

CHAPTER I

INTRODUCTION

1.1 Background of the study

The history of modern commercial banking industry dates back to 1937 AD in which Nepal Bank Limited was incorporated. The government owned 51 percent of the shares in the bank and controlled its operations to a large extent. It was headquartered in Kathmandu and had branches in other parts of the country as well.

In order to regulate the economy and the unregulated use of money Nepal Rastra Bank was created in 1956 as the central bank. Its function was to supervise commercial banks and to guide the basic monetary policy of the nation. Its major aims were to regulate the issue of paper money; secure countrywide circulation of Nepalese currency and achieve stability in its exchange rates; mobilize capital for economic development and for trade and industry growth; develop the banking system in the country, thereby ensuring the existence of banking facilities; and maintain the economic interests of the general public. Nepal Rastra Bank also was to oversee foreign exchange rates and foreign exchange reserves

After almost 30 years another state owned commercial bank Rastriya Banijya Bank (National Commercial Bank) was established in 1966. The Land Reform Savings Corporation was also established in the same year to deal with finances related to land reforms. During 1967 AD the Agricultural Development Bank was also established. Almost 75 percent of the bank was state-owned; 21 percent was owned by the Nepal Rastra Bank and 5 percent by cooperatives and private individuals. Hence it is clear that since the 1960s; both commercial and specialized banks have expanded. More businesses and households had better access to the credit market although the credit market had not expanded.

However, the decade of 1980s can be considered as the landmark in the modern banking history. It was only in this decade government allowed the excess to foreign joint venture banks to be the part of the Nepalese banking business. During this period, three foreign commercial banks opened branches in Nepal. The first was Nepal Arab Bank established in 1984 AD. It was co-owned by the Emirates Bank International Limited (Dubai), the Nepalese government, and the Nepalese public. After that in 1984 came Nepal Indosuez Bank (currently Nepal Investment Bank) which was jointly owned by the Credit Agricole Indosuez, Rastriya Banijya Bank, Rastriya Beema Sansthan (National Insurance Corporation), and the Nepalese public. Then Nepal Grindlays Bank was the third foreign joint venture to be established in Nepal which was co-owned by a British firm called Grindlays Bank, local financial interests, and the Nepalese public.

Although government had started the liberalization of financial sector during the decade of 80s but this process speeded up only in early 1990s. In fact private sector rushed into the banking and financial industry after the restoration of democracy in 1990. Many commercial banks like Himalayan Bank, Everest bank, etc were established during this decade. Since then there are thirty commercial banks in Nepal.

Capital market in Nepal is in immaturity. Stock investment practices in Nepal enhanced after the establishment of Biratnagar Jute Mills Limited and Nepal Bank Limited in 1937. Till 1980s, the majority of the share issuing company would belong to the ownership of government. Initial public offering was hardly found in practice and funds were collected via the direct placement of bonds. The prime purpose of raising the funds would be the enhancement of the infrastructure and public welfare programs. It has helped flourishing the primary government bond market. On the other hand the shares of Nepal Bank Limited were in existence but limited to the ownership of Ranas. In 1962, government issued treasury bills for the first time to finance the infrastructure enhancement it is followed by the issuance of development bonds in 1964.

Trading of government bonds have always felt a scarcity of capital market and in 1964, Industrial Policy was promulgated. This policy has opened the doors for the establishment of an institution named Security Market Centre (SMC) in 1977 with its primary aim of developing the capital market for government securities in the country under the joint effort of Nepal Rastra Bank (NRB) and Nepal Industrial Development Corporation (NIDC). It was converted into Security Exchange Center in 1976. Security Exchange Act (SEA) was approved by legislature and came into existence with effect from 13th April 1984. The former Securities Exchange Center was converted into Nepal Stock Exchange with the major objective to arrange marketability and liquidity to the government and corporate securities. Floor trading through market intermediaries such as brokers and market makers has also evolved. Restoration of democracy following the political movement of 1990 has brought lots of reforms in the financial sector. Liberalization in the real sense was initiated. Nepal launched 'extended structural adjustment program' in 1992 by taking 'extended structural adjustment facility' (ESAF) through first amendment in the SEA. This has led to the establishment of Securities Board (SEBO) and it was given the responsibility of regulating and developing the transaction of securities whereas NEPSE to facilitate the transactions of stock and bonds in the floor through its member intermediaries. NEPSE presently has 23 brokers, 11 issue managers and 2 portfolio managers that is dealer in the secondary market. Currently there are 225 listed companies but this number is subject to change. Similarly NEPSE is planning to increase the share broker number by 27 to make 50 in total in near future. Similarly, Non Residence Nepalese (NRN) has declared to establish a multipurpose mutual fund investment company with the amount of Rs.10 billion in nearer future which help to grow the capital market in Nepal. In addition to this, various state-owned enterprises like Nepal Electricity Authority (NEA) has already issued bond and Nepal Telecom Corporation (NTC) planning to issue bonds. Thus market share to the general public which is encouraging for the capital market encouraging and becoming alternative investment sectors for the investors.

Investment is the sacrificed of existing resources to generate returns in future involving risk. It can be real as well as financial investment. Real investment involves kind tangible assets such as lands, machinery, factories, building etc. Where as financial investment involves contracts written in a piece of paper such as common stock, bond etc.

Everyday usage of the term investment can mean a variety of things, but to the general mass it usually refers to a money commitment of some sort. For example, a commitment of money in investment from an individual's point of view is very familiar since no rate of return is involved, nor is a financial return or capital growth expected.

All investment choices are made at the points of time in respect of personal investment ends and in consideration of an uncertain future. investment in securities are revocable as the investment ends of persons are transient and the environment is fluid, as the reliable bases for reasoned expectations become more and more unclear as one imagine of the further distant future, investors in securities will from time to time reappraise and reevaluate their various investment commitments in the light of new information and (perhaps) changed expectations and ends.

Investment choices (decisions) are found to be outcomes of three different but related classes of factors. The first is factual or informational premises. The factual premises of investment decisions are provided by many streams of data which, taken together, represent to an investor the observable environment and the general and particular features of the securities and firms in which he may invest. The second classes of factors entering into investment are as expectation premises.

Expectations relating to the outcomes of alternative investment are subjective and hypothetical in any case but their foundations are necessarily provided by the environmental and financial facts available to investors. These limit not only the range of investments, which may be undertaken, but also the

expectations of outcomes that may legitimately be entertained. The third and final classes of factors are valuable premises.

For investors generally these include the structure of subjective preferences for the size and regularity of the income to be received from, and for the safety and negotiability of, specific investments or combinations of investments, as these are appraised from time to time. When the analysis passes from the stage of description to the higher stage of security selection investor's frame of reference widens. Investor now considers not only securities but security holders as well.

Key to successful investment investing involves examination and analysis of three chronological segments of the business's operation – past performance, present condition and future prospects.

Adequate diversification means assortment of investment commitments in different ways. Those who are riot familiar with the aggressive – defensive approach nevertheless often carry out the theory of hedging against inflation – deflation. Diversification may be geographical wherever possible because regional or local storms, floods, droughts etc. can cause extensive real estate damage. Vertical and horizontal diversification can also be opted for the same. Vertical diversification occurs when securities of various companies engaged in different phases of production from raw material to finished goods are held in the portfolio.

On the other hand, horizontal diversification is the holding by an investor of various companies all of which carry oil an activity in the same stage of production. Another way to diversify securities is to classify them according to bonds and stocks and reclassify according to types of bonds and types of stocks. Again, they can also be classified according to the issuers, according to the dividend or invest income dates, according to the products which are made by the firms represented by the securities. An investment is a liquid asset if it can be converted into cash without delay at full market value in any quantity.

The old saying, “If you don’t know where you’re going, any road will do” appropriately applies to investing. Either an investor is an individual or represents an institution, without a clear sense of why investment are being made and how long-run goals are to be achieved, he or she is likely to pursue inefficient approaches that lead to unsatisfactory results. An investor needs a plan that directs his or her efforts. That Plan is called an investment policy.

Investment policy is a combination of philosophy and planning. On the one hand, it expresses the investor’s attitudes towards important investment management issues such as, “why am I investing in the first place?” or “to what extent am I willing to accept the possibility of large losses?” The answers to those questions will vary among investors in accordance with their financial circumstances and temperaments.

1.2 Focus of the study

NEPSE is an organized stock exchange for trading stocks (shares) in secondary market. Although small investors can invest their money by purchasing shares of companies in primary market (during initial public offering) or in the secondary market, they (general public or investors) lack effective knowledge of capital market and its mechanism. Investing in stock is highly risky as being ownership capital. The share value of different commercial banks keeps on changing. So an investor can minimize the risk by investing in different shares of different companies. This study focuses on Analysis of risk and return of selected commercial banks in Nepal, focus on the investor can minimize its risk by evaluating common stock of different commercial banks, by calculating systematic risk coefficient associated with different commercial banks, by identifying the Security prices of the sampled company are overpriced, under priced or equilibrium priced, by determining the effect of portfolio on risk and return and identify optimal portfolio

1.3 Statement of the Problem

Investments are made for positive returns; however, abundance of risk factors may turn returns to negative. Thus, prior to investments in stocks, a sensitive study on the potential investment is required. Price of stocks is market sensitive. Nominal degree of signaling effect will be playing freely in stock market causing a high degree of fluctuation in the stock price. Therefore, market sometimes turns to bullish and sometimes to bearish. Speculative motive of an individual is thus affected by such market characteristics. Apart from this, the dividend policy of the bank including the bonus issue, rights issue and the stock split too affects the price of share.

Due to the lack of information and poor knowledge, individual investor is manipulated or exploit by the financial institutions or other market intermediaries to such an extent that investing in common stock is intolerance hazardous. There is another problem for financial sector to earn goodwill among the public because some financial companies have collapsed due to improper use of public funds. Most of the rational investors hold portfolio of stocks and they are more concerned with the risk of portfolio than with the risk of individual securities.

Government policy is less encouraging in promoting common stock investment. The number of investors in stock market is still very few who are not confident to get appropriate return from the listed companies.

Returns on the stock are the summation of dividend yield and capital gain yield. However, most of the investors do feel that the higher the value of stock, higher is profitable in the stock investment and vice-versa and dividend at that time is ignored. Thus to make a rational decision on the investment in the assets, its dividend yield should also be considered. Dividend yield is the collective return realized as cash and/or bonus shares.

On the other hand, investment practices of stock investors are very limited in Nepal. Lack of information and knowledge has been the main constraints. Therefore, the chances of being manipulated and exploited by the financial institution and market intermediaries are in its peak. Thus they tend to avoid the risk and are often reluctant to tie their savings into the long-term commitment. Moreover, common stock investment can be hazardous incase of insufficient knowledge of its behavior. Government policy in this regard is found less encouraging.

Combination of assets is the portfolio. Optimal portfolio is the combination which provide the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return and the fundamental aspect of portfolio theory is the idea that the risk inherent in any single asset held in a portfolio is different from the risk of that asset held in isolation. But this theory actually may not be applicable in the capital market like Nepal where the market is inefficient.

Since studies on such subject matter are limited and available studies are also not sufficient enough especially in case of different listed commercial banks of NEPSE. The topic entitled: “Analysis of risk and return of selected commercial banks in Nepal” has, therefore, been identified as the key problem of the present study. Therefore, this research has tried to answer the following questions:

- 1) What is the current financial situation of Nepalese commercial banks?
- 2) What is the risk and return situation of the selected commercial banks of Nepal?
- 3) What is the general perception of the investors towards risks and returns of the Nepalese commercial banks?
- 4) What is the sensitivity of the common stock returns of the commercial Banks to the market?
- 5) What is the portfolio risks and returns of the different combination of the selected Nepalese commercial Banks?

1.4 Objectives of the study

Due to lack of perfect knowledge and less information Nepalese investors are facing problems in the field of setting their investment policies, analyzing financial assets, construction portfolio performances. The major objective of the study is to Analysis of risk and return of selected commercial banks in Nepal. However the objective has been subdivided into following specific objectives:

1. To evaluate common stocks of sampled listed commercial banks in terms of risk and return.
2. To calculate systematic risk coefficient (beta) associated with common stocks of sampled commercial banks.
3. To identify whether the Security prices of the sampled company are overpriced, under priced or equilibrium priced.
4. To determine the effect of portfolio on risk and return and identify optimal portfolio.

1.5 Limitations of the study

As every research has its own limitation, this study is not biased. Basically the research is done for the partial fulfillment of MBS. So this has some limitations, which are listed below:

- There are 30 commercial bank in Nepal that are in operation, among them 21 banks are listed in NEPSE. But the study does not include the entire listed commercial bank.
- The study concerns only with following companies from the random selection bases. i.e. State Bank of India Nepal, Bank of Kathmandu Ltd, Nepal Arab Bank Ltd, and Standard Chartered Bank Nepal Ltd.
- This study is limited to information available for last seven years from 2002 to 2009
- Stocks or security refer to common stocks.
- Only selected financial and statistical tools are used.

1.6 Organization of the report

The whole study is organized in five different chapters. The titles of those chapters are named as follows:

Chapter-I: Introduction

This chapter deals with the subject matter considering background of the study, focus of the study, statement of the problem, objective of the study, limitations of the study and organization of the report.

Chapter-II: Review of Literature

This chapter is devoted for the brief review of available literature. Reviews from books, journals, previous published and unpublished thesis, articles are included here. It includes review of major findings; conceptual framework about risk and return are briefly reviewed.

Chapter-III: Research Methodology

Research methodology focuses on research design, population and samples for the study, sources of data, procedure of data collection and; Tools and techniques of Analysis.

Chapter –IV: Data Presentation and Analysis

The body part of these researches that include data analysis and interpretation. This chapter analysis the risk and return of each commercial bank's common stock and their comparison are also made, calculates systematic risk coefficient (Beta) associated with common stocks of sampled commercial banks, identify whether the Security prices of the sampled company are overpriced, under priced or equilibrium priced, determine the effect of portfolio on risk and return and identify optimal portfolio.

Chapter-V Summary, Conclusion and Recommendation

This chapter covers summary, conclusion and recommendations and provides some valuable suggestions to the listed commercial banks.

CHAPTER - II

REVIEW OF LITERATURE

This chapter reviews some basic academic sources related to the risk and risk analysis from various textbooks, reference books and under conceptual framework. Apart from this various masters degree thesis including independent studies carried out by renowned experts and others are also reviewed. This is incorporated under review of related studies.

2.1 Conceptual Framework

Various books dealing with theoretical aspect of risk and return are taken into consideration. Major focus is on the Analysis of risk and return in listed commercial banks in Nepal Stock Exchange (NEPSE).

2.1.1 Investment

“Investment is the employment of funds with the aim of achieving additional income or growth in value. It involves the commitment of resources that have been saved or put away from current consumption, in the hope that some benefits will accrue in the future. Investment involves the sacrifice of current dollars for future dollars. The sacrifice takes place in the present and is certain. The reward comes later, if at all, and the magnitude is generally uncertain.”
(Sharpe; Alexander and Bailey; 2003: 112)

“Investment brings forth visions of profit, risk, speculation, and wealth. They have briefly described the categories and types of investment alternatives. They describe that the basic investment objectives, the expected rate of return, the expected risk, taxes, and the investment horizon and investment strategies are the factors to be considered in choosing among investment alternatives”.*(Cheney and Moses; 1992: 87)*

Investment generally involves real assets and financial assets. Real investments involve some kind of tangible asset such as land, machinery, automobiles or factories. Financial investments are pieces of paper, such as common stocks and bonds representing an indirect claim to real assets held by someone else. Real assets are generally less liquid than financial assets. “Investment in the broadest sense means the sacrifice of current dollars for further dollars. Two different attributes are generally involved time and risk. The sacrifice takes place in the present and is certain.” (*Sharpe; 1995: 230*)

“Investment in any vehicle into which funds can be placed with the expectation that will preserve or increase in value and generated positive return”. (*Gitman and Joehnk; 1990: 68*)

An investment is the current of funds for a period of time derive a future flow of funds that will compensate the investing unit for the time funds are committed for the expected rate of inflation and also for the uncertainty involved in the future flow of funds.

Investment or speculating in the stock market has all the characteristics of the game and the aim to win. Investors invest their funds on securities for the long future return.

Investment involves making decision whose outcome cannot be predicted and it is always associated with risk and returns a wide range of investment opportunity is available to investors. Investment can be made on common stock, preferred stock, bond, convertible, warrant, option etc. among various alternatives.

2.1.2 Return

Return is the income received on an investment plus any change in market price, usually expressed as a percent of beginning price if investment. The overall rate of return can be decomposed into two parts as capital appreciation and dividend. Capital appreciation is the difference between ending value and beginning value of an investment. Returns are dividend yields plus the capital

gain or loss. The relationship between levels of return on their relative frequencies is called a probability distribution. We could formulate a probability distribution for the relative frequency of the firm's annual return by analyzing its historical return over the previous period. But we know that history never repeats itself exactly. Hence after analyzing relative frequencies of the historical return for the individual company, we can form a probability distribution based on the historical data plus the analysis for the look for the economy and the outlook for the industry, the outlook for the firm in its industry and another factors.

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

2.1.2.1 Single Period Rate of Return

Single period return may be defined as the change in value plus any cash distributions expressed as a percentage of the beginning of period investment value. An investor can obtain two kinds of income from an investment in a share of stock or a bond. They are as follows:

-) Income from price appreciation. This quantity is denoted $P_t - P_{t-1}$
-) Cash flow income from cash dividend or coupon interest payments, represented by the convention D_t .

Symbolically,

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

Where,

P_{t-1} = Starting stock price

P_t = Ending stock price

D_t = Cash dividend for time t

2.1.2.2 Expected Rate of Return $E(r)$

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

$$E(r) = \sum_{j=1}^n r_j p_j = r_1 p_1 + r_2 p_2 + \dots + r_n p_n$$

r_j = Rate of return on j^{th} outcome or event.

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

Other methods for expressing the expected rate of return investment in common stock can be obtained by arithmetic mean of the past return.

Symbolically,

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

Where,

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

n = Number of year the return is taken

2.1.3 Risk

Risk can be defined as variability of possible return around the expected return of an investment. For some investment this variability can be quite small. Each investor has his or her own attitude about risk and how much he and she can tolerate. Since investment have different type of risk associated with them. The investors must determine which combination of alternative matches his or her particular risk tolerance. Risk is the product of all potential outcomes expressed with probability associated with each other its distribution of such outcomes.

Risk and uncertainty are treated separately in financial analysis. The practice is to translate uncertainty into a mathematical value, which represents the best estimate of all uncertain values. In other words uncertainty into a mathematical value, this represents the best estimate of all uncertain values. In the other words uncertainty is taken care of by calculating the expected value of all possible outcomes. But risk is treated differently. Although risk from uncertainty is its magnitude depends upon the degree of variability in uncertain cash flow and it is measured in terms of standard deviation.

Risk is a complicated subject and need to properly analyze. The relationship between risk and return is described by investor's perceptions about risk and their demand of compensation. No, investor will like to invest in risky assets unless he assured of adequate compensation for assumption of risk. Therefore, it is investor required risk premium that establishes a link between risk and return in a market dominated by rational investors higher risk will command by rational premium and the trade off between the two assumes a linear relationship between risk and risk premium.

Risk play central role in the analysis of investment. There are various types of risk which an investor might have face like interest rate risk, financial risk, business risk, management risk, market risk, currency risk, assets class risk etc. risk is very much likely to occur in any type of investment but proper analysis will be able to help us to minimize the risk up to some extent. Risk defined

most generally is the probability of occurrence of unfavorable outcomes. But risk has different meaning on different context. In our context two major developments from the probability distribution has been used as initial measure of return and risk.

“Risk defined most generally is the profitability of the occurrence of unfavorable outcomes. But risk has different meaning in different context. In our context two major development form the probability distribution has been used as initial measure of return and risk. There are the mean and standard deviation of the probability distribution”. (*Weston and Brigham; 1992: 89*)

“Instead of measuring risk the probability of a number of different possible outcomes, the measure of risk should some how estimate the extent to which the actual outcomes are likely diverge form the expected outcome. Standard deviation is a measure that does this since it is an estimate of likely divergence of actual return from expected return”. (*Shape; Alexander and Bailey; 1995: 202*)

Risk is the unlocked for the unwanted event in the future; some one has said that risk was the sugar and salt of life. “Risk is defined in Webster’s Dictionary as a hazard, a peril, and exposure to the loss or injury. Thus or most risk refer to the change that unfavorable event will occur. If you invest in speculative stocks, or really any stock you are taking a risk in the hope of making an appreciable return”. (*Weston; Besley and Brigham; 2001:45*)

2.1.3.1 Standard Deviation

The standard deviation provides more information about the risk of assets. Its advantage is that the uncertainties of return can be summarized into a single, easily calculated number. The major disadvantage is that the standard deviation considers possible return above the expected value be as risky as returns below the expected value. Standard deviation measured the dispersion of deviation or variation. In other word the conventional measure of the dispersion is the standard deviation (S.D). The greater S.D, the greater is the risk of investment.

We have already discussed above that the risk is a difficult concept to grasp and a great deal of controversy has surrounded attempts to define and measure it to be most useful any measure of risk should have definite value. We need a measure of the lightness of the probability distribution. One such measure is the standard deviation, the symbol for which is (σ) pronounced sigma. To calculate the S.D we take the following step.

1. We calculate the Standard Deviation,

$$\text{Standard Deviation } (\sigma_j) = \sqrt{\frac{(R - \bar{R})^2}{n-1}}$$

Where,

(σ_j) = Standard deviation of j^{th} possibility

R = required rate of return

N = Total no. of possibility

\bar{R} = Expected rate of return

Operationally we generally first calculate distribution variance or the weighed average of square deviation of possible occurrence from the mean value of the distribution, with the weight being the probability of occurrence. The square root of the figure will provide the standard deviation.

Standard deviation is weighed average deviation from the expected value, and it gives an idea of how far above or below expected value and actual value likely to be. It is statistical tools for measuring risk. It measures the total risk of a security consisting both systematic and unsystematic risk. Standard deviation with lower value is acceptable.

“A standard deviation can some time be misleading in comparing the risk or uncertainty surroundings alternatives if they differ in size. To adjust for size or scale problem the standard deviation can be divided by the expected return to complete the coefficient of variance (CV).”

2.1.3.2 Coefficient of variation

It is defined as the standard deviation divided by the mean of expected return. It is used to standardize the risk per unit of return i.e. measure the risk per rupee. The coefficient of variation should be used to compare investments when both the standard deviations and the expected values differ.

$$\text{Coefficient of Variation (CV)} = \frac{\text{---}}{\text{R}}$$

””

Thus the coefficient of variance is a measure of relative dispersion (risk) a measure of risk per unit of expected return. The larger the CV the larger the relative risk of the investment. (*Van Horne and Wachowicz; 2001:64*)

Coefficient of variance is the ratio of standard deviation of a distribution to the mean of that distribution which is the measure of relative risk.

2.1.4 Portfolio Management

Portfolio management is concerned with efficient management of portfolio investment in financial assets, including shares and debentures of companies. The management may be professionals, by others, or by individual themselves. A portfolio of an individual or a corporate unit is the holding of securities and investment in financial assets. These holdings were the result of individual preferences and decision regarding risk and return. The process of portfolio management is closely and directly linked with process of decision making, the correctness of which can not be ensured in all cases.

The basic problem of portfolio management is to established an investment objectives or goal and then decide the best to each the goal with the securities available. This has been stated as an attempted by the investor to obtain the maximum risk “portfolio management is the art of handling a pool of funds so

that it not only preserves its original worth but also overtime appreciates in values and yield on adequate return consistent with level of risk assumed".
(Cohen; Zinbarg Zeikel; 1978: 225)

Investment in two or more than two assets is normally called portfolio. A portfolio is the combination of investment assets. Portfolio is holding of securities and investment in financial assets like bond, stock etc. Portfolio management is related to the efficient portfolio investment in financial assets. Investor's rarely place their entire into a single assets or investment rather they construct a portfolio or group of investments. Therefore it is need to extend analysis of risk and return to include portfolio a combination of two or more securities or assets in portfolio. It has following two types of objectives.

1. Primary Objectives:

- To minimize risk
- To maximize return

2 Secondary Objectives

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

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

Where,

W_j = Proportion of total funds invested in security j

When $j=k$ the coefficient is 1 as variable movement correlate perfectly with itself.

2.1.4.1 Portfolio Return (Rp)

The expected return on the portfolio, $E(r_p)$ is simply a weighed average of expected returns on the individual assets in the portfolio with the weights being the fraction of the total portfolio invested in each assets.

Symbolically,

$$E(r_p) = \sum_{t=1}^n W_i E(r_i)$$

$$= W_1 E(r_1) + W_2 E(r_2) \dots + W_n E(r_n)$$

Where,

$E(r_p)$ = Expected rate of return of portfolio

W_i = weight of stock i

$E(r_i)$ = Expected Return from i^{th} assets or stock

W_n = weight of n^{th} stock

$E(r_n)$ = Expected Return of stock n

2.1.4.2 Portfolio Risk (Standard Deviation)

Portfolio risk is measured by a statistical tool deviation and variance. It is a function of the proportions invested in the components. This risk is computed by using the following equations:

Symbolically,

$$\sigma_p = (w_A^2 \sigma_A^2 + w_B^2 \sigma_B^2 + w_C^2 \sigma_C^2 + 2w_A w_B \sigma_{AB} + 2w_A w_C \sigma_{AC} + 2w_B w_C \sigma_{BC})^{1/2}$$

Where,

σ_p = Standard deviation of the portfolio returns

σ_A^2 = Variance of returns of stock A

σ_B^2 = Variance of returns of stock B

σ_C^2 = Variance of returns of stock C

ρ_{AB} = Correlation between returns of stock A and B

ρ_{BC} = Correlation between returns of stock B and C

ρ_{AC} = Correlation between returns of stock A and C

“The correlation coefficient which is significant in portfolio construction is standardized statistical measure of the linear relationship between two variables. It ranges from -1 (perfect negative correlation) to +1 (perfect positive correlation). Lesser the correlation higher is the reduction in portfolio risks”. The positive correlation coefficient shows that return from two securities generally moves in the same direction, while negative correlation coefficient shows that they move opposite direction and zero correlation coefficient shows that the returns from two securities are uncorrelated. They show no tendency to vary together in either a positive or negative in linear function.

2.1.4.3 Systematic Risk and Unsystematic Risk

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

Systematic risk has its source factors that affect all the marketable assets and thus cannot be diversified away. Systematic risk is due to the risk factor that affects the overall market such as changes in national economy, tax reform by the government or changes in the world energy situation. The sources of systematic risk are market pervasive. The measure of systematic risk permits an investor to evaluate an assets required rate of return relative to the systematic risk of the stock. Unsystematic risk is unique to a particular company or industry. It is independent of economic, political and other factor that affect all securities in systematic manner. A wild cat risk may affect only one company a new competitor may being to produce essentially the same product.

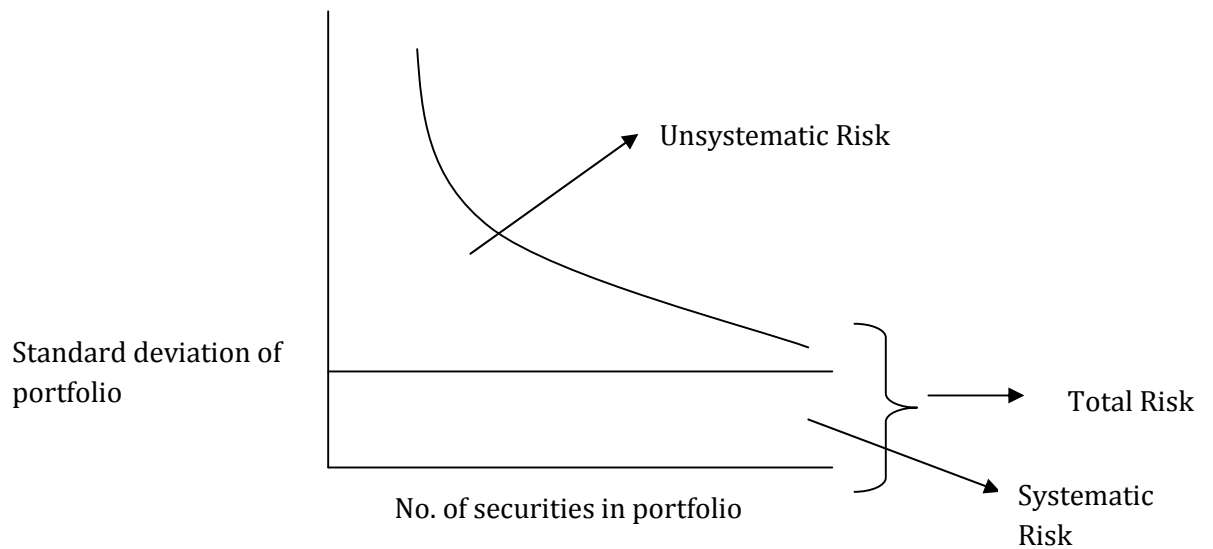
“For most stocks, unsystematic risk accounts for between 60 to 70 percent of stock total risk or standard deviation”. (Van Horne & Wachowicz; 2001: 69)
 This kind of risk can be reduced by diversification and even eliminated if diversification is efficient. Hence not all the risk involved in holding a stock is relevant since part of this risk can be diversified away. The relationship among systematic, unsystematic and total risk are shown below.

Total risk = Systematic risk + unsystematic risk

Where, systematic risk = $\rho_j \times \sigma_{jm}$ and unsystematic risk = $\sigma_j (1 - \rho_{jm})$ here ρ_{jm} is the correlation coefficient between the return of given stock (J) and return on market portfolio.

Figure: 2.1

Systematic and Unsystematic Risk



Source: Van Horne & Wachowicz; 2001:69)

2.1.5 Capital Assets Pricing Model (CAPM)

The relationship between expected return and unavoidable risk and the valuation of securities that follows is the essence of Capital Assets Pricing Model (CAPM), this model was developed by Williams F Sharpe and John Linter in the 1960s and it has had important implication for finance ever since. Based on the behavior and expected return for each security. In market equilibrium, a security will be expected to provide a return commensurate with its unfavorable risk. This is simply the risk of a security the greater the return that investors will expect from the security. (*Van Horne; 1997: 98*)

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

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

Where,

$E(R_j)$ = Expected return for an assets

R_f = Risk free rate

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

β_j = an index of systematic risk of stock j the assets beta j (Beta coefficient)

“Beta measures the sensitivity of a stock’s return to change in the return on the market portfolio. The beta of portfolio is simply a weighed average of the individual stock betas in the portfolio”. (*Van Horne; 1997: 145*)

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

“The major implication of the CAPM is that the expected return of an asset will be related to a measure of risk for that asset known as beta (β). The exact

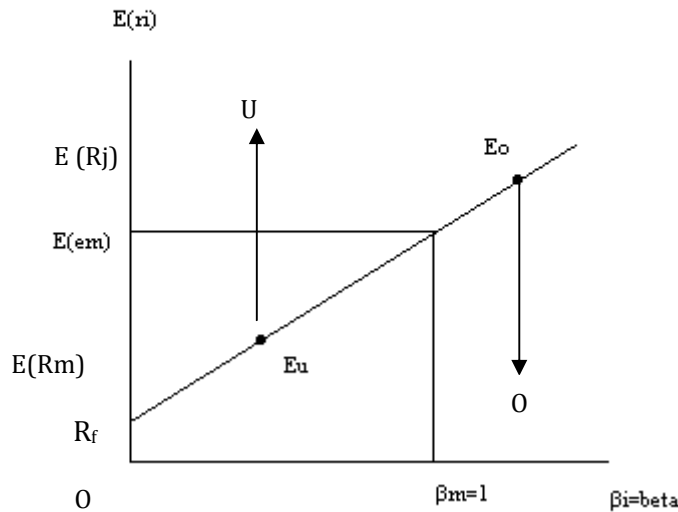
manner in which expected return and beta are related is specified by the CAPM. The model provides the intellectual basis for a number of the current practices in the investment industry". (*Sharpe; 2001: 68*)

The capital assets pricing mode states that the expected premium on each investment is proportional to its beta. This means that investment should lie on the sloping security market line connecting treasury bills and market portfolio. In mid 1960s three economists *William Sharpe, John Linter and Jack Treynor* created the CAPM a theory which began a quest to identify the tendency portfolio. CAPM is the predominant model used for estimating equity risk and return. It is useful tools for the investment portfolio and for estimating expected rate of return and required rate of return indicates whether the stock is under priced or over priced. And when these two returns are equal then it is said to be market equilibrium i.e. all the stock lies on the security market line (SML).

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

Figure: 2.2

The CAPM or Security Market Line (SML)



(Source: Van Horne; 1997:145)

Above figure depicts two assets u and o which are not in equilibrium on the CAPM. An assets u is undervalued and therefore very desirable assets to own us price will raise in the market as more investor purchase it. However as u price goes up its return fall. When u return to consistent with its beta on SML, equilibrium is attained with o just opposite takes place. Investor will attempt to sell o since it is overvalues. And therefore put downward pressure on o price. When the return on assets o increases to the rate that is consistent with the beta risk level given by the SML, equilibrium will be achieved and downward price pressure will cease.

Hence CAPM helps us to decide whether to purchase or sell the stock of the particular company. We decide by comparing required rate with the expected rate of return. The capital assets pricing model provides us a mean by which to estimate the required rate of return on a security. And on the basis of price and

dividend data expected return can be calculated. With comparison of 2 return investors can analyze whether the stock is under priced or overpriced.

2.1.6 Over, under and fairly pricing of securities

The securities can be either under priced or over priced. It can be known calculating through required rate of return and expected rate of return. When expected rate of return exceeds the required rate of return then, the securities is under priced and vice versa. Required rate of return can be used as a discounting factor to determine the intrinsic value of stock. It means there is inverse relationship between required rate of return and intrinsic value of stock.

- Expected Rate of Return $>$ Required Rate of Return = Under priced
- Expected Rate of Return $<$ Required Rate of Return = Overpriced
- Expected Rate of Return = Required Rate of Return = Equilibrium priced

2.1.7 Investment Performance Evaluation

Methods of risk adjusted performance evaluation using mean variances criteria came in stage simultaneously with CAPM. Three great scholars namely Williams Sharpe, Jack Treynor and Michael Jensen recognized immediately the implication of the CAPM for rating the performance of investing portfolio. Investment performance evaluation provides the investor with a solution to select the stocks with high return at low degree of risk. In the present study, three such evaluation tools have been utilized to evaluate the stocks in terms of their performance, which are as follows:

2.1.7.1 Sharpe's Performance Measure:

Sharpe's performance measure defines a single parameter portfolio performance index that is calculated from both the risk and return statistics.

Symbolically,

$$S_i = \frac{\overline{r_i} - \overline{R_f}}{i}$$

Where,

S_p = Sharpe's index of portfolio performance

$\overline{r_i}$ = Average Return of portfolio 'i' during the specified time period

$\overline{R_f}$ = Average Risk-free Rate during the same time period

i = Standard deviation of portfolio 'i'

Here, numerator is the risk premium (i.e. excess of return of portfolio 'i' over the risk free rate) and denominator is the total risk of this portfolio. Hence, it is the risk premium return earned per unit of total risk. So, this rate is appropriately called reward-to-variability ratio. A higher value of S_i means a better performing portfolio as this indicates higher risk premium per unit of total risk.

2.1.7.2 Treynor's Performance Measure:

John Treynor's performance measure defines index of portfolio performance that is based on systematic risk, as measured by portfolios' beta coefficients.

Symbolically,

$$T_i = \frac{\overline{r_i} - \overline{R_f}}{i}$$

Where,

$\overline{r_i}$ = the average rate of return for portfolio 'i' during a special time period

$\overline{R_f}$ = the average rate of return on a risk free investment during the same time Period

β_i = the slope of the funds characteristic line during that time period (i.e. portfolio's beta coefficient)

Thus, treynor's measure gives excess return per unit of risk, but it uses systematic risk instead of total risk.

As noted a large T_i value indicates a larger slope and a better portfolio for all investors (regardless of their risk preferences). Because the numerator of this ratio ($R_i - R_f$) is the risk premium and the denominator is a measure of risk, the total expression indicates the portfolio's risk premium return per unit of risk. All risk adverse investor would prefer to maximize this value. Note that the risk variable beta measures systematic risk and tells us nothing about the diversification of portfolio. It implicitly assumes a completely diversified portfolio, which means that systematic risk is relevant risk measures.

2.1.7.3 Jensen's Performance Measure:

Jensen's performance measure is modification in the characteristic regression line and it is a one-parameter investment performance measure. This measure is based on CAPM. The version of (CAPM which is used to compute securities or portfolio's expected rate of return is given by

$$E(r_i) = R_f + \beta_i (\overline{r_m} - R_f)$$

Where,

$E(r_i)$ = the expected return on security or portfolio 'i'

R_f = one period risk free rate of return

β_i = the systematic risk coefficient(beta) for securities or portfolio 'i'

$\overline{R_m}$ = the expected return on market portfolio.

Jensen's measure is the average realized return on the portfolio over the return predicted by the CAPM, given the portfolios

$$\text{Jensen's measure } (J_p) = \overline{r_p} - [R_f + \beta_p (\overline{r_m} - R_f)]$$

Hence Jensen's measure (α_p) represents how much of the rate of return on the portfolio is greater than the average returns adjusted for risk (or average return assigned by CAPM). A +ve α_p indicates the superior portfolio performance or selecting under valued portfolio's.

The Jensen's measure of portfolio performance has advantage over the treynor and Sharpe. First it is easier to interpret in that an alpha value of 0.02 indicates that the portfolio generated a return of 2% per period more than what was expected given the portfolio's risk level. Second, it assists to know whether an asset is over or under valued.

If α_p is +ve asset (portfolio) is under valued.

If α_p is -ve asset (portfolio) is over valued.

For ranking the portfolio according to their performance, it is advisable to divide the α_p by β_p so as to achieve a relative measure and provide a reliable rank.

2.2 Review of Thesis

The studies have been performed, are only concentrated on the test influence of certain financial variables on the stock prices. So, the available previous research works, which are related to stock market are consulted and reviewed.

Timilsina, (1997) has conducted a study on "*Dividend and Stock Price*". The study was carried out the data for 16 enterprises from 1990 to 1994.

The objectives of this study were as follows:

- ⊙ To test the difference between dividends per share and stock prices
- ⊙ To determine the impact of dividend policy on stock price.
- ⊙ To identify whether it is possible to increase the market value of the stock changing dividend policy or payout ratio.

To explain the price behavior, the study used simultaneous equation model as developed by Friend and Puckett (1964). The main findings of his study were as follows:

- ⊙ The difference between dividend per share and stock prices is positive in the sample companies.
- ⊙ Dividend per share affects the share prices variedly in different sectors.
- ⊙ Changing the dividend policy or dividend per share might help to increase the market price of share.
- ⊙ The difference between stock prices and retained earnings per share is not prominent.
- ⊙ The difference between stock prices and lagged earnings ratio is negative.
- ⊙ Though there were above-mentioned studies in the context of Nepal, it has overcome necessary to find out whether their findings are still valid.

Timilsina's study was based on 45 observations. The number of companies included in the sample was only 16, which is quite low. Studies on dividends conducted in the context of Nepal are based on secondary data only. No study has been conducted on dividends by using primary data as yet. There is a need to conduct a survey of financial executives in order to find out more qualitative facts on dividends which can not be determined through the use of secondary data. This is the first attempt that studies dividends based on questionnaire survey. Moreover, the earlier studies on dividends have become old and need to be update and validated because of the rapid changes taking place in financial market of Nepal”.

Bhatta, (1997) has also conducted a study on the topic “*Dynamics of Stock market in Nepal*”. The objectives of the research were as follows:

- ⊙ To analyze the trend of the Nepalese stock market.
- ⊙ To diagnose and compare sectoral financial status of the stocks in Nepalese stock market.
- ⊙ To analyze the market share prices of the Nepalese stock market.

© To recommend for the improvement of stock market in Nepal.

The main findings of his study were:

The stock market and economic activities move in similar direction. They influence each other. The development of the former is reflected in the latter. The stock market raises and mobilizes the invest-able resources to finance the long-term large projects in the economy. The stock market, therefore, can be regarded as a heart of economy.

The investors are interested to invest their resources in the shares of corporate sector through the stock market in the Nepalese economy. It is necessary to develop the entrepreneurship and encourage the entrepreneurs to start the productive venture as soon as possible. Management capability of the entrepreneurs is a key for better performance of the firms. Government should launch programs to enhance management capability of the entrepreneurs, which may contribute to raise the return from the investment.

Development of manufacturing sector is the backbone of an economy, which, in turn, assists to foster banking, finance and insurance sectors. Unfortunately, the manufacturing sector doesn't have a good performance in Nepalese economy. Almost all firms in this sector have a sustained loss.

The secondary aspect of the stock market is not also functioning well in Nepal. There is almost no liquidity in the stock market for shares except that of banking and some finance and insurance sectors.

Although it has become late to take steps to overcome such problems of the Nepalese stock market in order to make it active and supportive, the stock market has good prospect for the resource mobilization to finance the productive enterprises in Nepalese economy”.

Joshi (2001) has conducted research on “Dividend and Stock Price”. The study was carried out by the data for 16 enterprises from 1995 to 2000.

The objectives of this study were as follows:

- © To test the difference between dividends per share and stock prices
- © To determine the impact of dividend policy on stock price.
- © To identify whether it is possible to increase the market value of the stock changing dividend policy or payout ratio.

To explain the price behavior, the study used simultaneous equation model as developed by Friend and Puckett (1964). The main findings of his study were as follows:

- © The difference between dividend per share and stock prices is positive in the sample companies.
- © Dividend per share affects the share prices variedly in different sectors.
- © Changing the dividend policy or dividend per share might help to increase the market price of share.
- © The difference between stock prices and retained earnings per share is not prominent.
- © The difference between stock prices and lagged earnings ratio is negative.
- © Though there were above-mentioned studies in the context of Nepal, it has overcome necessary to find out whether their findings are still valid.

Pandey (2003) has also conducted research on the topic “Dynamics of stock market in Nepal”. The objectives of the research were as follows:

- © To analyze the trend of the Nepalese stock market.
- © To diagnose and compare sectoral financial status of the stocks in Nepalese stock market.
- © To analyze the market share prices of the Nepalese stock market.
- © To recommend for the improvement of stock market in Nepal.

The main conclusion of his research was:

The stock market and economic activities move in similar direction. They influence each other. The development of the former is reflected in the latter. The stock market raises and mobilizes the invest-able resources to finance the long-

term large projects in the economy. The stock market, therefore, can be regarded as a heart of economy.

Shrestha (2005) has conducted research on “Stock Price Behavior in Nepal”. This study aims to examine the efficiency of the stock market in Nepal.

The specific objectives of this study were:

- © To examine the serial correlation of the successive daily price changes of the individual stocks.
- © To determine whether the sequence of price changes is consistent with changes of the series of random numbers expected under the independent Bernoulli process.
- © To determine the efficiency of the stock market through the theoretical model of efficient market hypothesis in the Nepalese stock market.

The main findings of his study were:

The serial correlation coefficients of the daily price changes for 1 and 2 lag days, and runs of the series of daily price changes lead to conclude that the successive price changes are not independent random variable for the 30 sample stocks listed in the Nepal stock exchange Ltd. (NEPSE). Therefore, the random walk theory is not a suitable description for the stock market price behavior in Nepal.

The dependence in the series of price changes observed imply that the price changes in the future market will not be independent from the price changes of the previous days. It implies that the information of the past price changes is helpful in predicting future price changes in a way that the speculation through technical analysis can make higher expected profit than they would be under naïve buy-and-hold policy (i.e. average market return). Therefore, opportunities are available to sophisticated (both institutional and individual) investors to earn higher return in the market. The existence and participation of the sophisticated investors have not been realized from the findings of this study. It is realized that mostly the naïve investors have dominated in the market that can cause prices to diverge significantly from intrinsic values because the very existences of the sophisticated

traders cause to erase the opportunities of persistence in prices which establish independence of successive price changes”.

Aryal (2007) has conducted a research on “The General Behavior of Stock Market Price”. The prime objective of the study was to find the laws of price fluctuation in the stock market. However, the specific objectives of the study were as follows:

- © To discuss theoretically the movements of stock market prices as predicated by the random walk model.
- © To develop the empirical probability distribution of successive price changes of an individual common stock and a stock market as a whole.
- © To examine whether the successive price change of stocks market are independent to each other or not.

The main findings of the study were:

The general behavior of twenty-one-security prices on Nepal stock exchange is remarkably for to that, mainly the assumption of independence as predicated by random walk model of security (speculative) price behavior. Thus, the model of such kind has been refuted at least for Nepal loon context as a first approximation even on a rough way for early days of stock market operation. Here this rejection of hypotheses makes clear that This knowledge of past now becomes useful in predicting the future movements of stock market prices, than investors, on the floor of exchange for securities can make higher expected profits in the future based solely on those historical price series under certain systematic trading scheme (i.e. Market average return) of the general market for securities. Therefore, anomaly of weak from tests of efficient market hypothesis has an important implication bearing interpreting behavior of security price variations in the past and in performing future research in this field. If broadly speaking the implications with respect to conclusions derived by the study are of two natures: statistical and economic.

Ojha (2008) has conducted a research on “Financial Performances and Common Stock Pricing”. The main objectives of his research were:

- © To study and examine the difference of financial performances and stock prices.
- © To examine the relationship of dividends and stock price.
- © To explore the signaling effects in on stock price.

The main findings of his study were:

- © Nepalese stock market is in infancy stage. In general it is very new and just started to develop.
- © Corporate firm with long history have a relatively stable profitability parameters than the firms established after the economic liberalization of 1990.
- © Older firms have been issuing bonus shares more times than the new one.
- © Dividend per share is relatively more stable than the dividend payout ratio. That's why payout ratio and dividend yields have been highly fluctuating.
- © Due to lack of proper investment opportunity most of the investors have directed their saving towards the secondary stock market.
- © People have a misconception that the issuance of bonus shares and right shares, which actually decrease the net worth per share and resultantly ought to decrease the market price of stock also, do not decrease the price and this makes them to invest even at a too high price with the expectation of getting the same to increase their overall wealth.
- © There is significant positive correlation between the dividends paid and stocks prices of banking and manufacturing industries. All other industries have not a perfect correlation between the dividends paid and stock prices.

Chapter III

RESEARCH METHODOLOGY

The research methodology is the systematic way of solving research problem. Research methodology refers to overall research processes, which a researcher conducts during, his/ her study. It includes all the procedures from theoretical foundation to the collection and analysis of the data. "Research is systematic and organized effort to investigation a specific problem that needs a solution". (Sekharan; 1992:71) As most of the data are quantitative the research is based on the scientific models, it is composed by both parts of technical aspect and logical aspect on the basis of historical data this process of investigation involves a series of well thought out activities of gathering, regarding and analyzing and interpreting the data with the purpose of finding answer to the problem. Hence the entire process by which we attempt to solve the problem is called research.

Research can be conducted on the basis of primary and secondary data. In this study, all the data are secondary and those data are analyzed using appropriate financial as well as statistical tools. Outcomes are presented in the simple way. In this study, the research design, data collection procedure and analysis are described serially.

3.1 Research Design

The research is based on the recent historical data, so simply it is a historical research. It covers the data from the fiscal year (2002/2003 to 2008/2009). It deals with Analysis of risk and return in listed commercial banks in Nepal Stock Exchange (NEPSE) on the basis of available information. As the title of the study suggests, it is more analytical and also quantitative and descriptive. This study also tries to analyze portfolio construction separate systematic and unsystematic risk, to find out proportion of diversified and undiversified risk.

3.2 Population and Sample

All thirty listed Nepalese commercial bank will considers the total population out of them this study will be concern with four commercial banks as a sample, those bank are SBI bank Ltd. NABIL, Bank of Kathmandu, Bank Ltd. and Standard Chartered Bank Ltd.

3.3 Data Collection techniques

The problem of study lies in the fact that to what the MPS of selected companies is correlated with various financial indicators like EPS,DPS etc. and what the degree of risk is not involves in the investment of common stock of the selected companies from the view point of investors. In order to achieve concrete answer to these questions it various information needed.

First of all the officials, web sites www.nepalstock.com have been browsed in order to down load the annual financial reports of the concerned companies and other relevant information's.

On the other hand in order to review different books and previous studies frequent visits have been made Tribhuvan University Libraries, Shanker Dev Campus, Library, in order to collect relevant documents frequent visits are made to NEPSE office, SEBO office etc.

Source of data collection & procedure is summarized below:

- Financial documents provided by the companies
- Trading reports published by Nepal Stock Exchange Limited
- Related Websites
- Material published in papers and magazines
- Other related books, booklets and unpublished thesis

3.4 Data Analysis Tools

The collected data are analyzed by using various financial tools as well as statistical tools are given and define below:-

3.4.1 Market Price Stock (MPS)

As we follow the market price of share of companies we can get three type of process high, low and closing. For the analysis we can take approaches either average price (i.e. high and low) or closing price. Here in closing price is taken as the market price of the stock.

3.4.2 Dividend per Share (DPS)

Dividend is the portion of earning which pays to its shareholder. As we have consider the total dividend paid to shareholders. Dividend per share is calculated by using the following model.

$$\text{DPS} = \text{Cash Div.} + \text{Stock Div.}$$

Incase of stock dividend,

$$\text{Total dividend amount} = \text{cash dividend} + \text{stock dividend\%} * \text{Next years MPS}$$

Where,

$$\text{MPS} = \text{Market Price per Share}$$

3.4.3 NEPSE Index (Lt)

NEPSE index is the market index of Nepal Stock Exchange. It is used for the calculation of expected return on market. Calculation of return on market, closing indeed of the particular year is considered.

3.4.4 Return on Market (Rm)

It is the percentage increase in NEPSE index. To Calculation of return on market we can use following relation.

$$R_m = \frac{(L_t - L_{t-1})}{L_{t-1}}$$

Where,

R_m = Market Return

L_t = NEPSE Index at Time Period t

L_{t-1} = NEPSE Index at Time Period t-1

3.4.5 Return on Common Stock Investment (Rj)

Return is the income received in an investment plus any change in market price usually expresses as a percent of the beginning price of the investment.

Symbolically,

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

Where,

R = Actual rate of return on common stock at time t.

P_t = Price of stock at a time Period t.

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

D_t = Cash dividend Received at a time t

3.4.6 Expected Return on Common Stock

One of the major aims of the study is to determine the expected return on the investment in common stock. Generally, this rate is obtained by the arithmetic mean of the past years returns.

Symbolically,

$$\overline{R} = \frac{R}{n}$$

Where,

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

= Sign of Summation

R_j = Realizes rate of return on stock j.

N = Number of years.

3.4.7 Standard Deviation

It is statistical measure of the distribution of return its mean. It is the square root of the variance of the returns S.D is the measure of the total risk of the assets i.e. it means the dispersion of returns around the mean return S.D can be calculated by using following formula,

Symbolically,

$$(\sigma_j) = \sqrt{\frac{(R - \bar{R})^2}{n-1}}$$

Where,

σ_j = Standard Deviation of return on stock j.

3.4.8 Coefficient of Variation (CV): Unitary risk measure

The risk we calculated using standard deviation is the total risk on investment. If we needed to calculate risk per unit of expected return, we can use of coefficient of variation. The formula to calculate coefficient of variation is as follows:

Symbolically,

$$(C.V) = \frac{S}{R}$$

CV_j = Coefficient of variation on stock j.

σ_j = Standard of Variation on Stock j.

R_j = Expected Rate of Return on stock j.

Coefficient of variation is the unitary risk measure. It gives the result regarding the unit of risk to bear for earning 1 unit of return.

3.4.9 Beta Co-efficient ()

"The standard deviation is a measure of the total risk of the asset, i.e. it measures the dispersion of return around the mean return. Earlier it was suggested that rational investors should expect higher return at higher level of investment risk. Does it mean that the higher the standard deviation of asset returns the higher the required return? The CAPM suggest that the total risk as measures by standard deviation contain two parts, diversifiable and non-diversifiable risk and that total risk is equal to the sum of its parts".(Cheney & Moses; 2002: 115)

Total risk = Unsystematic risk + Systematic risk.

Logically the systematic risk is the covariance between the return of an individual asset or portfolio and the returns of the returns of the market portfolio. The measure of systematic risk is represents by beta and can be calculated by following formula.

Symbolically,

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

Where,

β_j = Beta co efficient of stock j

$\text{Cov } R_m, R_j$ = Covariance between Return on Stock j

σ_m^2 = Variance of Market return

ρ_{jm} = Correlation between returns of stock j and stock m.

σ_j = Standard deviation of the portfolio returns of stock j

$$\text{Cov}(R_j, R_m) = \frac{(\overline{R_j} - \overline{R_j})(\overline{R_m} - \overline{R_m})}{n-1}$$

The beta coefficient is a measure of non-diversifiable or systematic risk. An asset or a portfolio with a beta greater than 1 is considered to be aggressive (more risk than the market). An asset or portfolio with a beta less than 1 is considered to be defensive (less risky than market).

3.4.10 Correlation Co-efficient

The correlation is also a measure of the relationship between two assets. The correlation coefficient can be taken on a value from -1 to +1; correlation coefficient and covariance are related by the following equation,

Symbolically,

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

Where,

r_{ij} = correlation co-efficient for securities i and j.

Cov_{ij} = co-variance between Securities i and j

$\sigma_i \sigma_j$ = Standard Deviation of Returns for Securities i and j.

3.4.11 Portfolio Risk and Return

A portfolio is a collection of investment securities. Portfolio theory deals with the selection of optimal portfolios, i.e. portfolios that provide the highest possible return of any specified degree of risk or the lowest possible risk for any specified rate of return. Calculating and analyzing portfolio risk is not straight forward as calculating portfolios expected return. We have to go through a long process for its calculation and analysis.

Portfolio risk (σ_p)

It is the measure of combined standard deviation of stock held in the portfolio, with reference to individual stocks corresponding correlation contribution. The formula for the calculation of portfolio risk for two assets case given by:

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

Where,

σ_A = Standard Deviation of portfolio A and B

σ_A^2 = Variance of assets A, i.e. risk of assets A

σ_B^2 = Variance of assets B, i.e. risk of assets B

W_A = Weights of assets A

W_B = Weights of assets B

Portfolio Return

"While the portfolio expected return is straight forward weight average of return on the individual securities, the portfolio standard deviation is not the weighted average of individual security's standard deviation. To take a weighted average of individual security standard deviation would be to ignore the relationship, or correlation however as no effect on the portfolio expected return. Correlation between securities return complicates our calculation of portfolio standard deviation by pair wise combination of securities in the portfolio. But this dark cloud of mathematical complication contains a silver lining correlation between securities provides for the possibilities of eliminating some without reducing potential returns". (Van Horne; 1997: 117)

Portfolio is the combination of two or more securities or asset and portfolio return is simply a weighted average of individual stock returns. The return on the portfolio, in case of only two assets portfolio is given by:

$$\bar{R}_p = W_A \bar{R}_A + W_B \bar{R}_B$$

Where,

- E (rp) = Expected return on portfolio of stock A and B
- W_A = Weighted of investment on stock A
- W_B = Weighted of investment on stock B
- $W_A + W_B = 1$

Risk minimizing portfolio:

It is the proportion of stock that minimizes the possible (unsystematic) risk.

Symbolically,

$$W_A = \frac{\sigma_B^2 - \text{COV}(\mathbf{R}_A, \mathbf{R}_B)}{\sigma_A^2 + \sigma_B^2 - 2\text{COV}(\mathbf{R}_A, \mathbf{R}_B)}$$

Where,

W_A = Weight of stock A that minimize the portfolio risk of stock A and stock B

σ_A = Standard deviation of stock A

σ_B = Standard deviation of stock B

$\text{COV}(\mathbf{R}_A, \mathbf{R}_B)$ = Covariance of returns between stock A and B

3.4.12 Capital assets Pricing Model (CAPM)

CAPM is the model, which gives the required rate of common stock. Comparison Of required rate return and expected rate of return gives the result whether the stock is overpriced or under-price. For the analysis risk free rate of return is needed i.e. RF. Here for the study the return on Treasury bill issued by Nepal Rastra Bank is taken as risk free return. NRB issue the T.B on each treasury of 91 and 364 days. On each issue the T.B has different rates set up as the bidders bid for it. Here as suggested by the Treasury bill section of NRB the rate of the interest T.B is taken, which is approximately 1.8286 % for 91 days T. B in 2008 / 2009. The CAMP equation is written as follows:

$$E (R_j) = (R_f + \overline{R}_m - R_f) \cdot j$$

Where,

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

R_f = Risk free rate of return.

\overline{R}_m = Market return.

β_j = Coefficient of beta of stock j.

CHAPTER - IV

DATA PRESENTATION AND ANALYSIS

This chapter is the main body of the study, in this chapter; the efficient has been made to analyze “Analysis of risk and return of selected commercial banks in Nepal.” Details data of MPS and dividend each bank and NEPSE index of each sector and market is presented and their interpretation and analysis is done. With reference to the various study and literature review in the preceding chapter, effort is made to analyze and diagnose the resent Nepalese stock market movement, with a special reference to the listed commercial banks. The analysis of data consists of organizing, tabulating and assessing financial and statistical result. Different tables and diagrams are drawing to make the result simpler and easily understandable.

4.1 Analysis of Individual commercial Banks

As the study has taken a special reference to listed commercial banks, common stock of listed commercial banks is analyzed here separately. There are twenty three commercial banks are in operation till now, among them the study has focused on four commercial banks. Although data are coverage for last six years, each bank is introduced and their common stocks risk and return are analyzed here.

4.1.1 Nepal SBI Bank Limited (SBI)

Data: Market price, dividend records and Return of common stock of SBI are shown in table 4.1

Table 4.1:**Realized Rate of Returns, Expected Returns and S.D of C.S of SBI**

Fiscal Year	Year End Price	Cash Dividend	Stock Dividend	Total Dividend	$R = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$	$(R - \bar{R})$	$(R - \bar{R})^2$
2002/2003	255	8	0	8		-	-
2003/2004	307	0	0	0	0.203	-0.61	0.372
2004/2005	335	0	0	0	0.091	-0.722	0.521
2005/2006	612	5	0	5	0.841	0.028	0.0000784
2006/2007	1176	12.59	528.85	541.44	1.806	0.993	0.986
2007/2008	1511	0	0	0	1.176	0.363	0.131
2008/2009	1900	2.11	700	762.11	0.761	0.052	0.00027
Total					4.878		2.010

Source: SEBO, NEPSE (www.nepalstock.com) stock dividend (from Annex -1)

We have,

$$\text{Expected Return } (\bar{R}) = \frac{R}{n} = \frac{4.878}{6} = 0.813$$

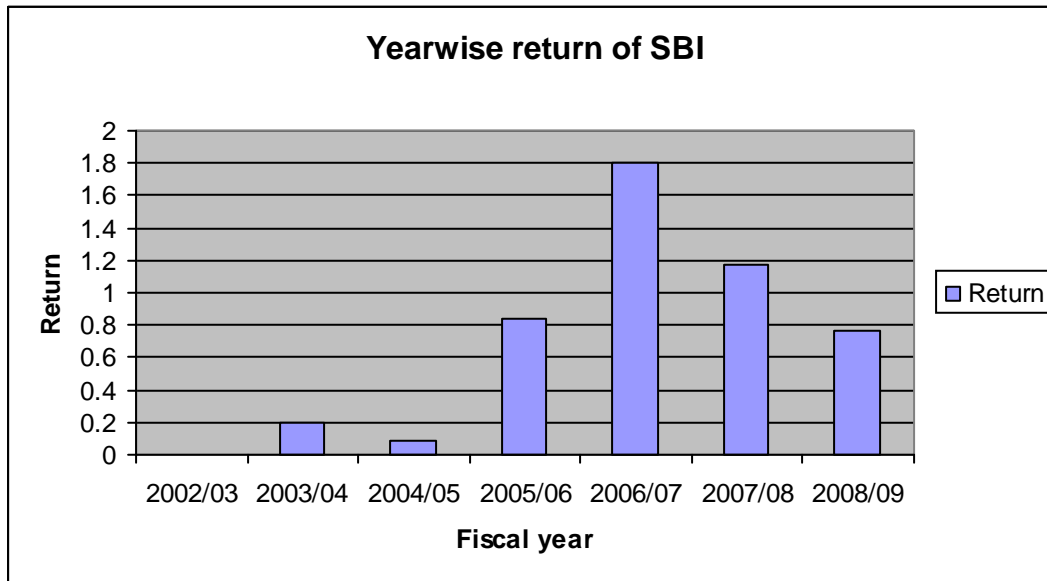
$$\text{Standard deviation } (s) = \sqrt{\frac{(R - \bar{R})^2}{n-1}} = \sqrt{\frac{2.010}{6-1}} = 0.634$$

$$\text{Coefficient of Variation (C.V)} = \frac{s}{R} = \frac{0.634}{0.813} = 0.779$$

The above Table shows that SBI has highest annual rate of return 84.1 % at 2006/07 and lowest annual rate of return 9.1 % at 2004/05. SD of SBI Bank has 63.4 %, and Coefficient of Variation has 77.9 %

Figure 4.1:

Annual Rate of Return of the C.S. of SBI, Year Wise Return



The above diagram shows that SBI has highest annual rate of return at 2006/07 and lowest annual rate of return at 2004/05.

4.1.2 Nepal Arab Bank limited (NABIL)

Data: Market price, dividend records and Return of common stock of NABIL are shown in table 4.2.

Table 4.2:

Realized Rate of Returns, Expected Returns and S.D. of the C.S. of NABIL

Fiscal Year	Year End Price	Cash Dividend	Stock Dividend	Total Dividend	$R = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$	$(R - \bar{R})$	$(R - \bar{R})^2$
2002/2003	735	50	0	50	-	-	-
2003/2004	1000	5065	0	65	0.448	-0.327	0.106
2004/2005	1505	70	0	70	0.575	-0.2	0.04
2005/2006	2240	85	0	85	0.544	-0.231	0.053
2006/2007	5050	100	2110	2210	2.241	1.466	2.149
2007/2008	5275	60	1959.60	2019.60	0.444	-0.331	0.109
2008/2009	4899	35	2449.50	2484.5	0.399	-0.376	0.141
Total					4.651		2.598

Source: SEBO, NEPSE (www.nepalstock.com), Stock dividend from Annex -II

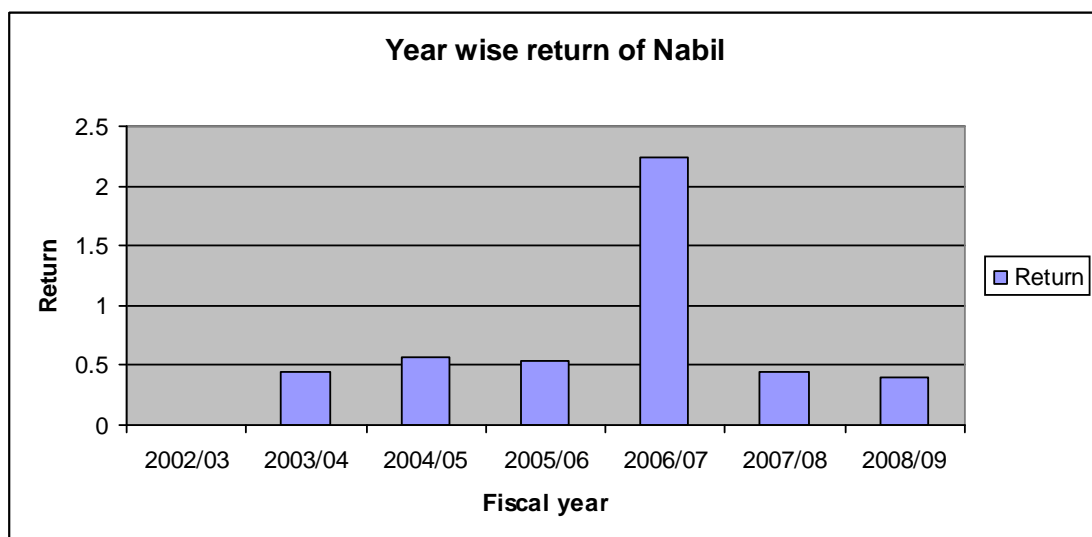
We have, Expected Return (\bar{R}) = $\frac{R}{n} = \frac{4.651}{6} = 0.775$

Standard deviation (s) = $\sqrt{\frac{(R - \bar{R})^2}{n-1}} = \sqrt{\frac{2.598}{6-1}} = 0.720$

Coefficient of Variation (C.V) = $\frac{s}{\bar{R}} = \frac{0.720}{0.775} = 0.929$

The above Table shows that NABIL has highest annual rate of return 224.1 % at 2006/07 and lowest annual rate of return 39.9 % at 2008/09. SD of Nabil Bank has 72 %, and Coefficient of Variation has 92.9%

Figure 4.2:
Annual Rate of Return of the C.S. of NABIL, Year wise Return



The above diagram shows that NABIL has highest annual rate of return at 2006/07 and lowest annual rate of return at 2008/09

4.1.3 Bank of Kathmandu Limited (BOKL)

Data: Market price, dividend records and Return of common stock of BOKL are shown in table 4.3.

Table 4.3:

Realized Rate of Returns, Expected Returns and S.D. of the C.S. of BOKL

Fiscal Year	Year End Price	Cash Dividend	Stock Dividend	Total Dividend	$R = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$	$(R - \bar{R})$	$(R - \bar{R})^2$
2002/2003	198	5	0	5	-	-	-
2003/2004	295	10	0	10	0.540	-0.292	0.085
2004/2005	430	15	0	15	0.508	-0.324	0.104
2005/2006	850	18	412.5	430.5	1.977	1.145	1.311
2006/2007	1375	20	0	20	0.641	-0.191	0.036
2007/2008	2350	2.11	730	732.11	1.241	0.409	0.167
2008/2009	1825	7.37	730	737.37	0.090	-0.742	0.550
Total					4.997		2.253

Source: SEBO, NEPSE (www.nepalstock.com), Stock dividend from Annex -III

We have,

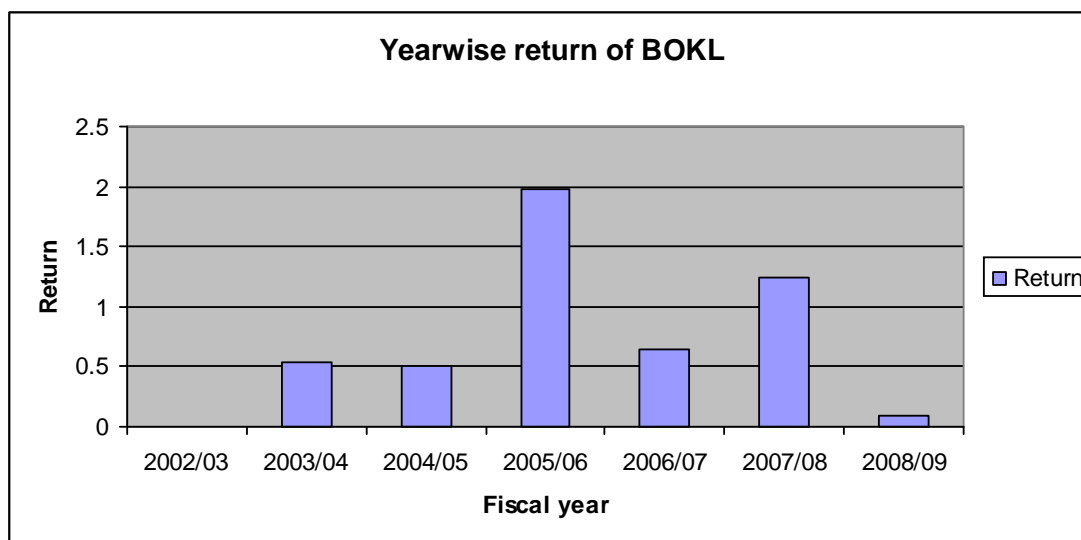
$$\text{Expected Return } (\bar{R}) = \frac{R}{n} = \frac{4.997}{6} = 0.832$$

$$\text{Standard deviation } (s) = \sqrt{\frac{(R - \bar{R})^2}{n-1}} = \sqrt{\frac{2.253}{6-1}} = 0.671$$

$$\text{Coefficient of Variation (C.V)} = \frac{s}{R} = \frac{0.671}{0.832} = 0.806$$

The above diagram shows that BOKL has highest annual rate of return 197.7 % at 2005/06 and lowest annual rate of return 9 % at 2008/09. SD of BOKL has 67.1 % and Coefficient of Variation has 80.6%

Figure 4.3:
Annual Rate of Return of the C.S. of BOKL, Year wise Return



The above diagram shows that BOKL has highest annual rate of return at 2005/06 and lowest annual rate of return at 2008/09.

4.1.4 Standard Chartered Bank Nepal Limited (SCBNL)

Data: Market price, dividend records and Return of common stock of SCBNL are shown in table 4.4

Table 4.4:
Realized Rate of Returns, Expected Returns and S.D. of the C.S. of SCBNL

Fiscal Year	Year End Price	Cash Dividend	Stock Dividend	Total Dividend	$R = \frac{(P_t - P_{t-1}) + D_t}{P_{t-1}}$	$(R - \bar{R})$	$(R - \bar{R})^2$
2002/2003	1640	110	174.5	284.5	-	-	-
2003/2004	1745	110	0	110	0.131	-0.528	0.278
2004/2005	2345	120	0	120	0.412	-0.247	0.061
2005/2006	3775	130	590	720	0.916	0.257	0.066
2006/2007	5900	80	3415	3495	1.488	0.829	0.687
2007/2008	6830	80	3005	3085	0.680	0.021	0.000441
2008/2009	6010	50	3005	3055	0.327	-0.332	0.110
Total					3.954		1.202

Source: SEBO, NEPSE (www.nepalstock.com), Stock dividend from Annex -IV

We have,

$$\text{Expected Return } (\bar{R}) = \frac{\sum R}{n} = \frac{3.954}{6} = 0.659$$

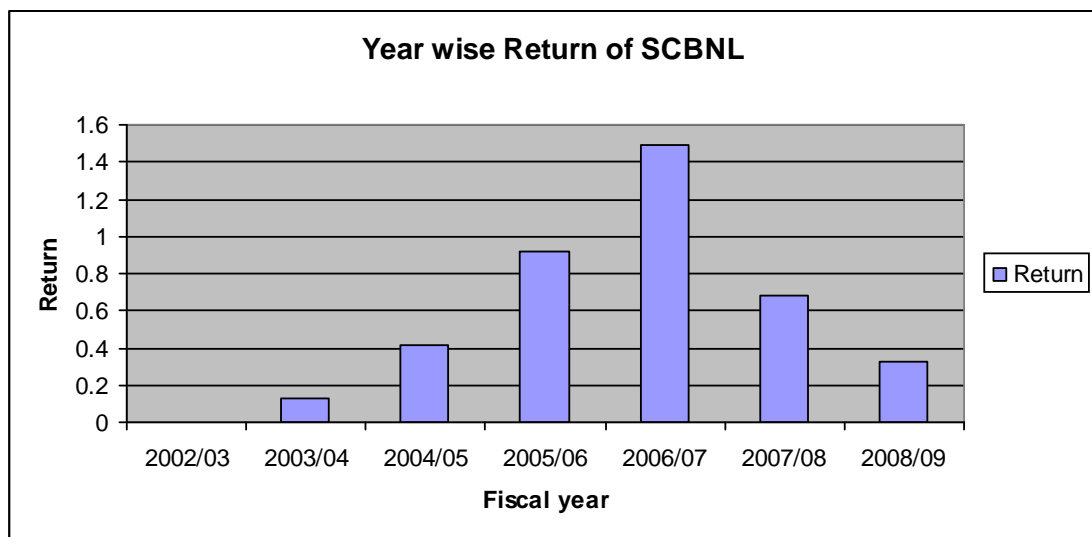
$$\text{Standard deviation } (s) = \sqrt{\frac{\sum (R - \bar{R})^2}{n-1}} = \sqrt{\frac{1.202}{6-1}} = 0.490$$

$$\text{Coefficient of Variation (C.V)} = \frac{s}{\bar{R}} = \frac{0.490}{0.659} = 0.743$$

The above diagram shows that SCBNL has highest annual rate of return 148.8 % at 2006/07 and lowest annual rate of return 13.1 % at 2003/04. SD of SCBNL has 49 % and Coefficient of variation has 74.3%

Figure 4.4:

Annual Rate of Return of the C.S. of SCBNL, Year wise Return



The above diagram shows that SCBNL has highest annual rate of return at 2006/07 and lowest annual rate of return at 2003/04.

4.2 Inter Bank comparisons

A comparative analysis of and is performed here, expected return, standard deviation of return, coefficient of variation of each bank for the year 2002/2003 to 2008/2009 (Average for Six years) are given in table 4.5

Table 4.5:

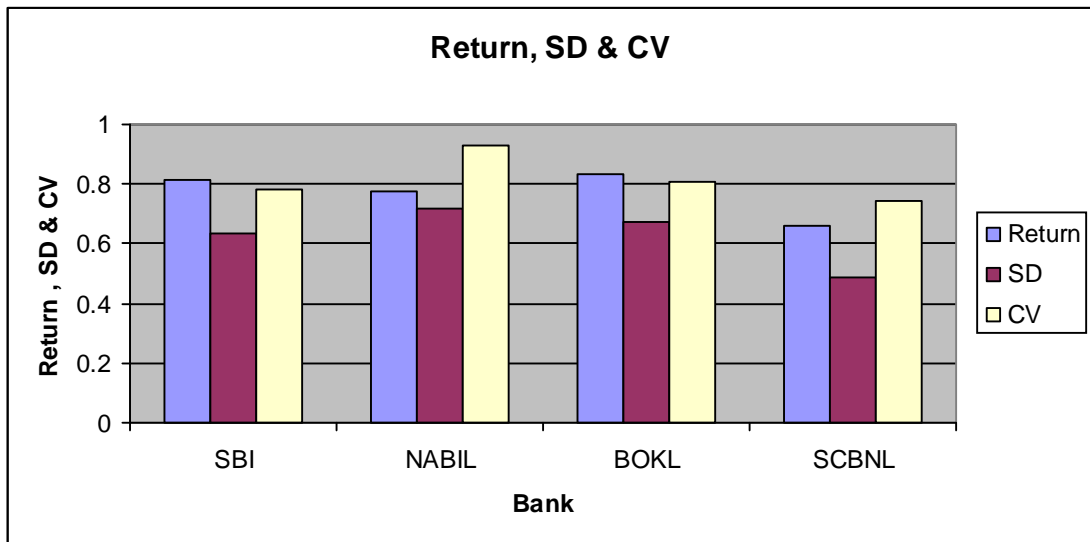
Expected Return, S.D. and Coefficient of variation of Each Bank.

Banks	Expected Return(Avg. of 6 years)	Standard Deviation()	Co-efficient of variation	Remarks
SBI	0.813	0.634	0.779	
NABIL	0.775	0.720	0.929	
BOKL	0.832	0.671	0.806	Highest Return
SCBNL	0.659	0.490	0.743	Lowest Return

Investors can get the highest return by investing in common stock of BOKL and the lowest return from investing in common stock of SCBL. Nabil has the highest standard deviation and SCBL has the Lowest Standard deviation. To take an investment decision on a single common stock (security), co-efficient of variation (C.V) is the most appropriate basis since SCBL common stock is the best security for investment because of its minimum co-efficient of variation.

Figure 4.5:

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



To take an investment decision on single common stock (Security) co-efficient of Variance (C.V.) is the most appropriate basic. Co-efficient of variation measures risk per unit return of stock so standard deviation and return are included in it. On the basis of C.V. SCBNL common stock is the best security for investment because it has minimum coefficient of variation as mentioned in table 4.5.

4.3 Comparison with Market

4.3.1 Market Risk and Return

As we know, there is only one stock exchange in Nepal on Market risk and return. The program has been initiated to reform capital converted securities. Stock Exchange center Nepal 1993 has been working as a non-profit organization operating under securities exchange act, 1993. Overall market movement of the country is represented by market index or NEPSE index. Market returns, its standard deviation and C.V. are shown in the table no. 4.5. NEPSE index movement and market return movement have been in diagram 4.6 and diagram 4.7 respectively.

Table 4.6:
Market Return, Standard Deviation and C.V.

Fiscal Year	NEPSE Index	$R_m = \frac{(L_t - L_{t-1})}{L_{t-1}}$	$(R_m - \overline{R_m})$	$(R_m - \overline{R_m})^2$
2002/2003	204.86	-	-	-
2003/2004	222.04	0.083	-0.196	0.038
2004/2005	286.67	0.291	0.012	0.0000144
2005/2006	386.63	0.348	0.069	0.000476
2006/2007	683.95	0.769	0.49	0.240
2007/2008	963.36	0.408	0.129	0.0166
2008/2009	749.10	-0.222	-0.501	0.251
Total		1.677		0.546

Source: NEPSE Index

We have,

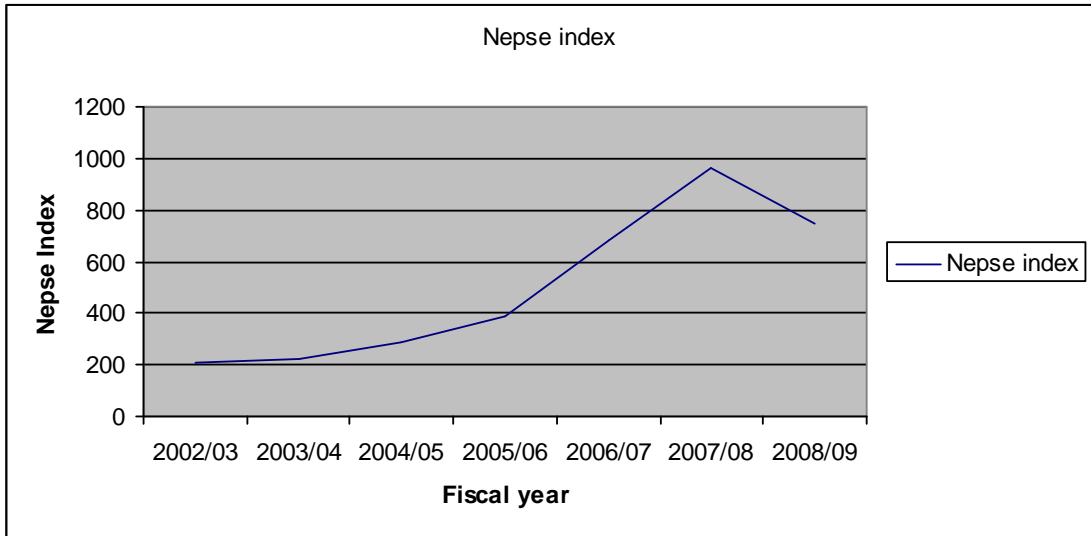
$$\text{Expected Return } (\overline{R_m}) = \frac{R_m}{n} = \frac{1.667}{6} = 0.279$$

$$\text{Standard deviation } (s) = \sqrt{\frac{(R - \overline{R})^2}{n-1}} = \sqrt{\frac{0.546}{6-1}} = 0.330$$

$$\text{Coefficient of Variation (C.V)} = \frac{s}{R} = \frac{0.330}{0.279} = 1.182$$

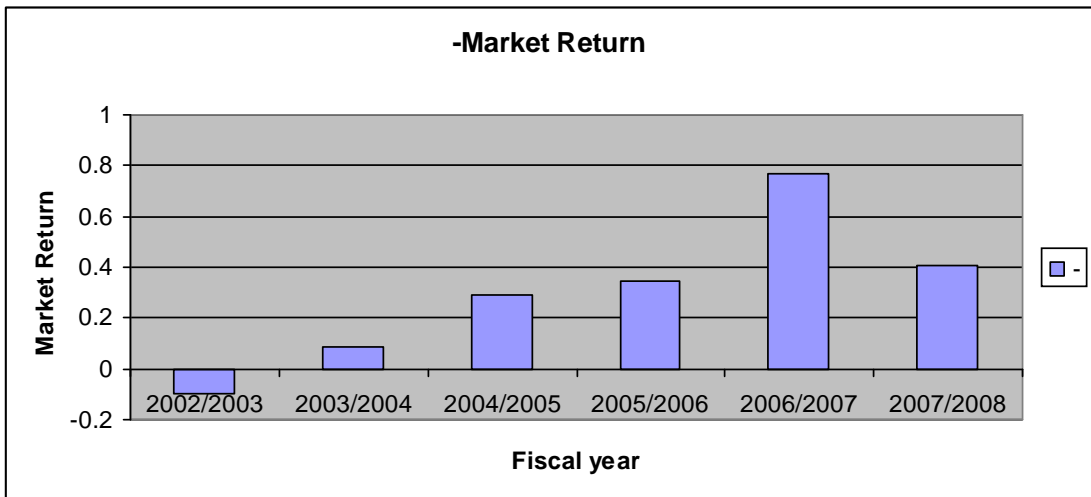
Here, the market return is 27.9%, risk is 33% and C.V is 1.182

Figure 4.6:
NEPSE Index Movement



From the above diagram, it is clear the movement of NEPSE is in increasing trend from the fiscal year 2002/2003 to 2007/2008 and then decreasing in the year 2008/2009. The highest NEPSE index is in the year 2007/2008.

Figure 4.7:
Market Return Movement



The above diagram shows that the market return is increasing from the fiscal year 2003/2004 to 2006/2007 (i.e. 0.083, 0.291, 0.348 & 0.769 respectively). After that decreasing in the fiscal year 2007/2008 to 2008/2009 (i.e. 0.408 to -0.222 respectively). The maximum market return is in the fiscal year 2006/2007 (i.e. equal to

equal to 0.769); .and minimum market return is in the fiscal year 2008/2009 (i.e. equal to -0.222).

4.4 Analysis of Market Sensitivity

Market sensitivity explains by its beta coefficient. Higher the beta coefficient, greater the sensitivity and higher the relation to the market movement and the percentage of risk that is correlated with market is said to be systematic portion of risk. As the market, which guides the portion of risk changes it is out of control. Thus beta is systematic risk which can't be eliminated through the way of diversification.

Table 4.8:

Calculation of Beta coefficient of the Common stock of SBI

Fiscal year	Return (Rj)	(Rj- $\overline{R_j}$)	Return on market (Rm)	(Rm- $\overline{R_m}$)	(Rj- $\overline{R_j}$)(Rm- $\overline{R_m}$)
2003/2004	0.203	-0.61	-0.083	-0.196	0.119
2004/2005	0.091	- 0.722	0.291	0.012	-0.000866
2005/2006	0.841	0.028	0.348	0.069	0.000193
2006/2007	1.806	0.993	0.769	0.49	0.486
2007/2008	1.176	0.363	0.408	0.129	0.046
2008/2009	0.761	0.052	-0.222	-0.501	-0.026
Total					0.624

Source: Table 4.1 and Table 4.6

Where,

$$\text{Cov (RjRm)} = \frac{(\overline{R_j - R_j})(\overline{R_m - R_m})}{n-1} = \frac{0.624}{6-1} = 0.124$$

$$j = \frac{\text{Cov(Rj.Rm)}}{\sigma_m^2} = \frac{0.124}{0.108} = 1.14$$

Where, n = No. of observation = 6

σ_m^2 = Variance of market return

Rj = Return of stock 'j', SBI

Since beta coefficient of SBI is 1.14 i.e. greater than 1, the stock return is higher than the market return. It means if return raise by 1 percent, the stock of SBI will also rise by 1.436 percent and vice-versa. Other banks betas are calculated in annexure from VII to IX.

Table 4.9:

Beta Coefficient of each Bank

S.N.	Commercial Bank	Beta coefficient(Bi)	Remarks
1	SBI	1.14	
2	NABIL	1.68	Most aggressive
3	BOKL	0.86	Least aggressive
4	SCBNL	1.27	

Source: Annex VII-IX

Above table has shown that the beta of different listed commercial banks, as the beta of C.S. of SBI, NABIL and SCBNL is greater than one. Therefore the stock of SBI, NABIL and SCBNL are highly sensitive with market. The stock of BOKL is less than one so less sensitive with market. So the increment of market return raised SBI stock return by 1.14 percent, NABIL by 1.68 percent, BOKL by 0.86 percent, and SCBNL by 1.27 percent.

Required rate of return $[E(R_i)]$, expected rate of return (\bar{R}) and price evaluation analysis:

Composition of require rate of return and expected and expected rate of return gives the result, whether the stock is under priced or overpriced. If the required rate of return is less than expected rate of return, the stock is said to be under priced and investors tend to buy this type of stock and vice-versa. And if the required rate of return is more than expected rate of return the stock is overvalued and investors tend to sell this type of stock. For the analysis the risk free rate of return is needed, which is taken from the interest rate of Treasury bill issued by Nepal Rastra Bank.

Hence,

$R_f = \text{Risk free rate of return} = 8.3 \% = 0.083$

$\overline{R}_m = \text{Market rate of return} = 0.279$ (Expected market rate of return is for the year 2002/2003 to 2008/2009, table 4.10)

Table 4.10:

Required Rate of Return, Expected Rate of Return and Price Valuation

Banks	Beta	$E(R_i) = R_f + (\overline{R}_m - R_f) \beta_j$	Expected Rate of Return (ERR)	Price Situation
SBI	1.14	0.306	0.813	Under priced
NABIL	1.68	0.412	0.775	Under priced
BOKL	0.86	0.251	0.832	Under priced
SCBNL	1.27	0.331	0.659	Under priced

$R_f = 0.083$

(Source: www.nrb.org.np & Annex No. VI)

SBI, NABIL, BOKL and SCBNL stock price was Under priced, When expected rate of return is higher than required rate of return then the banks stock are under priced and when expected rate of return is lower than required rate return than the bank's stocks are overpriced.

The stocks of SBI, NABIL, BOKL and SCBNL are under priced. So the investor should purchase these banks share will be benefited in future. These stocks are recommended to buy.

4.5 Portfolio Analysis

Portfolio theory was proposed by Harry M. Markowitz which gives the concept of diversification of risk by investing total funds in more than a single assets or single stock. Markowitz diversification helps the investors to attain a higher level of expected utility than with any other risk reduction technique. In a very simple way we can understand it as not keeping all the eggs in a single basket. By diversifying total fund in different securities the risk of individual security can be reduced without losing

considerable return. The main objective of portfolio is reduction of unsystematic risk, from which investors can take more benefit by making efficient portfolio. Therefore, a brief analysis of risk and return is extended in portfolio context. The portfolio expected return is a straight forward weighted average of returns on the individual securities. The weights are equal to the proportions of total fund invested in each security. (The weights must sum to 100%)

4.5.1 Analysis of Risk Diversification

The analysis is based on the portfolio and the tools for analysis are presented in the third chapter (research methodology). Here, the portfolio of the common stock of NABIL and SBI is analyzed below in the table 4.20 which shows the calculation of covariance of the return of given two stocks:

Table 4.11:

Calculation of covariance and correlation, portfolio return, portfolio risk between the stocks of NABIL & SBI:

Year	$R_{NABIL} - \bar{R}_{NABIL}$	$R_{SBI} - \bar{R}_{SBI}$	$(R_{NABIL} - \bar{R}_{NABIL})(R_{SBI} - \bar{R}_{SBI})$
2003/2004	-0.327	-0.61	0.199
2004/2005	-0.2	-0.722	0.144
2005/2006	-0.231	0.028	-0.00064
2006/2007	1.466	0.993	1.455
2007/2008	-0.331	0.363	-0.120
2008/2009	-0.376	0.052	-0.019
Total			1.658

Source : As per table no. 4.2 and 4.1

We have,

$$\text{Cov}(R_{NABIL}, R_{SBI}) = \frac{(R_{NABIL} - \bar{R}_{NABIL})(R_{SBI} - \bar{R}_{SBI})}{n-1} = \frac{1.658}{6-1} = 0.331$$

And to minimize the risk the proportion of stock of NABIL and SBI in the portfolio is given as:

$$W_{NABIL} = \frac{\sigma_{SBI}^2 - \text{COV}(\mathbf{R}_{NABIL}, \mathbf{R}_{SBI})}{\sigma_{NABIL}^2 + \sigma_{SBI}^2 - 2\text{COV}(\mathbf{R}_{NABIL}, \mathbf{R}_{SBI})}$$

$$= \frac{0.401 - 0.331}{0.518 + 0.401 - 2 \times 0.331} = 0.272$$

$$W_{NABIL} = 0.272$$

$$W_{SBI} = 1 - 0.272$$

$$= 0.728$$

If the portfolio is constructed with 0.272 or 27.2 percent of NABIL common stock, and 0.728 or 72.8 percent of SBI common stock .constructed portfolio will minimize risk and will be ideal proportion. And the portfolio return will be

$$\bar{R}_p = W_{NABIL} \cdot \bar{R}_{NABIL} + W_{SBI} \cdot \bar{R}_{SBI}$$

$$= 0.272 \times 0.775 + 0.728 \times 0.813$$

$$= 0.210 + 0.591$$

$$= 0.801$$

$$= 80.10\%$$

Where,

Portfolio risk is given as

$$p = \sqrt{W_{NABIL}^2 \cdot \sigma_{NABIL}^2 + W_{SBI}^2 \cdot \sigma_{SBI}^2 + 2W_{NABIL} \cdot W_{SBI} \cdot \text{COV}(\mathbf{R}_{NABIL}, \mathbf{R}_{SBI})}$$

$$= \sqrt{(0.272)^2 \times (0.720)^2 + (0.728)^2 \times (0.634)^2 + 2(0.272 \times 0.728) \times 0.331}$$

$$= 0.616$$

$$= 61.6\%$$

Using the diversification, we can reduce risk, Standard Deviation of NABIL and SBI was 72 % and 63.40% respectively before the diversification. But after portfolio construction the risk is 61.6% which is lower than the risk before diversification.

Where,

σ_{SBI}^2 = Standard deviation of C.S of SBI

σ_{NABIL}^2 = Standard deviation of C.S of NABIL

$COV. (R_{NABIL}, R_{SBI})$ = Covariance of return between C.S. of NABIL and SBI.

W_{NABIL} = Proportion of the C.S. of NABIL

W_{SBI} = Proportion of the C.S. of SBI

\bar{R}_{NABIL} = Expected return on NABIL

\bar{R}_{SBI} = Expected return on SBI

\bar{R}_P = Expected return on portfolio of stock of NABIL & SBI

Now, correlation between stocks of NABIL & SBI

$$\text{Correlation}_{NABIL \& SBI} = \frac{Cov.(R_{NABIL}, R_{SBI})}{\sigma_{NABIL} \cdot \sigma_{SBI}} = \frac{0.331}{0.720 \times 0.634} = 0.725$$

Table 4.12:

**Calculation of Covariance and Correlation, Portfolio Return, Portfolio Risk
Between the Stocks of NABIL & BOKL:**

Year	$R_{NABIL} - \bar{R}_{NABIL}$	$R_{BOKL} - \bar{R}_{BOKL}$	$(R_{NABIL} - \bar{R}_{NABIL})(R_{BOKL} - \bar{R}_{BOKL})$
2003/2004	-0.327	-0.292	0.095
2004/2005	-0.2	-0.324	0.064
2005/2006	-0.231	1.145	-0.264
2006/2007	1.466	-0.3191	-0.280
2007/2008	-0.331	0.409	-0.135
2008/2009	-0.376	-0.742	0.278
Total			-0.107

Source: As per table no. 4.2 and 4.3

$$\text{COV} (\mathbf{R}_{\text{NABIL}} \cdot \mathbf{R}_{\text{BOK}}) = \frac{(\mathbf{R}_{\text{NABIL}} - \overline{\mathbf{R}}_{\text{NABIL}})(\mathbf{R}_{\text{BOK}} - \overline{\mathbf{R}}_{\text{BOK}})}{n-1} = \frac{-0.107}{6-1} = -0.021$$

$$\text{Correlation}_{\text{NABIL \& BOK}} = \frac{\text{Cov.}(\mathbf{R}_{\text{NABIL}} \cdot \mathbf{R}_{\text{BOK}})}{\sigma_{\text{NABIL}} \cdot \sigma_{\text{BOK}}} = \frac{-0.021}{0.720 \times 0.671} = -0.043$$

Optimal portfolio weight of stock of NABIL & BOK

$$\begin{aligned} W_{\text{NABIL}} &= \frac{\sigma_{\text{BOK}}^2 - \text{COV}(\mathbf{R}_{\text{NABIL}} \cdot \mathbf{R}_{\text{BOK}})}{\sigma_{\text{NABIL}}^2 + \sigma_{\text{BOK}}^2 - 2\text{COV}(\mathbf{R}_{\text{NABIL}} \cdot \mathbf{R}_{\text{BOK}})} \\ &= \frac{0.450 + 0.107}{0.518 + 0.450 - 2 \times 0.107} = \frac{0.557}{1.182} = 0.471 \end{aligned}$$

$$W_{\text{BOK}} = 1 - W_{\text{NABIL}}$$

$$= 1 - 0.471$$

$$= 0.529$$

If the portfolio return will be,

$$\overline{\mathbf{R}}_p = W_{\text{NABIL}} \cdot \overline{\mathbf{R}}_{\text{NABIL}} + W_{\text{BOK}} \cdot \overline{\mathbf{R}}_{\text{BOK}}$$

$$= 0.471 \times 0.775 + 0.529 \times 0.832$$

$$= 0.365 + 0.440$$

$$= 0.805 \text{ or } 80.5\%$$

Where,

Portfolio risk is given as

$$p = \sqrt{W_{\text{NABIL}}^2 \cdot \sigma_{\text{NABIL}}^2 + W_{\text{BOK}}^2 \cdot \sigma_{\text{BOK}}^2 + 2W_{\text{NABIL}} \cdot W_{\text{BOK}} \cdot \text{COV}(\mathbf{R}_{\text{NABIL}} \cdot \mathbf{R}_{\text{BOK}})}$$

$$= \sqrt{(0.471)^2 (0.720)^2 + (0.529)^2 (0.671)^2 - 2 \times 0.471 \times 0.529 \times 0.021}$$

$$= 0.479$$

$$= 47.9 \%$$

Table 4.13:

**Calculation of covariance and correlation, portfolio return, portfolio risk
between the stocks of NABIL & SCBNL:**

Year	$R_{NABIL} - \bar{R}_{NABIL}$	$R_{SCBNL} - \bar{R}_{SCBNL}$	$(R_{NABIL} - \bar{R}_{NABIL})(R_{SCBNL} - \bar{R}_{SCBNL})$
2003/2004	-0.327	-0.528	0.172
2004/2005	-0.2	-0.247	0.049
2005/2006	-0.231	0.257	-0.059
2006/2007	1.466	0.829	1.215
2007/2008	-0.331	0.021	-0.00069
2008/2009	-0.376	-0.332	0.124
Total			1.50

Source : As per table no. 4.2 and 4.4

We have,

$$\text{Cov}(R_{NABIL}, R_{SCBNL}) = \frac{(R_{NABIL} - \bar{R}_{NABIL})(R_{SCBNL} - \bar{R}_{SCBNL})}{n-1} = \frac{1.502}{6-1} = 0.3$$

$$\text{Correlation}_{NABIL \& SCBNL} = \frac{\text{Cov.}(R_{NABIL}, R_{SCBNL})}{\sigma_{NABIL} \cdot \sigma_{SCBNL}} = \frac{0.3}{0.720 \times 0.490} = 0.852$$

Optimal portfolio weight of stock of NABIL & SCBNL

$$W_{NABIL} = \frac{\sigma_{SCBNL}^2 - \text{Cov}(R_{NABIL}, R_{SCBNL})}{\sigma_{NABIL}^2 + \sigma_{SCBNL}^2 - 2\text{Cov}(R_{NABIL}, R_{SCBNL})}$$

$$= \frac{0.240 - 0.3}{0.518 + 0.240 - 2 \times 0.3} = \frac{-0.06}{0.158} = -0.379$$

$$W_{SCBNL} = 1 - W_{NABIL}$$

$$= 1 - (-0.379)$$

$$= 1.379$$

The portfolio will be

$$\begin{aligned} \overline{R}_p &= W_{NABIL} \cdot \overline{R}_{NABIL} + W_{SCBNL} \cdot \overline{R}_{SCBNL} \\ &= -0.379 \times 0.775 + 1.379 \times 0.659 \\ &= 0.615 \\ &= 61.5\% \end{aligned}$$

Where,

Portfolio risk is given as

$$\begin{aligned} \sigma_p &= \sqrt{W_{NABIL}^2 \cdot \sigma_{NABIL}^2 + W_{SCBNL}^2 \cdot \sigma_{SCBNL}^2 + 2W_{NABIL} \cdot W_{SCBNL} \cdot \text{COV}(R_{NABIL}, R_{SCBNL})} \\ &= \sqrt{(-0.379)^2 (0.720)^2 + (0.1.379)^2 (0.490)^2 - 2 \times 0.379 \times 1.379 \times 0.3} \\ &= 0.466 \\ &= 46.6\% \end{aligned}$$

4.5.2 Composition of Risk and Return on the Basis of Isolation and Portfolio

Table: 4.14:

Portfolio Risk and Return of NABIL and SBI

	In Isolation			In Portfolio			Cov.	Corr.
	Return	S.D	C.V	Return	S.D.	C.V		
NABIL	0.775	0.720	0.929					
				0.801	0.616	0.0.769	0.331	0.725
SBI	0.813	0.634	0.779					

From the above table we can clearly see the portfolio return is less than the return in isolation. Risk is less in portfolio than in isolation. To take an investment decision coefficient of variation (C.V.) is the most appropriate basis. Since it measures risk per unit return. On the basis of C.V. SBI is best option for investment because it has lowest C.V. so, set of NABIL and SBI portfolio is not beneficial.

Table: 4.15:

Portfolio Risk and Return of NABIL and BOKL

Banks	In Isolation			In Portfolio			Cov.	Corr.
	Return	S.D	C.V	Return	S.D.	C.V		
NABIL	0.775	0.720	0.929					
				0.80	0.479	0.598	-0.021	-0.043
BOKL	0.832	0.671	0.806					

From the above table we can clearly see the portfolio return is less than the return in isolation. Risk is less in portfolio than in isolation. To take an investment decision coefficient of variation (C.V.) is the most appropriate basis. Since it measures risk per unit return. On the basis of C.V. BOKL is best option for investment because it has lowest C.V. so, set of NABIL and BOKL portfolio is not beneficial.

Table: 4.16:

Portfolio Risk and Return of NABIL and SCBNL

Banks	In Isolation			In Portfolio			Cov.	Corr.
	Return	S.D	C.V	Return	S.D.	C.V		
NABIL	0.775	0.720	0.929					
				0.615	0.466	0.757	0.3	0.852
SCBNL	0.659	0.490	0.743					

From the above table we can clearly see the portfolio return is less than the return in isolation. Risk is less in portfolio than in isolation. To take an investment decision coefficient of variation (C.V.) is the most appropriate basis. Since it measures risk per unit return. On the basis of C.V. SCBNL is best option for investment because it has lowest C.V. so, set of NABIL and SCBNL portfolio is not beneficial.

Table 4.17:

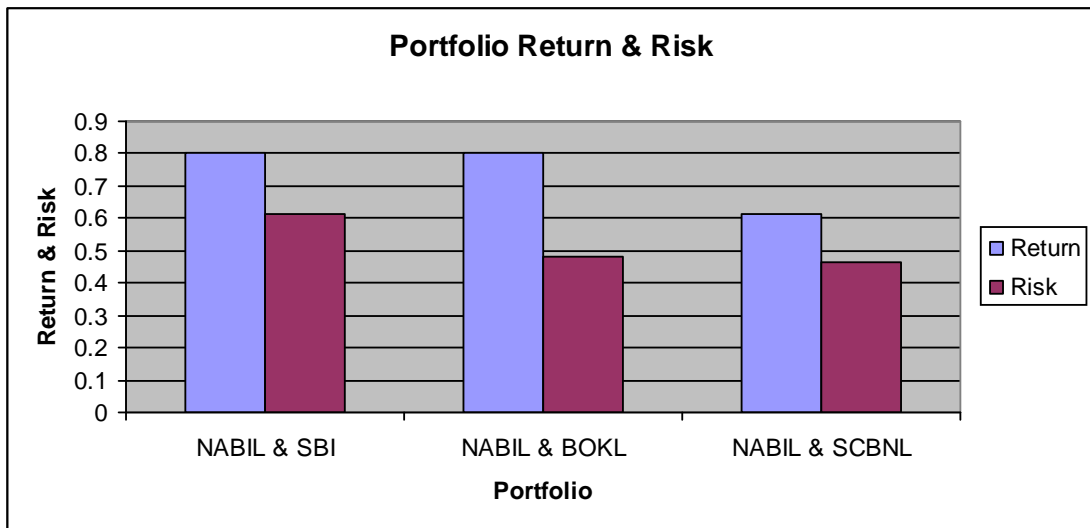
Comparative Analysis of Portfolio Risk and Return

Portfolio Banks	Portfolio Return	Portfolio Risk	C.V.	Covariance	Remarks
NABIL & SBI	0.801	0.616	0.769	0.331	
NABIL & BOK	0.805	0.479	0.598	-0.021	Highest Return
NABIL & SCBNL	0.615	0.466	0.757	0.3	Lowest Risk

Above table shows that portfolio return, portfolio risk and covariance between listed commercial banks. Portfolio of NABIL and SCBNL has lowest risk (i.e. equal to 0.466) and portfolio of NABIL and BOKL has highest return (i.e. equal to 0.805), Investors can earn highest return by holding optimal portfolio of NABIL and BOKL. Investors can minimize risk by holding optimal portfolio of NABIL and SCBNL.

Figure 4.8:

Portfolio Risk and Return



From the above diagram, we can clearly see the portfolio risk and return. The portfolio of NABIL and SCBNL has lowest risk and portfolio of NABIL and BOKL has highest return.

4.6 Major Findings of the Study based on Secondary Data

- Expected rate of return of SBI, NABIL BOKL, and SCBNL are 81.3%, 77.5%, 83.2%, and 65.9% respectively. Among four sampled banks, BOKL has the highest rate of return and SCBNL has lowest rate of return.
- Standard deviation of SBI, NABIL, BOKL, and SCBNL are 77.9%, 72%, 67.10% and 49% percent respectively. The standard deviation of SBI is highest and SCBNL has lowest.
- Coefficient of variation of SBI, NABIL, BOKL, and SCBNL are 0.779, 0.929, 0.806, and 0.743 respectively. Coefficient of Nabil is highest and SCBNL has lowest.
- Beta coefficient of SBI, NABIL BOKL, and SCBNL are 1.14, 1.68, 0.86 and 1.27 respectively. Beta of Nabil is highest and Beta of BOKL is lowest
- Portfolio return of NABIL and SBI, NABIL and BOKL; and NABIL and SCBNL are 80.10%, 80.5% and 61.5% respectively. Among four sampled banks, NABIL and BOKL have the highest portfolio return and NABIL and SCBNL has lowest portfolio return.
- Portfolio risk of NABIL and SBI, NABIL and BOKL; and NABIL and SCBNL are 61.6%, 47.7% and 46.6% respectively. Among four sampled banks, NABIL and SBI have the highest portfolio risk and NABIL and SCBNL has lowest portfolio risk.
- Coefficient of variation of NABIL and SBI, NABIL and BOKL; and NABIL and SCBNL are 0.769, 0.598 and 0.757 respectively. Coefficient of NABIL and SBI is highest and NABIL and BOKL have lowest.

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATION

The Present study has been carried out with the objective of analysis the risk and return of selected companies. Accordingly, relevant literature was reviewed and study was carried out following a suitable methodology, a brief explanation of all procedures and effects has been summed up in this chapter along with conclusions drawn and suggestion, recommended.

5.1 Summary and Conclusions

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

The relationship between risk and return is described by investor's perception about risk and their demand for compensation. No investors will like to invest in risky assets unless he/she is assured of adequate compensation for the acceptance of risk. Hence, risk plays a central role in the analysis of investment. Investors often ask about an investment and like to know if the risk will command higher premium and trade-off between the two assumes a linear relationship between risk and premium.

It can be said that the rate of return on investment is many factors that include the real cost of money inflation risk, maturity risk, default risk etc. The investors offers more capital or higher rate of return, where users of capital always show their readiness to use more capital at lower rate.

Common stock is most risky security and lifeblood of stock market because of higher expected return, an investment in common stock of a corporate firm neither ensured an

Annual neither returns nor ensures the return of principle. Therefore, investment in the common stock is very sensitive on the ground of risk. Dividends to common stock holders are paid only if the firm makes an operating profit after tax and preference

dividend of the residual as after satisfying to all creditors and preferential shareholders. Common stock has attracted more investors in Nepal, rush in the primary market during the primary issues is one of example. Private common holders are the passive owners of the company. But private investors play a vital role in economic development of the nation by mobilizing the dispersed capital in different form in the society.

The main objectives of the study are to analyze the risk and return in common stock investment of Nepalese stock market. The study is focused on the common stock of listed commercial banks in Nepal. Hence, listed commercial banks are taken as reference to analyze the risk and return in common stock investment. While analyzing the risk and return, brief review of related studies has been performed. Scientific methods are used in data analysis. Table, graphs and diagrams are used which represents the data and result more clearly. Both qualitative and quantitative analyses have been performed by using statistical tools and financial tools. Secondary data are collected from NEPSE, NRB, SEBO/N, website and other related banks, other subjective types of information are collected through financial executives of companies and officials of NRB, SEBON and NEPSE. Findings of analysis conclusions are described below.

5.2 Findings and conclusions

Most of the people considered stock market investment as a black art they have unrealistically optimistic or pessimistic expectations about stock market investment of perhaps a fear of the unknown. This study enables investors to put the returns they can expect and the risks they may take into better perspective we know that Nepalese stock market is in emerging stage. Its development is accelerating since the political change in 1990 in effect of openness and liberalization in national economy. But, Nepalese individual investors cannot analyze the security as well as market properly because of lack of information and poor knowledge about of security analysis for investment.

- i. The return is the income received on a stock investment, which is usually expressed in percentage. Expected return on the common stock of Bank of Kathmandu Ltd. is maximum (i.e. 83.20%) among four commercial banks.

Similarly expected return on the common stock of SCBNL is found minimum (i.e. 65.9%) among four commercial banks.

- ii. Risk is the variability of returns which is measured in terms of standard deviation. On the basis of S.D, common stock of Nabil is most risky since it has highest S.D (i.e.72%) and common stock of SCBNL is least risky because of lowest S.D (i.e. 49%). On the other hand we know that coefficient of variation (C.V) is more rational basis of investment decision which measures the risk per unit of return. On the basis of C.V, common stock of SCBNL is best among all banks. SCBNL has 0.743 unit of risk per 1 unit of return. By observing all the factors of risk and return stock of SCBNL may be considered better investment as it has medium risk and medium return. Thus the investors are suggested to invest in the stock of SCBNL.
- iii. Standard deviation is total risk which includes systematic and unsystematic risk. Major aspect of the risk is systematic risk, which is defined by the market and measured by beta coefficient (β). Beta coefficient explains the sensitivity or volatility of the stock with market, higher the beta greater the volatility. In this context, common stock of Nabil is most volatile (i.e. $\beta=1.68$) and common stock of BOKL is least volatile (i.e. $\beta=0.86$). The bank's stock having the beta coefficient of market i.e. more than 1 is aggressive type of common stock and less than 1 is defensive stock. We find that SBI, NABIL and SCBNL have aggressive type of common stock. BOKL has the defensive stock
- iv. One of the main significance of beta is in capital asset pricing model (CAPM). CAPM is the model that describes that relationship between risk and required rate of return. Where risk free rate plus a premium based on the systematic risk of security is required rate return of that stock. Comparison between risk of return and required rate of return, identifying whether the stock is overpriced or under priced. If expected rate return is higher than required rate of return the stock is under priced and if expected rate of return is lower than required rate of return the stock is over priced. This study shows that SBI, NABIL, BOKL and SCBNL are under priced....
- v. From the two assets portfolio, portfolio return for the stock of NABIL & BOKL is found to be the highest as compared to the other stocks of bank (i.e.

80.5%). Where as the stock of NABIL & SCBNL is found to have the lowest return which is only 61.5%.

- vi. From the portfolio risk, portfolio risk for the stock of NABIL & SBI is found to be the highest as compared to the other stocks of bank (i.e. 61.6%). Where as the stock of NABIL & SCBNL is found to have the lowest risk which is only 46.6%.
- vii. Coefficient of variation of NABIL and SBI, NABIL and BOKL; and NABIL and SCBNL are 0.762, 0.595 and 0.757 respectively. Coefficient of NABIL and SBI is highest and NABIL and BOKL have lowest.

Most of the investors invest only keeping the return in the mind but they are unable to calculate risk factor of the security. Most of the Nepalese investor invests in single securities. 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 security. They invest their fund in different securities on the basis of expectation and assumption of individual securities rather than analysis of the effect of portfolio. It seems that they don't have knowledge of the risk diversification by using portfolio of their investment.

5.3 Recommendations

Mainly this study is focused on individual investors other related components of stock market are also taken into account to some extent. The following recommendations and suggestions are prescribed on the basis of data analysis and major analysis and major finding of this research.

1. The common stock returns of commercial banks are highly sensitive to market. They are highly positively correlated to the market. So, market should be further analyzed by the investors to balance the risk and return properly.
2. If investor is risk averter, it is recommended him or her to invest in SCBNL and if investor is risk seeker, then suggested to invest in NABIL
3. Comparison between the listed commercial bank, Standard Chartered Bank Nepal Ltd (SCBNL) is the best bank among other banks. Therefore, the investors can get the appropriate return in minimum risk for investment.
4. Investors need to diversify their fund to reduce risk. Proper construction of portfolio will reduce considerable potential loss, which can be defined in terms

of risk. Among selected commercial banks investment in portfolio of all banks are not beneficial

5. Nepalese investors are requested to develop an appropriate basis for their investment on common stock as per the requirement. They are recommended to invest their fund by performing multiple analyses.
6. As risk and return are positively correlated Nepalese investors are requested to assess these factors as an important and recommended to analyze these factors with different financial tools and techniques.
7. Investment in common stock is a very risky job as there is no guarantee of the return than which is expected. On the other hand, there is also chance for a heavy loss. The stock market is undoubtedly risky in the starting term and investors need to be prepared for it. The investors should try and work out their attitude towards the riskiness of various investment strategies.
8. Administration should be made further efficient to check the performance of individual company's flow of information and it should be more regular.
9. Investment clubs are a good way to exchange investment ideas in Nepalese context. There are not such types of club for collecting investment i.e. Mutual of the worth for those people with little investment. In addition, it allows investors with limited resources to obtain reasonable diversification so sharing experience, ideas and taking expert can be greater help.
10. Risk and return analysis is completely untouched area in Nepalese context. It is strongly suggested that further study can be conducted on the topic and research can includes maximum number of samples.
11. Analysis of personal risk attitude, needs and requirement will be helpful before making an investment decision in stock market. Investors should make several decisions with stock broker before reaching at the decision. Investors should not invest only on imagination and rumors.

BIBLIOGRAPHY

- Agrawal, U. (2007, 15Sep-14 Oct). Stock Watch. **The Boss Magazine**. Pp. 101-101
- Aryal, M. (1995). *The General Behavior of Stock Market*. An Unpublished Master's Degree Thesis, Kathmandu Central Department of Management, Tribhuvan University.
- Brigham, E.F. & Gapenski, L.C. (1995). *Intermediate Financial Management*. New York: The Dryden Press
- Francis J.K. (1983). *Management of Investments*. New York: Mc Graw Hill.
- Gautam, R.R, & Thapa, K. (2005) *Capital Structure Management*. Kathmandu: Asmita Books Publishers & Distributors
- Gitaman, L.J. (1998) *Principles of Managerial Finance*. New York: Harper & Row Publishers, Inc
- Gupta, S.C. (1999) *Fundamental of statistics*. New Delhi: Himalayan Publishing House.
- Pandey, I.M. (1992). *Financial Management*. New Delhi: Vikas Publishing House Pvt. Ltd.
- Pandey, S. (2001). *Public Response to primary Issue of share in Nepal*. An Unpublished Master's Degree Thesis, Central Department of Management, Tribhuvan University.
- Pandey, S. (2006, March). *IPO funding via financial institution: Not a very healthy Practice*. New Business Age. Pp. 49-50.
- Paudel, N. (2006). *Public Response to IPO in Nepal*. An Unpublished Master's Degree Thesis. Central Department of Management, Tribhuvan University.
- Pokhrel, N (2007, March). *Systematise Margin lending*. **New Business Age**.pp.55-56.
- Pradhan, S. (1992). *Basic of Financial Management*. Kathmandu: Educational Enterprises Pvt. Ltd

Security Board of Nepal (2008/2009) Kathmandu: *Annual report*.

Shrestha S.K. (1996). *Public Response to Primary Issue of Share in Nepal*. An Unpublished master's degree thesis. Central Department of Management, Tribhuvan University.

Shrestha, M.K. (1980). *Financial management theory and practice*. Kathmandu: Curriculum Development Centre.

Wolf, H.K. & Pant, P.R. (2005) *Social Science Research and Thesis Writing*. Kathmandu: Budha Academic Publishers and Distributors

Websites

www.google.com (20th March, 2010)

www.ncml.com (20th March, 2010)

www.nepalstock.com (20th March, 2010)

www.nrb.org.np (5th May, 2010)

www.sebonp.com (5th May, 2010)

www.nepalsbi.com.np (20th March, 2010)

www.nabilbank.com (20th March, 2010)

www.bok.com.np (20th March, 2010)

www.standardchartered.com.np (20th March, 2010)

Appendix

Appendix (I)

Particular	Rs	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Earning per share	Rs	11.47	14.26	13.29	18.27	39.35	28.33	36.18
Market Value per share	Rs	255	307	335	612	1176	1511	1900
Dividend (Including Bonus) on share capital	%	8	0	0	5	47.59	0	42.11
Cash Dividend on Share capital	%	8	0	0	5	12.59	0	2.11
Stock Dividend Per Share	%	0	0	0	0	35	0	40

Source: Annual Report of SBI

Calculation of Stock dividend of SBI Bank in Quantity for different fiscal year is as below

$$2002/03 = 0 \times 307 = 0$$

$$2003/04 = 0 \times 335 = 0$$

$$2004/05 = 0 \times 612 = 0$$

$$2005/06 = 0 \times 1176 = 0$$

$$2006/07 = .35 \times 1511 = 528.85$$

$$2007/08 = 0 \times 1900 = 0$$

$$2008/09 = .40 \times 1900 = 760$$

Appendix (II)

Particular	Rs	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Earning per share	Rs	84.66	92.61	105.49	129.21	137.08	108.31	106.76
Market Value per share	Rs	735	1000	1505	2240	5050	5275	4899
Dividend (Including Bonus) on share capital	%	50	65	70	85	140	100	85
Cash Dividend on Share capital	%	50	65	70	85	100	60	35
Stock Dividend Per Share	%	0	0	0	0	40	40	50

Source: Annual report of Nabil

Calculation of Stock dividend of Nabil Bank in Quantity for different fiscal year is as below

$$2002/03 = 0 \times 1000 = 0$$

$$2003/04 = 0 \times 1505 = 0$$

$$2004/05 = 0 \times 2240 = 0$$

$$2005/06 = 0 \times 5050 = 0$$

$$2006/07 = .40 \times 5275 = 2110$$

$$2007/08 = .40 \times 4899 = 1959.60$$

$$2008/09 = .50 \times 4899 = 2449.50$$

Appendix (III)

Particular	Rs	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Earning per share	Rs	17.72	27.50	30.10	43.67	43.50	59.94	54.68
Market Value per share	Rs	198	295	430	850	1375	2350	1825
Dividend (Including Bonus) on share capital	%	5	10	15	48	20	42.11	47.37
Cash Dividend on Share capital	%	5	10	15	18	20	2.11	7.37
Stock Dividend Per Share	%	0	0	0	30	0	40	40

Source: Annual report of BOKL

Calculation of Stock dividend of BOKL Bank in Quantity for different fiscal year is as below

$$2002/03 = 0 \times 295 = 0$$

$$2003/04 = 0 \times 430 = 0$$

$$2004/05 = 0 \times 850 = 0$$

$$2005/06 = .30 \times 1375 = 412.5$$

$$2006/07 = 0 \times 2350 = 0$$

$$2007/08 = .40 \times 1825 = 730$$

$$2008/09 = .40 \times 1825 = 730$$

Appendix (IV)

Particular	Rs	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Earning per share	Rs	149.30	143.55	143.55	175.84	167.37	131.92	109.99
Market Value per share	Rs	1640	1745	2345	3775	5900	6830	6010
Dividend (Including Bonus) on share capital	%	110	110	120	140	130	130	100
Cash Dividend on Share capital	%	100	110	120	130	80	80	50
Stock Dividend Per Share	%	10	0	0	10	50	50	50

Source: Annual report of SCBNL

Calculation of Stock dividend of SCBNL Bank in Quantity for different fiscal year is as below

$$2002/03 = .10 \times 1745 = 174.5$$

$$2003/04 = 0 \times 2345 = 0$$

$$2004/05 = 0 \times 3775 = 0$$

$$2005/06 = .10 \times 5900 = 590$$

$$2006/07 = .50 \times 6830 = 3415$$

$$2007/08 = .50 \times 6010 = 3005$$

$$2008/09 = .50 \times 6010 = 3005$$

Appendix (V)

Particular	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Nepse Index	204.86	222.04	286.67	386.63	683.95	963.36	749.10

Source: Annual report of Nepal Stock Exchange

Appendix (VI)

$$\text{SBI (ERi)} = R_{F+} + (\overline{R_m} - R_f) \text{ SBI}$$

$$= 0.083 + (0.279 - 0.083) 1.14$$

$$= 0.306$$

$$\text{Nabil (ERi)} = R_{F+} + (\overline{R_m} - R_f) \text{ nabil}$$

$$= 0.083 + (0.279 - 0.083) 1.68$$

$$= 0.412$$

$$\text{BOKL (ERi)} = R_{F+} + (\overline{R_m} - R_f) \text{ bokl}$$

$$= 0.083 + (0.279 - 0.083) 0.86$$

$$= 0.251$$

$$\text{SCBNL (ERi)} = R_{F+} + (\overline{R_m} - R_f) \text{ scbnl}$$

$$= 0.083 + (0.279 - 0.083) 1.27$$

$$= 0.331$$

Appendix (VI)

Calculation of Beta coefficient of the Common stock of NABIL

Fiscal year	Return (R _j)	(R _j - $\overline{R_j}$)	Return on market (R _m)	(R _m - $\overline{R_m}$)	(R _j - $\overline{R_j}$)(R _m - $\overline{R_m}$)
2003/2004	0.448	-0.327	-0.083	-0.196	0.064
2004/2005	0.575	-0.2	0.291	0.012	-0.00024
2005/2006	0.544	-0.231	0.348	0.069	-0.015
2006/2007	2.241	1.466	0.769	0.49	0.718
2007/2008	0.444	-0.331	0.408	0.129	-0.0426
2008/2009	0.399	-0.376	-0.222	-0.501	0.188
Total					0.912

Where,

$$\text{Cov}(R_j R_m) = \frac{(\overline{R_j - R_j})(\overline{R_m - R_m})}{n-1} = \frac{0.912}{6-1} = 0.182$$

$$j = \frac{\text{Cov}(R_j R_m)}{\sigma_m^2} = \frac{0.182}{0.108} = 1.68$$

Where, n = No. of observation = 6

σ_m^2 = Variance of market return

R_j = Return of stock 'j', SBI

Appendix (VII)

Calculation of Beta coefficient of the Common stock of BOKL

Fiscal year	Return (Rj)	(Rj- $\overline{R_j}$)	Return on market (Rm)	(Rm- $\overline{R_m}$)	(Rj- $\overline{R_j}$)(Rm- $\overline{R_m}$)
2003/2004	0.540	-0.292	-0.083	-0.196	0.057
2004/2005	0.508	- 0.324	0.291	0.012	-0.000388
2005/2006	1.977	1.145	0.348	0.069	0.079
2006/2007	0.641	-0.191	0.769	0.49	-0.093
2007/2008	1.241	0.409	0.408	0.129	0.052
2008/2009	0.090	-0.742	-0.222	-0.501	0.371
Total					0.465

Where,

$$\text{Cov}(R_j R_m) = \frac{(\overline{R_j - R_j})(\overline{R_m - R_m})}{n-1} = \frac{0.465}{6-1} = 0.093$$

$$j = \frac{\text{Cov}(R_j, R_m)}{\sigma_m^2} = \frac{0.093}{0.108} = 0.86$$

Where, n = No. of observation = 6

σ_m^2 = Variance of market return

Rj = Return of stock 'j', SBI

Appendix (VIII)

Calculation of Beta coefficient of the Common stock of SCBNL

Fiscal year	Return (Rj)	(Rj- $\overline{R_j}$)	Return on market (Rm)	(Rm- $\overline{R_m}$)	(Rj- $\overline{R_j}$)(Rm- $\overline{R_m}$)
2003/2004	-0.528	-0.196	-0.083	-0.196	0.103
2004/2005	-0.247	0.012	0.291	0.012	-0.000296
2005/2006	0.257	0.069	0.348	0.069	0.017
2006/2007	0.829	0.49	0.769	0.49	0.406
2007/2008	0.021	0.129	0.408	0.129	0.00027
2008/2009	-0.332	-0.501	-0.222	-0.501	0.166
Total					0.691

Where,

$$\text{Cov}(R_j R_m) = \frac{(\overline{R_j - R_j})(\overline{R_m - R_m})}{n-1} = \frac{0.691}{6-1} = 0.138$$

$$j = \frac{\text{Cov}(R_j R_m)}{\sigma_m^2} = \frac{0.138}{0.108} = 1.27$$

Where, n = No. of observation = 6

σ_m^2 = Variance of market return

Rj = Return of stock 'j', SBI