instrument and procedure, data tabulating and processing and method of analysis.

This study follows the scientific research methods. Any systematic and organized investigation is known as scientific method. These compare both technical as well as logical aspects. The chapter has been divided in to five parts. First part is research design. Second describes the population and sample, third describes the data collection procedure. Fourth describes the sample characteristics and last deals with data analysis.

3.1 Research Design

The study is based on descriptive and analytical research design. The study is based on recent historical data which covers six years periods from 2003 to 2008. It deals with the common stock investment in joint venture bank on the basis of available information. As the title suggest it is more analytical and empirical and less descriptive. The research has been completed within one year periods.

3.2 Population and Sample

Population of the study is all the listed commercial bank of Nepal. But for the study overall a listed common stock has been considered as the population and samples are the common stock of five listed commercial banks. At present twenty six commercial banks are operating in Nepal. Among them twenty commercial banks are listed in the NEPSE, among those four joint venture banks are taken as sample. They are Everest Bank Limited (EBL),

Himalayan Bank limited (HBL), Nepal SBI Bank Limited and NABIL Bank. The samples are taken randomly. The samples are taken as those banks establishing with in the period 1984 to 1995. The basis for selecting the above mentioned banks only is, few of the banks were not listed in NEPSE during the period under study i.e. 2001 to 2006. Some were listed but later removed temporarily from NEPSE for their internal reason, which if taken under study, would complicate the data analysis and would not reflect the correct data.

3.3 Data Collection Procedure

The main source of data is secondary data. During the study the data has been taken from Nepal stock Exchange (NEPSE), individual investors and stockbrokers. The main source of data is annual trading report published by NEPSE, securities Board and other concerned listed companies' annual report, journals and Nepal Rastra Bank's annual, Quarterly Publications and others.

3.4 Method of Data Analysis

The collected data are analyzed by using various financial tools, statistical tools, descriptive table, Graphs and other technique is used for the analysis the data.

3.5 Necessary Tools and Techniques

3.5.1 Market Price of Stock (p)

Market price of stock is the basic variable of the study. Among high, low and closing price, each year closing price has been taken as market price of the stock, which has specific time span of one year and the study has in annual basis. Closing price is used as market price of stock. Due to the variance in price with in a year, it is difficult to predict the market price. Although average price could be used as market price. It is also so complicated to collect the day's price of five year period. On the other hand average of high and low price is assumed not to be reliable and representative information. Therefore, it is appropriate to use closing price as a market price.

3.5.2 Dividend

Dividend is reward to the shareholders. It can be given in the form of cash or shares. If the company declares the dividend in cash, there is no difficulty in calculation. But if the company declares stock dividend or bonus share, shareholders get shares as dividend instead of cash. So, there is little difficulty to calculate the exact amount in cash of stock dividend the formula for total dividend amount is considered as follows:

Total dividend amount = cash dividend + stock dividend% × Next years MPS

Symbolically,

$$D_T = D_C + \left(\frac{SD}{SE} \right) \times P_s$$

Where,

D_T = Total Dividend amount

D_C = Cash dividend amount

SD = Stock Dividend

SE = Existing stock

P_s = Next year's Market price of stock

3.5.3 Return on Common stock Investment (R)

This is the annual realized return received on an investment and any change in market price, usually expressed in a percentage of the beginning price of the investment.

$$R_t = \frac{D_t + (P_t - p_{t-1})}{p_{t-1}}$$

Where, R_t = Annual realized return on common stock at time t

D_t = Cash dividend received at time t

p_t = Price of stock at time t

p_{t-1} = Price of stock time t-1

3.5.4 Expected rate of return on common stock E (R)

This is simply the arithmetic mean of the past years return. This is an average rate of return on common stock.

$$E(R_j) \text{ Or } \bar{R}_j = \sum \frac{R_j}{n}$$

$E(R_j)$ X Expected rate of return on stock j
 n X No. of years that the return is taken
 \sum X Sign of Summation

3.5.5 Standard Deviation (u)

Standard deviation is a statistical tool and is widely used to measure the risk for holding a single, assets. If standard deviation represents the higher dispersion on return, is more risky and vice versa.

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

Where,

σ_j X Standard deviation of return on stock j during the periods n.

3.5.6 Co-efficient of Variation (C. V)

It is a relative measure of risk. It shows the risk on per unit of return.

It is calculated as follows.

$C.V._j$ = Co-efficient of variation of stock J.

σ_j = Standard deviation of return on stock J.

R_j = Expected rate of return on stock j.

3. 5.7 Portfolio Return (R_p)

A portfolio is a bundle or a combination of individual assets or securities. The return of a portfolio is equals to the weighted average of the returns of

individual assets (or securities) in the portfolio with weight being equal to the proportion of investment in each asset.

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

Where,

- R_p = Portfolio return.
- w_j = proportion of investment in stock J
- R_j = Return on stock J
- N = No of securities included in a portfolio
- J = Stock or security J

3.5.8 Portfolio Risk (σ_p)

Portfolio risk is measure in terms of variance or standard deviation. The variance (or s.d.) of a portfolio is not simply the weighted average of variance (or s.d.) of individual securities. Portfolio risk doesn't consider only the riskiness of the individual stocks. It is also affected by the association (relationship) of movement of returns of two securities. The portfolio risk (or s.d.) in case of two assets is given below:

$$\sigma_p = \sqrt{w_A^2 \sigma_A^2 + w_B^2 \sigma_B^2 + 2w_A w_B r_{AB} \sigma_A \sigma_B}$$

- σ_p = Portfolio standard deviation
- σ_A^2 = Variance of return a stock A.
- w_A = Weight of A
- σ_B^2 = Variance of return on stock B.
- w_B = weight of B
- σ_A = standard deviation of stock A
- σ_B = standard deviation of a sock B.
- r_{AB} = correlation of stock A and stock B.

3.5.9 Risk minimizing Portfolio

The proportion of investment in two securities included in a portfolio, has the lowest level of risk is known as risk minimizing portfolio. Let's assume there are securities X & Y in a portfolio. We can use the following formula for estimating the optimal weights of securities X & Y:

$$w_x = \frac{\sigma_y^2 \text{Cov}_{xy}}{\sigma_x^2 \sigma_y^2 + \text{Cov}_{xy}^2}$$

And $w_y = 1 - w_x$

Where,

w_x = weight of x

w_y = weight of y

σ_y^2 = variance of return on stock y

σ_x^2 = Variance of return on stock x

cov_{xy} = co-variance between the return of stock x & y.

3.5.10 Required Rate of return E(R)

It is the minimum % rate of return required by the investor on his investment. If the expected rate of return is greater than the required rate of return, then the investor accept the investment otherwise they reject the investment.

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

Where,

$E(R_j)$ = Required rate of return on stock J

R_f = Risk-free rate of return.

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

b_j = Beta coefficient of stock j

3.5.11 Beta Coefficient (b_j)

Beta coefficient is an indicator of systematic risk. It measures the sensitivity of stocks return with respect to the market return.

$$b_j = \frac{\text{Cov}_{jm}}{\sigma_m^2}$$

Where,

- b_j = Beta coefficient of stock j.
- Cov_{jm} = co-variance of stock j and market return.
- σ_m^2 = Variance of the market.

3.5.12 Portfolio Beta (b_p)

Portfolio beta is the weighted average of the beta of individual security.

It is calculated as follows:

$$b_p = \sum_{j=1}^n w_j b_j$$

Or

$$b_p = b_A w_A + b_B w_B + \dots + b_n w_n$$

Where,

- b_p = Portfolio beta
- J = stock j
- n = No. of securities, included in a portfolio
- W_j = weight of proportion of investment in stock j.
- b_j = Beta of stock j

3.5.13 Correlation Coefficient (r_{xy})

Correlation measures the degree of two securities move together. The numerical value of correlation ranges from +1.0 to -1.0. If the sign is positive, the securities tend to move up and down together. If two securities move in the same direction, they are positively correlated. If the sign is negative, they are negatively correlated. That means when the returns of one security decrease the return of another security increases. The magnitude of correlation coefficient indicates the relationship between the return of two assets. The correlation coefficient can be expressed symbolically as follows:

$$r_{xy} = \frac{\text{Cov}(x, y)}{\sigma_x \cdot \sigma_y}$$

3.5.14. Partitioning of Total Risk into Systematic and unsystematic risk

$$\begin{array}{l} \text{Total} \\ \text{Risk} = \end{array} \quad \begin{array}{l} \text{Systematic} \\ \text{Risk} \end{array} \quad + \quad \begin{array}{l} \text{Unsystematic} \\ \text{Risk} \end{array}$$

$$\sigma_i^2 = \beta_i^2 \sigma_m^2 + \sigma_{ei}^2$$

Thus, Systematic risk (SR) $\beta_i^2 \sigma_m^2$

$$\begin{aligned} \text{And, unsystematic Risk} &= \text{Total Risk} - \text{Systematic Risk} \\ \sigma_{ei}^2 &= \sigma_i^2 - \beta_i^2 \sigma_m^2 \end{aligned}$$

Where

σ_i^2 = Variance of i^{th} assets

β_i = Beta or systematic risk index of i^{th} assets.

σ_m^2 = market variance

σ_{ei}^2 = unsystematic risk or residual variance

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

This chapter is the main body part of the study. This chapter includes analysis of data collected and their presentation. Detail data of MPS and dividend of each bank and NEPSE index of each industry is presented and their interpretation and analysis is done. With reference to various readings and literature review in the preceding chapter, efforts are made to analysis and diagnose the recent Nepalese stock market movement, with a special reference to joint venture bank. Different Tables and diagrams are drawn to make the result more simple and understandable.

4.1 Analysis of Individual Joint Venture Commercial Bank

Among twenty six commercial banks operating in Nepal, only twenty of them are listed in NEPSE, among those study has taken four sample of Joint Venture commercial banks including NABIL Bank Ltd, Himalayan Bank Ltd, SBI Bank Ltd, Everest Bank Ltd. Data of FY 2001/02 to FY 2007/08 of each four Joint Venture commercial banks are introduced and their common stocks risk and return are analyzed here.

The study is attempting to include all the available data.

4.1.1 Nepal Arab Bank Ltd (NABIL)

4.1.1.1 Introduction

Nepal Arab Bank limited (NABIL), the first joint venture bank in Nepal, was established in 1984. The Dubai Bank Limited was the foreign partner (50%) to the Nepalese promoter (Financial Institutions) and general public. However, the share owned by Dubai bank limited has been transferred to Emirates Bank of international Ltd, UAE and later on sold to National Bank Ltd, Bangladesh. At present National Bank limited, Bangladesh is managing the entire banking business under the provision of

joint venture agreement (Technical service Agreement between NABIL and National Bank Limited, Bangladesh).

4.1.1.2 Data

Market price, dividend records and EPS of common stock of NABIL's Bank shown in table 4.1 and MPS and EPS movement is shown in the figure 4.1. Closing price is taken into account for the purpose of calculating realized return for the years. The total dividend includes cash as well as stock (Bonus) dividend. The total dividend is calculated in column five. The model to obtain total dividend is given in preceding chapter, research methodology.

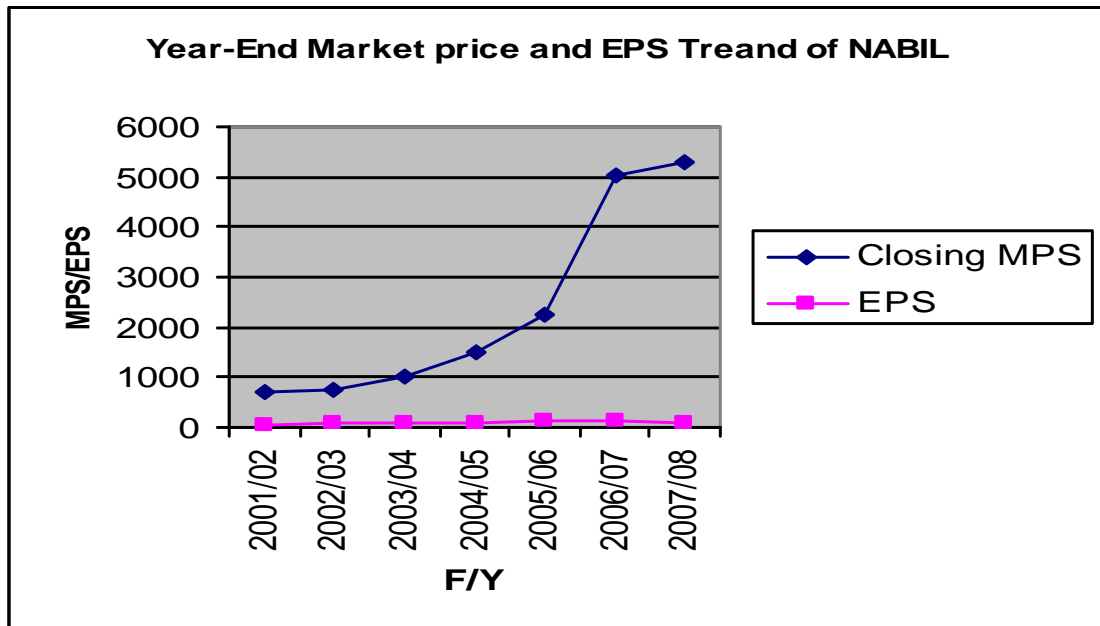
Table 4.1
MPS, dividend and EPS data of NABIL.

Fiscal Year	Closing MPS	DPS	Total Dividend	EPS
2001/02	700	30	30	55.25
2002/03	740	50	50	84.66
2003/04	1000	65	65	92.61
2004/05	1505	70	70	105.49
2005/06	2240	85	85	129.21
2006/07	5050	100	2120	137.08
2007/08	5275	60	*2170	108.31

Data source: NEPSE an annual report of NABIL.

*Assume next year MPS is 5275

Figure 4.1



4.1.1.3 Realized Return (R), Expected Return \bar{R}^A Standard Deviation (σ) and coefficient of Variation ($C.V$)

Return on security consists of the dividend yield and capital gain yield. In our cases the return on security for each year is shown in table 4.2 in column 4. Here year-end price and dividend amounts are used to calculate realized rate of return for each year. It has been shown that the return ranges "Between" (12.86% to 220.09 %). The expected rate of return is the average rate of return. This is 72.63our case. This average may deviate from the realized return. Variance and standard deviation of return of a security can be calculated by using the formula given in preceding chapter research methodology. The variance of NABIL is 0.5445 standard deviations are the square root of the variance is 0.7379. The C.V. of NABIL is 1.015which measures the relative risk on per unit return.

Table 4.2

RRR, ERR, S. D and C.V. of common stock of NABIL.

Fiscal year	Closing MPS	Total Dividend	$R \times \frac{P_t Z P_{tZ} \Gamma D_t}{P_{tZ}}$	$R Z \bar{R}$	$(R Z \bar{R})^2$
2001/02	700	30	-	-	-
2002/03	740	50	0.1286	-0.6491	0.4213
2003/04	1000	65	0.4392	-0.3385	0.1146
2004/05	1505	70	0.575	-0.2027	0.0411
2005/06	2240	85	0.5449	-0.2328	0.0542
2006/07	5050	2120	2.2009	1.4232	2.0255
2007/08	5275	2170	0.4693	-0.2570	0.0661
Total			R = 4.3579		$(R Z \bar{R})^2 \times 2.7227$

We have

$$\text{Expected Return } (\bar{R}) \times \frac{R}{n}$$

$$= \frac{4.3579}{6} \times 0.7263$$

$$\text{Standard deviation } (\dagger) = \sqrt{\frac{\phi(R Z \bar{R})^2}{n Z 1}}$$

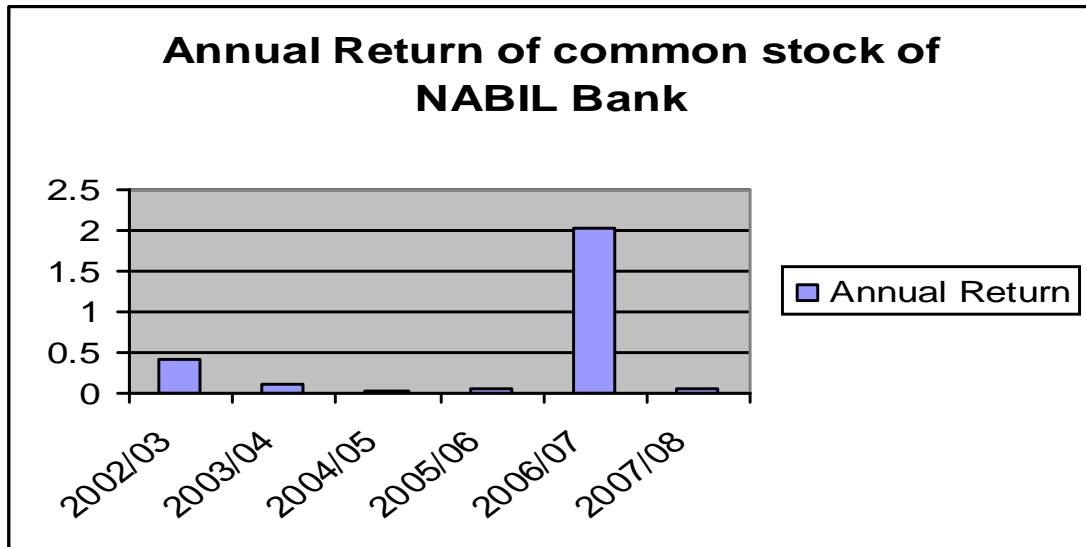
$$= \sqrt{\frac{2.7227}{6 Z 1}} \times 0.7379$$

$$\text{Co-efficient of variation (C.V.)} = \frac{\dagger}{\bar{R}}$$

$$= \frac{0.7379}{0.7263}$$

$$= 1.0156$$

Diagram 4.1



From the above calculation, it has been shown that the bank has earned higher return in 2006/07 i.e. 220.09% and lower return in 2001/03 i.e. 12.86%.

4.1.2 Himalayan Bank Ltd. (HBL):

4.1.2.1 Introduction

Himalayan Bank limited (HBL) was established in 1991 as fourth joint venture bank collaborated with Habib bank Limited, Pakistan. Meanwhile, the foreign bank has invested 20% of the total equity and remaining by promoters group (51%), Nepalese financial institution (14%) and general public (15%). This is the first joint venture bank managed by Nepalese chief executive. The main business of HBL are to collect the deposits, provide long term and short term loan against collateral and guarantee, inter banking transactions etc. activities.

4.1.2.2 Data

Market price, dividend records and EPS of common stock of HBL are shown in Table No. 4.3, MPS and EPS movement is shown in the figure 4.2, MPS of HBL is decreased in 2002/03 to Rs. 836 from Rs. 1000 in 2001/02. After 2002/03, the MPS of HBL is in increasing trend. The MPS is higher in 2007/08 and it is lower in 2002/03.

Table 4.3

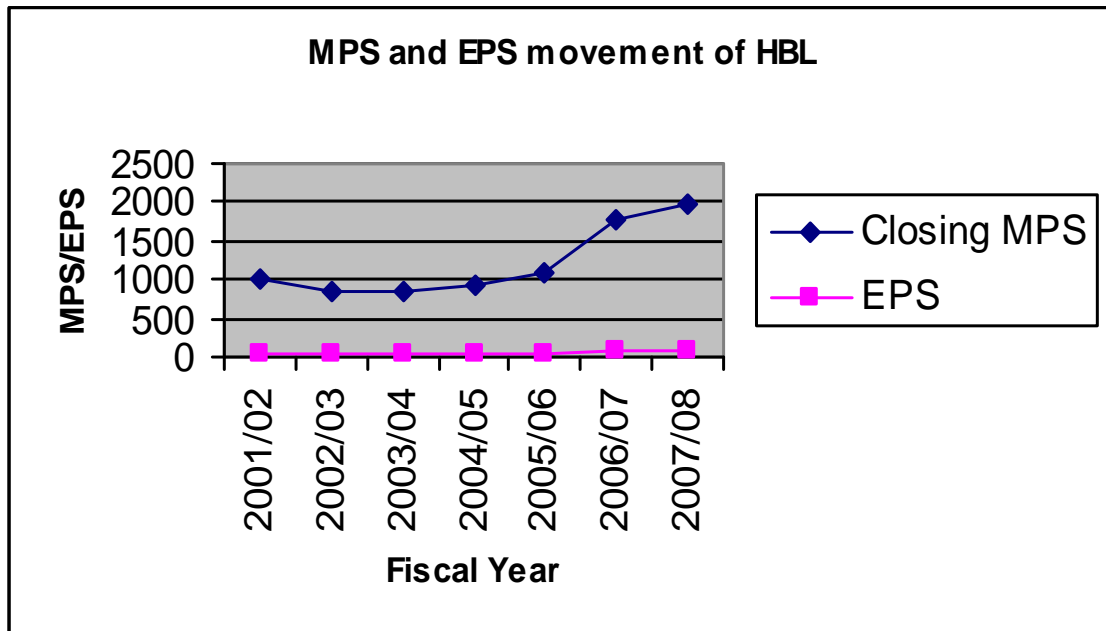
MPS, dividend and EPS data of HBL.

Fiscal Year	Closing MPS	DPS	Stock Dividend	Total Dividend	EPS
2001/02	1000	25	10:1	108.6	60.26
2002/03	836	1.32	4:1	211.32	49.45
2003/04	840	-	5:1	184	49.05
2004/05	920	11.58	5:1	231.58	47.91
2005/06	1100	30	20:1	118	59.24
2006/07	1760	15	4:1	367	60.66
2007/08	1980	25	5:1	*396	62.74

Data source: NEPSE and Annual Report of HBL

*Assume next year MPS is 1980

Figure 4.2



4.1.2.3 Realized Return (R), Expected Return (\bar{R}), Standard deviation (\dagger) and co-efficient of variation (C.V.)

Table 4.4
RRR, ERR, S.D. and C.V. of C.S. of HBL

Fiscal year	Closing MPS	Total Dividend	$R \times \frac{P_t Z P_{tZ} \Gamma D_t}{P_{tZ}}$	$R Z \bar{R}$	$(R Z \bar{R})^2$
2001/02	1000	108.6	-	-	-
2002/03	836	211.32	0.0473	-0.3278	0.1074
2003/04	840	184	0.2249	-0.1502	0.0226
2004/05	920	231.58	0.3709	-0.0042	0.0000
2005/06	1100	118	0.3239	-0.0512	0.0026
2006/07	1760	367	0.9336	0.5585	0.3119
2007/08	1980	396	0.350	-0.0251	0.0006
Total			R = 2.2506		$(R Z \bar{R})^2 \times 0.4451$

We, have,

$$\begin{aligned} \text{Expected Return } (\bar{R}) &= \frac{\sum R}{n} \\ &= \frac{2.2506}{6} \\ &= 0.3751 \\ &\text{i.e. } 37.51\% \end{aligned}$$

$$\begin{aligned} \text{Variance } (\dagger)^2 &= \frac{\sum (R Z \bar{R})^2}{n} - \bar{R}^2 \\ &= \frac{0.4451}{6 - 1} \\ &= 0.08903 \end{aligned}$$

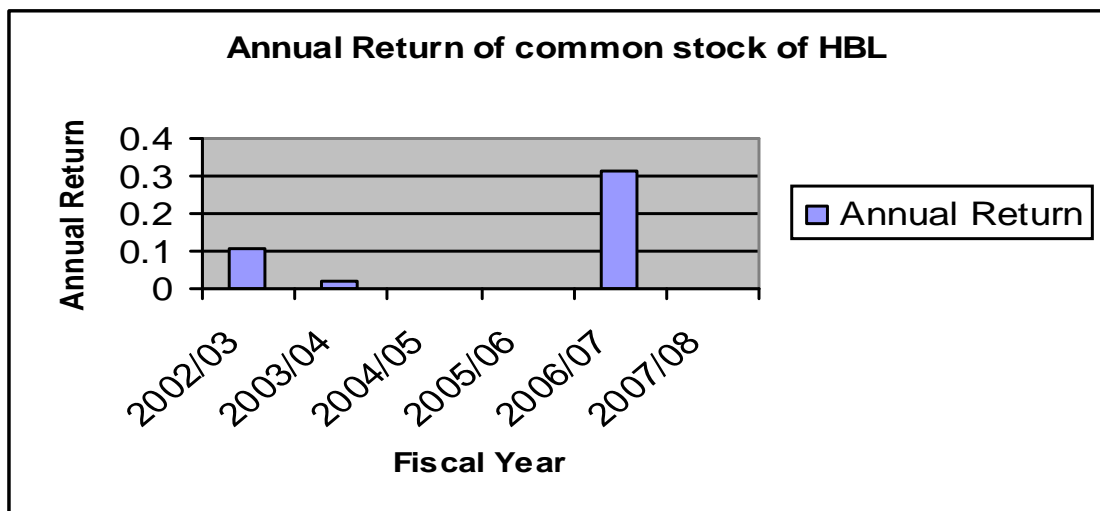
$$\begin{aligned} \text{Standard Deviation } (\dagger) &= \sqrt{\frac{\sum (R Z \bar{R})^2}{n} - \bar{R}^2} \\ &= \sqrt{\frac{0.4451}{6 - 1}} = 0.2984 \text{ or, } 29.84\% \end{aligned}$$

$$\begin{aligned} \text{Coefficient of Variation (C.V.)} &= \frac{\dagger}{\bar{R}} \\ &= \frac{0.2984}{0.3751} \\ &= 0.7954 \end{aligned}$$

The following diagram shows the movement of yearly – realized return.

The realized return ranges between 4.73% to 93.36%.

Diagram 4.2



4.1.3 Nepal SBI Bank Ltd.

4.1.3.1 Introduction

Nepal SBI Bank limited was established in 1993 as a fifth joint venture bank promoted by state Bank of India (50%) and Nepalese institution (20%) where the general public holds (30%) of total equity. The overall management of the bank is handled by the foreign part.

4.1.3.2 Data

Market price, dividend records and EPS of common stock of SBI Bank are shown in Table 4.7 MPS; EPS movement is shown in the figure 4.4. The SBI Bank has not distributed stock dividend before the fiscal year 2006/07.

Table No 4.5

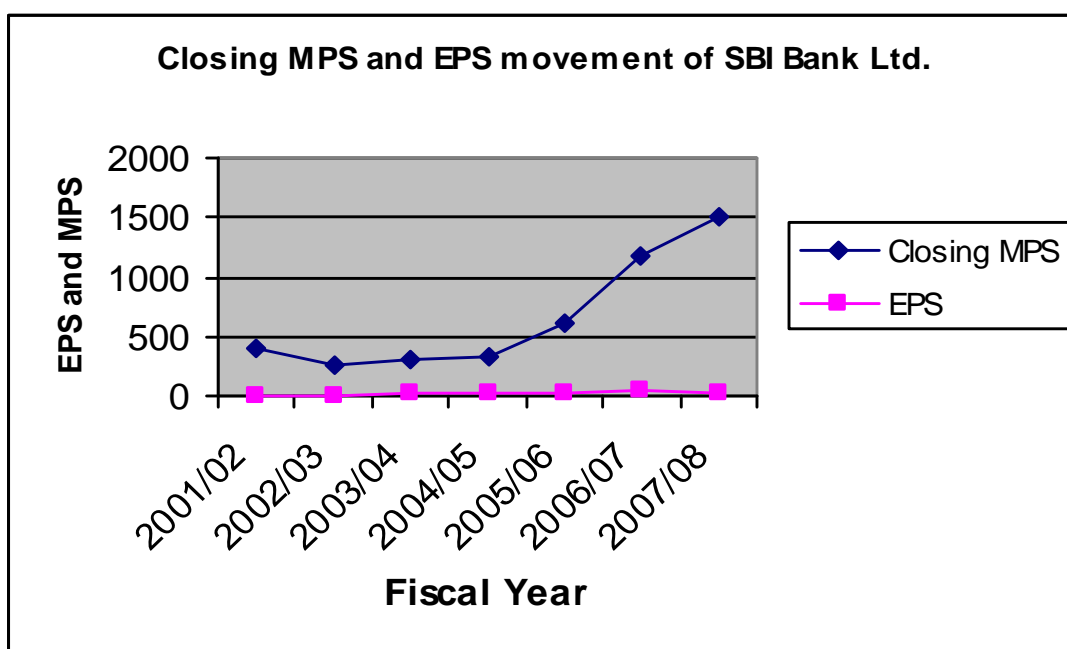
MPS, Dividend and EPS data of SBI Bank Ltd

Fiscal Year	Closing MPS	DPS	Stock Dividend	Total Dividend	EPS
2001/02	401	-	-	-	9.61
2002/03	255	8	-	8	11.47
2003/04	307	-	-	-	14.26
2004/05	335	-	-	-	13.29
2005/06	612	5	-	5	18.27
2006/07	1176	12.59	20:7	424.19	39.35
2007/08	1511	-	-	-	28.33

Data source: NEPSE and annual report of SBI Bank Ltd.

From the above Table, it has been observed that the MPS is highest in year 2007/08 and EPS is highest in the year 2006/07.

Figure 4.3



4.1.3.3 Realized return (R), Expected Return (\bar{R}) standard Deviation (\dagger) and coefficient of Variation ($C.V$):

Table 4.8 presents the calculation of annual realized return; expect return, standard deviation and coefficient of variations.

Table 4.6
RRR, ERR, S.D and C.V. of SBI Bank Ltd.

Fiscal year	Closing MPS	Total Dividend	$R \times \frac{P_t Z P_{tZ} \Gamma D_t}{P_{tZ}}$	$R Z \bar{R}$	$(R Z \bar{R})^2$
2001/02	401	-	-	-	-
2002/03	255	8	-0.3441	-0.9694	0.9398
2003/04	307	-	0.2039	-0.4214	0.1776
2004/05	335	-	0.0912	-0.5341	0.2853
2005/06	612	5	0.8418	0.2165	0.0469
2006/07	1176	424.19	1.6147	0.9894	0.9789
2007/08	1511	-	0.2849	-0.3404	0.1158
Total			R = 3.7521		$(R Z \bar{R})^2 \times 2.5443$

We have,

$$\begin{aligned} \text{Expected Return } (\bar{R}) &= \frac{\sum R}{n} \\ &= \frac{3.7521}{6} \\ &= 0.6253 \text{ or } 62.53\% \end{aligned}$$

$$\begin{aligned} \text{Variance } (\dagger^2) &= \frac{\sum (R Z \bar{R})^2}{n} \\ &= \frac{2.5443}{6} \\ &= 0.5089 \end{aligned}$$

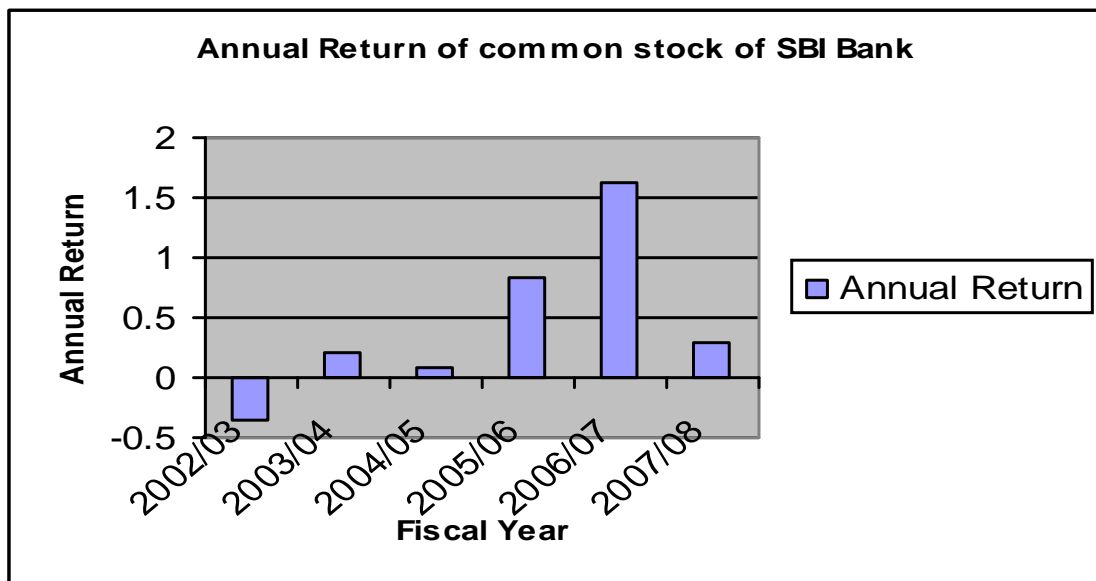
$$\begin{aligned} \text{Standard deviation } (\dagger) &= \sqrt{\dagger^2} \\ &= \sqrt{0.5089} \\ &= 0.7133 \end{aligned}$$

$$\text{Coefficient of Variation (C.V.)} = \frac{\dagger}{\bar{R}}$$

$$X \frac{0.7133}{0.6253} X 1.1407$$

The following Diagram shows the movement of yearly– realized return. The realized return ranges between–0.3441 to 1.61447.

Diagram 4.3



4.1.4 Everest Bank Limited (EBL):

4.1.4.1 Introduction

Everest Bank Ltd. was established in 1993 with the joint venture of Punjab National Bank Ltd, India. The main objective of the bank is to carryout commercial banking activities under the commercial bank act 1974. It was listed in NEPSE in 1995.

4.1.4.2 Data

Market price, divided records and EPS of common Stock of EBL are shown in table 4.9. MPS and EPS movement in the figure 4.5.

Table 4.7

MPS, Dividend and EPS data of EBL

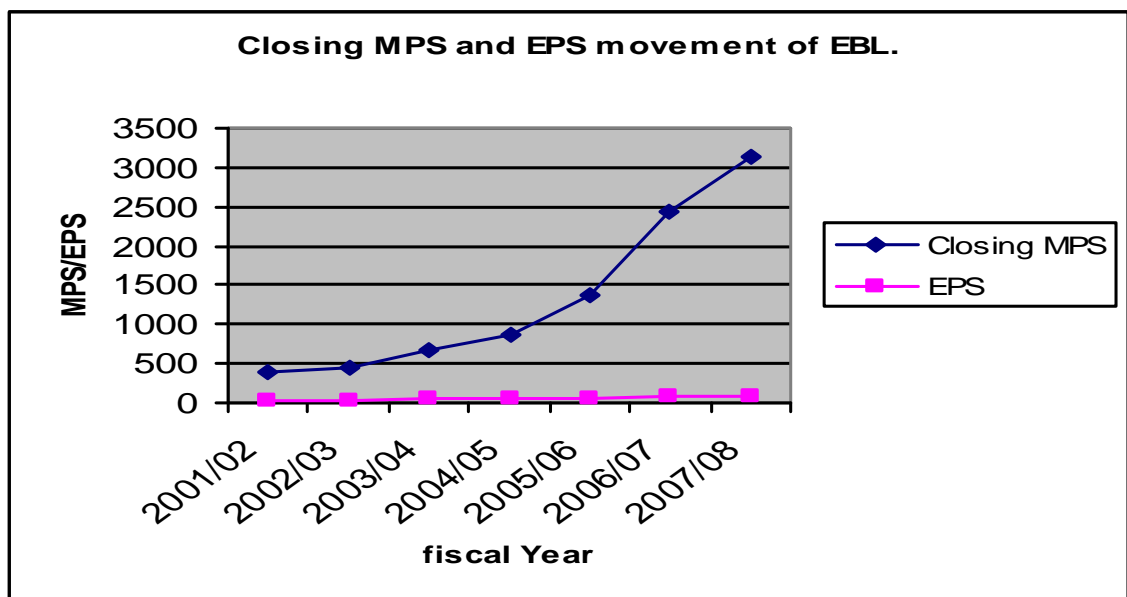
Fiscal Year	Closing MPS	DPS	Total Dividend	EPS
2001/02	405	-	89	32.91
2002/03	445	20	20	29.9
2003/04	680	20	20	45.58
2004/05	870	-	275.8	54.22
2005/06	1379	25	25	62.78
2006/07	2430	10	496	78.4
2007/08	3132	20	*654	91.82

Data source: NEPSE and annual report of EBL

*Assume the next year Cl. MPS is 3132

From the above table it has been observed that MPS is increasing trend and MPS is highest in 2007/08 as well as the EPS is also increasing after fiscal year 2002/03.

Figure 4.4



4.1.4.3 Realized return (R), expected return (\bar{R}), standard deviation (\dagger) and coefficient of variation (C.V.) of EBL

The following table 4.10 shows the calculations of realized return, expected return, standard deviation and coefficient of variation. The realized return ranges between (0.1481 to 1.1218)

Table 4.8
RRR, ERR, S.D. and C.V. of EBL

Fiscal year	Closing MPS	Total Dividend	$R = \frac{P_t + Z P_{t-1} + \Gamma D_t}{P_{t-1}}$	$R - \bar{R}$	$(R - \bar{R})^2$
2001/02	405	89	-	-	-
2002/03	445	20	0.1481	-0.4802	0.2306
2003/04	680	20	0.5730	-0.0553	0.0031
2004/05	870	275.8	0.685	0.0567	0.0032
2005/06	1379	25	0.6138	-0.0145	0.0002
2006/07	2430	496	1.1218	0.4935	0.2435
2007/2008	3132	654	0.5580	0.0586	0.0034
Total			R = 3.6997		$(R - \bar{R})^2 \times 0.4839$

We have,

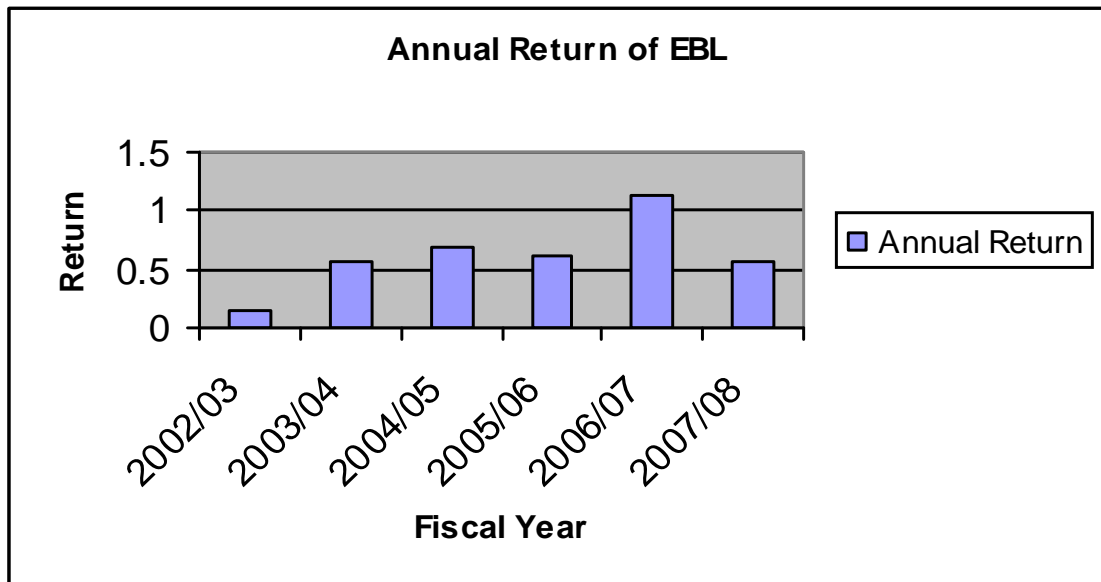
$$\begin{aligned} \text{Expected Return } (\bar{R}) &= \frac{\sum R}{n} \\ &= \frac{3.6997}{6} \\ &= 0.6166 \text{ or } 61.66\% \end{aligned}$$

$$\begin{aligned} \text{Variance } (\dagger^2) &= \frac{\sum (R - \bar{R})^2}{n} \\ &= \frac{0.4839}{6} \\ &= 0.0968 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\dagger) &= \sqrt{\dagger^2} \\ &= \sqrt{0.09678} \\ &= 0.3111 \end{aligned}$$

$$\begin{aligned} \text{Coefficient of variation (C.V.)} &= \frac{\dagger}{\bar{R}} \\ &= \frac{0.3111}{0.6166} \\ &= 0.5045 \end{aligned}$$

Diagram 4.4
Annual Return of common stock of EBL



4.2 Inter– Firm Comparison

According to the result obtained from the section 4.1 and comparative analysis of return, standard deviation of returns, coefficient of variation of each bank for the Fiscal year 2002/03 to 2007/08 are given in table 4.11.

Table 4.9

Expected Return, standard deviation and C.V. of each Banks

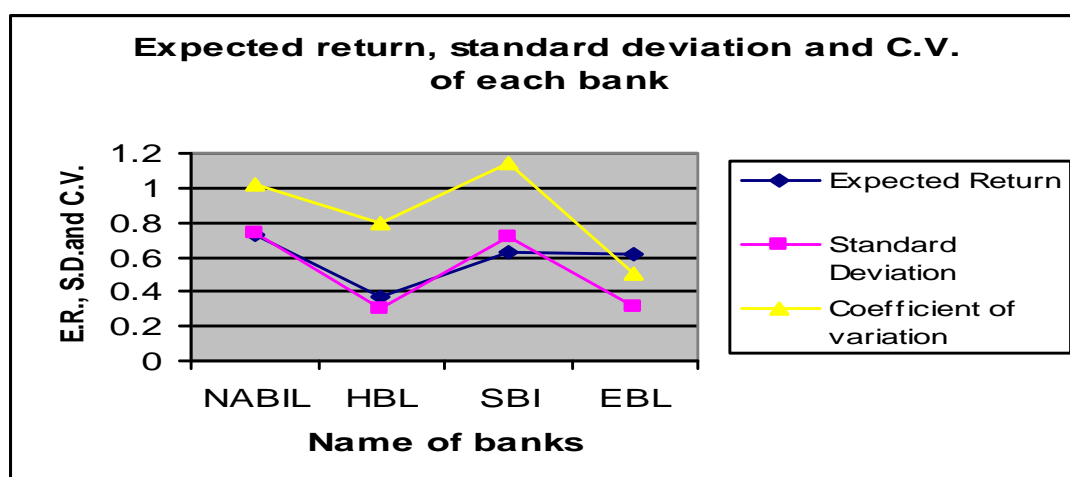
Banks	Expected Return	Standard Deviation	Coefficient of variation	Remarks
NABIL	0.7263	0.7379	1.0156	Highest in terms of return & risk
HBL	0.37.51	0.2984	0.7954	
SBI	0.6253	0.7133	1.1407	
EBL	0.6166	0.3111	0.5045	Best in terms C.V. & risk

From the above table, it has been shown that NABIL enjoys greater return than other banks but at the same time HBL has lower return. NABIL has higher total risk compensating the higher return where as HBL has the lowest total risk compensating for the lowest return. The evidence proves that “the higher the return, higher the risk and vice-versa”. However, if we consider coefficient of variation (C.V.), that risk on per unit of return of SBI is greater i.e.1.1407. Investor of SBI must bear 1.1407 risk to get a unit rate of return. Where as C.V. of EBL is lowest.

To take an investment decision on single assets common stock, coefficient of variation (C.V.) is the most appropriate basis. As per the coefficient of variation (C.V.), invest on the common stock of EBL because it has the lowest risk on per unit of return. So, rational investor should invest on common stock of EBL. Besides this, the investment decision also depends upon personal preferences. In conclusion for a risk taker investor, common stock of NABIL is appropriate. For a risk –avertter investor, The C. S. of HBL is appropriate or preferable.

To make the comparison easily understandable figure 4.6: Expected return, standard deviation and coefficient of variation of each bank.

Figure 4.5



- E.R. - Expected Return
 S. D. - Standard Devotion
 C.V. - Coefficient of Variation

4.3 Inter –sector comparison

Here a comparison is made on the size of the industry to make the analysis simple as well as understandable for this purpose market capitalization of each industry is taking into account. The following table 4.12 shows market capital of different sector during the fiscal year 2006/07.

Table 4.10

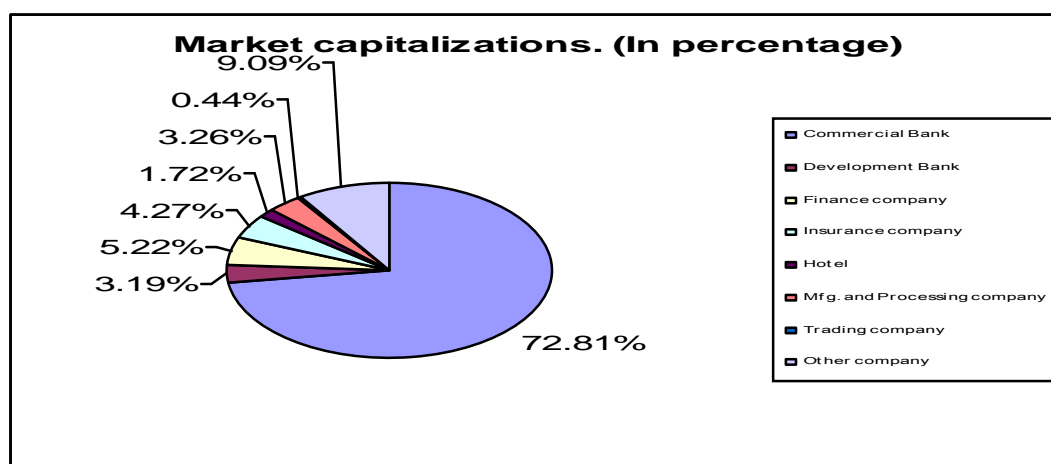
Market capitalization of different sector

S.N.	Sector	Market Capitalization (Rs in million)	Percent
1.	Commercial Bank	138173.8	72.81
2.	Development Bank	6054.30	3.19
3.	Finance company	9888.60	5.22
4.	Insurance company	8109.8	4.27
5	Hotel	3261.10	1.72
6	Mfg. and Processing company	6200.0	3.26
7	Trading company	831.30	0.44
8	Other company	17250.90	9.09
Total		189769.70	100.00

Source: Annual report, SEBON

By the end of the fiscal year 2007/08, the percentage contribution of market Capitalization on nominal GDP is estimated to be 27.78. The percentage of market capitalization of “banking sector” on the total market capitalization is highest 72.81% as compared to other sectors and market capitalization of “Trading Company” is very low 0.44%

The following chart presents the market capitalization of listed securities during the fiscal year 2007/08.



4.4: Overall NEPSE Index:

NEPSE index follows the value weighted formula where market capitalization is the basis for calculating index. This index is calculated by considering all listed shares including that of promoter shares of all listed companies at NEPSE.

Table No.4.11

Figure 4.6

Fiscal Year	Overall NEPSE Index
2001/02	227.54
2002/03	204.86
2003/04	222.04
2004/05	286.67
2005/06	386.83
2006/07	683.95
2007/08	963.4

Source: Annual report, SEBON

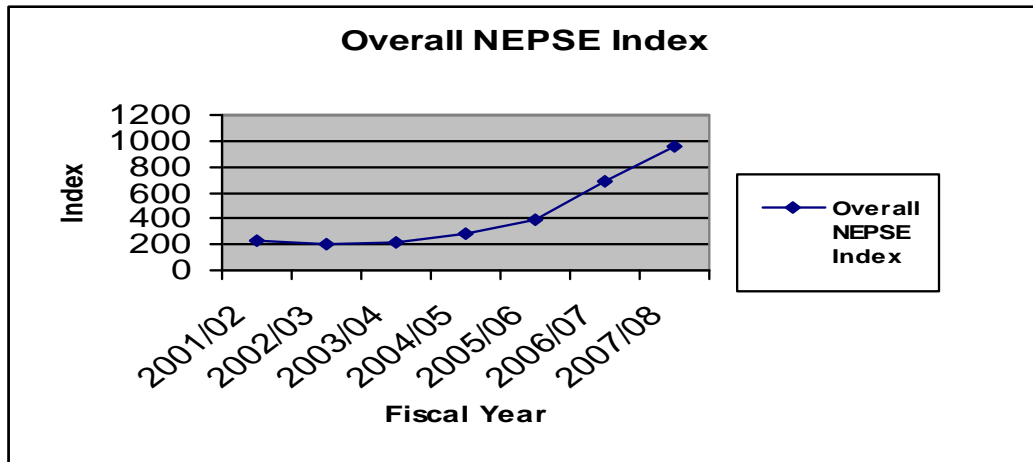


Table 4.12

Sector wise NEPSE index of different sector during the fiscal year 2001/02 to 2007/08.

Fiscal year	Commercial bank	Finance	Hotel	Mfg	Trading company	Others
2001/02	219.35	262.29	216.51	273.67	102.2	77.34
2002/03	199.90	208.14	196.68	250.13	94.56	48.56
2003/04	231.97	195.99	184.41	255.58	95.01	142.61
2004/05	304.64	228.39	178.00	276.50	123.20	347.65
2005/06	437.49	261.37	180.77	301.11	148.11	410.00
2006/07	789.21	471.82	251.47	348.63	155.37	818.12
2007/08	985.70	1152.70	370.90	423.70	204.10	768.30

As per the above table 4.13, in year 2001/02 the commercial banks index is greater than others. All sector's index has been gradually decreased after the year 2001/02 and it goes up to 2004/05 and 2005/06. The reasons behind to decrease the index of each sector's is the political and economical condition of Nepal. But after the jana-andolon of 2005/06; the index of each sector's is rising up.

The calculative value of each sector's expected return (\bar{R}) standard deviation (\dagger) and coefficient of variation (C.V) is shown in the next table for comparative study.

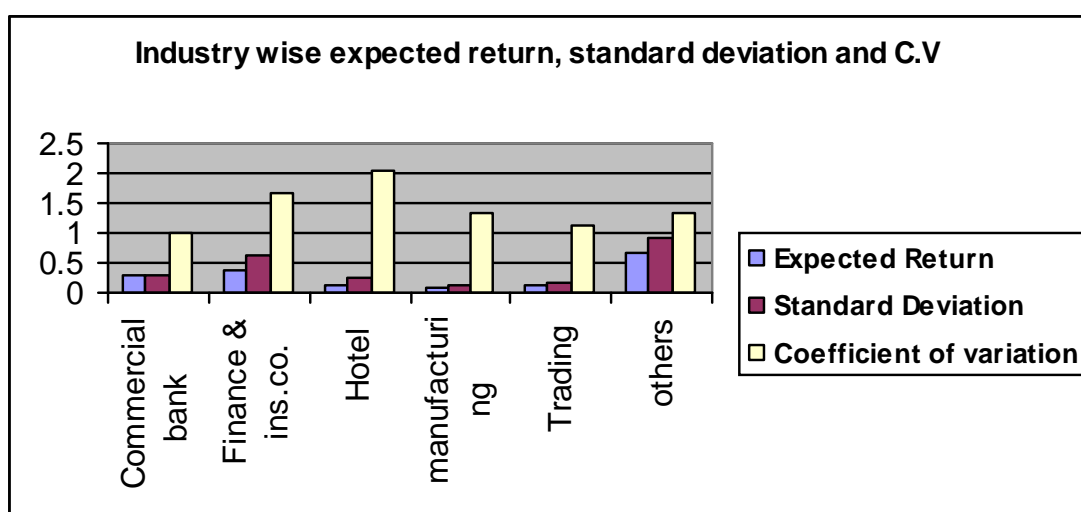
Table 4.13

Expected return (\bar{R}), standard deviation (\dagger) and coefficient variation (C.V) of different sectors.

S.N	Name of the company	Expected Return	Standard Deviation	Coefficient of variation
1	Commercial bank	0.3123	0.2984	0.987
2	Finance & ins.co.	0.3822	0.6300	1.6485
3	Hotel	0.1155	0.2382	2.0621
4	manufacturing	0.0779	0.1052	1.3166
5	Trading	0.1319	0.1469	1.1092
6	others	0.6844	0.9104	1.3303

In terms of risk and return, other's sector stands at the first position among the other sectors. Only commercial bank and trading company have slightly positive expected return but remaining the entire sector's have the negative expected return. This means the entire sector's are not performing well.

Diagram 4.5



4.5 Comparison and analysis of market and its return

There is only one stock exchange in Nepal. Nepal Government under programmed initiated to reform capital markets converted securities exchanges centre into Nepal stock exchange in 1983. Nepal stock exchanges in short NEPSE, is a non-profit organization operating under securities exchange Act 1983. The government, NRB and NIDC, owns it. NEPSE prepares daily NEPSE index based on the market capitalization of all listed securities. Overall market movement is represented by market index (i.e. NEPSE index). Market returns, standard deviation and coefficient variations are shown in following table 4.15 NEPSE index movement and market return movement is shown in figure 4.7 and diagram 4.7.

Table 4.14

Market return, standard deviation and c.v.

Fiscal year	NEPSE Index(NI)	$R_m = \frac{NI_t - NI_{t-1}}{NI_{t-1}}$	$(R_m - \bar{R}_m)$	$(R_m - \bar{R}_m)^2$
2001/02	227.54	-	-	-
2002/03	204.86	-0.0997	-0.3999	0.1599
2003/04	222.04	0.0839	-0.2163	0.0467
2004/05	286.67	0.2911	0.009	0.0000
2005/06	386.83	0.3494	0.0492	0.0024
2006/07	683.95	0.7681	0.4679	0.2189
2007/08	963.40	0.4086	0.1084	0.0117
Total		$\sigma_{R_m} = 1.8014$		$\sigma_{R_m}^2 = 0.4396$

Source: SEBON

We have,

$$\text{Expected market return, } E(R_m) \text{ or } \bar{R}_m = \frac{\sum R_m}{n}$$

$$= \frac{1.8014}{6}$$

$$= 0.3002$$

$$\text{Standard deviation } (\sigma_m) = \sqrt{\frac{\sum (R_m - \bar{R}_m)^2}{n - 1}}$$

$$= \sqrt{\frac{0.4396}{6}}$$

$$= 0.2965$$

$$\text{Coefficient Variation (C.V.)} = \frac{\sigma_m}{\bar{R}_m} = \frac{0.2965}{0.3002} = 0.9877$$

Figure 4.7

NEPSE Index Movement

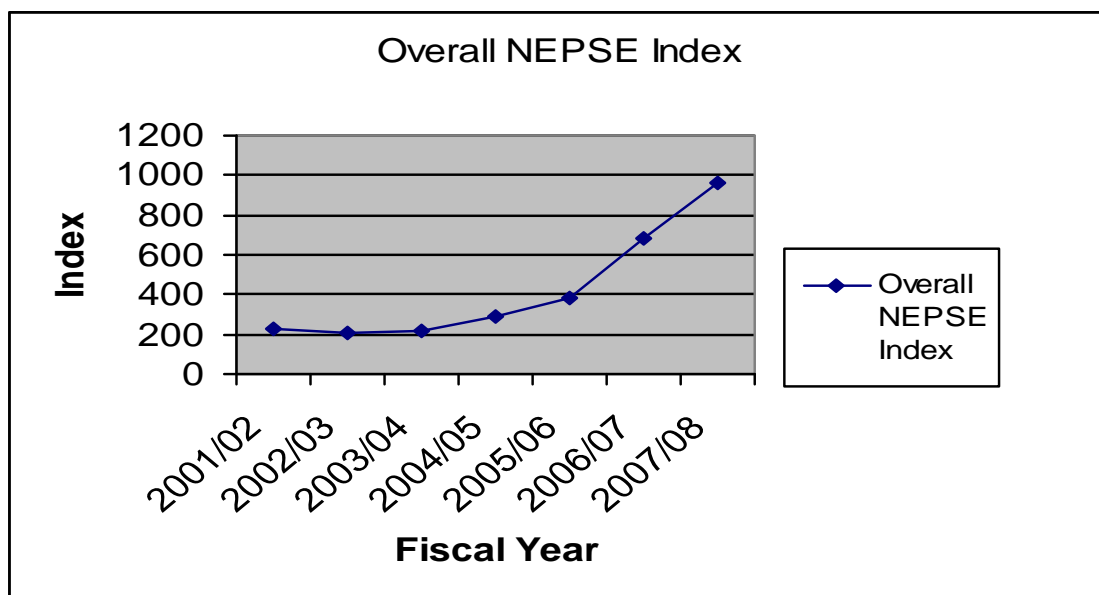
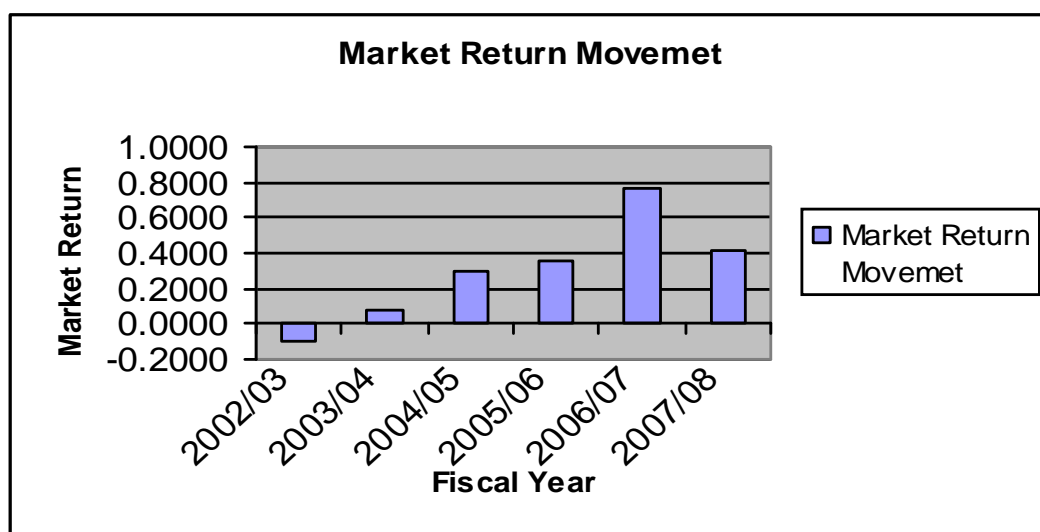


Diagram 4.6

Market Return Movement



Since, a Diagram 4.7 shows the market return movement in F/Y 2002/03 is negative and after that up to 2007/08 is in positive trend of market movement

4.6 Market Sensitivity

Market sensitivity of stock is measured by beta coefficient. The systematic risk measured by beta is a degree of sensitivity of stocks return to market movement. Higher the beta represents greater sensitivity and higher reaction to the market movement and Vice- versa. The beta coefficient of market is always 1. The percentage of risk that is correlated with market is said to be systematic portion of risk. As market changes guide this portion of risk, it is out of reach to get under control. Thus beta is systematic risk which can not be eliminated through the means of diversification. Here calculation of Beta coefficient of the common stock of NABIL and other banks are shown in Appendix.

For an individual stock, the beta could be less than equal to or more than 1 depending upon the volatility of those stocks return relative to market return. The different values of beta are defined as: The beta equal to 1 (i.e. $B= 1$) implies, the average market risk and command the average market risk premium. The beta less than one (i.e. $B< 1$) implies the stocks is less sensitive to market fluctuation and such stock is considered to be defensive type. The beta

greater than one (i.e. $B > 1$) implies the stock is more sensitive to market movement and such stock is considered to be aggressive type.

If the calculated beta coefficient is less than one (i.e. $B < 1$) this indicates that one percent change in market return will causes less than one percentage change in stock return. As the same way the calculated beta coefficient is greater than (i.e. $B > 1$) this indicates that the one percentage change in market return will causes more than one percentage change in stock return.

Table 4.15
Beta coefficient of each bank

Name of the company	Beta coefficient ()
NABIL	2.18
HBL	0.9544
SBI	2.0717
EBL	1.0031

The above table shows the beta of different listed commercial banks. Except Himalayan bank limited (HBL), the beta coefficient of others banks are greater than 1. This indicates that one percentage change in the market return will causes more than one percentage change in stock's return.

The beta coefficient of c.s. of NABIL Bank ltd. is higher than other banks. That is 2.18 which is greater than 1. Therefore the return of NABIL's stock is highly sensitive with market. 1% increase in market return will raise NABIL's stock return by 2.18%. Similarly HBL, SBI and EBL have also positive beta, which implies that the stocks return move in the same direction to market.

The status of the pricing of the stocks of particular bank is evaluated by the required rate of return and expected rate of return. If the required rate of return is more than expected rate of return then the stock is called overprice and if expected rate of return is more than required rate of return, then the stock is called under priced. Similarly, if required rate of return equals to the expected

rate of return that stock is called equilibrium priced. The table 4.17 shows the price situation of common stock of each bank.

Table 4.16

Required rate of return, expected rate of return and price situation.

S.N.	commercial bank	beta coefficient	expected rate of return (ERR)	required rate of return(RRR)	Situation
1	NABIL	2.18	0.7263	0.5296	Under priced
2	HBL	0.9544	0.3751	0.2892	Under priced
3	SBI	2.0717	0.6253	0.5576	Over price
4	EBL	1.0031	0.6166	0.3009	Under priced

$R_f = 6%$ [source: NRB]

As per the above table 4.17, the common stock of NABIL, HBL and EBL is under priced because the $ERR > RRR$. So the common stock of NABIL, HBL, and EBL's should be buy rather than selling. At the same time, the common stock of SBI is overpriced because $ERR < RRR$. So, that common stock should be sell rather than buying.

4.7 Correlation

Correlation is a relative measure of relationship that is bounded by 1.0 and -1.0. It is statistical measure of the extent to which the returns on any two securities are related, however, it denotes only association not causation. Covariance and correlation are closely related. The correlation measures the degree of relationship of movement of securities return. Correlation is measured by the following equation:

$$r_{ij} = \frac{COV(R_i, R_j)}{\sigma_i \sigma_j}$$

Now the correlation of NABIL's common stock to another commercial bank's common stock is shown in table 4.19

Table 4.17

Correlation of NABIL's C.S. with other banks C.S.

S.N.	Commercial banks	Correlation (r)
1	NABIL and HBL	$r_{NH}=1$
2	NABIL and SBI	$r_{NS}=0.88$
3	NABIL and EBL	$r_{NE}=0.93$

As per the above table, the correlation of the NABIL and HBL return is perfect positives (1). This means they tend to move in same direction. So portfolio made with these stocks is most risky. Besides this the correlation of NABIL with SBI and EBL is high degree of positive correlation (i.e. 0.93). This means the correlation of NABIL's with other commercial banks is positive but degree of relationship is different.

4.8 Portfolio Analysis

Portfolio indicates the combination of more than one asset with different characteristics. The idea of portfolio is relevant when taking decision about the investment. Investor can diversify their unsystematic risk by adopting portfolio. It will be a great use to reduce risk to some extent. The portfolio earning of an assets measured by expected returns of portfolio i.e. $E(R_p)$, risk by the standard deviation of portfolio i.e. (σ_p) . The expected return of portfolio is simply a weighted average of the expected return of individual securities held in the portfolio. The weights are equals to the proportion of total fund invested in each security.

The portfolio theory has two assumption (i) investors are risk averser (ii) the return of securities are normally distributed. This means the mean and variance analysis is the foundation of portfolio decision.

4.9 Analysis of Diversification

The analysis is based on two assets portfolio and the tools for analysis are already mentioned in the research methodology. It is already stated that correlation between the return of the two securities plays a vital role in risk reduction by portfolio construction. The negative relationship between two returns is acceptable in portfolio return. If the correlation is perfectly negative (-1), Then the combination of securities reduces unsystematic risk to zero. If correlation is perfectly positive or equal to 1 then the portfolio can not reduce any part of risk. Now we analyze the portfolio risk and return of NABIL's with other's commercial banks which is shown in the table 4.19.

Let's assume the portfolio made with NABIL and HBL's C.S. = A

" " " " " SBI's C.S. = C

" " " " " EBL's C.S = D

Table 4.18

Portfolio return, risk and C.V. of different banks with NABIL's stock.

security	portfolio	portfolio return	Portfolio risk ($\uparrow P$)	Portfolio c.v.	
NABIL& HBL	A	0.1403	0.6742	4.8054	Best in terms of c.v.
NABIL &SBI	B	0.6648	0.7023	1.0564	Best in terms of risk& return
NABIL & EBL	C	0.5536	0.8070	1.4577	

As per the above table portfolio B is best in terms of risk and returns because it provides the highest portfolio return i.e.66.48% at portfolio s.d. i.e.70.239%. But in terms of C.V. Portfolio C is best because it provides the low amount of risk on per unit of return, so rational investors invest on portfolio C.

4.10 Systematic and unsystematic risk and its proportion

Systematic risk is the part of total risk and can not be diversified through the creation of portfolio. This risk creates from the systematic factors or market factors or macro economic factors like inflation, GDP, intt. rate as extra. It equality affects to the all company's common stock. However, unsystematic risk in diversifiable risk and can be minimized through the creation of portfolio. This risk creates from micro economic factors or unique factors to a company like inefficiency, Strikes sales policy, and production policy as extra.

The proportion of systematic and unsystematic risk indicates the percentage of systematic risk created from systematic or market factors and percentage of unsystematic risk created from company related factors.

Table 4.19

Systematic and unsystematic risk and its proportion

Stock	Systematic risk	Unsystematic risk	Proportion of systematic risk	Proportion of unsystematic risk
NABIL	0.1916	0.3529	0.3519	0.6481
HBL	0.0839	0.0051	0.9427	0.0573
SBI	0.1821	0.3268	0.3578	0.6422
EBL	0.0882	0.0086	0.9112	0.0888

The above table shows the systematic and unsystematic risk and it's proportion of different listed commercial bank's common stock. The proportion of systematic risk of C.S. of HBL is higher than other banks i.e. 94.27%. This means it indicates that out of total risk on stock of HBL's 94.27% is undiversifiable risk and created from systematic factors or market factors and the remaining 5.73% risk is diversifiable created from company related factors as well as the proportion of systematic risk of stock of NABIL is lowest i.e. 35.19%. This means the remaining 64.81% risk is diversifiable risk created from the company related factor's such as management inefficiency, strike, company's other different policies and such extras.

4.11 Major findings of the study

- J The expected return on common stock of NABIL is maximum i.e. 72.63%, which is very high rate of return. Similarly, the expected rate of return of the C.S. of HBL is found minimum i.e. 37.51 % other common stock having higher return of the C.S. of EBL and SBI is 61.66% and 62.53% respectively on the basis of sector wise comparison, the expected return of other sector is found higher i.e. 68.44 % and that of manufacturing sector is found 7.8%.
- J The S.D. of HBL is lower i.e. 0.2984 & that of NABIL is higher i.e. 0.7379. So, the HBL C.S. is low risky whereas NABIL's C.S. is high risky. The S.D. of C.S. of SBI and EBL are 0.6253 and 0.6166 respectively. According to sector wise comparison, the S.D. of other sector is found higher i.e. 0.9104 and that of manufacturing sector is found lower that 0.1052.
- J The C.V. of EBL is lower that 0.5045 where as the C.V. of SBI is found higher that 1.1407, the other common stock having higher C.V. of common stock of NABIL and HBL is 1.0156 and 0.7954 respectively.
- J In the context of market capitalization, the banking sector contributes the highest proportion i.e. 72.81% and the trading sector contributes the lowest proportion i.e. 0.44%, similarly, the market capitalization of the development bank is 3.19%, finance company is 5.22%, insurance company is 4.27% and the hotel, mfg. and other company's is 1.72%, 3.26% and 9.09% respectively.
- J In the context of market sensitivity, the return of C.S. of NABIL is found highly sensitive to the market during the study period. It is because that it has high beta i.e. 2.18 which is greater than 1. Similarly, the c.s. of HBL, SBI and EBL have positive beta, which implies that, the stock return move in the same direction but more then market return.

-) By evaluating pricing situation for C.S. of four joint venture banks, it has been found that all C.S's expected rate of return is greater than required rate of return except SBI Bank ltd. So except SBI, all the bank's stock price is found undervalued. But the SBI's stock price is found overvalued because; required rate of return is greater than expected rate of return.
-) According to the correlation coefficient of NABIL's with other banks C.S. is found >0 and ≈ 1 . It implies that the return of the NABIL's C.S. and other bank's C.S moves in the same direction.
-) The portfolio S.D of portfolio A is lower i.e. 0.6742 and that of C is higher i.e. 0.8070 the portfolio A is low risky whereas portfolio C is high risky. The portfolio S.D. of portfolio B is 07023.

CHAPTER-FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

Trade off between risk and return is the central focus of finance. The major part of it, Stock market, is of most important not only for the professionals or institutional investors but also for individuals as well. Risk and return, a new and complex concept, is also the foundation of modern investment.

This study is concerned with risk and return analysis. Here, risk is defined as the variability of the returns over a period. The greater the variability of the returns, the riskier is the investment. Likewise return is the future rupee or reward gained by the sacrifice of current rupees. Return includes both current income and capital gains or losses that arise due to the increase or decrease on price of the security.

We have seen that every investment has the risk factor. Our focus is on minimizing the risk to maximize the return. While investing we should remember the statement, 'not to- put all the egg in one basket' It means appropriate portfolio should constructed instead of investing in a single security. A portfolio is the combination of different investment assets which reduces unsystematic or diversifiable risk considerably.

For this study five joint-ventures banks, listed in NEPSE, has been taken. N analysis of the risks and return in common stocks of these banks are mad in this study.

Stock market investment is the main focus of the study. Stock market investment can be both rewarding and fun so long a sufficient tune is given to appreciate its characteristics.

The relationship between risk and return is perception of the investors about risk and their demand for compensation. All the investors like to invest in non-risky assets. So, risk plays a vital role in the analysis of investment and to reach an investment decision. Higher the risk gives bigger premium and the trade off between the two assumes a linear relationship between risk and risk premium.

Due to the various limitations and constraints, only some joint-venture banks are taken as sample for the study. The total populations of the study are commercial banks listed in NEPSE. A brief introduction in chapter-1, review of literature in chapter-2, research methodology in chapter-3, data presentation and analysis in chapter-4, have been presented in a very simple and clear way as far as possible.

5.2 Conclusion

- The stock which has the highest risk has also the highest return and the stock which has the lowest risk, has also the lowest return.
- As per the risk bearing capacity, the investor's natures are different. A risk lover/taker investor invests on those stocks which has the highest risk as well as highest return. A medium investor invests on those stocks which have the medium risk and medium return. Similarly a risk avoider investor invests on those stocks which have low risk and low return. But a rational investor invests on those securities which has the highest return at lowest risk.
- Most of the Nepalese private investor invests in single security. Some of the investor uses their fund in two or more securities. But it is found that they don't make any analysis of portfolio before selecting. They invest their fund in different securities on the basis of expectation and assumption of individual security rather than analysis of the effect of portfolio.

- The stocks were yielding unusually high return with respect to the amount of the systematic risk they bear during the study period. So the high return makes the stock undervalued and in future the demand for those stocks will increase and the price of the stock will further increase for the equilibrium state.
- Most of the Nepalese investors are not awareness about the stock market, among them who were awareness see stock market investment as the black art. So, it is the market for only rich and large type of investor, but it doesn't consider the small type of investor's investment for safety.
- This study enables investor to put the return they can expect and the risk they can take into better respective.
- As Nepalese investors do not seems so professionalism in respect of trading of shares, they are holding shares for dividend and further price appreciation and only few investors are seeking for price on regular basis. Further, Nepalese investors are getting the less return from their investment however this much is higher than other sector's. The involvement of trading activities in stock market seems increasing in trend now a day.

5.3 Recommendations

Mainly this study is made for the partial fulfillment of M.B.S level. However, this study may be helpful for the individual investors. The following recommendations are prescribed on the basis of data analysis and major findings of this study.

The recommendations based on major findings are offered as follows:

- Investor who wants high return should invest in NABIL & EBL's common stock, irrespective of risk.
- Risk adverse investor (investors who don't want to take higher risk) should invest in HBL & EBL's common stock.

- To minimize risk on 1 percent return, investor should invest in HBL & EBL's common stock.
- So, there is positive relationship between risk and return. Therefore the investor should select riskier bank to get higher return and less risky bank to get lower return.
- The portfolio assets which has been made in the study, has the positive return therefore the investor can select these assets for portfolio.
- Risk adverse investor should make the portfolio of banks between NABIL and HBL and NABIL and EBL's common stock respectively.
- To minimize the portfolio risk on 1 percent portfolio return, investors should make portfolio between the banks NABIL and EBL, NABIL and HBL common stock because the coefficient of variation of these portfolios is less than NABIL and SBI.
- As per the study, Except SBI's common stock, the common stock of NABIL, HBL, & EBL's is under valued. So these stocks should be buying and overvalued common stock of SBI's should be selling.

Recommendations based on overall study are as follows:-

- The activities of stock market should not centralize only in Kathmandu valley. So the brokers should be encouraged to generate their business from outside the Kathmandu valley and they should suggest the investors to make suitable portfolios.
- Monitoring system for the listed companies should be implemented properly.
- Investor's education, awareness and confidence towards stock market should be uplifted by providing various annual reports, books, bulletins with regular publication.

- Investor's who involve in the trading of shares should have the general knowledge about national & international economic condition, taxation policy of government, peace & political situation is necessary which affect's the price of shares.
- The rules and regulations regarding stock market should be amended in time to time and the attempts should be made for implementation of the rules & regulation.
- At last, the main element of development of stock market is the peace and political stability, which is the current burning issue of the country.

BIBLIOGRAPHY

Books

Bhalla, V.K. (2004), *Investment Management*, S. Chand and company limited, New Delhi.

Chandra, Prasanna (1995), *Financial Management Theory and Practice*, Tata McGraw Hill Publishing Company Limited, New Delhi.

Chandra, Prasanna (1995), *The investment Game*, Tata McGraw Hill publishing Company Limited, New Delhi.

Cheney, J.M. and moses, E.A. (1993), *Fundamental's of Investments*, West Publishing Company, New York.

Francis, J.C. (1998), *Investment Analysis and Management*, McGraw Hill Publication, New York.

Pandey, I.M. (2003), *Financial Management*, Vikas Publishing House, New Delhi.

Pradhan, Radhe Shyam S. (2003), *Basics of Financial Management*, Educational Enterprises, Kathmandu.

Rana, Surya (2000), *Financial Management (Principle and Practice)*, Ratna Pustak Bhandar, Kathmandu.

Sharpe, William F., Alexendar, Gordon J. and Bailey, Jeffery V. (1995), *Investments*, Prentice Hall inc., USA.

Shrestha, Sunity (1995), *Portfolio Behavior of Commercial Bank in Nepal*, Mandal Book Print, Kathmandu.

Shrestha, M.K. (1992), *Shareholders Democracy and Annual General Meeting Feedback and Portfolio Analysis*, Nepal Publication, Kathmandu.

Van Horne, J.C. and Wachowicz Jr., J.M. (1995), *Fundamental of Financial Managements*, Prentice Hall inc., USA.

Wolff, Howard K. and Panta, P.R. (2000), *A Hand Book for Social Science Research and Thesis Writing*, Buddha Academy, Kathmandu.

Weston, J.F. and Copeland, T.E. (1992), *Managerial Finance*, The Dryden Press, New York.

Weston, J.F., Besley, S. and Bringham, E.F. (1996), *Essentials of Managerial Finance*, The Dryden press, New York.

Journals

Aharony, Joseph Jones, Charles, P. and Swary, Itzhak (1980), "An Analysis of Risk and Return Characteristics", *Journal of Finance*, Vol. 35, No. 4, The American Finance Association, New York.

Elton, E.J. (1999), " Expected Return, Realized Returns and Asset Pricing Tests", *Journal of Finance*, Vol. 54, No. 4, The American Finance Association, New York.

Eugene, F. Fama and Kenneth R. French (2002), "The Equity Premium", *Journal of Finance*, Vol. 57, No. 2.

Gehr, Jr. Adam K. 91979), "Risk and Return", *The Journal of Finance*, Vol. 34, No. 4, The American Finance Association, New York.

Pradhan, Radhe Shyam (1998), "Stock Market Behaviour on a Small Capital Market a case in Nepal", *The Nepalese Management Review*, Vol. 9, No. 1. Central Department of Management, TU., Kathmandu.

Thesis

Acharya, Narayan Prasad (2002), "An Analysis of Risk and Return Associated with Common Stock Investment of Joint Venture Banks in Nepal", *An Unpublished Master Degree Thesis*, Central Department of Management TU., Kathamandu.

Bhatta, Gopal P. (1999), "Assessment of the Performance of Listed Companies in Nepal", *M.B.A Thesis*, Central Department of Management, TU., Kathamandu.

Khatiwada, Mohan (2006), "A Study on Securities Investment in Nepal", *An Unpublished Master Degree Thesis*, Central Department of Management T.U., Kathamandu.

Ojha, Khagendra (2000), "Financial Performance and Common Stock Pricing" *An Unpublished Master Degree Thesis*, Central Department of Management T.U., Kathamandu.

Others

Annual Report (2006), NEPSE, Kathmandu.

Annual Report (2006), SEBON, Kathmandu.

Trading Report (2001 Shrawn to 2006 Ashad)

Website, [www. google. com](http://www.google.com)

Various Issues of Banking Promotion, NRB.

APPENDIX

Realized return, standard deviation, expected return and C.V. of different industry.

AT-1A: Calculation of RRR, ERR, SD and C.V. of banking industry.

FY	Banking index	$R_B \times \frac{BI_{tZ} - BI_{tZ1}}{BI_{tZ1}}$	$R_{BI} - \bar{R}_{BI}$	$\sum (R_{BI} - \bar{R}_{BI})^2$
2001/02	219.35	-	-	-
2002/03	199.90	-0.089	-0.4013	0.161
2003/04	231.97	0.1604	-0.1519	0.0231
2004/05	304.64	0.3133	0.001	0.000
2005/06	437.49	0.4361	0.1238	0.01532
2006/07	789.21	0.804	0.4917	0.2418
2007/08	985.70	0.249	-0.0633	0.0040
		$R_{BI} \times 1.8738$		$\sum (R_{BI} - \bar{R}_{BI})^2 \times 0.4452$

$$\text{Expected Return } (\bar{R}_{BI}) \times \frac{R_{BI}}{n} \times \frac{1.8738}{6} \\ \times 0.3123$$

$$\text{Standard deviation } (\dagger) \times \sqrt{\frac{(R_{BI} - \bar{R}_{BI})^2}{n \times 1}} \\ \times \sqrt{\frac{0.4452}{6 \times 1}} \\ \times 0.2984$$

$$\text{coefficient of variation (c.v.) } \times \frac{\dagger}{\bar{R}_{BI}} \times \frac{0.2984}{0.3023} \\ \times 0.987$$

AT-1B: Calculation of RRR, ERR, SD and C.V. of finance and insurance.

FY	Finance and Insurance.	$R_B \times \frac{BI_{tZ} BI_{tZI}}{DI}$	$R_{BI} Z \bar{R}_{BI}$	$\int R_{BI} Z \bar{R}_{BI} \Delta$
2001/02	262.29	-	-	-
2002/03	208.14	-0.2064	-0.5886	0.3464
2003/04	195.99	-0.0584	-0.4406	0.1941
2004/05	228.39	0.1653	-0.2169	0.0470
2005/06	261.37	0.1444	-0.2378	0.0565
2006/07	471.82	0.8052	0.4230	0.1789
2007/08	1152.70	1.4431	1.0609	1.1255
		$R_{BI} \times 2.2932$		$\int R_{BI} Z \bar{R}_{BI} \Delta \times 1.9484$

$$\begin{aligned} \text{Expected Return } (\bar{R}_{FI}) & \times \frac{R_{FI}}{n} \\ & \times \frac{2.2932}{6} \\ & \times 0.3822 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\dagger) & \times \sqrt{\frac{(R_{FI} Z \bar{R}_{FI})^2}{n Z 1}} \\ & \times \sqrt{\frac{1.9848}{6 Z 1}} \\ & \times 0.6300 \end{aligned}$$

$$\begin{aligned} \text{coefficient of variation (c.v.)} & \times \frac{\dagger}{\bar{R}_{FI}} \\ & \times \frac{0.6300}{0.3822} \\ & \times 1.6485 \end{aligned}$$

AT-1C: Calculation of RRR, ERR, SD and C.V. of Hotel.

FY	Hotel index	$R_B \times \frac{BI_{tZ} - BI_{tZ1}}{BI_{tZ1}}$	$R_{BI} \times Z\bar{R}_{BI}$	$\int R_{BI} \times Z\bar{R}_{BI} \Delta$
2001/02	216.51	-	-	-
2002/03	196.68	-0.0916	-0.0207	0.0429
2003/04	184.41	-0.0624	-0.1779	0.00316
2004/05	178.00	-0.0348	-0.1503	0.0226
2005/06	180.77	0.0156	-0.0999	0.0099
2006/07	251.47	0.3911	0.2756	0.0759
2007/08	370.90	0.4749	0.3594	0.1292
		$R_{BI} \times 0.6928$		$\int R_{BI} \times Z\bar{R}_{BI} \Delta \times 0.2836$

$$\begin{aligned} \text{Expected Return}(\bar{R}_H) & \times \frac{R_H}{n} \\ & \times \frac{0.6928}{6} \\ & \times 0.1155 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation}(\dagger) & \times \sqrt{\frac{(R_H - \bar{R}_H)^2}{n \times 1}} \\ & \times \sqrt{\frac{0.2836}{6 \times 1}} \\ & \times 0.2382 \end{aligned}$$

$$\begin{aligned} \text{coefficient of variation}(c.v.) & \times \frac{\dagger}{R_H} \\ & \times \frac{0.2382}{0.1155} \\ & \times 2.0621 \end{aligned}$$

AT-1D: Calculation of RRR, ERR, SD and C.V. of mfg. industry.

FY	Manf. Industry index	$R_B \times \frac{BI_{tZ} BI_{tZl}}{BI_{tZl}}$	$R_{BI} \times \bar{R}_{BI}$	$\int R_{BI} \times \bar{R}_{BI} \Delta$
2001/02	273.67	-	-	-
2002/03	250.13	-0.0860	-0.1659	0.0275
2003/04	255.58	0.0218	-0.0581	0.0034
2004/05	276.50	0.0820	0.0021	0.0000
2005/06	301.11	0.08900	0.0091	0.0000
2006/07	348.63	0.1578	0.0779	0.0061
2007/08	423.70	0.2153	0.1354	0.01833
		$R_{BI} \times 0.4799$		$\int R_{BI} \times \bar{R}_{BI} \Delta \times 0.0553$

$$\begin{aligned} \text{Expected Return}(\bar{R}_m) & \times \frac{R_M}{n} \\ & \times \frac{0.4799}{6} \\ & \times 0.0799 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation}(\dagger_M) & \times \sqrt{\frac{(R_M - \bar{R}_M)^2}{n - 1}} \\ & \times \sqrt{\frac{0.0553}{6 - 1}} \\ & \times 0.1052 \end{aligned}$$

$$\begin{aligned} \text{coefficient of variation (c.v.)} & \times \frac{\dagger_M}{R_M} \\ & \times \frac{0.1052}{0.0799} \\ & \times 1.3166 \end{aligned}$$

AT-1E: Calculation of RRR, ERR, SD and C.V. of trading company.

FY	Trading Company index	$R_B \times \frac{BI_{tZ} BI_{tZl}}{BI_{tZl}}$	$R_{BI} Z \bar{R}_{BI}$	$\int R_{BI} Z \bar{R}_{BI} \Delta$
2001/02	102.2	-	-	-
2002/03	94.56	-0.0748	-0.2067	0.0427
2003/04	95.01	0.0048	-0.1271	0.0162
2004/05	123.20	0.2967	0.1648	0.0033
2005/06	148.11	0.2022	0.0703	0.0049
2006/07	155.37	0.04902	-0.0829	0.0069
2007/08	204.10	0.3136	0.1817	0.0330
		$R_{BI} \times 0.7915$		$\int R_{BI} Z \bar{R}_{BI} \Delta \times 0.1070$

We have,

$$\begin{aligned} \text{Expected Return}(\bar{R}_T) & \times \frac{R_T}{n} \\ & \times \frac{0.7915}{6} \\ & \times 0.1319 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation}(\dagger_T) & \times \sqrt{\frac{(R_T Z \bar{R}_T)^2}{n Z 1}} \\ & \times \sqrt{\frac{0.1070}{6 Z 1}} \\ & \times 0.1463 \end{aligned}$$

$$\begin{aligned} \text{coefficient of variation}(c.v.) & \times \frac{\dagger_T}{\bar{R}_T} \\ & \times \frac{0.1463}{0.1319} \\ & \times 1.1092 \end{aligned}$$

AT-1F: Calculation of RRR, ERR, SD and C.V. of others industry.

FY	Other Industry index	$R_B \times \frac{BI_{tZ} BI_{tZ}}{BI_{tZ}}$	$R_{BI} Z \bar{R}_{BI}$	$\int R_{BI} Z \bar{R}_{BI} \hat{A}$
2001/02	77.34	-	-	-
2002/03	48.56	-0.3721	-1.0565	1.1162
2003/04	142.61	1.9368	1.2524	1.5685
2004/05	347.65	1.4278	0.7434	0.5527
2005/06	410.00	0.1793	-0.5051	0.2551
2006/07	818.12	0.9954	0.3110	0.0967
2007/08	768.30	-0.0609	-0.7453	0.5554
		$R_{BI} \times 4.1063$		$\int R_{BI} Z \bar{R}_{BI} \hat{A} \times 4.1446$

We have,

$$\begin{aligned}
 \text{Expected Return}(\bar{R}_O) & \times \frac{R_O}{n} \\
 & \times \frac{4.1063}{6} \\
 & \times 0.6844 \\
 \\
 \text{Standard deviation}(\dagger_T) & \times \sqrt{\frac{(R_O Z \bar{R}_O)^2}{n Z 1}} \\
 & \times \sqrt{\frac{4.1446}{6 Z 1}} \\
 & \times 0.9104 \\
 \\
 \text{coefficient of variation}(c.v.) & \times \frac{\dagger_O}{R_O} \\
 & \times \frac{0.9104}{0.6844} \\
 & \times 1.3303
 \end{aligned}$$

AT-2A: Realized Return, Standard Deviation and Coefficient of Variation of Market

Fiscal year	NEPSE Index(NI)	$R_m = \frac{NI_t - Z NI_{t-1}}{NI_{t-1}}$	$(R_m - \bar{R}_m)$	$(R_m - \bar{R}_m)^2$
2001/02	227.54	-	-	-
2002/03	204.86	-0.0997	-0.3999	0.1599
2003/04	222.04	0.0839	-0.2163	0.0467
2004/05	286.67	0.2911	0.009	0.0000
2005/06	386.83	0.3494	0.0492	0.0024
2006/07	683.95	0.7681	0.4679	0.2189
2007/08	963.40	0.4086	0.1084	0.0117
Total		$\sum R_m = 1.8014$		$\sum (R_m - \bar{R}_m)^2 = 0.4396$

We have,

$$\begin{aligned} \text{Expected market return, } E(R_m) \text{ or } \bar{R}_m &= \frac{\sum R_m}{n} \\ &= \frac{1.8014}{6} \\ &= 0.3002 \end{aligned}$$

$$\begin{aligned} \text{Standard deviation } (\sigma_m) &= \sqrt{\frac{\sum (R_m - \bar{R}_m)^2}{n - 1}} \\ &= \sqrt{\frac{0.4396}{6 - 1}} \\ &= 0.2965 \end{aligned}$$

$$\begin{aligned} \text{Coefficient Variation (C.V.)} &= \frac{\sigma_m}{\bar{R}_m} \\ &= \frac{0.2965}{0.3002} = 0.9877 \end{aligned}$$

AT-3A: Calculation of beta coefficient of the common stock of NABIL.

FY	$(R_i - \bar{R}_i)$	$(R_m - \bar{R}_m)$	$(R_i - \bar{R}_i)(R_m - \bar{R}_m)$
2002/03	-0.6491	-0.3999	0.2596
2003/04	-0.3385	-0.2163	0.0732
2004/05	-0.2027	0.009	-0.00182
2005/06	-0.2328	0.0492	-0.01145
2006/07	1.4232	0.4679	0.6659
2007/08	-0.2570	0.1084	-0.02786
			$\sum [(R_i - \bar{R}_i)(R_m - \bar{R}_m)]$ X0.95757

We have,

$$\begin{aligned} \text{cov}(R_i, R_m) &= \frac{\sum [(R_i - \bar{R}_i)(R_m - \bar{R}_m)]}{n} \\ &= \frac{0.9576}{6} \\ &= 0.1596 \\ \beta_i &= \frac{\text{cov}(R_i, R_m)}{\sigma_m^2} = \frac{0.1596}{(0.2965)^2} \\ &= \frac{0.1596}{0.0879} \\ &= 1.815 \end{aligned}$$

Where,

n=Number of observation = 6

R_i = Return on stock 'i' (i.e. NABIL)

β_i =Beta of NABIL's common stock.

AT-3B: Calculation of beta of C.S. of HBL

FY	$(R_i - \bar{R}_i)$	$(R_m - \bar{R}_m)$	$(R_i - \bar{R}_i)(R_m - \bar{R}_m)$
2002/03	-0.3278	-0.3999	0.1311
2003/04	-0.1502	-0.2163	0.0325
2004/05	-0.0042	0.009	0.0000
2005/06	-0.0512	0.0492	-0.0025
2006/07	0.5585	0.4679	0.2613
2007/08	-0.0251	0.1084	-0.0027
			$\sum [(R_i - \bar{R}_i)(R_m - \bar{R}_m)]$ 0.4197

We have,

$$\begin{aligned} \text{Cov}(R_i, R_m) &= \frac{\sum [(R_i - \bar{R}_i)(R_m - \bar{R}_m)]}{n} \\ &= \frac{0.4197}{6} \\ &= 0.0839 \\ \beta_i &= \frac{\text{Cov}(R_i, R_m)}{\sigma_m^2} = \frac{0.0839}{(0.2965)^2} \\ &= \frac{0.0839}{0.0879} \\ &= 0.9544 \end{aligned}$$

Where,

R_i = Return on stock 'i' (i.e. HBL)

β_i = Beta of HBL's common stock.

AT-3C: Calculation of beta coefficient of C.S. of SBI Bank

FY	$(R_i - \bar{R}_i)$	$(R_m - \bar{R}_m)$	$(R_i - \bar{R}_i)(R_m - \bar{R}_m)$
2002/03	-0.9694	-0.3999	0.3877
2003/04	-0.4214	-0.2163	0.0911
2004/05	-0.5341	0.009	-0.0048
2005/06	0.2165	0.0492	0.0106
2006/07	0.9894	0.4679	0.4629
2007/08	-0.3404	0.1084	-0.0369
			$[(R_i - \bar{R}_i)(R_m - \bar{R}_m)] \times 0.9106$

We have,

$$\text{cov}(R_i, R_m) = \frac{[(R_i - \bar{R}_i)(R_m - \bar{R}_m)]}{n - 1}$$

$$\times \frac{0.9106}{6 - 1}$$

$$\times 0.1821$$

and ,

$$\beta_i = \frac{\text{cov}(R_i, R_m)}{\sigma_m^2}$$

$$\times \frac{0.1821}{(0.2965)^2}$$

$$\times \frac{0.1821}{0.0879}$$

$$\times 2.0717$$

Where,

R_i = Return on stock of i (i.e. SBI)

β_i = Beta of common on stock SBI.

AT-3D: Calculation of beta coefficient of C.S. of EBL Bank.

FY	$(R_i - \bar{R}_i)$	$(R_m - \bar{R}_m)$	$(R_i - \bar{R}_i)(R_m - \bar{R}_m)$
2002/03	-0.4802	-0.3999	0.1920
2003/04	-0.0553	-0.2163	0.0119
2004/05	0.0567	0.009	0.0005
2005/06	-0.0145	0.0492	-0.0007
2006/07	0.4935	0.4679	0.2309
2007/08	0.0586	0.1084	0.0064
			$[(R_i - \bar{R}_i)(R_m - \bar{R}_m)] \times 0.4409$

We have,

$$\text{cov}(R_i, R_m) \times \frac{[(R_i - \bar{R}_i)(R_m - \bar{R}_m)]}{n \sum 1} \\ \times \frac{0.4409}{5} \\ \times 0.08819$$

and,

$$Si \times \frac{\text{cov}(R_i, R_m)}{\sigma_m^2} \\ \times \frac{0.08819}{(0.2965)^2} \\ \times \frac{0.08819}{0.0879} \\ \times 1.0031$$

Where,

R_i = Return on common stock of EBL

β_i = Beta coefficient of common stock of EBL.

**AT-4A: Calculation of correlation coefficient between the stock of NABIL
and HBL.**

FY	$(R_N - \bar{R}_N)$	$(R_H - \bar{R}_H)$	$[(R_N - \bar{R}_N)(R_H - \bar{R}_H)]$
2002/03	-0.6491	-0.3278	0.2128
2003/04	-0.3385	-0.1502	0.0508
2004/05	-0.2027	-0.0042	0.0008
2005/06	-0.2328	-0.0512	0.0119
2006/07	1.4232	0.5585	0.8055
2007/08	-0.2570	-0.0251	0.0064
			$[(R_N - \bar{R}_N)(R_H - \bar{R}_H)] \times 1.0883$

We have,

$$\text{cov}(R_N, R_H) \times \frac{[(R_N - \bar{R}_N)(R_H - \bar{R}_H)]}{n \cdot Z1}$$

$$\times \frac{1.0883}{6 \cdot Z1}$$

$$\times 0.2176$$

and,

$$r_{NH} = \frac{\text{cov}(R_N, R_H)}{\sigma_N \sigma_H}$$

$$\times \frac{0.2176}{0.7379 \cdot 0.2984}$$

$$\times 0.99 \approx 1$$

Where,

R_N = Return on stock of NABIL

σ_N = Standard deviation of return on C.S. of NABIL

R_H = Return on common stock of HBL

σ_H = S.D. of return on C.S. of HBL

r_{NH} = Correlation between the rate of return on common stock of NABIL and HBL.

**AT-4B: Calculation of correlation coefficient between the stock of NABIL
and SBI.**

FY	$(R_N - \bar{R}_N)$	$(R_S - \bar{R}_S)$	$[(R_N - \bar{R}_N)(R_S - \bar{R}_S)]$
2002/03	-0.6491	-0.9694	0.6292
2003/04	-0.3385	-0.4214	0.1426
2004/05	-0.2027	-0.5341	0.1083
2005/06	-0.2328	0.2165	-0.0504
2006/07	1.4232	0.9894	1.4081
2007/08	-0.2570	-0.3404	0.0875
			$[(R_N - \bar{R}_N)(R_S - \bar{R}_S)] \times 2.3253$

We have,

$$\text{cov}(R_N, R_S) \times \frac{[(R_N - \bar{R}_N)(R_S - \bar{R}_S)]}{n} \times 2.3253$$

$$\times \frac{2.3253}{5}$$

$$\times 0.4651$$

and,

$$r_{NS} = \frac{\text{cov}(R_N, R_S)}{\sigma_N \cdot \sigma_S}$$

$$\times \frac{0.4651}{0.7379 \cdot 0.7173}$$

$$\times 0.8787$$

Where,

R_N = Return on stock of NABIL

R_S = Return on common stock of SBI

σ_S = Standard deviation on C.S. of SBI

r_{NS} = Correlation between the rate of return on common stock of NABIL
and SBI bank

**AT-4C: Calculation of correlation coefficient between the return on C.S. of
NABIL and EBL.**

FY	$(R_N - \bar{R}_N)$	$(R_E - \bar{R}_E)$	$[(R_N - \bar{R}_N)(R_E - \bar{R}_E)]$
2002/03	-0.6491	-0.4802	0.3117
2003/04	-0.3385	-0.0553	0.0187
2004/05	-0.2027	0.0567	0.0115
2005/06	-0.2328	-0.0145	0.0034
2006/07	1.4232	0.4935	0.7023
2007/08	-0.2570	0.0586	0.0151
			$[(R_N - \bar{R}_N)(R_E - \bar{R}_E)] \times 1.0627$

We have,

$$\text{cov}(R_N, R_E) \times \frac{1.0627}{5} \times 0.2125$$

and,

$$r_{NE} = \frac{\text{cov}(R_N, R_E)}{\sigma_N \sigma_E} = \frac{0.2125}{0.7379 \times 0.3111} = 0.9257$$

Where,

R_E = Return on EBL's common stock

r_{NE} = Correlation between the rate of return of NABIL and EBL

AT-6A: Calculation of systematic and unsystematic Risk of each stocks

Stock	Total Risk σ_i^2	Beta (β_i)	Market Variance σ_m^2	Systematic $\beta_i^2 \sigma_m^2$	Unsystematic Risk $\sigma_{ei}^2 = TR - SR$
NABIL	0.5445	2.18	0.0879	$(2.18)^2 \times 0.0879 = 0.1916$	$(0.5445 - 0.1916) = 0.3529$
HBL	0.089	0.9544	0.0879	$(0.9544)^2 \times 0.0879 = 0.0839$	$(0.089 - 0.0839) = 0.0051$
SBI	0.5089	2.0717	0.0879	$(2.0717)^2 \times 0.0879 = 0.1821$	$(0.5089 - 0.1821) = 0.3268$
EBL	0.0968	1.0031	0.0879	$(1.0031)^2 \times 0.0879 = 0.0882$	$(0.1201 - 0.0882) = 0.0086$

AT-6B: Calculation of proportion of systematic risk and unsystematic risk

Stock	Proportion of SR = $\frac{SR}{TR}$	Proportion of USR = 1 - Proportion of SR
NABIL	0.3519	$1 - 0.3519 = 0.6481$
HBL	0.943	$1 - 0.943 = 0.0573$
SBI	0.3698	$1 - 0.3698 = 0.6302$
EBL	0.0847	$1 - 0.0847 = 0.9153$

AT: 7A Calculation of Expected returns and risk for different portfolios under minimum variance port folio

For portfolio A

$$E(R_N) = \text{Expected return of NABIL's} = 0.7363$$

$$E(R_H) = \text{Expected return of HBL's} = 0.3751$$

$$\sigma_N^2 = \text{Variance of NABIL} = 0.5445$$

$$\sigma_H^2 = \text{Variance of HBL} = 0.089$$

$$\text{COV}(N, H) = \text{Co-variance of NABIL and HBL} = 0.2176$$

We know,

$$\begin{aligned} E(R_p) \text{ i.e. } E(R_A) &= E(R_N) \times W_N + E(R_H) \times W_H \\ &= 0.7363 \times (-0.65) + 0.3751 \times (1.65) \\ &= 0.1403 \\ &= 14.03\% \end{aligned}$$

$$\begin{aligned} \sigma_p \text{ i.e. } \sigma_A &= \sqrt{W_N^2 \sigma_N^2 + W_H^2 \sigma_H^2 + 2W_N W_H \text{Cov}(N, H)} \\ &= \sqrt{(0.65)^2 (0.5445) + (1.65)^2 (0.089) + 2(0.65)(1.65)(0.2176)} \end{aligned}$$

$$= 67.42\%$$

Working note

Optional weight

$$w_H = \frac{\sigma_N^2 \text{Cov}_{(N,H)}}{\sigma_N^2 \Gamma \sigma_H^2 + 2 \text{Cov}_{(N,H)}} \\ = \frac{0.5445 \times 0.2176}{0.5445 \times 0.089 + 2 \times 0.2176} \\ = \frac{0.3269}{0.1983} \\ = 1.65$$

$$w_N = 1 - w_H \\ = 1 - 1.65 \\ = -0.65$$

For portfolio 'B'

$E(R_N)$ = Expected return of NABIL = 0.7363

$E(R_S)$ = Expected return of SBI = 0.6253

σ_N^2 = Variance of NABIL = 0.5445

σ_S^2 = Variance of SBI = 0.5089

$\text{Cov}(N,S)$ = Covariance of NABIL and SBI = 0.4651

$$E(R_P) \text{ i.e. } E(R_C) = w_N E(R_N) + w_S E(R_S) \\ = 0.7363 \times 0.3555 + 0.6253 \times 0.6445 \\ = 0.6648 \text{ i.e. } 66.48\%$$

$$\sigma_P = \sqrt{w_N^2 \sigma_N^2 + w_S^2 \sigma_S^2 + 2 w_N w_S \text{Cov}_{(N,S)}} \\ = \sqrt{(0.3555)^2 \times 0.5445 + (0.6445)^2 \times 0.5089 + 2 \times 0.3555 \times 0.6445 \times 0.4651} \\ = \sqrt{0.4933} \\ = 0.7023$$

W/Notes

Optimal weight

$$w_S \times \frac{\sigma_N^2 \text{Cov}_{(N,S)}}{\sigma_S^2 \Gamma \sigma_S^2 + 2 \text{Cov}_{(N,S)}}$$

$$\times \frac{0.5445 \times 0.4651}{0.5089 \Gamma 0.5445 + 2 \times 0.4651}$$

$$\times \frac{0.0794}{0.1232}$$

$$\times 0.6445$$

$$w_N \times 1 \times w_S$$

$$\times 1 \times 0.6445$$

$$\times 0.3555$$

For portfolio C

$E(R_N)$ = Expected return of NABIL = 0.7363

$E(R_E)$ = Expected return of EBL = 0.6166

σ_N^2 = Variance of NABIL = 0.5445

σ_E^2 = Variance of EBL = 0.0968

$\text{cov}(N,E)$ = Covariance of NABIL and EBL = 0.9257

$$E(R_P) \text{ i.e. } E(R_D) \times E(R_N) \mid w_N \Gamma E(R_E) \mid w_E$$

$$\times 0.7778 \mid (0.50) \Gamma 0.6283 \mid (1.50)$$

$$\times 0.5536 \text{ i.e. } 55.36\%$$

$$\sigma_P \text{ i.e. } \sigma_D \times \sqrt{\sigma_N^2 \mid w_N^2 \Gamma \sigma_E^2 \mid w_E^2 \Gamma 2w_N w_E \text{cov}(N,E)}$$

$$\times \sqrt{(0.685)^2 \mid 0.5445 \Gamma (0.305)^2 \mid 0.0968 \Gamma 2 \mid (0.685) \mid (0.305) \mid 0.9257}$$

$$\times \sqrt{0.6513}$$

$$\times 0.8070 \text{ or } 80.70\%$$

W/Note

$$\begin{aligned}
w_E & \times \frac{\Gamma_N^2 \mathbf{Z} \text{cov}_{(N,E)}}{\Gamma_N^2 \Gamma_E^2 \mathbf{Z} \mathbf{Z} \text{cov}_{(N,E)}} \\
& \times \frac{0.5445 \mathbf{Z} 0.9257}{0.5445 \Gamma 0.0968 \mathbf{Z} 2 \mid 0.9257} \\
& \times \frac{\mathbf{Z} 0.3812}{\mathbf{Z} 1.2101} \\
& \times 0.305 \\
w_N & \times \mathbf{Z} w_E \\
& \times \mathbf{Z} 0.3150 \\
& \times 0.685
\end{aligned}$$