CHAPTER-I

INTRODUCTION

1.1 Background of the Study

Nepal is one of the least developed countries in the world. More than 80 percent of total population is still in the rural areas and most of them are deprived form the minimum basic requirement of human livelihood. Most of the youths of rural areas, considered backbone for development, are going overseas for employment because of hard life, lack of opportunities, poor facilities and infrastructure, lack of skill based education and minimal or no role of government in the rural areas.

Nepal is in the bottom rung of low–income group countries in the world as per World Bank recent report. Half of the populations are still living below poverty and struggling to fulfill their basic needs. There is varied in percentage of people living in poverty in reports published by different sectors, it is believed that it is more than 30 percent.

To uplift the living standard of Nepalese people from this dire situation is necessary to maintain high economic growth in the country. Nepal is suffering from political instability, insecurity, mismanagement, lawlessness, theft etc. Political leaders and parties are dividing and unable to build of common consensus. No end is visible and frustration mounting after the election of constituent assembly in 2008. For the growth of the economy it is necessary to develop the financial sector and business enterprises. These are the foundation pillar of the overall development of the country.

In today's world, where most of the managerial decision is based on financial analysis, stock market as important part of finance and it expected to develop the country's financial sector.

Financial analysis covers the acquisition, utilization, control and administration of the fund. In a capitalistic economy, expansion of stock market represents the development of a country's financial sector and speed of the nation's economic growth.

In recent years due to the number of factors individual, business organization, government and institutions have rarely a balanced budget. Some of them always earn more than what they consume and other earns less than what they consume. Thus, there is no equilibrium in income and expenditure. Similarly, the people have different perceptions towards risk-return and the individual enterprising ability. This disequilibrium in income and expenditure in the one hand and perception towards risk taking and enterprising ability on the other necessitated a mechanism to transfer financial resources from one unit to other of the society. The advents of security markets have successfully served this purpose of fund transfer form one unit to other. Security markets bring buyers and sellers of securities in one place. Stock markets have both opportunities and threats. To squeeze the opportunities and be safe from seen and unseen threats, it's important to have well-informed knowledge of securities market and its activities and mechanism.

To promote and protect the interest of investor by regulating the Securities Market, Security Exchange Board Nepal (SEBO) was established in May, 1993 (Jestha, 2050). It has the responsibility to develop the security markets in Nepal. SEBO's general objectives and functional responsibilities are as follows.

1.) To promote and protect the interest of investor regulating the issuance, sale and distribution of securities and purchase, sale and exchange of securities.

2.) To supervise, look after and monitor the activities of the stock exchange and of other related firms carrying securities business.

3.) To provide contribution to the development of capital market by making securities transactions fair, healthy, efficient and responsible.

As a developing regulator of the capital market, SEBO is basically relying on government's financial assistance in order to move towards a self–funded institution. It

has created a revolving fund from which it generates income that helps to cover part of its operating expenses. Registration of corporate securities, renewal of license of stock exchange and registration as well as renewal of the license of market intermediaries are the other sources of income.

NEPSE is the only stock exchange in the country. It is owned by the government, Nepal Rasta Bank (The Central Bank) and Nepal Industrial Development Corporation (NIDC). There is small portion of ownership holding of its member. Securities business persons such as stockbrokers, market makers and securities dealer should registered in SEBO and must get membership from the stock exchange to conduct securities business. Similarly, the issuance activities also have to get registration in stock exchange for the transaction in market.

Risk plays a central role in investment analysis. Investors often as about the total risk they will be assuming in an investment and like to know if the risk premium provided as enough. But, they are also concerned about many other issues. First of all, it is necessary to see if the total risk associated with a single asset is relevant for them. Second, they need to know the actual contribution of an asset's risk to portfolio risk. Financial market refers to money market and capital market. Money market may be defined as short–term financial assets market, which facilitates liquidity and marketability of securities. It includes the market for debt instrument having maturity of less than one year. The functions of money market interest rates reflecting the demand and supply of funds in the competitive market. The instruments used in money market are treasury bills, negotiable certificate of deposit, municipal bonds, baker acceptance etc.

In Nepalese context, some financial institutions have been involved in capital market. They are Nepal Rastra Bank, Commercial Banks, Agricultural Development Bank, Nepal Industrial Development Corporation, Employees Provident Fund, Citizen Investment Trust, Finance, Development Banks, Cooperatives Agencies, Non Government Organization (NGO'S) and some hotels manufacturing and trading agencies etc.

These institutions play a vital role for the development of capital market. Like money market, Nepalese capital markets are also classified in organized and un-organized sectors. Government agencies and other institutions, which are already mentioned above categorized in organized sectors, they provide long term fund for the development of the agriculture, industrial and commercial sectors by investing in stock, debenture and government bonds individual investor, merchants and private sectors also helps for the development of capital markets. Rural areas are still dominated by unorganized sectors. It implies that mass poverty and exploitation form higher classes are still found in these areas.

Common stocks are easier to describe but hard to analysis. Common stock represents equity or ownership position in a corporation. Hence, common stock is known as risky security. It is regarded as most expensive form of long term financing. This is because dividends are not far deductible and it is risky security. Investing is a process of making decision today whose result will not be known until tomorrow. The motivation for investment in stock market is desired to increase the wealth.

Generally, investment is risk. The assets having great returns with the least amount of risk, investor must try to identify the securities having low risk with high return. One way in which investor can reduce the risk is by spreading their capital across a range of investment. This is the principle of diversification of not putting the eggs in one basket. Diversification involves constructing the investor's portfolio in such a manner that risk is minimized.

Banks are one of the major players in the economic growth of the country and hence it needs proper attention to run successfully. Banks should be established and conducted after analyzing the various factors.

Normally banks plays at public money that is why people pay their attention whether their money is properly utilized or not and running at profit or loss. The existence of

profit to any business firm is the basic factor if there is no profit a business firm becomes unable to provide its facilities in the long-run.

Though the various types of banks are in the market, only the commercial banks are taken for the purpose of this study. They are the hearts of the modern financial system.

In Nepal, organized banking system is a relatively recent phenomenon. The process was started by established of Nepal Bank Ltd. in 1994 B.S. This is the first financial institution of the nation. Rastriya Banijya Bank founded in 2022 B.S. followed by many other Joint Venture Banks (JVBS).

JVBS were established after 2040 B.S. In 2041 B.S. the first Joint Venture Banks (JVBS) under the name of Nepal Arab Bank Limited (NABIL) was incorporated. In 2043 B.S. the second JVBS Nepal Indosuez Bank Ltd. now known as Nepal Investment Bank (NIBL) was established. In the same year, Nepal Grindlay's Bank Ltd. (Standard Chartered Bank Ltd) now in the form of JVB was also established. But more JVBS were come to existence when government adopted the policy of economic liberalization and privatization in 2049 B.S. They are Himalayan Bank Ltd. (2049), Nepal SBI Bank Ltd. (2050), Nepal Bangladesh Bank Ltd. (2051), Everest Bank Ltd. (2051) and Bank of Katmandu (2052). These JVBS came into existence to accelerate the pace of economic development and financial system of the nation.

1.2 Focus of the Study

Financial analysis is a key mechanism to take managerial decision. Financial analysis is a combination of investment, financing and dividend. All investors invest their fund to get more return but lack of knowledge they incurred loss. Investor must consider all related factors before making an investment. This study will primarily focus on analyzing risk and return on common stock of randomly selected sample from commercial banks.

1.3 Statement of the Problem

In comparison to the development and growth of capital market the investor's attitude and knowledge does not seem to have changed significantly. They do not have sufficient knowledge about risk and return. There are no separate institutions to provide required information to make rational decision and on the other hand lacks of proper policy discourage the investors.

Investors need to have proper knowledge about investment opportunities. They must be able to analyze the associated risk and return of individual stock. This will help to increase market efficiency. The investor must need to tactfully design his investment and financing activities in a manner to maximize the market values of shares. There are no specific sources to predict and get information about the future risk and return in securities of particular company in Nepal. The concept of portfolio investment should be known and exercise by the Nepalese investor, which helps them to minimize the risks in investment.

In Nepal, the major hindrance for the market efficiency is due to lack of skills, knowledge, resources and lack of technology requires to analyze of risk and return of individual and portfolio stock. The researcher has envisioned the following as research problems for the study.

- What is the compensation of risk bearing?
- How to know about the magnitude of risk?
- What are the basic criteria for evaluating favorable returns from the stocks holding?

1.4 Objectives of the Study

The main objective of this study is to analyze risk and returns in common stock investment of selected commercial banks. The objectives of study are as follows.

- To estimate risk and return of a common stock and their portfolio
- To analyze risk and return relationship of individual stock with that of market
- To examine risk and return in common stock of listed commercial

) To provide information to the investors on investing in stocks

1.5 Significance of the Study

Generally, the Public Companies obtain funds from the public investors through financial market. The long run objective of every company is to maximize shareholders wealth, where as the investors seek to get good returns from their investment.

In context of Nepal, there is lack of wider investment opportunities that provides good rate of return. So, there has been huge amount of unutilized saving funds with general public. Increasing trend of Market per Share (MPS) of Public Companies, mainly Joint Venture Commercial Bank attracts the investors. Therefore they are investing their saving funds in common stock of Public Companies with the expectation of higher yield. But, there is lack of awareness and limited knowledge about the actual financial conditions of the companies and degree of risk involved in their investment.

Further, this research will attempt to clarify concrete pictures of different aspect of risk and return which will be beneficial to the investors for taking right investment decision.

This study is not only to fulfill the requirement of Master of Business Studies course at T.U. but also to provide more knowledge about the Nepalese Stock Market Developments aware the general public about the associated risk in stocks and encourage them to invest profitable stocks.

1.6 Statement of Hypothesis

To get inference of the study the following hypotheses will be tested

Null Hypothesis (Ho): There is no significance difference between average return of common stock of listed commercial banks and the market return.

Alternative Hypothesis (H₁): There is significance difference between average return of common stock of listed commercial banks and the market return.

1.7 Limitations of the Study

The following are some limitations of the study.

- It only covers five years data.
- This study will confine to five commercial banks only.
- This study focuses only on analysis of risk and return of stock excludes other components.
- The secondary data will be used for the study.
- The study focuses on the quantitative aspect of stocks only, won't study the qualitative aspects.
- Some degree of differences found in the data from NEPSE and sample companies.

1.8 Organization of the Study

This study has been broadly divided into five chapters, which are as follows.

Chapter-1 Introduction

It includes background of the study, statement of the problem, objective of the study, significance of the study, hypothesis of the study and limitation of the study.

Chapter-2 Review of Literature

It consists of the review of literature, conceptual framework and review of related journals, books and previous studies relevant to study.

Chapter-3 Research Methodology

It comprises research design, population and sample, source of data, data collection procedure, analytical tools, description, comparison and so on.

Chapter-4 Data Presentation and Analysis

This chapter attempts to analyze and evaluate the data with help of analytical tools and interpret the result.

Chapter-5 Summary, Conclusion and Recommendations

It sums up the results obtained through analysis and provides reasonable recommendation as per the result of the study.

CHAPTER–II

REVIEW OF LITERATURE

This study is focused on common stock investment and its impact on risk and return. Theoretical aspect of risk and return is explored in this chapter. The main objective of reviewing the literature is to develop some understanding in the research area, to see what extra contribution can be made and to achieve some ideas for developing a research design. In this part, previous studies related with this field are reviewed as valuable foundation for current study and it is simply the summary and paraphrase of the previous study. This chapter reviews some basic academic course books, journals and other related studies.

2.1 Conceptual Framework

The center point of this study is risk and return analysis on common stock investment of some commercial banks. This section reviews the meaning and definitions of different concepts and terms used in this study.

2.1.1 Common Stock

Common stock is an ownership security. It is a source of long term financing. The common stock certificates are legal documents that give an evidence of ownership in a company that is organized as a corporation. Common stocks are marketable financial instruments. Sole proprietorships and partnerships are other forms of business organizations, but only corporations can issue common stock.

When investors buy common stock, they receive certificate of ownership as a proof of there being part owners of the company. The certificate sates the number of share purchased and their par value. Common stock is the first security of corporation to be issued and, in the event of bankruptcy, the last to be reimbursed. Each share of stock is fractions of the rights and privilege that belongs to the owners of a business.

Stockholders return on investment is less certain than the return to lender or a preferred stockholder, one the other hand the common stock can be authorized with or without par value. The par value of a stock is merely a stated figure in the corporate charter and is of little economic significance. A company should not issue stock at a price less than par value because stockholders who bought stock for less than par value would be liable to creditors for the differences between par price they paid and the par value (Van Horne, 1990; 560).

The main characteristics of common stock are as follows.

a) Priority to Assets and Earnings

Common Stocks holders have a residual claim on the earnings and assets of their corporation.

b) Par Value Stock No Par Value Stock

Owners of common stock in a corporation are referred to as shareholders or stockholders. They receive stock certificates for the shares they own. There is often a stated value on each stock certificate called the par value. The par value of each share of most common stock in Nepal is NRs.100.

c) Authorized, Issued and Outstanding Shares

The corporate charter of a company of specifies the number of authorized shares of common stock that the company can issues maximum without amending its charter.

d) Voting Rights

The common shareholder's right to vote in the affairs of the company. In most of the common stock each shareholders casts one vote in one share. A proxy is a temporary transfer of the right to vote.

e) Maturity

The capital obtained from this source is called as fixed capital. This cannot be redeemed in the mid life of the organization.

f) Capital in Excess of Par Value

Capital in excess of par value often called capital surplus or additional paid in capital usually refers to the amounts directly contributed to equity capital in excess of the par value.

g) Retained earnings

Retained earnings are the balance sheet account that indicates the total amount of earnings that is retained in the business. These earnings have been reinvested in the firm.

h) The Book Value per Share

The book value of each common stock is equal to the net worth or common equity (common stock holder's equity), consisting of sum of common stock, retained earnings, and paid in capital, dividend by the number of shares of common stock outstanding.

i) Stock certificate

Stock certificate is usually registered with the name, address and holding of the investor included on the corporation books, which represented the ownership of a firm's stock.

j) Ownership Rights

Common stockholders are owners of the firm they often have voting right that permits them to select the firm's director and to vote on special issue.

As owners, Common Stockholders are entitled to following rights and privileges.

a) Control

Common Stock has voting rights that can be used corporate directors who, in turn appoint the corporate officers.

b) Preemptive Rights

Preemptive rights give existing shareholders the first options to purchase a proportionate interest in a new issue of a corporation stock. The purpose of this provision is to protect stockholder against a loss of voting, control and dilution in the value of their shares. The preemptive right is usually satisfied but the use of right offering.

c) Liquidation Rights

As owners rather than creditors, common stockholders receive no priority in the distribution of assets resulting from liquidation of a corporation. Typically, Common stock holders will be paid little at last if surplus after satisfying third parties liabilities and preferred stockholders.

d) Rights to Income Distribution of Additional Shares

Common stockholders have no legal rights to receive income distribution from the corporation. As a practical matter, however, the board of directors may declare cash and stock dividends to the stockholders, provided the financial resources are available, even for periods when the corporation has experienced a loss.

2.1.2 Return

Return is the reward for uncertainty of risk. The concept of return has different meaning to different investor. Return is the main attraction for investors to invest in risky securities as stock accepting a varying degree of risk tolerance. Return is the total gain or loss experienced on investment over a given period of time.

Some investors seek immediate cash inflows and give less value to long term return such investor might purchase the stock of such firms that pays large cash dividends. Other investors are concerned primarily with growth of sales, earning and capital appreciation.

When people buy common stock they give up current consumption in the hope of attaining future consumption. They expect to collect dividend and eventually sell the stock at a profit. The benefit associated includes the cash dividends paid during the year

together with an appreciation in market price, or capital gain realized at the end of the year. Returns are defined as the dividend yields plus the capital gain or loss. The relationship between levels of return on their relative frequencies is called probability distribution. It can formulate a probability distribution for the relative frequency of a firm annual return by analyzing its historical return over the previous year. But history never repeats itself exactly. Hence, after analyzing relative frequencies of historical return for individual company, it can form a probability distribution based on historical data plus the analysis for the outlook for the economy, the outlook for the industry and the outlook for the firm in its industry and another factors.

The after tax increase in the value of the initial investment is the investment return, the increase in value can come from two source: a direct cash payment to the investor or an increase in market value of the investment relative to the original purchase price. An investment single period rate of return denoted 'r' is simply the total return an investor would receive during the investment period or holding period stated as a percentage of the investments price at the start of the holding period.

$$r = \frac{(Pt - Po) + Dt}{Po}$$

Where

   r = Single Period Rate of Return

   Pt = Market Price at the End of period t

   Po = Current Market Price at Purchase Price

   Dt = Cash Dividend Received During the Period t

   (Pt-Po) = Income from Price Appreciation (or losses from depreciation)
         Sometimes Called Capital Gain (or losses)

Above formula can be used to determine both actual single period return as well as expected return. Holding period's returns are often calculated for periods other than one year. Many holding periods returns over periods shorter or longer than year are

annualized. In general, if the length of the holding period is not specified, it is assumed to be one year.

2.1.3 Risk on Common Stock

Risk is defined in Webster's Dictionary as a hazard; a peril: exposure or loss or injury. Thus, for most, risk refers to the chance that some unfavorable event will occur. If you invest in speculative stocks for really, any stock, you are taking a risk in the hope of making an appreciable return. Risk is the uncertainty associated with the end of period value of an investment. Risk is the possibility or chance of meeting danger or suffering loss. Uncertainties and risks are the facts of life to the common stock holders. Uncertainty and risk is perceived by different people in different ways. Some perceived uncertainty as simply a lack of defines outcomes. It is anything that could happen at any time, which may be favorable or unfavorable. Other people consider risk as a chance of happening some unfavorable event or danger of losing some value. The terminology uncertainty and risk are often used interchangeably.

Although it is not quite clear what previously uncertainty and risk means. Authorities in the fields of finance and people concern about finance do agree that risk is the product of uncertainty. If we interpret uncertainty as a future outcome which is hundred percent sure to happen, uncertainty is then just the opposite of certainty that refers to all possible future outcomes none of which is known for sure to happen. Risk in the other hand is the product of all potential outcomes expressed with probability associated with each of them and it is measured in terms of the degree of variability in the probability distribution of such outcome. Risk defines most generally is the probability of the occurrence of unfavorable outcomes. But risk has different meanings on the different context.

In our context, two measure developments from the probability distribution have been used as initial measures of return and risk. There are the mean and the standard deviation of the provability distribution.

The standard deviations can sometimes mislead in comparing the risk on uncertainty, surrounding alternative of they differ size. To adjust the size, or scale, problem, that standard deviation can be divided by the expected return computed the co-efficient of variation (C.V.). Thus the coefficient of variation measures relatives' dispersion.

Uncertainty and risk are treated separately in financial analysis. The practice is to translate the uncertainty into the mathematical value, which represents the best estimate of all uncertainty, is taken care by calculating the expected value of all possible uncertain outcomes. But risk is treated differently. Although risk arises form uncertainty it magnitude depends upon the degree of variability in the uncertain cash flows, and it is measured in terms of standard deviation.

Source of Investment Risk

Every investment has uncertainties. Uncertainties make future investment returns risky. The sources of uncertainty that contribute to investment risk are as follows:

a.) Interest Rate Risk

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

b.) Purchasing Power Risk

It is the variability of return an investor suffers because of inflation. Inflation (or a rise in general prices over time) seems to be the normal way of life in most countries today. However, when inflation takes place, financial assets, (such as cash, stocks and bonds) may lose their ability to command the same amount of real goods and services they did in the past. To put this way, the real rate of return or financial assets may not adequately compensate the holder of financial assets for inflation.

c.) Bull – Bear Material Risk

This risk arises from the variability in market returns resulting from alternating bull and bear market forces. When a security index arises fairly consistently from a low point, called a trough, for a period of time, this upwards trend is called bull market. The bull market ends when the market index reaches a peak and starts a downward trend. The period of during which the market declines to the next through is called bear market.

d.) Default Risk

It is the portion of an investment's total risk that results from changes in the financial integrity of the investment.

e.) Liquidity Risk

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

f.) Call Ability Risk

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

g.) Convertibility Risk

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

h.) Political Risk

The portion of an asset's total variability of return caused by changes in the political environment (e.g. a new tax law) that affects the asset's market value is called political risk.

i.) Industry Risk

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

2.1.4 Investment

An investment involves the sacrifice of current rupees for future rupees. The sacrifice takes place in the present and is certain. The reward comes later and is uncertain. Investment generally involves real assets or financial assets. Real assets are tangible, material things such as buildings, machinery, factories and textbooks.

Financial Asset are pieces of paper representing an indirect claim to real assets held by some one else, real assets are generally less liquid than financial assets. Returns to real assets are frequently more difficult to measure accurately. But our principal concern is with financial assets. Investment is an exchange of financial claim stocks and bonds etc. 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 future. Investment involves long-term commitment and waiting for a reward. There are basically following concepts of investments.

    1.) Economic investment, that is, an economist's definition of investment.

    2.) Investment in a general or extended sense which is used by the man of the street

The sense in which it is going to be varying much interested namely financial investment.

**2.1.5 Relationship between Risk and Return**

Investors are generally risk averse. This implies that risky investment must offer higher expected return than less risky investment in order to make the people buy and hold them. The risk aversion attitude of investors portfolio theory was developed and being very important subject in the field of finance. Any individual investment may differ

substantially from the adverse risk and return statistics. That is why it is prudent to investigate any assets before investing.

The relationship between the risk and return is described by investors' perception about risk and their demand for compensation. No investors will like to invest in risky assets unless he is assured of adequate compensation for the assumption of risk. Therefore it is the investors required risk premiums that establish a link between risk and return. In a market dominated by rational investor higher risk will command by rational premium and the trade- off between the two assumptions, a linear relationship between risk and risk premium. The observe difference in both the levels and variability of the rates of return across securities are indicative of the underlying risk return relation in the market.

Figure 2.1

Relationship between Risk and Return
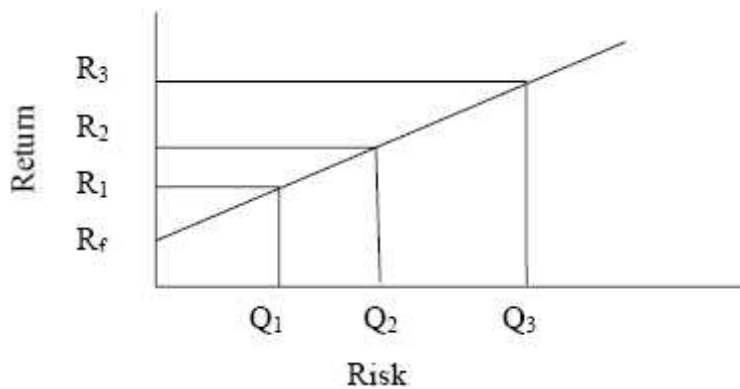
The figure represents a higher premium for higher risk in a linear fashion indicating a premium of ($R_1 - R_1$) for Q_1 degree of risk ($R_2 - R_1$) for Q_2 degree of risk and so on. The assumption of linear relationship states the risk premium increases in decrease in proportion to change in level of risk. R_f stands for return on risk free security. The partial interest is the difference in rates of return across securities, since they provide valuable clues to the market's trade-off between risks and return scientific progress in any field depends on accrued measurement. Many measurement are interesting in them, by their most important scientific role is to test the validity of theory. Since most financial theory

is focused on an explanation of the level, structure and behavior of rates of return, their accurate measurement is essential if the theory is to be tested and improved.

Rational investors would agree that an investment's required return should increase as the risk of investment increase. Most investors would also agree how the expected rate of return should be calculated. But, when the discussion turns to risk the debate begins.

2.1.6 Portfolio Analysis

Portfolios of assets usually offer the advantage of reducing risk though diversification. A portfolio is a combination of investment assets. The portfolio is the holding of securities and investment in financial assets i.e. bond, stock. Portfolio management is related to the efficient portfolio investment in financial assets.

A portfolio is defined as a combination of assets. Portfolio theory deals with the section of optimal portfolios; that is a portfolio that provides the highest possible return for any specified degree of risk or the lowest possible risk for any specified rate of return. Since portfolio theory has been developed most thoroughly for financial assets-stocks and bonds. However, extensions of financial assets portfolio theory to physical assets are readily made and centricity the concepts are relevant in capital budgeting.

The rate of return on portfolio is always a weighted average of the returns of the individual securities in the portfolio. A fundamental aspect of portfolio theory is the idea that the riskiness inherent in any single assets held in a portfolio analysis is performed to develop a portfolio that has the maximum return whatever level of risk an investor thinks appropriate. If portfolio is being constructed they can reduce unsystematic risk without loosing consideration return. Therefore, we need to extend our analysis of risk and return to portfolio position. Portfolio theory, originally proposed by Harry M. Markowitz is based on the assumption that the utility of the investor is a function of two factors: mean return and variance or its square root, the standard deviation of return. Hence it is also referred as the mean variance portfolio theory or two- parameter portfolio theory (Chandra, 1994).

There influences reduce portfolio risk in relation to the standard deviation of individual securities in isolation:

- ⟩ Extend to which the correlation between the returns from the individual securities is less than one.
- ⟩ Number of the securities in the portfolio
- ⟩ Proportion or weights of the individual securities in the portfolio in relation to their correlation among one another.

2.1.7 Capital Assets Pricing Model

CAPM is a model that describes the relationship between risk and expected return in this model, a security's expected return is the risk free rate plus a premium based on the systematic risk of the security. The SML equation as suggested for the computation of expected rate of return on common stock. This model is a under:

$$K_r = R_f + [\ E(R_m) - R_f\ ]\ _j$$

Where,

K_r = Required Rate of Return or Equilibrium Rate of Return for Stock j

R_f = Risk Free Rate of Return

$E(R_m)$ = Expected Return for the Market Portfolio

$_j$ = An Index of Systematic Risk of Stock j

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

If beta is 1 then required return is simply the average return for all situations that is the return on market portfolio: otherwise, the higher the beta, higher the premium and the total return required. A relatively high beta does not however, guarantee a relatively high return. The actual return depends partly on the behavior of the market, when acts as a proxy for general economic factors.

Premium is the amount of return that investors demand for holding a risky security such as stock. A financial economist, William Sharp is one of the creators of the Capital Assets Pricing Model, a theory which began a quest to identify the tendency portfolio. In fact of the CAPM as it called is very useful tool. It has been taken as a prescription for the investment portfolio, as well as a tool for estimating an expected rate of return. Comparisons between the expected rates of return and require rate of return can analyze the stock to be under priced and over priced. And when these two returns are equal than it is said to be market equilibrium i.e. all stocks lie on the Security Market Line (SML). The graphical version of CAPM is called the security market line which shows the relation between risk and the required rate of return. The security market line clearly shows that return A is the increasing function risk. Furthermore it is only market risk that affects return. The investor receives no added return for bearing diversifiable risk. Stocks that are overpriced lie below the SML and if the stocks are under priced then it lies above the SML diagram shows the security market with overpriced and under priced stocks.

Figure 2.2

Under Priced and Overpriced Stocks during Temporary Market Disequilibria
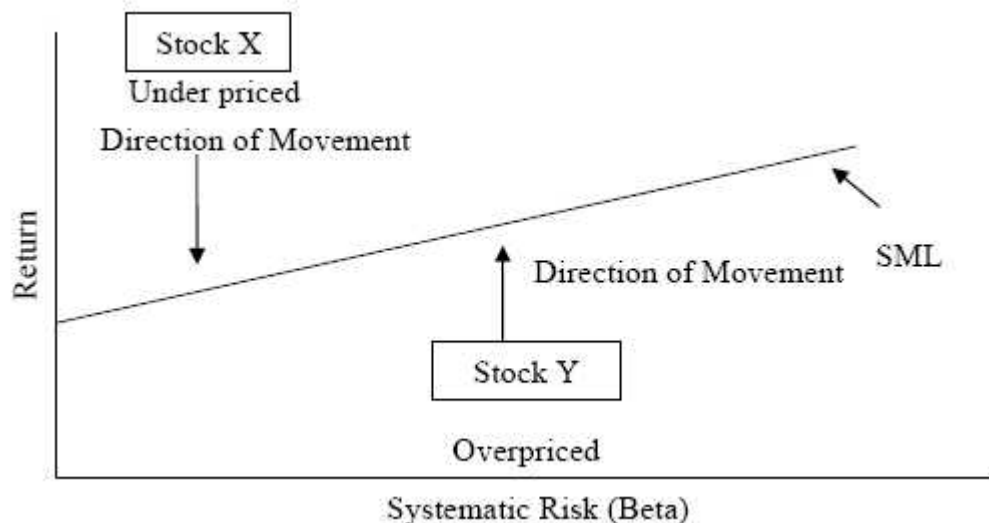
Above diagram clarifies that stock x being under priced, its expected rate of return is greater than required rate of return. And stock Y is expected to provide lower return than

the required or expected rate to compensate the systematic risk. Investors seek the opportunities to invest in stock X for superior return.

Investing in Stock X should rush to buy it. This action could drive the price up and the expected return down. How long would this continue? It would continue until the market line. In the case of stock Y investor holding this stock would sell it recognizing that they could obtain a larger return for the same amount of systematic risk with other stocks. Thus selling pressure would drive Y's market price down and its expected return up until the expected return was on the SML.

Few people quarrel with the idea that the investors require some extra return for taking risk. That is why common stocks require higher return than government Treasury bill (which is assumed to be risk free, because of taxing power the governments enjoy). No one would want to invest in risky common stock if they offered only the same expected return as bills.

Investors do appear to be concerned principally with the risk that they can not eliminate by diversification. If this were not so, we find that stocks increase whenever two companies merge to spread their risk, and we should find that investment companies which invest in share of other firm are more highly valued than the shares they hold. But we don't observe either phenomenon. A merger under taken just to spread risk doesn't increase stock prices and investment companies are no more highly valued than the stock held.

The Capital Assets Pricing Model capture these ideas in a simple way. That is why many financial managers find it the most convenient tool for coming to the decision with the slippery motion of risk. And this is why economists often use the CAPM to demonstrate important ideas in finance even when there are otherwise to prove these ideas. But this does not mean the CAPM is ultimate truth.

2.1.8 Development of capital market in Nepal

Capital market in Nepal is in infancy position. A stock investment practice in Nepal has been developed after the establishment of the Biratnagar Jute Industry and Nepal bank Ltd. in 1937 AD. Till 1980's the majority of shares issuing companies would belongs to the government ownership. Initial public Offerings (IPO's) were hardly found in practices and funds were collected through the direct placement of bonds. The prime objectives of the raising the fund would be the development of the infrastructure and pubic welfare programs. It has helped flourishing the primary government bond market. On the other hands, the share of Nepal Bank Ltd. were in existence but limited to ownership of the RANA's (Khadka, 2004). Government had issued treasury bills in 1962 AD for the first time to finance the infrastructure development. Furthermore, it was followed by the issuance of the development bonds in 1964 AD. Industrial policy has opened the door of the establishment of the institution name Security Market Center (SMC) in 1977 AD. Security Exchange Act (SEA) was approved by legislation and came into existence with effect from 13th April, 1984 AD. The former Securities Exchange Center was converted into Nepal stock Exchange (NEPSE) with the major objective of arranging marketability and liquidity of the government and corporate securities. Floor trading through market intermediaries such as brokers' market makers has also evolved; restoration of democracy following the political movement of 1990 has brought lots of reforms in the finance sector. Liberalization in the real sense was initiated. Nepal launched 'Extended Adjustment Program' in 1992 AD by taking Extended Structural Adjustment Facility (ESAF) through the amendment in the SEA. This has led to established of the Securities Exchange Board Nepal (SEBO/N) and was given the responsibility of regulating and developing the transactions of the stocks and bonds in the floor through its member intermediaries where NEPSE is to facilitate the transactions of the stocks and bonds in the floors 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 159 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 the near future. Some processes are already made for this. Similarly,

Non Residence Nepalese (NRN) has declared to establish a multipurpose mutual fund investment company with 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.

Meaning of risk

Risk is defined in the Webster's dictionary "as a hazard a peril: exposure to loss of injury". Thus, risk refers to chance that some unfavorable events may occur. If we bet on the horses, we are risking our money. If we invest in speculative stocks we are taking a kind of risks in a hope of making appreciable returns. (Brigham, Capeskin and Erhards, 2001)

Risk is the variability of possible returns around the expected returns of an investment. Each investor has his/her own attitudes towards risks and how much he/she can tolerate. Since, investment have risks associated with them, the investors must determine combination of alternatives matches that tradeoff the risk and compensation for percept risks. (Basnet, 2006)

In reality, risk occurs when we cannot be certain about the possible future outcomes of particular activity or events. So, we are not sure that risk will occur in the future consequently. Risk results from the fact that the action such as investment can provide the more than one outcome in future. (Western and Brigham)

According to Saunders and Cornett, 2002, "A major objective of the financial management is to increase the Financial Institutions' return for its owners. They often come however at the cost of increased risk. The effective management of this risk is central to a financial institutions' performance. Indeed, it can be argued that the main business of financial institution is to manage the risk for the purpose of maximization of

return. So, financial institution manager must devote the significant time to understanding and managing the various risks to which their financial institutions are exposed".

In real sense, risk is the chance of losing future return and investment amount in future. Assets having grate chance of loss are viewed as more risky than lesser chance of loss. More formally, the term risk is used interchangeably with uncertainty to refer the variability of return associated with the given assets.

Risk is measured in many ways but commonly three methods are viewed as useful standard. These are:

Beta coefficient

This is a mathematical value that measures the risk of one asset in term of its effect on the risk of group of assets called portfolio. It is concerned solely with market related risk as would be the concern for the investor holding stocks and bonds. It is derived mathematically so that a high beta indicates a high level of risk and low beta represents a low level of risk.

Standard deviation

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

Subjective estimates

A subjective risk measure occurs when qualitative rather than quantitative measures are used to measure dispersion. We will use the definition of risk that deals with dispersion of return. We will also note that mathematical approaches can be used to estimate such dispersion.

Sources of risk

An investment is commitment of money that is expected to generate addition money. Every investment entails some degree of risks. A major objective of financial institution is to increase the returns for its owner by taking minimum risk. The effective management of the risk is central to its performance. Indeed, it can be argued that the main business function of financial institution is managing these risks through the consumption of maximum time and efforts in understanding and managing the various source and kinds of risks factors with its different natures and complexities. The primary risks factors that create investment uncertainties are as follows:

Interest rate risk

Asset transformation function is the key functions of financial institution. It involves buying primary securities or assets and issuing secondary securities or liabilities to fund assets purchase. The primary security purchased by financial institutions often has maturity and liquidity characteristics which are different from those of secondary security that financial institutions sell. In mismatching the maturities of asserts and liabilities as part of their asset transformation function. Financial institutions potentially expose themselves the interest rate risks. Suppose when interest rate increases and maturity period of assets is greater than the maturity period of liabilities. At that time, if interest rate increases it decreases the market value of assets in comparison of its liabilities. So, interest rate is defined as the potential variability of return caused potential variability of return caused by the changes in its market rate interest rate. Interest rate can be variable. If we consider the single period return formula for the bond and stock. In interest rate risk, if market interest rate raises the investment values and market prices falls and vice-versa. The variability of return results interest risk. The interest rate risk affects the prices of bonds, stocks, real estate, gold and other derivatives securities.

Bull-Bear market risks

Market risk is risk incurred in the trading of assets and liabilities due to changes in market forces like interest rates, exchange rates. Furthermore, market risk is the risk

related to uncertainty on the earning on its trading portfolios caused by changes in the market condition.

Saunders and Cornett in tenth addition have outlined two comments on market risk. These are as follows:

Comment 1: market risk is value at risk (VAR) which is related to uncertainty.

Comment 2: market risk is caused due to four major market forces. These are price of assets, interest rate, market volatility, market liquidity.

Market risk can be also cleared in Bull-Bear approach. This approach advocates that risk can rise from the variability of the market return resulting from the alternating bull and bear market forces. Bull market creates when security index arises fairly and consisting from also point called trough for a period of time, the bull market ends when the market index reaches a peak and starts downward trend. The period during which the market declines to the next trough is called a bear risk.

Credit risk

It is also called default risk. Default risk is probability that the borrower is unable to fulfill the term promised under the loan agreement. Saunders and Cornett have outlined three principles as follows:

Principle 1: It is the risk losing principal and interest amount.

Principle 2: When financial institution makes loans or buys securities with longer maturities. There is chance of higher credit risk where principal plus interest earned may not recover adequate in full amount.

Principle 3: Credit risk can be firm specific and systematic risk.

Liquidity risk

Liquidity risk is sudden surges in liability with drawl may leave as financial institution in a position of having to liquidate assets in a very short period of time and at low prices. Liquidity risks arises when on its liability holders such as depositor or insurance policy maker etc. demand immediate cash for the financial claim they hold with financial

institution or when holders of loan commitment or credit line suddenly exercise their right to borrow or draw down their right their loan commitments. At that situation the financial institutions must either borrow additional funds or sells assets to meet the demands for the withdrawal of funds. In most cases financial institution has to face the liquidity crisis at the time when liability holder demands higher cash consequently. In other sense, liquidity risk is that position of an assets total variability of return which results from the prices discount given on sales. Commission paid in order to sale with out delay. Perfectly liquid assets are highly marketable either price discounts must be given or these cost must be incurred by seller, in order to find a new investor for an assets is the larger the prices discount and /or commission which must be given up by the seller in order to affect a quick sale.

Callability risk

Some bonds and preferred stocks are issued with a provision that allows the issuer to call them in for repurchase. Issuer like the call provision because it allows them to buyback outstanding preferred stock and /on bond with funds from a newer issue if market interest rate drop below the level being paid on the outstanding securities. There is chance of creating callability risk.

That portion of a security's total variability of returns which derives from the possibility that the issue may be called is the callability risk. Callability risk commands a risk premium that comes in the form of a slightly higher average rate of return. This additional return should increase as the risk that the issue will be called increase.

Convertibility risk

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

Industrial risk

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

Political risk

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

Other Risks

Besides these above mentioned risks, there are other risks like off balance sheet risk, technological and operational risk, country and sovereign risk, insolvency risk etc.

Types of Risks

Total risk or total variation of the rate or return for an individual security or portfolio is measured by the standard deviation or variance of the rate of return. According to Capital Asset Pricing Model (CAPM), total risk can be divided into two parts i.e. systematic risk and unsystematic risk.

Systematic Risk

It is also called non-diversifiable risk. The systematic risk is market related. In other words, it arises from the changes in the economy and market condition. For example, high inflation, recession, impact of political factors, wars, depression, long-term changes, etc, which are beyond the control of company management. It affects all the firms in the market. The portion of risk is non-diversifiable and cannot be reduced. The systematic risk is rewarded in the form of risk premium. Sometimes, systematic risk is called market risk. Systematic risk affects almost all assets in the economy, at least to some degree, whereas systematic risk affects at most a small number of assets. The principle of diversification has an important implication to a diversified investor, only systematic risk matters. It follows that in deciding whether or not buy a particular individual asset, a diversified investor will only concerned with that asset's systematic risk. This is a key observation and it allows us to say great deal about the risks and returns on individual asset, in particular, it is the basis for a famous relationship between risk and return called the security market line. To develop the SML, we introduce the equally famous Beta coefficient one of the measurement unit of modern finance. Beta coefficient and SML are the key concepts because to get supply us with at least part of the answer to the question of how to go about determining the required return on an investment.

Unsystematic Risks

The unsystematic risk is non market factors related. In other word, it arises from the project specific factors for example inefficiency of management failure in new product in production, employee strikes, lawsuits and any other event that is unique to the company. It is inherent individual companies or projects. This portion of risk is diversifiable and it is possible to reduce or eliminate through diversification of the investments. It is called unique or asset specific risk.

Meaning of Return

The meaning of return is defined as different investors. The rate of return from capital investment is a concept that has different meaning to different investors. Some competitive seek near term cash inflow and give less value to more distant returns.

Return can be expressed by cash dividend or capital gain or loss. Still some investors measure return using financial ratios. Single holding period return may be defined as all possible future cash flows that can be earned holding securities up to holding period. It can be also defined as the changes in the value plus any cash distribution expressed as a percentage of the beginning of the period of investment value. An investor can obtain two kind of income from the investment is a share or bonds. They are as follows:

1. Income from price appreciation or losses from price depreciation. It is called capital losses and gain.

2. Cash flows income from cash dividend or coupon interest payment.

Return shows financial position of any organization. The company position of any organization may be better if it has higher return. Return is rewards for an investor from his or her organization. Investors always want to maximize expected return subject to their tolerance for risk. Return is motivating forces and it is the key method available to investors in capering investment alternatives. Realized rate of return and expected rate of return which are often used in language of investment. Realized rate of return is after the fact return that was earned or it is the historical return.

The return on investment can be measured as the total gain and losses expressed on the behalf of owner over the given period of time. It is commonly stated as the change in value plus any cash distribution expressed as percentage of the beginning period investment value. The expression for calculating the rate of return (Ks) earned any assets over the period (t) is commonly defined as

$$K_t = \frac{P_t - P_{t-1} \, \Gamma \, C_t}{P_{t-1}}$$

Where,

K_t = actual or expected or realized rate of return

P_t = price or value of asset at time (t) or beginning price

P_{t-1} = price or value of assets at time t-1 or ending price

C_t = cash flows received from the investment in the time period t-1 to t

2.1.9 Expected Rate of Return

The expected rate of return or holding period return is based upon the expected cash receipts over the holding period and expected ending or selling price. Depending upon the assumption made about cash receipts and ending price, a number of expected returns rate are possible. These possible rates estimated by the investors are summarized in the expected rate of return. According to (Cheney and Moses, 2006) "the expected rate of return must be greater or equal to the required rate of return in order for the investor to find the investment acceptable."

2.1.10 Capital Asset Pricing Model (CAPM)

CAPM provides a framework for measuring the systematic risk of an individual security and relate it to the systematic risk of well diversified portfolio. CAPM is used in finance frequently to analyze the relationship between the risk and rate of return. The conclusion of the CAPM is: the relevant risk of an individual stock is contribution to risk of a well-diversified portfolio.

Indeed, in 1990 AD, the greatest world prize the Nobel Prize was awarded to the developers of CAPM, Professor Harry Markowitz and William F. Sharpe. In the context of CAPM, the risk of individual security is defined as the volatility of the security returns vis-à-vis the return of market portfolio. CAPM is simple concept and has real world applicability. The model describes the relationship between risk and return or expected return. In this model, a security's expected return is the risk free rate plus a premium based on systematic risk of the security. Beta coefficient is the heart of CAPM model. It is the better measure of risk, the most important aspect of risk is the overall risk significantly affects investment opportunities and even more important, the owner wealth. The basic theory that links together risk and return for all assets is called Capital Asset Pricing Model. The CAPM equation on security market line (SML) is usually written as:

$$E(R_J) = R_F + \beta_J [E(R_M) - R_F]$$

Where,

$E(R_J)$ = the required rate of return on the assets

R_F = the rate of return of risk free assets

$E(R_M)$ = the expected or ex-ante return on the market portfolio

β_J = a measure of the non-diversifiable risk of the J_{th} security called assets beta. It can be calculated as

$$\beta_J = \frac{COV(R_J R_M)}{VAR(R_M)}$$

Where,

COV $(R_J R_M)$ = covariance between risk free return and market return

VAR (R_M) = variance of market returns

There are some assumptions under the CAPM model. According to (Sharpe, Alex, and Bailey 2008) has outlines eight assumptions as follows.

1. Investors evaluate portfolio by looking at the expected return and standard deviation of the portfolio over one period horizon.
2. Individual assets are infinitely divisible. It implies that an investor can buy a fraction of a share of s/he so desires.
3. There is a risk free rate at which an investor may lend i.e. invest money or borrow money.
4. Taxes and transaction costs are irrelevant.
5. All the investors have the same one person horizon.
6. The risk free rate is the same for all investors.
7. Information is freely and instantly available to all the investors.
8. Investors are homogenous expectations. It implies that everyone has same perception in regard to the expected returns, standard deviation and covariance of the securities.

CAPM provides a measure of risk and return. The systematic risk or market risk of a security is measured in term of its sensitivity to the market movement. This sensitivity is referred to security's Beta ( ). Beta reflects systematic risk that can not be eliminated. Investor can eliminate unsystematic risk when they invest their wealth in a well diversified portfolio. A beta of 1.00 indicates average level of risk while more than 1.00 means risk more than market portfolio. A zero beta coefficient means no risk. The graphical presentation of CAPM is called the Security Market Line (SML).

2.1.11   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 average rate of return. When average return exceeds the excepted 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.

2.1.12   The Single Index Model:

The simplification of Markowitz model has come to be known as the market model of single index model (Bhalla 1994:526-537). The single index model provides that the desirability of any stock is directly related to its excess return to beta ratio. Single index model for optimal portfolio enable to find out the no of security to be in optimal portfolio .In this case the desirability of including a stock directly related to its excess return to beta ratio. If stock ranked by excess return to beta for highest to lowest, the ranking represents the desirability of any stock inclusion in a portfolio. The number of stocks selected depends on a unique cut off rate such that all stocks with higher ratios will be included and all stocks with lower ratios excluded.

2.2 Review of Related Studies

Various researchers have analyzed the class of stochastic volatility diffusions for assets returns to encompass poison jumps of time varying intensity. Any reasonably descriptive continuous time index returns must allow for discrete jumps as well as stochastic volatility with a pronounced negative relationship between return and volatility innovations. They also tend that dominant empirical characteristics of the return process appear to be priced by the option market. Their analysis indicates a general correspondence between the evidence extracted from daily equity and the stylized features of the corresponding options market prices.

They conclude that much assets and derivative pricing theory is based on diffusions models for primary securities. Yet, there are very few estimates of satisfactory continuous time models for equity returns. The objectives of the paper is to identify a class of jump - diffusions that are successful in approximating the S & P 500 returns dynamics and therefore should constitute an adequate basis for continuous tine assets pricing applications. They also explore alternative models both within and outside of the popular fine class. Estimation is performed by careful implementation of the EMM that provides powerful model diagnostic and specification tests. Finally, they explore the relationship between their estimated models and option prices. They contrast those of their parameter estimated that are invariant to adjustments for volatility a hump risk to those reported in the option literature, and provide a qualitative comparison of the pricing implications of their estimate system and the stylized evidence from actual option data.

They find that every variant of their stochastic volatility diffusions without jumps fails to jointly accommodate the prominent characteristics of the daily S & P 500 returns. Further, ever specification that does not incorporate a strong negative correlation between return innovations and diffusions volatility fails as well. In contrast, two versions of our SVJDS that incorporate discrete jumps and stochastic volatility, with return innovations and diffusion volatility strongly and negatively correlated, accommodate the main features of the daily S & P 500 returns. This is true not only of the models estimated union sub samples. The models therefore appear to get structurally stable. Finally, they find that those parameter estimates that ate invariant to adjust mints for volatility and jump risk generally are similar to those reported in the option literature and they documented that small risk premium suffice to produce pronounced patterns in Black and Scholes option implied volatilities markets. Thus, the main characteristics of the stock price process by option data independently identified as highly significant components of the underlying S and P 500 returns dynamics (Tobern G. Anderson, Luca Benzoni and Jesper Lund, 2002).

The return factors in emerging markets are qualitatively similarly to these in developed markets. Small stocks outperform growth stocks and emerging markets stocks exhibit

momentum. There is no evidence that local market beats are associated with average returns. A Bayesian analysis or premiums in developed and emerging markets shows that, unless one has strong prior beliefs to the contrary, the empirical evidence favors the 4 hypothesis that size, momentum and value strategies are compensated the relationship between expected returns and share turnover, and examines the turnover characteristics of the local returns factors portfolios. There is no evidence of a relation between expected return and turnover, in emerging markets. However, beta, size momentum, and value are positively cross sectional correlated with turnover in emerging markets. This suggests that the return premiums do not simply reflect a compensation for liquidity (Rouwenhourst K. Greet, 1999).

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

The desirability of any securities is direct related to its excess return to beta ratio. Where average return is the expected return on the securities, risk less rate of interest is the return on a risk less asset, the beta is the expected change in the rate of return on security associated with a one percent change in the market return. If securities are rank by access return to beta from highest to lowest, the ranking represents the desirability of any securities inclusion in a portfolio. The number of securities selected depends on a unique cut off rate such that all securities with higher ratio of access return will be included and all securities with lower rate excluded (Bhalla, V. K., 2004).

2.3 Review of Related Studies

2.3.1 Review of Journal

Financial economics has been defined as the application of economic theory to financial markets (Smith, 2006). It is largely body of theory including such well known models as modern portfolio theory (Markowitz, 2005), the capital asset pricing model (CAPM) (Sharpe, 1998), the efficient market hypothesis (Samuelson and Fama, 1970) and option pricing model (Black and Scholars 2008). Though these models are all included in institute of faculty education limited in 2008, their acceptance or use is controversial.

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

Pagano's (2001) has a study on how theories of Financial Intermediation of Corporate Risk-Management Influence Bank Risk-Taking Behavior. This paper has based on the relation for the risk taking and risk management behavior from a both corporate finance and banking perspective. That data set covers the period from 1986-94, 1986-90 and

1991-94 but overall time of the study is 9 year period. In this study, the research scholar has used mathematical tools that are the model beta, standard deviation, total risk (systematic and unsystematic risk), and interest rate risk. The main objective of the study is to examine the relation for risk taking and risk management behavior for both corporate financial and a banking perspective. After combining the theoretical insights from the corporate finance and banking literatures related to hedging and risk taking the paper reviewed empirical tests based on these theories to determine which of these theories are best supportive by the data.

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

Berkowitz and Brien's (2002) in their research paper "How Accurate are Value-At-Risk Models at Commercial Banks" has focused on first direct evidence on the performance of value at risk model for trading firms. The result shows that VAR forecasts for six large commercial banks have exceed nominal coverage levels over the past two years and for the some banks, VARs we substantially removed from the lower range of trading P & l. While such conservative estimates imply higher levels of capital coverage for trading risk, the reported VARs are less useful as a measure of actual portfolio risk.

They have used standard deviation, means, correlation coefficient VAR correlation coefficient, and Beach Mark and Portfolio model. To a certain extent, the study is limited by the fact that banks only forecast a single percentile of the portfolio distribution significant more could be learned about the empirical performance of internal valuation models of density forecast were recorded. Density forecast evaluation techniques described in Disbold, Gunther and Tay (1998) and Berkowitz (2001) provide researchers with substantially more information to asses the dimension in which models need improvement and those in which models do well.

2.3.2 Review of Thesis

Bhatta's study on assessment of the performance of listed companies in Nepal (1997) has based on the data of ten listed companies from 1990 to 1995. One of the major objectives of this study is to analyze the performance of listed companies in terms of risk and return and internal rate of return, systematic risk and diversification of the risk through portfolio context. The major finding of the study is that a highly significant positive correlation has been addressed of the between risk and return character of the company. Investors expect higher return from those stocks that associates higher risk, Nepalese capital market is not sufficient one, so the information relating to market and company itself. Neither investor's analyze the overall relevant information of the stocks nor does the member of stocks exchange try to disseminate the information. Therefore, the market return and risk both may not show high priced stocks.

Pandey, (2000) has conducted a study on risk and return analyze of common stock investment by taking six insurance companies as sample. She has used analytical tools like rate of return, standard deviation, coefficient of variance, beta coefficient and t-test has used. According to this study, the main objectives are to calculate the risk and return of the common stocks and portfolio and also to understand and identify the problem faced by the individual investor and insurance companies. The major findings of the study are generally public have least understanding about the risk of the investments which may be due to poor education, lack of adequate information, etc., that may obstruct the development of stock market. There is no significant different between the performance of common stock of insurance companies and overall market portfolio. The study has covered five years period.

Sapkota (2000) has a study on risk and return analysis in common stock investment. The main objective of the study is to analyze the risk and return of common stock in Nepalese stock market. But the study is very closely related to common stocks commercial bank. On the findings, expected return on the common stock of Nepal bank has maximum and SBI Bank Ltd. has found minimum common stock of NBL is most risky and NSB is least

risky. In the context of industries, expected return of finance and insurance industry has focused highest so that common stock of Nepal Ltd. is best for investment. Mr. Sapkota in his study has conducted that, common stock is the most risky security and lifeblood of stock market because of the higher expected return, common stock holders are the passive owners of the company.

Pandey (2000) has a study on risk and return analysis of common stock investment. The main objective of the study is to analysis the risk and return of common stock investment in banking and financial sectors. The study also related to insurance companies. In the study, she has taken six insurance companies in account. To measure the risk and return, she has used standard deviation, expected return, variance coefficient and beta. On her study, concludes that: among all the security common stock has known to be the most risky security. Higher the risk, higher will be the return. Most of the investors have attracted to common stock security because of its higher expected return.

As for the investor, it is important to analyze each investment, company to potential returns with the risk. On average, the potential returns from an investment should compensate for the level of risk under taken. If proper allocation of assets is performed; it can reduce risk and can even be eliminated if well diversified.

Mishra (2001) analyzed risk and return on common stock investment of commercial bank in Nepal with special reference to five listed commercial banks. The main objective of the study was to promote and distribution of the securities and purchase, sales or exchange of securities. He also tried to render contribution to the development of capital market by making securities transaction fair, healthy, efficient and responsible. In this study, the researcher has used mathematical tools that are expected return, standard deviation, coefficient of variance, dividend per share, portfolio return beta coefficient, required rate of return. The period of the study was taken six years data from (1994-1999). On his study, it was notifies that there is positive correlation between risk and return. Character of the company, Nepalese capital market being inefficient, the price index itself is not sufficient to give the whole information about the prevailing market

situation and the company. It was also noticed that investors do not have any idea about the producers of securities issuance. Neither company nor the stockbrokers transmit any information to the investor about the current market situation and hence it becomes different for a common investor to invest in the securities.

Mishra also has focused that Nepalese banks and government should try to promote healthy practices so that the stockbrokers do not give false information to the investor for their personal benefit, which is a common practice in Nepal. Investors should get regular information about the systematic risk (beta), return on equity and P/E ratio of various listed companies in the same way as it has given in economies times of companies listed in Indian stock exchange.

Upadhaya (2001) conducted a research entitled risk and return on common stock investment of commercial banks in Nepal. His research study is based on descriptive and analytical research design, which covers the five years period from 1994-1999. The main objective of the study was to analyze the risk and return of the common stock of commercial banks in Nepalese stock market, the study focused on the common stock of commercial banks, one of the objectives that are related to this study was to evaluate common stock of listed commercial banks in term of risk and return. The major finding of the study is that expected return on the common stock of the NGBL has maximum, which is very high rate of return. Other common stock of living higher return of NBBL and EBL with more than 59 percent expected return. Expected return of NABIL is least risky. Mr. Upadhaya has focused on changing environment of Nepalese business and economy but did not focus on relationship between closing MPS and EPS.

Shrestha (2003) has a study on risk and return on common stock investment of banking sectors in Nepal. The main objective of the study was to analysis the systematic and unsystematic risk associated with security. The study was covered six years data from 1996-2001.

In this study, the researcher has used analytical tools i.e. return of common stock, expected return, standard deviation, beta coefficient, CAPM, coefficient of determinants and hypothesis (t-test). The major findings of his study are NBBL's common stock is yielding the highest realized rate of return with 71.80 percent where as it is the lowest 26.6 percent incase of NIB Ltd. The banking industry average 47.85 percent, the commercial banks NBBL, BOKL and EBL respectively rate of return are 71.8 percent, 67.6 percent and 65.6 percent. All the commercial banks required rate of return is less than expected rate of return which means that they are all under price therefore it will be beneficial to the investors who are going to purchase the companies' common stocks. From the study, it has found that investment in banking sectors is beneficial instead of other financial sectors.

Tamang (2003) has a study on risk and return analysis of commercial banks in Nepal. The main objectives of the study is to determine whether the share of the commercial banks are correctly priced or not by analyzing the required rate of return using the capital asset pricing model also to measure the systematic and unsystematic risk of the commercial banks. In this study, the researcher has used mathematical tools i.e. market model, single period return, expected rate of return, standard deviation, coefficient of variation, beta coefficient (B). The period of the study has taken 5 years data from 1996-2001. The major finding of the study, the systematic risk of Nepal Arab bank has the highest unsystematic risk but total risk or variance of Bangladesh is the highest i.e. 10 percent. From the study, it was also found that the shares of Nepalese commercial banks are heavily trade in NEPSE. None of the bank's shares price are correctly priced.

Joshi (2004) has conducted a research on risk and return analysis of common stock of five listed commercial banks. The main objective of the scholar's study was to assess the risk associated with return on common stock investment of the basis of selected tools. For the study, the researcher is used five years data 1998 -2002.

He has used arithmetic mean to calculate the return, standard deviation and coefficient of variations, which are used to measure unsystematic risk and beta coefficient. The

measurement explains sensitivity or volatility of the stock with market and individual banks. Correlation is a statistical tool i.e. is used to measure relationship between risk and return. The researcher also used t-test to calculate hypothesis. The major findings of his study are that banking sector has the expected return is 21.77 percent, risk is 36.1 percent and CV is 1.66, similarly finance and insurance sector has 21.77 percent and 1.66, hotel sectors has 10.16 percent, 72.4 percent, 7.123, trading sectors has 6.68 percent, 80.68 percent, 11.76, other sectors has -16.61 percent, 50.45 percent and 3.037. Market expected return of 10.2 percent and risk of 39.57 percent, CV of 3.88. SCB has maximum market capitalization and NBBL has the minimum market capitalization. Market capitalization as well as NEPSE index has heavily influenced by banking sector. If investors wish to generate higher return then they should bear higher risk and invest in the share of SCBL and if they are risk averters and they want to invest in single assets. They can invest in the share of NBL or HBL because these two stocks have lower risk that of portfolio risk.

Khadka (2005) has s study on analysis of risk and return on selected Nepalese commercial banks listed in NEPSE. The main objective of the study is to measure systematic and unsystematic risk of commercial banks. The study has covered 6 years period and used expected return, coefficient to calculate the risk and return of commercial banks. The major finding of the study, based on the coefficient of variation, which measures risk/unit of the stock individually, Standard Chartered Bank Nepal Ltd. has the lowest coefficient of variation i.e. 1.89 and NABIL bank has the highest one i.e. 3.35. The total systematic risk has related due to the individual shares and correlation coefficient with the market portfolio. The residual risk or unsystematic risk is company specific is rather than market pervasive. Though the share of commercial banks in Nepal is heavily trade in NEPSE, none of the share price is correctly priced.

Lila Nath Pandey (2005) in his study "*A Study on Risk and Return Analysis of Common Stock Investment*" concluded that without proper analysis of individual security, industry and overall market, it is almost impossible to beat the stock market. From his analysis, Kathmandu Finance Ltd. seems undoubtedly the best for investment from the viewpoint

of expected return and coefficient of variation and Citizen Investment Trust has a lesser beta coefficient from the viewpoint of market sensitivity.

JB Sapkota (2006) in his study "*Risk and Return Analysis in Common Stock Investment*" concluded that banking industry is the biggest one in terms of market capitalization and turnover. He has performed an analysis of risk and return on common stock investment with special reference to banking industry. The study is focus on common stock of commercial banks. The main objective of the study is to analysis the risk and return of the common stocks in Nepalese stock market.

Mishra (2006) in his study "*Risk and Return on Common Stock Investment of Commercial Banks in Nepal*" concluded that the relationship between risk and return is described by investor's perception about risk and their demand for compensation. No investor will like to invest in risky assets unless s/he is assured of adequate compensation for the acceptance of risk. He further concluded that banking sector is the best for the investment in common stock.

Shah (2006) has a study on risk and return analysis of listed companies for the analysis, among listed companies eight are taken into account. Among them two are from banking sectors, two finance companies, two insurance companies, one trading and one manufacturing and processing company. The main objectives of the study were to analyze risk, return and other relevant variables that help in making decision about investment on securities of the listed companies and to examine the movement of market price of share, also to provide suggestions on the basis of findings.

He has used holding period return and expected rate or return to calculate the returns of the companies. Calculations of standard deviation, coefficient variation (CV) and beta were used to measure risk and CAPM for portfolio analysis. The expected return of Nepal investment bank is 36 percent, CV is 1.06 and risk is 38.3 percent. The beta of its share is 0.66. Expected return of Himalayan bank limited is 52.66 percent, risk is 29.3

and CV is 0.556. The beta is 1.567 so HBL is less risky than NIB. For the study, the researcher has taken 5 years period.

A study conducted by Niva Shrestha (2007) on the topic **'A study on non-performing loans and loan loss provisioning of commercial banks'** revealed that SCBNL had risk averse attitude o the management or they have policy of investing low in the risky assets i.e. loans and advances as compared to NBL AND NABIL because the loans and advance to total asset ratio of NBL, NABIL & SCBNL during the study period was appeared to be 52.3%. 47.0% and 29.34% respectively. The SCBNL has higher proportion of the investment in risk free or nominally risky asset like treasury bills, National Saving bonds etc.

In the same way, the proportion of non-performing loan with regard to total loans of NBL, NABIL & SCBNL was found to be 48.37%, 10.67% & 4.38% respectively. That means 51.63%, 89.33% & 95.62% of total loan of NBL, NABIL & SCBNL was found to be performing loan. Not only the public sector bank, even private sector bank like NABIL has higher proportion of non-performing loan. However, in recent years NABIL has shown significant decrement in non-performing asset, which are the result of effective bank credit management and its efforts of recovering bad debts through the recovery of establishment of recovery cell.

However the better activity ratio of SCBNL has proved this bank the best in managing the lending portfolio according to the demand of profit-oriented business. The high volume of lending activities and high volume of productive sector loan of Nabil has put this bank in the top position in absolute term.

A study conducted by Rajendra Shrestha (2008) on the topic **'A study on non-performing assets of Nabil and SCBL'** In the same way, proportion loan loss provision of NBL was found to be significantly higher (i.e. 40.17%) as compared to other two commercial banks. The proportion of NABIL and SCBNL was found to be 5.69% and

4.49%.The average ratio of provision held to non-performing loan of NBL, NABIL & SCBNL was found to be 80.03%, 57.85% and 122.32% respectively shows that the SCBNL has maintained adequate level of provision against non-performing loan where as NABIL was found to be comparatively lower. The NBL was found to be an average position.

A study conducted by Sangita Poudel (2009) on the topic **'A study Credit Management of Financial Institution of Nepal''** the loans and advances to total deposit ratio of NBL, NABIL and SCBNL during the study period was found to be 57.63%, 56.35% and 35.94% respectively. It indicates that SCBNL has the most consistent and variability during the study period where as the NBL has the higher consistent and variability as comparison to other two banks. NABIL has the moderate level of consistent and variability.

2.4 Research Gap

The researcher found couples of studies in the area and these studies are more helpful to build the basic concept regarding common stock investment. However, it was noticed that they are diverted from the factual study and most of them drawn subjective conclusions rather giving factual insights. They were more focused on the risk and returns of individual bank. The researcher in this study tries to analyze the risk and return of individual bank as well as make comparison with overall market return. Researcher also tries to analyze and find out the portfolio investment benefit among selected commercial banks and give insight on portfolio investment risk and return from portfolio investment. Researcher further attempts to find whether the market price of selected commercial banks at NEPSE is under priced or overpriced. Researcher analyses six years data for more concrete results.

CHAPTER-III

RESEARCH METHODOLOGY

Research methodology is also the major part of the thesis. It describes the method and process applied in the entire aspect of the study. Research methodology concerns to data collection procedures, focus of data, tabulation and processing of the data and analysis method. It is composed of both technical and logical aspect. Detail research methods are explained in the following way.

3.1 Research Design

The study is based on descriptive and analytical research design. The study is concern on recent historical data, which is based on recent historical data and covers six years periods. It deals with the common stocks of the commercial banks on the basis of available information. The main objective of this study is to find out how the returns can be maximized in terms of investment of common stocks of the selected companies. To achieve these objectives, both the analytical and descriptive research design has been adopted. It is composed of both technical and logical aspect.

3.2 Population and Sample

The population of the study is the commercial banks of Nepal which have been listed in the Nepal Stock Exchange (NEPSE). Form among the population, the researcher selected five listed commercial banks on the basis of sample. As there are 24 out of 26 commercial banks listed in NEPSE, our sample size is 20.83% of the total population.

. **List of Class A Licensed Commercial Banks in Nepal (January, 2011)**

(Rs. in million)

S.No.	Name of Banks	Head Office	Operation Date (B.S.)	Paid up capital
1.	Nepal Bank Limited	Dharmapath, Kathmandu	1994/7/30	380.4

2.	Rastriya Banijya Bank	Singhdarbar, Kathmandu	2022/10/10	1172.3
3.	Agriculture Development Bank	Ramsahapath, Kathmandu	2024/7/10	1077.8
4.	Nabil Bank Limited	Kantipath, Kathmandu	2041/3/29	689.2
5.	Nepal Investment Bank Limited	Darbarmarga, Kathmandu	2042/11/26	1203.9
6.	Standard Chartered Bank Nepal Limited	NewBaneshwor, Kathmandu	2043/10/16	620.08
7.	Himalayan Bank Limited	Thamel, Kathmandu	2049/10/5	1013.5
8.	Nepal S.B.I. Bank Limited	Hanttisar, Kathmandu	2050/3/23	874.5
9.	Nepal Bangladesh Bank Limited	NewBaneshwor, Kathmandu	2050/2/23	744.1
10.	Everest Bank Limited	Lazimpat, Kathmandu	2051/7/1	831.4
11.	Bank of Kathmandu Limited	Kamaladi, Kathmandu	2051/11/28	603.1
12.	Nepal Credit and Commerce Bank Limited	Siddharthanagar, Rupandehi	2053/6/28	1399.5
13.	Lumbini Bank Limited	Narayanghat, Chitawan	2055/4/1	995.7
14.	Nepal Industrial & Commercial Bank Limited	Biratnagar, Morang	2055/4/5	943.9
15.	Machhapuchhre Bank Limited	Pokhara, Kaski	2057/6/17	901.3
16.	Kumari Bank Limited	Putalisadak, Kathmandu	2057/12/21	1070
17.	Laxmi Bank Limited	Birgunj, Parsa	2058/12/21	913.2
18.	Siddhartha Bank Limited	Kamaladi, Kathmandu	2059/9/9	828
19.	Global Bank Limited	Birgunj, Parsa	2063/9/18	700
20.	Citizens Bank International Limited	Kamaladi, Kathmandu	2064/1/7	560
21.	Prime Bank Limited	Newroad, Kathmandu	2064/6/7	700
22.	Sunrise Bank Limited	Gairadhara, Kathmandu	2064/6/25	700
23.	Bank of Asia Nepal Limited	Tripureshwor, Kathmandu	2064/6/25	700
24.	Development Credit Bank Limited	Kamaladi, Kathmandu	2057/10/10	1107.5
25.	NMB Bank Limited	Babarmahal, Kathmandu	2053/9/11	1000
26.	Kist Bank Limited	Anamnagar Kathmandu	2059/11/07	2000

27.	Janata bank	Baneshwor, Kathmandu	2010	2010
28.	Megha Bank	Kathmandu	2010	2010
29.	Commerge and Trust Bank	Kathmandu	2010	2010
30.	Civil Bank	Kathmandu	2010	2010

Source: Nepal Rastra Bank

3.3 Sample of the Study

ʃ NABIL Bank Limited (NABIL)

ʃ Nepal Investment Bank Limited (NIBL)

ʃ Nepal SBI Bank Limited (SBI)

ʃ Nepal Industrial and Commercial Bank Limited (NICBL)

ʃ Everest Bank Limited (EBL)

3.4 Sources of Data

The study will review the available secondary information of past five consecutive years which are listed as follows.

ʃ Annual report of selected banks approved by an AGM

ʃ Magazine, newspaper, books and documents

ʃ Published books, journals related to commercial banks

ʃ Government reports, bulletin and other published statement of related field

ʃ Previous studied made in the field.

3.5 Method of Data Analysis

Both financial and statistical tools will be used for analyzing the collected data.

1.) Financial tools

ʃ Average Rate of Return

ʃ Standard Deviation

ʃ Beta Co-efficient

ʃ Portfolio Risk

ʃ Portfolio Return

2.) Statistical Tools
ʃ Hypothesis Testing

3.5.1 Financial Tools

Average Rate of Return (ARR)

Average rate of return can be easily calculated using sum of return divided by number of year. Symbolically, average rate of return can be expressed as follows.

$$E\ (r_A) = \frac{r_A}{n}\ \Sigma\ r_A$$

> Where,
>
> $\quad$ = Sign of summation
>
> $\quad$ n = Number of years that the return is taken
>
> $\quad$ r_A = Return of stock

Single Period Rate of Return of Common Stock

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:

1.) Income from price appreciation (or losses from price depreciation), sometimes called capital gains (or losses). This quantity denoted ($P_t - P_{t-1}$).

2.) Cash how income from cash dividend or coupon interest payments, represented by the convention C_t.

Sum of these two sources of income (or loss) equals the total return and can be express in percentage as follows:

$$\frac{\text{Price Change} + \text{Cash Dividend}}{\text{Purchase price at start of the period}}$$

51

Single Period Rate of Return (r_t) =

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

Where as,

P_t = Ending stock price

D_t = Cash dividend received at time t

P_{t-1} = Starting stock price

Expected Rate of Return of Common Stock

This rate is obtained by arithmetic mean of the past year's return. This study aims to find out the expected return on the investment in common stock. Symbolically, expected rate of return of common stock r can be expressed as follows:

i.) $E(r_A) = \dfrac{\Sigma r_A}{n}$

Where,

Σ = Sign of summation

n = Number of years that the return is taken.

$E(r_A)$ = Expected rate of return in stock A

ii.) Expected Value $E(r) = \displaystyle\sum_{t=1}^{r} r_t \, P_t$

$$= P_1 \, r_1 + P_2 \, r_2 + \ldots\ldots\ldots\ldots P_t \, r_t.$$

Where as,

r_t = The tth rate of return from a probability distribution

P_t = Probability that the tth rate of return will take place.

T = Possible rates of return

Standard Deviation

It is a statistical concept and is widely used to measure risk from holding single assets. It is a statistical measure of the variability of a distribution of return around its mean. This is a measure of the dispersion of forecast return when such returns approximately a normal probability distribution.

The standard deviation is derived so that a high standard deviation represents a large dispersion of the total risk of the assets. It is the square root of the variance and measures the systematic risk of stock investment. Symbolically, ( ) can be expressed as follows:

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

Where,

     = Standard deviation of return on stock j

    R_j = Rate of return of stock j

    R_j = Average rate of return of stock j

    n = Time Period

    Variance **=** Var (r_j) = σ_j^2

Beta Coefficient (b)

The beta coefficient is an idea of systematic risk. It may be used for ranking the systematic risk of different assets. It is an index of the degree of movement of an assets return in response to a change in the market return. An asset's historical returns are used in finding the asset's beta coefficient.

Market sensitivity of stock is explained in terms of beta coefficient. Higher the beta the sensitivity and reaction to the market movement is greater. Market beta serves as a benchmark or a measuring scale for the evaluation of risk of individual stocks. For an individual stock, the beta could be less than 1, equals to 1 or more than 1 depending upon

the volatility of that stocks return relative to market returns. Beta coefficient can be expressed as follows.

Beta Coefficient (bi) = $\dfrac{cov(r_i\ r_m)}{\sigma m^2}$

Where as,

Cov ($r_i\ r_m$) = Covariance of the return on assets i, and market portfolio

($_m)^2$ = Variance of the return on the market portfolio

r_m = Required rate of return on the market portfolio of securities

Portfolio Risk (σp)

Expected risk on a portfolio is a function of the proportions investment in the components and the risk ness of the component and correlation of returns on the component securities. It is measured by standard deviation and calculated by using this formula.

Portfolio Risk (σ_p) = $\sqrt{W_A^2\ \sigma_A^2 + W_B^2\ \sigma_B^2 + 2\ W_A\ W_B\ r_{AB}\ \sigma_A\ \sigma_B}$

Where as,

σ_p = Portfolio Risk

W_A = The proportion of the portfolio devoted by security A

W_B = The proportion of the portfolio devoted by security B

σ_A = Standard Deviation of security A

σ_B = Standard deviation of security B

r_{AB} = Correlation between the securities A and B.

Portfolio Return E(r_p) = $\displaystyle\sum_{j=1}^{n} W_j\ R_j$

In a two security portfolio, the portfolio return will be: E (r_p) = $W_j \times R_j + W_i \times R_i$

Where as,

E(r_p) = Expected return on portfolio

W_i = The fraction of the value of the portfolio invested in the ith assets

W_j = The fraction of the value of the portfolio invested in the jth assets

R_i = The expected rate of return from the ith assets.

R_j = The expected rate of return from the jth assets

(The sum of the W_i and W_j should be 1 or 100%)

3.5.2 Statistical Tools

Tools of Testing Hypothesis

One of the important applications of statistical inference is 'test of hypothesis'. In testing of hypothesis, an assumption is made about the population parameter. To test whether the assumption or hypothesis is right or not, a sample is selected from the population, sample statistic is obtained, observe the difference between the sample mean and the population hypothesized value, and test whether the difference is significant or insignificant. Smaller the difference, the sample mean is close to the hypothesis value, and, larger the difference the hypothesized blue has low chance to be correct.

T- Test

The sampling distribution of sample mean when the sample size is large (most commonly n > 30) is normally distributed with mean μ and standard deviation ( ). But, what about the situation when sample size is less than 30?

The student's t- distribution states that if the sample size is less than 30, the sampling distribution of the sample mean follows student's t distribution. In order to test the significance of an observed samples return and beta the following procedure is applied.

Null Hypothesis: Ho: R_m = R_j i.e., there is no significance difference between average return of common stock of listed commercial banks and market return.

Alternative Hypothesis: H$_1$: R$_m$ ≠ R$_j$ i.e., there is significance difference between average return of common stock of listed commercial banks and market return.

It is applied for hypothesis testing 1st to test whether there is any significance difference between average mean of commercial bank with market or not. If the test is test of significance for a single mean the test statistics (t) is given by:

$$t = \frac{\overline{X} - \mu}{s/\sqrt{n}}$$

Here,

$$\overline{X} = \frac{\sum x}{n} \quad , s = \sqrt{\frac{(x - \overline{x})^2}{n - 1}}$$

Where,

      t = Student's t test statistics

      X = Arithmetic mean of sample statistics

      μ = Arithmetic mean of population parameter

      s = Estimated standard deviation of population parameter which is given above

      n = Sample size

Analysis of Variance (ANOVA)

When we have to test the significance of the differences between two sample means, t-test is suitable. But when we need to test the significance of the differences between more two sample means, f distribution is suitable technique called the Analysis of Variance. Using ANOVA technique we will be able to make inferences about whether the samples are drawn from populations having the same mean.

The assumptions made in ANOVA are:

    a.) The population for each sample must be normally distributed with same mean and variances (in large sample this assumption is not necessary).

    b.) All the samples must be randomly selected and independent.

One Way Analysis of Variance

The basic concept of ANOVA is to test whether the samples have same mean. One way analysis of variance is one if we study the effect of only one factor at as time and the hypothesis is to test the difference in average value due to the factor is insignificant. The whole analysis of ANOVA is finally presented in the ANOVA table.

One Way ANOVA Table

Sources of Variance	d. f.	Sum of Square	Mean Sum of Square	F- Ratio
Between Samples	K - 1	SSC	$MSS = \dfrac{SSB}{K - 1}$	$\dfrac{MSS}{MSE} = F_{cal}$
Within Samples	N - K	SSE	$MSE = \dfrac{SSW}{N - K}$	
Total	N - 1	TSS		

The decision of the computed value of F is less than its calculated value Ho accepted otherwise Ho is rejected.

CHAPTER-IV

DATA PRESENTATION AND ANALYSIS

In this section raw form of data about selected banks, which were collected from various sources, are changed to an understandable form using tools as mentioned in the previous chapter i.e. research methodology. This chapter is core of this study that is fully related to analysis and interprets various outcomes. The analysis of data consists of organizing; tabulating and performing risk return analysis of a common stock.

4.1 Analysis

In the end of 2010, there were 26 A class commercial banks licensed by Nepal Rastra Bank (NRB). Out of them, 24 banks are listed in NEPSE. Five commercial banks were taken as sample of the study out of 25 listed commercial banks.

They are NABIL Bank Limited (NABIL), Standard Chartered Bank Ltd. (SCB), Nepal SBI Bank Limited (SBI), Himalayan Bank Ltd. (HBL), and Everest Bank Limited (EBL). Common stock of each listed commercial banks; their risk and return analysis were included in this study.

4.2 Inter-Firm Comparison

According to the result obtain from the analysis done above; a comparative analysis of return, total risk and risk per unit is performed here. Average Returns, Standard Deviation of the return (risk) and Coefficient of variance of each bank for the year 2061/062 to 2065/066 are given in the table.

Table 4.1

Average Return, Standard Deviation and Co-efficient of Variance of Selected Five Commercial Banks

S.N.	Banks	Average Return(R)	Standard Deviation( )	Co-efficient of Variance(C.V.)	Remarks		
					Return	Risk	C.V.
1.	NABIL	72.89	75.75	1.0392	Highest	Highest	
2.	NIBL	51.00	56.45	1.1069			
3.	SBI	48.07	75.29	1.5663	Lowest		Highest
4.	NICB	61.83	61.58	0.9959			
5.	EBL	67.85	42.41	0.6251		Lowest	Lowest
n=5		R = 301.64					

Sources from Stock Market

Selected Bank's Average Return $(\overline{R}) = \dfrac{\Sigma R}{n} = \dfrac{301.64}{5} = 60.33\%$

The table shows that Average Return, Standard Deviation, Coefficient of Variance of NABIL is 72.89%, 75.75%, 1.0392, Average Return, Standard Deviation, Coefficient of Variance of NIB is 51.00%, 56.45%,1.1069, Average Return, Standard Deviation, Coefficient of Variance of SBI is 48.07%, 75.29%, 1.5663, Average Return, standard Deviation, Coefficient of Variance of NICB is 61.83%, 61.58%, 0.9959, Average Return, Standard Deviation, Coefficient of Variance of EBL is 67.85%, 42.41%, 0.6251. Investor can get the highest return form the investment made in the NABIL and lowest return from the investment made in the SBI, NABIL has the highest total risk as compare to other banks where as EBL has lowest total risk. Similarly, SBI has the higher degree of risk per unit of share where as EBL has lowest per unit risk, i.e. EBL has lowest Coefficient of Variance.

NABIL is higher risk and hence it has higher average return on investment, which is in line with the established financial norms of higher return, higher risk. But for other

banks, this principle does not hold good as the returns on the investment were also affected by non- financial factors such as: political instability, conflict etc.

For taking a wise an investment decision on a single common stock (security), coefficient of Variance is the more indicator than others,

4.3 Analysis of Market Risk and Return

In Nepal, there is only stock market called Nepal Stock Exchange Limited (NEPSE). The overall market movement is represented by market index (i.e. NEPSE Index). The NEPSE index is adjusted and changed continuously with this NEPSE base market portfolio return, its standard deviation and coefficient of Variance is presented below.

Table 4.2

Average Rate of Return, Standard Deviation, Average Return and Co-efficient of Variance of Overall Market

Fiscal Year	NEPSE Index	$R_m = \dfrac{NEPSE_t - NEPSE_{t-1}}{NEPSE_{t-1}}$	$(R_m - \overline{R}_m)$	$(R_m - \overline{R}_m)^2$
2061/062	222.04	0.08365	-0.25136	0.06318
2062/063	286.67	0.29107	-0.04393	0.00193
2063/064	300.05	0.04667	-0.29833	0.08314
2064/065	683.95	1.27945	0.94445	0.89198
2065/066	963.36	0.40852	0.07352	0.0054
N = 5		$R_m = 2.10936$		$(R_m - R_m)^2$ = 1.04563

Sources from Stock Market

Average Return $(\overline{R}_m) = \dfrac{\sum R_m}{n} = \dfrac{2.10936}{5} = 0.4219$

Standard Deviation $(\sigma_m) = \sqrt{\dfrac{\sum(R_m - \overline{R}_m)^2}{n-1}} = \sqrt{\dfrac{1.04563}{5-1}} = 0.5113$

$$\text{Variance } (\sigma^2) = \frac{\sum(R_m - \overline{R}_m)^2}{n-1} = \frac{1.04563}{5-1} = 0.2614$$

$$\text{Co-efficient of Variance (C.V.)} = \frac{\sigma_m}{R_m} \times 100\% = \frac{0.5113}{0.4219} \times 100\% = 121.19\%$$

4.4 Market Sensitivity Analysis

Market sensitivity of stock is explained by terms of beta coefficient can be used for an addional ranking of the systematic risk of asset. Higher the beta represents greater he sensitivity and higher the reaction to the market movement and vice–versa. Percentage of risk that is correlated with market is said to be systematic risk, which cannot be eliminated through the means of diversification.

Table 4.3

Beta Coefficient of the Common Stock of NABIL

Fiscal Year	$(R_j - \overline{R}_j)$	$(R_m - \overline{R}_m)$	$[(R_j - \overline{R}_j)(R_m - \overline{R}_m)]$
2061/062	-0.2893	-0.2514	0.2608
2062/063	-0.1539	-0.0439	0.0068
2063/064	-0.1840	-0.2883	0.0530
2064/065	1.5122	0.9445	1.4283
2065/066	-0.2844	0.0735	-0.0209
n = 5			$[(R_j - \overline{R}_j)(R_m - \overline{R}_m)]$ = 1.728

Sources from NABIL

We have

$$\text{Covariance of Stock (j) and Market (m) } [\text{Cov}(R_j R_m)] = \frac{\sum[(R_j - \overline{R}_j)(R_m - \overline{R}_m)]}{n-1}$$

$$= \frac{1.728}{5-1} = 0.3456$$

$$\text{Systematic Risk } (b_j) = \frac{\text{Cov}(R_j R_m)}{\sigma_m^2} = \frac{0.3456}{0.2614} = 1.3221$$

61

This is an aggressive investment.

Where,

n = number of observation

m^2 = variance of market return

R_j = return of stock 'j' (i.e. NABIL)

Table 4.4

Beta Coefficient of the Common Stock of NIBL

Fiscal Year	$(R_j - \overline{R}_j)$	$(R_m - \overline{R}_m)$	$[(R_j - \overline{R}_j)(R_m - \overline{R}_m)]$
2061/062	-0.3080	-0.2514	0.0774
2062/063	-0.6449	-0.0439	0.0283
2063/064	08571	-0.2883	-0.2471
2064/065	0.3530	0.9445	0.3334
2065/066	0.1796	0.0735	0.0132
n = 5			$[(R_j - \overline{R}_j)(R_m - \overline{R}_m)]$ = 0.2052

Sources from NIB

We have

Covariance of Stock (j) and Market (m) $[Cov(R_j R_m)] = \dfrac{\sum[(Rj - \overline{R}j)(Rm - \overline{R}m)]}{n - 1}$

$= \dfrac{0.2052}{5 - 1}$ = 0.0513

Systematic Risk $(b_j) = \dfrac{Cov(Rj\,Rm)}{\sigma_m^2} = \dfrac{0.0513}{0.2614} = 0.1963$

This is a defensive type investment.

Where,

n = number of observation

m^2 = variance of market return

R_j = return of stock 'j' (i.e. NIB)

Table 4.5

Beta Coefficient of the Common Stock of SBI

Fiscal Year	$(R_j - \overline{R}_j)$	$(R_m - \overline{R}_m)$	$[(R_j - \overline{R}_j)(R_m - \overline{R}_m)]$
2061/062	-0.2767	-0.2514	0.0696
2062/063	-0.3894	-0.0439	0.0171
2063/064	0.3611	-0.2883	-0.1041
2064/065	1.3256	0.9445	1.2520
2065/066	-0.1958	0.0735	-0.0144
n = 5			$[(R_j - \overline{R}_j)(R_m - \overline{R}_m)]$ = 1.2202

Sources from SBI

We have

Covariance of Stock (j) and Market (m) $[\text{Cov} (R_j\, R_m)] = \dfrac{\sum[(R_j - \overline{R}_j)(R_m - \overline{R}_m)]}{n - 1}$

$= \dfrac{1.2202}{5 - 1}$ $= 0.3051$

Systematic Risk $(b_j) = \dfrac{\text{Cov} (R_j\, R_m)}{\sigma_m{}^2} = \dfrac{0.3051}{0.2614} = 1.1672$

This is an aggressive investment.

Where,

n = number of observation

m^2 = variance of market return

R_j = return of stock 'j' (i.e. SBI)

Table 4.6

Beta Coefficient of the Common Stock of NICB

Fiscal Year	$(R_j - \overline{R}_j)$	$(R_m - \overline{R}_m)$	$[(R_j - \overline{R}_j) (R_m - \overline{R}_m)]$
2061/062	-0.6274	-0.2514	0.1577
2062/063	0.5615	-0.0439	-0.0246
2063/064	-0.021	-0.2883	0.0061
2064/065	0.1969	0.9445	0.7716
2065/066	-0.0286	0.0735	-0.0021
n = 5			$[(R_j - \overline{R}_j) (R_m - \overline{R}_m)]$ = 0.9087

Sources from NICB

We have

Covariance of Stock (j) and Market (m) $[\text{Cov} (R_j R_m)] = \dfrac{\sum[(R_j - \overline{R}_j) (R_m - \overline{R}_m)]}{n - 1}$

$= \dfrac{0.9087}{5 - 1}$ $= 0.2272$

Systematic Risk $(b_j) = \dfrac{\text{Cov} (R_j R_m)}{\sigma_m{}^2} = \dfrac{0.2272}{0.2614} = 0.8692$

This is an average market risk investment.

Where,

   n = number of observation

   m^2 = variance of market return

   R_j = return of stock 'j' (i.e. NICB)

Table 4.7

Beta Coefficient of the Common Stock of EBL

Fiscal Year	$(R_j - \overline{R}_j)$	$(R_m - \overline{R}_m)$	$[(R_j - \overline{R}_j)(R_m - \overline{R}_m)]$
2061/062	-0.1055	-0.2514	0.0265
2062/063	0.0065	-0.0439	-0.0003
2063/064	-0.0647	-0.2883	0.0187
2064/065	0.7723	0.9445	0.7294
2065/066	-0.0783	0.0735	-0.0058
n = 5			$[(R_j - \overline{R}_j)(R_m - \overline{R}_m)]$ = 0.7685

Source from EBL

We have

Covariance of Stock (j) and Market (m) $[Cov(R_j R_m)] = \dfrac{\sum[(R_j - \overline{R}_j)(R_m - \overline{R}_m)]}{n - 1}$

$= \dfrac{0.7685}{5 - 1} \qquad = 0.1921$

Systematic Risk $(b_j) = \dfrac{Cov(R_j R_m)}{\sigma_m^2} = \dfrac{0.1921}{0.2614} = 0.7349$

This is a defensive type investment.

Where,

   n = number of observation

   m^2 = variance of market return

   R_j = return of stock 'j' (i.e. EBL)

Table 4.8

Beta Co-efficient of Studied Five Commercial Banks

S. No.	Commercial Banks	Beta (b)
1	NABIL	1.3221
2	NIBL	0.1963
3	SBI	1.1672
4	NICB	0.8652
5	EBL	0.7349

For an individual stock, the beta could be less than, equal to or more than depending upon the volatility of that stock's return relative to the market return. The different values of beta are defined as: the beta equals to 1 implies, the average market risk and commands the average market risk premium. The beta less than 1 implies that stock's return is less sensitive to market fluctuation and such stock is considered to be the defensive type. The beta greater than 1 implies the opposite case of beta less than 1.

Table 4.9

ERR, RRR and Price Evaluation

S.N.	Commercial Banks	R_f	Beta (b_j)	R_m	ERR	RRR = $R_f + (R_m - R_f)b_j$	Price Evaluation
1	NABIL	4.21	1.3221	33.50	72.89	42.93	Under Price
2	NIB	4.21	0.1963	33.50	51.00	9.96	Under Price
3	SBI	4.21	1.1672	33.50	48.07	38.40	Under Price
4	NICB	4.21	0.8652	33.50	61.83	29.55	Under Price
5	EBL	4.21	0.7349	33.50	67.85	25.74	Under Price

Source from NRB

Where,

R_f = Risk Free Rate

R_m = Market Return

ERR = Expected Rate of Return

RRR = Required Rate of Return

If the required rates of return is higher than expected rate of return, the stocks is said the overpriced and an investor sold the hold stock or may involved in short selling strategy. If the expected return is higher than the required rate of return, the stock is said to be under priced security and an investor make buying strategy for this type of stock.

According to the above result, all five commercial bank's stocks are recommended to buy due to their common stock are under priced.

The beta coefficient from the above calculation is greater than 1 for 2 banks (i.e. 1.3221 of NABIL and 1.1672 of SBI and similarly the beta coefficient of these banks are less than (i.e. 0.1963 of NIB, 0.8652 of NICB and 0.7349 of EBL). The stock of two commercial banks is highly sensitive with market return. Beta value of 1.3221 of NABIL, 0.1963 of NIB, 1.1672 of SBI, 0.8652 of NICB and 0.7349 of EBL indicate that if market return rise by one percent, the return of stocks of above banks will also rise by the number equal to beta value and vice- versa.

4.5 Portfolio Analysis

The portfolio is the holding of securities and investment financial assets i.e. bond, stock. A portfolio is a combination of investment assets. Portfolio management is related to efficient portfolio investment in financial assets. If portfolio is being constructed they can reduce unsystematic risk without loosing considerable return. The portfolio analysis is performed to develop a portfolio that has the maximum return at whatever level of risk an investor thinks appropriate. Therefore, we need to extend our analysis risk and return to portfolio context.

The average return on a portfolio is simply the weighted average of the average return on the individual assets in the portfolio with the weight being the function of the total portfolio invested in each asset. The weights are equal to the proportion of total funds invested in each security (the sum of weight must be 1 or 100%).

The analysis is based on two assets portfolio and three analyses are presented in the chapter.

Now, taking first two commercial banks (i.e. NABIL and NIB), NABIL stock is symbolized as 'A' and NIB stock is symbolized as 'B'

Table 4.10

Calculation of Cov (R_A R_B) of Stock A and Stock B

Fiscal Year	$(R_A–\overline{R}_A)$	$(R_A–\overline{R}_A)^2$	$(R_B–\overline{R}_B)$	$(R_B–\overline{R}_B)^2$	$[(R_A–\overline{R}_A)(R_B–\overline{R}_B)]$
2061/062	-0.2897	0.0839	-0.3080	0.0949	0.0892
2062/063	-0.1539	0.0237	-0.6449	0.4159	0.0993
2063/064	-0.1840	0.0339	0.8571	0.7346	-0.01577
2064/065	1.5122	2.2867	0.3530	0.1246	0.5338
2065/066	-0.2844	0.0809	0.1796	0.0323	-0.0511
n = 5	$(R_A–\overline{R}_A)$ = 0.6002	$(R_A–\overline{R}_A)^2$ = 2.5091	$(R_B–\overline{R}_B)$ = 0.4368	$(R_B–\overline{R}_B)^2$ = 1.4023	$[(R_A–\overline{R}_A)(R_B–\overline{R}_B)]$ = 0.6554

Sources from NABIL and NIB

We have,

Co-Variance of Stock A and Stock B [Cov (R_A R_B)] $= \dfrac{\sum[(RA-RA)(RB-RB)]}{n-1}$

$$= \dfrac{0.6554}{5-1} = 0.1639$$

Correlation between Stock A and Stock B (r_{AB}) $= \dfrac{Cov(RA\,RB)}{\sigma A\,\sigma B} = \dfrac{0.1639}{0.792 \times 0.5921}$

$$= 0.3495$$

Where, $\quad A = \sqrt{\dfrac{\sum(RA-\overline{R}A)^2}{n-1}} = \sqrt{\dfrac{2.5091}{5-1}} = 0.792$

$$B = \sqrt{\dfrac{\sum(RB-\overline{R}B)^2}{5-1}} = \sqrt{\dfrac{1.4023}{5-1}} = 0.5921$$

$$W_A = \frac{\sigma_B{}^2 - \text{Cov}(R_A\ R_B)}{\sigma_A{}^2 + \sigma_B{}^2 - 2\text{Cov}(R_A\ R_B)} = \frac{0.3506 \times 0.1639}{0.6273 + 0.3506 - 2 \times 0.1639}$$

$$= 0.0884 \quad = 8.84 \quad = 9\%$$

$$W_B = 1 - W_A \qquad = 1 - 0.09 \qquad = 0.91 \quad = 91\%$$

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

W_A = optimal weight to invest in stock of NABIL

W_B = optimal weight to invest in stock of NIB

$_A$ = Standard Deviation of NABIL

$_B$ = Standard Deviation of NIB

As we know that the portion of stock A in the portfolio is constructed with 9% of NABIL and 91% (100 - 9) % = 91% of NIB common stock that will minimize risk and be ideal proportion.

Portfolio Return

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

Average Portfolio Return of Stock A and B (Rp) = $W_A \times \overline{R}_A + W_B \times \overline{R}_B$

$$= 0.09 \times 0.7289 + 0.91 \times 0.51$$

$$= 0.52$$

Where,

$\overline{R}_A$ = Average Return of NABIL

$\overline{R}_B$ = Average Return of NIB

Portfolio Risk

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

$$p = \sqrt{W_A^2 x\ _A^2 + W_B^2 x\ _B^2 + 2\ W_A\ W_B\ Cov\ (A\ B)}$$

$$= \sqrt{0.09^2 x\ 0.6273 + 0.91^2 x\ 0.3506 + 2\ x\ 0.09\ x\ 0.91\ x\ 0.1639}$$

$$= 0.5677$$

Where,

$_P$ = Standard Deviation of Portfolio Return of Stock A & B

Even though, the portfolio combination given the reduction in risk, it doesn't give the realized magnitude in risk reduction. So the portfolio is not preferable as expectation. Again taking first and fifth commercial banks (i.e. NABIL and Everest) NABIL stock is symbolized as A and Everest stock is symbolized as E.

Table 4.11

Calculation of Cov ($R_A\ R_E$) of Stock A and E

Fiscal Year	$(R_A - \overline{R}_A)$	$(R_A - \overline{R}_A)^2$	$(R_E - \overline{R}_E)$	$(R_E - \overline{R}_E)^2$	$[(R_A - \overline{R}_A)(R_E - \overline{R}_E)]$
2061/062	-0.2897	0.0839	-0.1055	0.0111	0.0306
2062/063	-0.1539	0.0237	0.0065	0.0001	-0.0010
2063/064	-0.1840	0.0339	-0.0647	0.0042	0.0119
2064/065	1.5122	2.2867	0.7723	0.5964	1.1679
2065/066	-0.2844	0.0809	-0.0783	0.0061	0.0223
n = 5	$(R_A - \overline{R}_A)$ = 0.6002	$(R_A - \overline{R}_A)^2$ = 2.5091	$(R_E - \overline{R}_E)$ = 0.5303	$(R_E - \overline{R}_E)^2$ = 0.6179	$[(R_A - \overline{R}_A)(R_E - \overline{R}_E)]$ = 1.2317

Sources from NABIL and EBL

Standard Deviation of Stock A (σ_A) = $\sqrt{\dfrac{\Sigma(RA-\overline{RA})^2}{n-1}}$ = $\sqrt{\dfrac{2.5091}{5-1}}$ = 0.792

Standard Deviation of Stock E (σ_E) = $\sqrt{\dfrac{(RE-\overline{RE})^2}{n-1}}$ = $\sqrt{\dfrac{0.6179}{5-1}}$ = 0.393

Co-Variance of Stock A and Stock E [Cov (R_A R_E)] = $\dfrac{\Sigma[(RA-\overline{RA})(RE-\overline{RE})]}{n-1}$

$$= \dfrac{1.2317}{5-1} = 0.3079$$

Correlation between Stock A and Stock E (r_{AE}) = $\dfrac{Cov\,(RA\,RE)}{\sigma A\,\sigma E}$ = $\dfrac{0.3079}{0.792 \times 0.393}$

$$= 0.9891$$

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

$$W_A = \dfrac{\sigma E^2 - Cov\,(RA\,RE)}{\sigma A^2 + \sigma E^2 - 2\,Cov\,(RA\,RE)} = \dfrac{0.1545 - 0.3079}{0.6273 + 0.1545 - 2 \times 0.3079} = -0.92$$

$W_E = 1 - (-0.92) = 1.92$

$\qquad$ W_A = Optimal Weight to invest in stock of NABIL

$\qquad$ W_E = Optimal Weight to invest in stock of EBL

$\qquad$ σ_A = Variance of NABIL

$\qquad$ σ_E = Variance of EBL

We know that the portion of stock A in the portfolio is constructed with -92% of NABIL and 192% (100 – (-92) % =192% of EBL common stock that will minimize risk and be ideal proportion.

Portfolio Return

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

$Rp = \overline{R}_A \; x \; W_A + \overline{R}_E \; x \; W_E$

$= 0.8289 \; x \; -0.92 + 0.6785 \; x \; 1.92 = 0.5401 = 54.01\%$

Where,

R_P = Average Return on Portfolio of Stock A & E

R_A = Average Return of NABIL

R_E = Average Return of EBL

Portfolio Risk

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

$$\sigma_P = \sqrt{W_A{}^2 \; x \; \sigma_A{}^2 + W_E{}^2 \; x \; \sigma_E{}^2 + 2 \; W_A \; W_E \; Cov \; (A \; E)}$$

$$= \sqrt{-0.92^2 \; x \; 0.6273 + 1.92^2 \; x \; 0.1545 + 2 \; x \; -0.92 \; x \; 1.92 \; x \; 0.3079}$$

$= 0.1123$

Where,

σ_P = Standard Deviation of Portfolio Return of Stock A & B

Now, taking second and fifth commercial banks (i.e. NIB and EBL), NIB stock is symbolized as B and Everest Stock is symbolized as E.

Table 4.12

Calculation of Cov (R_B R_E) of Stock B and E

Fiscal Year	$(R_B–\overline{R}_B)$	$(R_B–\overline{R}_B)^2$	$(R_E–\overline{R}_E)$	$(R_E–\overline{R}_E)^2$	$[(R_B–\overline{R}_B)(R_E–\overline{R}_E)]$
2061/062	-0.3080	0.0949	-0.1055	0.0111	0.0325
2062/063	-0.6449	0.4159	0.0065	0.0001	-0.0042
2063/064	0.8571	0.7346	-0.0647	0.0042	-0.0555
2064/065	0.3530	0.1246	0.7723	0.5964	0.2726
2065/066	0.1796	0.0323	-0.0783	0.0061	-0.0141
n = 5	$(R_B–\overline{R}_B)$ = 0.4368	$(R_B–\overline{R}_B)^2$ = 1.4023	$(R_E–\overline{R}_E)$ = 0.5303	$(R_E–\overline{R}_E)^2$ = 0.6179	$[(R_B–\overline{R}_B)(R_E–\overline{R}_E)]$ = 0.2313

Sources from NIB and EBL

Standard Deviation of Stock B (σ_B) = $\sqrt{\dfrac{\sum(R_B–\overline{R}_B)^2}{5-1}}$ = $\sqrt{\dfrac{1.4023}{5-1}}$ = 0.5921

Standard Deviation of Stock E (σ_E) = $\sqrt{\dfrac{(R_E–\overline{R}_E)^2}{n-1}}$ = $\sqrt{\dfrac{0.6179}{5-1}}$ = 0.393

Co-Variance of Stock B and Stock E [Cov (R_B R_E)] = $\dfrac{\sum[(R_B–\overline{R}_B)(R_E–\overline{R}_E)]}{n-1}$

$$= \frac{0.2313}{5-1} = 0.0578$$

Correlation between Stock B and Stock E (r_{BE}) = $\dfrac{Cov\ (R_B\ R_E)}{\sigma_B\ \sigma_E}$ = $\dfrac{0.0578}{0.5921 \times 0.393}$

$$= 0.2484$$

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

W_B = $\dfrac{\sigma_E^2 - Cov\ (R_B\ R_E)}{\sigma_B^2 + \sigma_E^2 - 2\ Cov\ (R_B\ R_E)}$ = $\dfrac{0.1545 - 0.0578}{0.3506 + 0.1545 - 2 \times 0.0578}$ = 0.2483 = 0.25

W_E = (1 - W_B) = (1 – 0.25) = 0.75

Where,

W_B = Optimal weight to invest in stock of NIB

W_E = Optimal weight to invest in stock of EBL

$_B{}^2$ = Variance of NIB

$_E{}^2$ = Variance of EBL

As we know that the portion of stock B in the portfolio is constructed with 25% of NIB and 75% (100 – 25) % = 75% of EBL common stock that will minimize risk and be ideal proportion.

Portfolio Return

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

$Rp = \overline{R}_B$ x W_B + $\overline{R}_E$ x W_E

= 51 x 0.25 + 67.85 x 0.75

= 63.63

Where,

R_P = Average Return on portfolio of stock B & E

R_B = Average Return of NIB

R_E = Average Return of EBL

Portfolio Risk

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

$$_P = \sqrt{W_B{}^2 x \;_B{}^2 + W_E{}^2 x \;_E{}^2 + 2\, W_B\, W_E\, Cov\, (R_B\, R_E)}$$

$$= \sqrt{0.25^2 \text{ x } 0.3506 + 0.75^2 \text{ x } 0.1545 + 2 \text{ x } 0.25 \text{ x } 0.75 \text{ x } 0.0578}$$

= 0.3464

Where,

        $_p$ = Standard Deviation of portfolio return of stock B & E

4.6 T- Test

Hypothesis–1

Formulation of Hypothesis

Null hypothesis (Ho): There is no significance difference between average return of common stock of listed commercial banks and market return.

Alternative hypothesis (H1): There is significance difference between average return of common stock of listed commercial banks and market return.

Computation of test statistics: (t) = $\dfrac{\overline{X} - \mu}{s/\sqrt{n}}$ = $\dfrac{0.6026 - 0.3350}{0.623/\sqrt{5}}$ = 0.9605

Where,

        X = Average return of selected five commercial banks

          (I.e. 0.7289 + 0.51 + 0.4807 + 0.6183 + 0.6785 = 3.0129/5 = 0.6026)

        μ = Average rate of return of overall market (i.e. 0.3350)

        n = Number of observation

        S = Standard Deviation of selected commercial banks

          (I.e. 0.7575 + 0.5645 + 0.7529 + 0.6158 + 0.4241 = 3.1148/5 = 0.623)

Tabulated value of t at 5% level of significance for 4 = (5-1) degree of freedom is 2.776.

Decision: Since the calculated value of t is 0.9605, which is less than tabulated value of t = 2.776 the null hypothesis is accepted i.e. there is no significance difference between average return of common stock of listed commercial banks and market return.

Hypothesis–2

Hypothesis formulation

Null Hypothesis (Ho): $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$ i.e. there is no significant difference in average return of common stock of selected commercial banks.

Alternative Hypothesis (H1): μ_1 μ_2 μ_3 μ_4 μ_5 i.e. there is a significant different in average return of common stock of selected commercial banks.

Table 4.13

Computation of Test Statistic

Fiscal Year	Holding Period Return					Sum of Square				
	NABIL (X_1)	NIB (X_2)	SBI (X_3)	NICB (X_4)	EBL (X_5)	X_1^2	X_2^2	X_3^2	X_4^2	X_5^2
2061/62	0.4392	0.2013	0.2039	-0.0091	0.5730	0.1929	0.0405	0.0416	0.0001	0.3283
2062/63	0.5750	-0.1356	0.0912	1.1798	0.6850	0.3306	0.0184	0.0083	1.3919	0.4692
2063/64	0.5449	1.3664	0.8418	0.6162	0.6138	0.2969	1.8670	0.7086	0.3797	0.3768
2064/65	2.2411	0.8623	1.8063	1.4352	1.4508	5.0225	0.7436	3.2627	2.0598	2.1048
2065/66	0.4445	0.6889	0.2849	0.5897	0.6002	0.1976	0.4746	0.0812	0.3477	0.3602
Total	4.2447	2.9833	3.2281	3.8118	3.9228	6.0405	3.1441	4.1024	4.1792	3.6393

Hence, Total number of observation (N) = 30

Grand Total (T) = $X_1 + X_2 + X_3 + X_4 + X_5 = 18.1907$

76

Correlation Factor (C.F.) $= \dfrac{T^2}{N} = \dfrac{18.1907^2}{30} = 11.03$

Sum of Square between return (SSC)

$$= \frac{\Sigma X1^2}{n_1} + \frac{\Sigma X2^2}{n_2} + \frac{\Sigma X3^2}{n_3} + \frac{\Sigma X4^2}{n_4} + \frac{\Sigma X5^2}{n_5} - C.F.$$

$$= \frac{4.2447^2}{5} + \frac{2.9833^2}{5} + \frac{3.2281^2}{5} + \frac{3.8118^2}{5} + \frac{3.9228^2}{5} - 11.03$$

$= 13.45 - 11.03$

$= 2.42$

Total Sum of Square (TSS) $= X_1^2 + X_2^2 + X_3^2 + X_4^2 + X_5^2 - C.F.$

$\qquad\qquad = 6.0405 + 3.1441 + 4.1024 + 4.1792 + 3.6393 - 11.03$

$\qquad\qquad = 10.08$

Sum of Square within Return (SSE) = TSS – SSC = 10.08 – 2.42 = 7.66

Table 4.14

ANOVA Table

Source of Variance	Sum of Square	Degree of Freedom (d.f.)	Mean Sum of Square	F - Ratio
Between Return	SSC = 2.42	K-1 = 5-1 = 4	$MSS = \dfrac{2.42}{4}$ $= 0.605$	$F = \dfrac{MSS}{MSE}$
Within Return	SSE = 7.66	N-K=30-5 = 25	$MSE = \dfrac{7.66}{25}$ $= 0.30$	$= \dfrac{0.605}{0.30}$ $= 2.02$
		N-1 = 30-1 =29		

Tabulated value for V1 = 4 and V2 = 25 at 5% of level of significance is equal to 2.76.

Decision: Since calculated value of F i.e. 2.02 is less than tabulated value of F i.e.2.76, Ho is accepted i.e. there is no significance difference between the average return of common stocks of selected commercial banks.

4.7 Market Price of Sample Banks

NABIL Bank Limited

Nabil Bank was established in 2041 B.S (1994 AD). The Bank has Rs. 1,600,000,000/- authorized capital, Rs. 689,216,000/- issued capital and Rs. 689,216,000/- paid up capital as of the end of fiscal year 2065/066. The total numbers of shareholder are 5076 and par value per share is Rs. 100. The Bank was listed on stock exchange in 2042/08/09 (1986).

Table 4.15

Market Price per Share (MPS) and Dividend of NABIL Bank for FY 2061/62 to 2065/66

| Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend (%)	Total Dividend
2061/062	1000	65	0	65
2062/063	1505	70	0	70
2063/064	2240	85	0	85
2064/065	5050	100	40	2210
2065/066	5275	60	40	2020
2066/067	4899	0	0	0

Sources from Annual Report

Nabil has maximum closing MPS in fiscal year 2065/66 at Rs. 5,275 and minimum in fiscal year 2061/062 at Rs. 1000.

Total Dividend Amount = Cash Dividend + % Stock Dividend x Next years MPS

Figure 1

Movement of Closing MPS of Nabil Bank
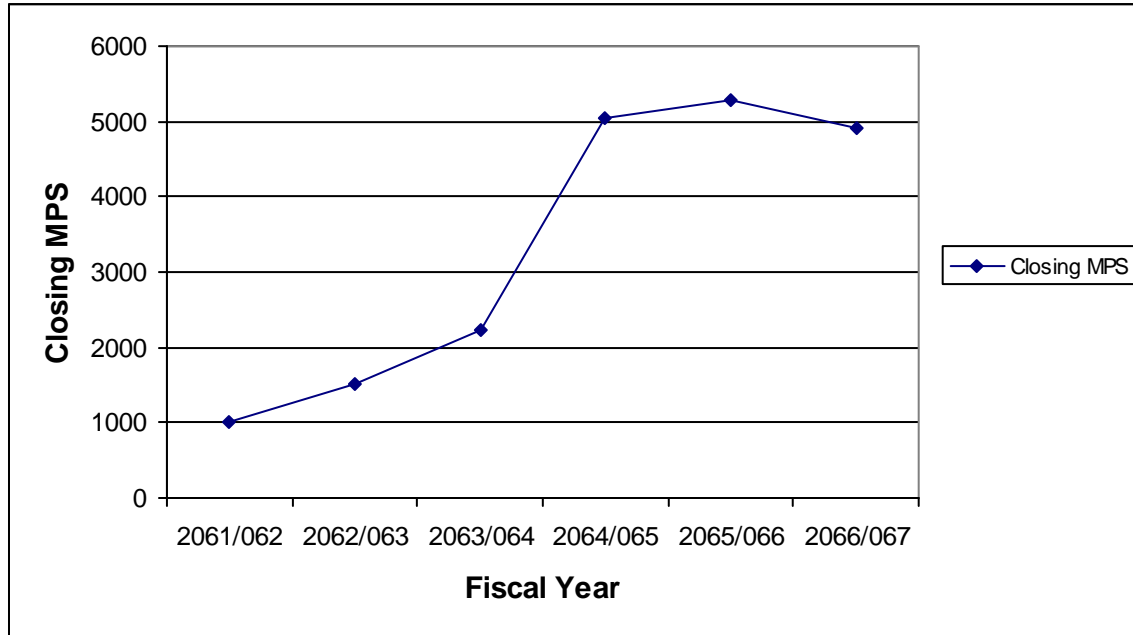
Table 4.16

Average Rate of Return, Standard Deviation and Co-efficient of Variance of NABIL Bank Limited

Fiscal Year	Closing MPS	Total Dividend	$R=\dfrac{(P_t - P_{t-1})+D_t}{P_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$
2061/062	1000	65	0.4392	-0.2897	0.0839
2062/063	1505	70	0.5750	-0.1539	0.0237
2063/064	2240	85	0.5449	-0.1840	0.0339
2064/065	5050	2210	2.2411	1.5122	2.2868
2065/066	5275	2020	0.4445	-0.2844	0.0809
n = 5			R = 4.2447		$(R - R)^2$ = 2.5092

Sources from Annual Report

Average Return $(\overline{R}) = \dfrac{\sum R}{n}$ $= \dfrac{4.2447}{5}$ $= 0.84$
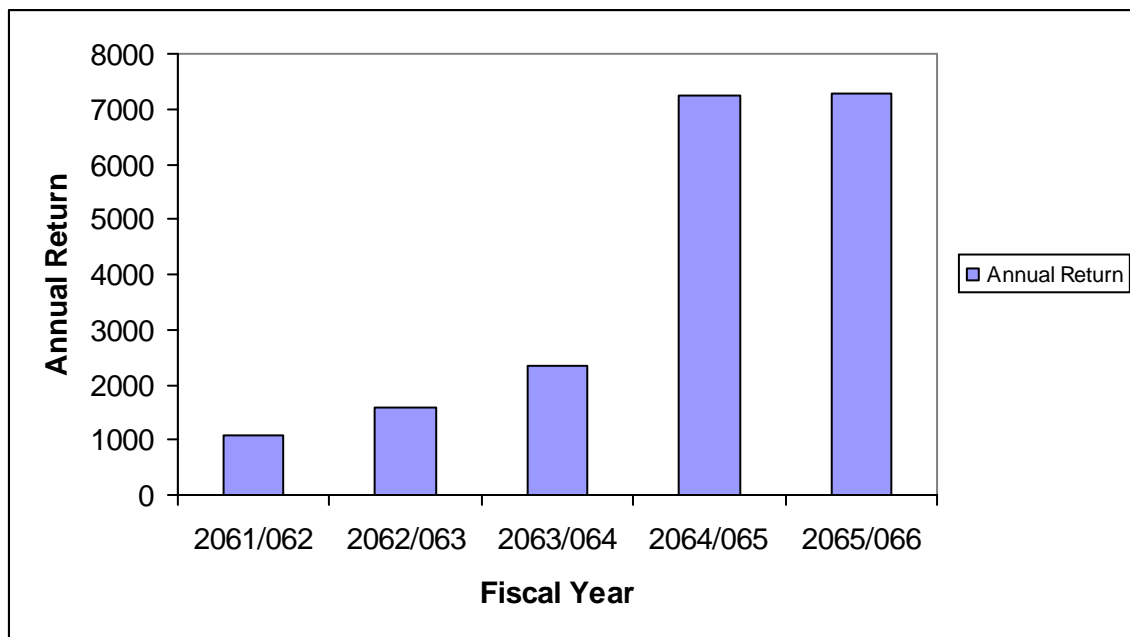
Standard Deviation $(\ )=\sqrt{\dfrac{\sum(R-\overline{R})^2}{n-1}}$ $=\sqrt{\dfrac{2.5092}{5-1}}$ $= 0.7874$

Variance (Var) $=\ ^2 = (0.7874)^2 = 0.62$

Co-efficient of Variance (C.V.) $= \dfrac{\sigma}{R} \times 100\%$ $= \dfrac{0.62}{0.84} \times 100\%$ $= 73\%$

Figure 2

Annual Return on Common Stock of NABIL Bank

The annual rate of return on share of Nabil was at maximum in the fiscal year 2064/065 and 2065/066 with Rs. 7260 and 7295 which is the most profitable year to the shareholders, while fiscal year 2061/062 is the least profitable year with annual return Rs. 1065.

Nepal Investment Bank Limited

Nepal Investment Bank Limited (NIBL), previously Nepal Indosuez Bank Ltd., was established in 1986 as a joint venture between Nepalese and French partners. The French partner (holding 50% of the capital of NIBL) was Credit Agricole Indosuez, a subsidiary of one the largest banking group in the world. The Credit Agricole Indosuez sold its share to the group of companies comprising of bankers, professionals, industrialists and businessmen on April 2002.

The name of the bank has changed to Nepal Investment Bank Ltd. after divestment of share of Credit Agricole Indosuez in 2002. The banks has an authorized capital of Rs. 2,000,000,000, issued capital of Rs. 1,203,915,400 and paid of capital Rs. 1,203,915,400 at the end of fiscal year 2065/066. The bank has following shareholding structure.

- A group of companies holding 50% of the capital
- Rastriya Banijya Bank holding 15% of the Capital
- Rastriya Beema Sansthan holding the same percentage
- The remaining 20% being held by the General Public

The bank is actively trading their share at Nepal Stock Exchange.

Table 4.17

**Market Price per Share (MPS) and Dividend of NIBL for FY 2061/062 – 2065/066**

Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend (%)	Total Dividend
2061/062	940	15	0	15
2062/063	800	12.5	0	12.5
2063/064	1260	20	35.46	633.10
2064/065	1729	5	25	617.5
2065/066	2450	7.5	33.33	470
2066/067	1388	0	0	

Sources from Annual Report

NIBL has the highest closing MPS in fiscal year 2065/066 at Rs. 2,450 and minimum in fiscal year 2061/062 at Rs. 940.

Total Dividend Amount = Cash Dividend + % Stock Dividend x Next Year's MPS

Figure 3

Movement of Closing MPS of NIBL
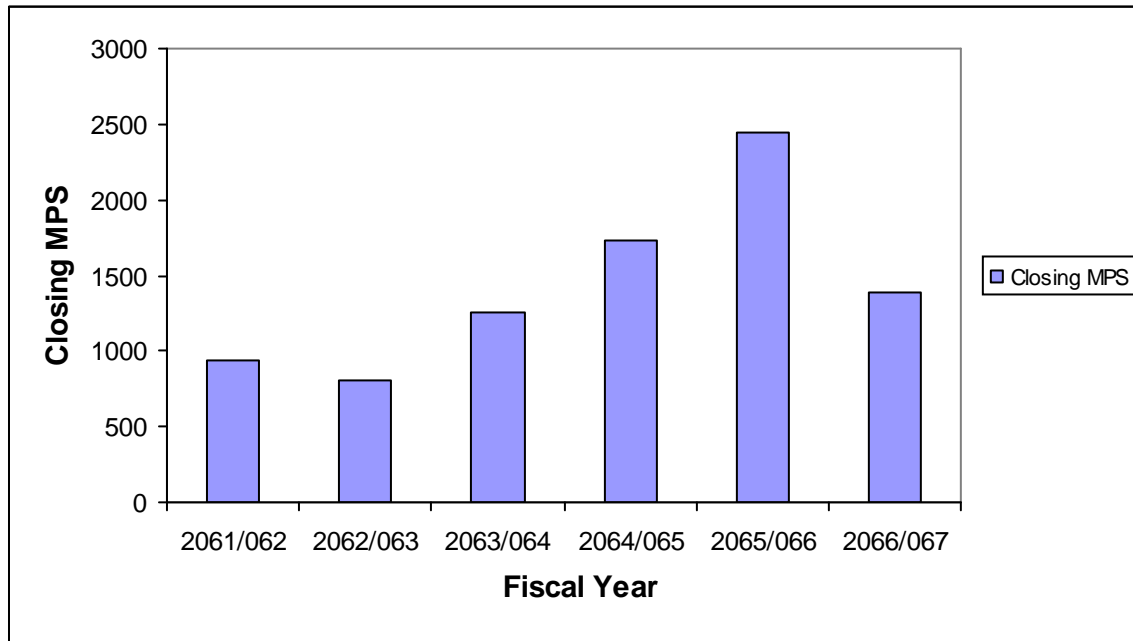
Table 4.18

Average Rate of Return, Standard Deviation and Co-efficient of Variance of NIBL

Fiscal Year	Closing MPS	Total Dividend	$R=\dfrac{(P_t - P_{t-1})+D_t}{P_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$
2061/062	940	15	0.2013	-0.3080	0.0949
2062/063	800	13	-0.1356	-0.6449	0.4159
2063/064	1260	633	1.3664	0.8571	0.7346
2064/065	1729	618	0.8623	0.3530	0.1246
2065/066	2450	470	0.6889	0.1796	0.0323
n = 5			R = 2.9823		$(R - R)^2$ = 1.4023

Sources from Annual Report

82

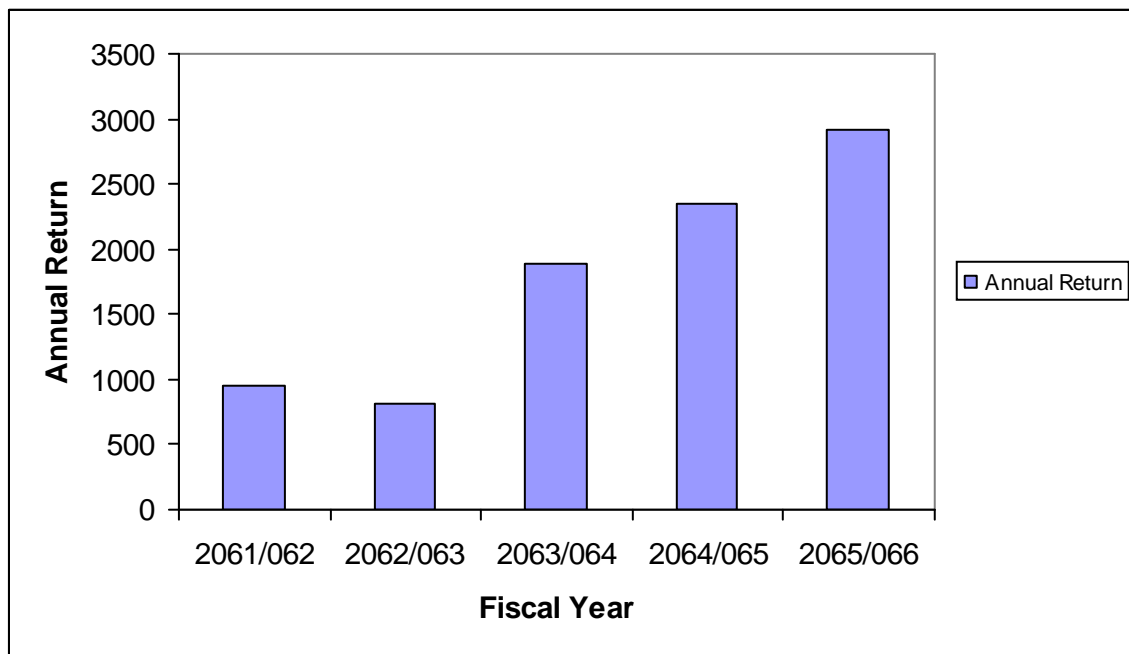Average Return $(\overline{R}) = \dfrac{\sum R}{n} = \dfrac{2.9823}{5} = 0.59$

Standard Deviation $(\sigma) = \sqrt{\dfrac{\sum(R - \overline{R})^2}{n-1}} = \sqrt{\dfrac{1.4023}{5-1}} = 0.5916$

Variance $(Var) = \sigma^2 = (0.5916)^2 = 0.35$

Co-efficient of Variance $(C.V.) = \dfrac{\sigma}{\overline{R}} \times 100\% = \dfrac{0.35}{0.59} \times 100\% = 59\%$

Figure 4

Annual Return on Common Stock of NIBL Bank

The annual return on share of NIBL was at maximum in the fiscal year 2065/066 with Rs. 2920 which is the most profitable year to the shareholders, while it was least with Rs. 813 in fiscal year 2062/063.

Nepal SBI Bank Limited

Nepal SBI Bank Ltd. (NSBL) is the first Indo-Nepal joint venture in the financial sector sponsored by three institutional promoters, namely State Bank of India, Employees Provident Fund and Agricultural Development Bank of Nepal through a Memorandum of Understanding signed on 17th July 1992. NSBL was incorporated on April 28, 1993. NSBL commenced operation with effect from July 7, 1993. The bank has an Authorized Capital of Rs. 1,000,000,000, issued capital Rs. 877,500,000 and paid of capital Rs. 874,527,840. The local promoters are Employees Provident Fund and Agricultural Development Bank/Nepal. The management team and the Managing Director who is also the CEO of the Bank are deputed by State Bank of India. 50 percent of the total share capital of the Bank is held by the State Bank of India, 15 percent is held by the Employees Provident Fund, 5 percent is held by the Agricultural Development Bank Nepal and 30 percent is held by the general public. The bank has been actively trading at Nepal Stock Exchange. The bank has 15 branches as of fiscal year 2065/066 and other 15 branches are in line to open during fiscal year 2065/66.

Table 4.19

**Market Price per Share (MPS) and Dividend of SBI Bank for F/Y 2061/062–2065/066**

Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend (%)	Total Dividend
2061/062	307	0	0	0
2062/063	335	0	0	0
2063/064	612	5	0	5
2064/065	1176	12.60	35	541.44
2065/066	1511	0	0	0
2066/067	1900	0	0	0

Sources from Annual Report

SBI Bank has maximum closing MPS in fiscal year 2066/067 at Rs. 1,900 and minimum in fiscal year 2061/062 at Rs. 307.

Total Dividend Amount = Cash Dividend + % Stock Dividend x Next year's MPS

Figure 5

Movement of Closing MPS of SBI Bank
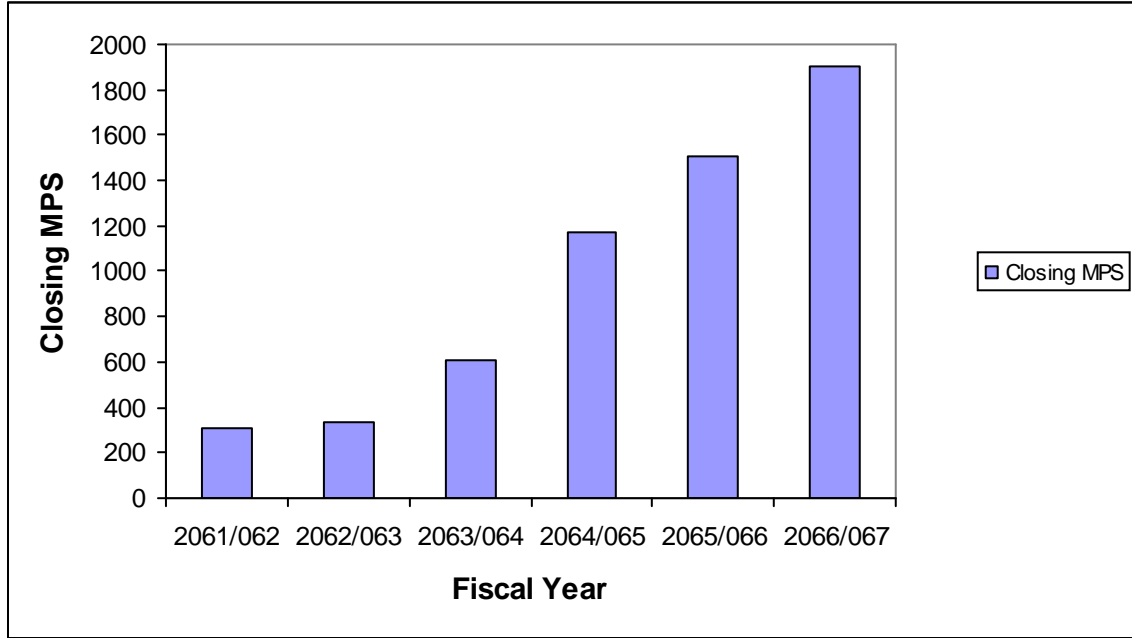
Table 4.20

Average Rate of Return, Standard Deviation and Co-efficient of Variance of SBI Bank

Fiscal Year	Closing MPS	Total Dividend	$R=\dfrac{(P_t - P_{t-1})+D_t}{P_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$
2061/062	307	0	0.2039	-0.2767	0.0766
2062/063	335	0	0.0912	-0.3894	0.1517
2063/064	612	5	0.8418	0.3611	0.1304
2064/065	1176	541.44	1.8063	1.3256	1.7573
2065/066	1511	0	0.2849	-0.1958	0.0383
n = 5			R = 3.2281		$(R - R)^2$ = 2.1543

Sources from Annual Report

$$\frac{\sum R}{n} \qquad \frac{3.2281}{5}$$

85

Average Return $(\overline{R})$ =   =   = 0.64

Standard Deviation $(\ ) = \sqrt{\dfrac{\sum(R - \overline{R})^2}{n - 1}}$ = $\sqrt{\dfrac{2.1543}{5 - 1}}$ = 0.7280

Variance (Var) = ^{2} = $(0.7280)^2$ = 0.53

Co-efficient of Variance (C.V.) = $\dfrac{\sigma}{\overline{R}}$ x 100 %   = $\dfrac{0.64}{0.7280}$ x 100 % = 87 %

Figure 6

Annual Return of Common Stock of SBI Bank
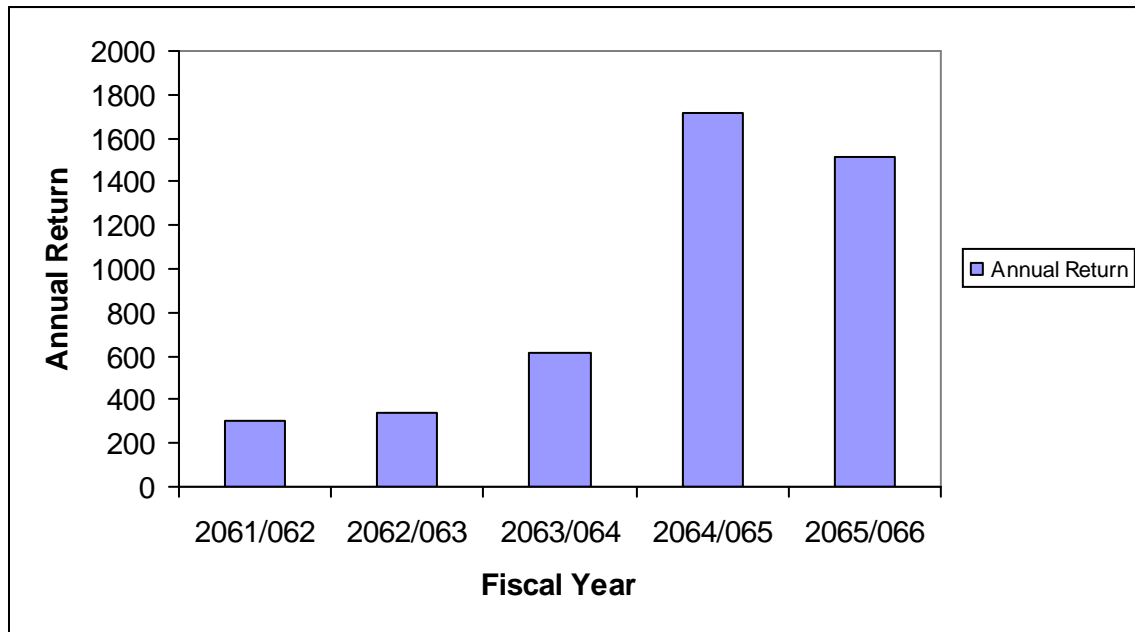
The annual return on share of Nepal SBI Bank was at maximum in the fiscal year 2064/065 with Rs. 1717 which is the most profitable year to the shareholders, while the bank had least return on fiscal year 2061/062 with annual return Rs. 307.

Nepal Industrial & Commercial Bank Limited

Nepal Industrial & Commercial Bank Limited (NIC Bank) commenced its operation on 21 July 1998 from Biratnagar. The bank has Rs. 1,600,000,000/- authorized capital, Rs. 950,400,000/- issued capital and Rs. 943,877,100/- paid up capital as of the end of fiscal year 2065/066. The Bank was promoted by some of the prominent business houses of the country. The current shareholding pattern of the Bank constitutes of promoters holding 65% of the shares while 35% is held by general public. NIC Bank is one of the most widely-held Banking companies in Nepal, with over 32,000 shareholders. The shares of the Bank are actively traded in Nepal Stock Exchange with current market capitalization of about NPR 10,699 million.

Within 10 years of commencing business, the Bank has grown rapidly with 16 branches throughout the country. The Bank has been awarded the "Bank of the Year 2007-Nepal" by the world-renowned financial publication of The Financial Times, U.K.-The Banker. NIC is the first commercial Bank in Nepal to have received ISO 9001:2000 certification for quality management system. Furthermore, NIC Bank became the 1st Bank in Nepal to be provided a line of credit by International Finance Corporation (IFC), an arm of World Bank Group under its Global Trade Finance Program, enabling the Bank's Letter of Credit and Guarantee, to be accepted / confirmed by more than 200 banks worldwide.

Table 4.21

**Market Price per Share (MPS) and Dividend of NICB for F/Y 2061/062–2065/066**

Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend (%)	Total Dividend
2061/062	218	0	0	0
2062/063	366	10	20	109
2063/064	496	0.53	10	96
2064/065	950	1.05	20	258
2065/066	1284	1.05	20	226
2066/067	1126	0	0	0

Sources from Annual Report

NICB Bank has maximum closing MPS in fiscal year 2065/066 at Rs. 1,284 and minimum in fiscal year 2061/062 at Rs. 218.

Total Dividend Amount = Cash Dividend + % Stock Dividend x Next year's MPS

Figure 7

Movement of Closing MPS of NICB Bank
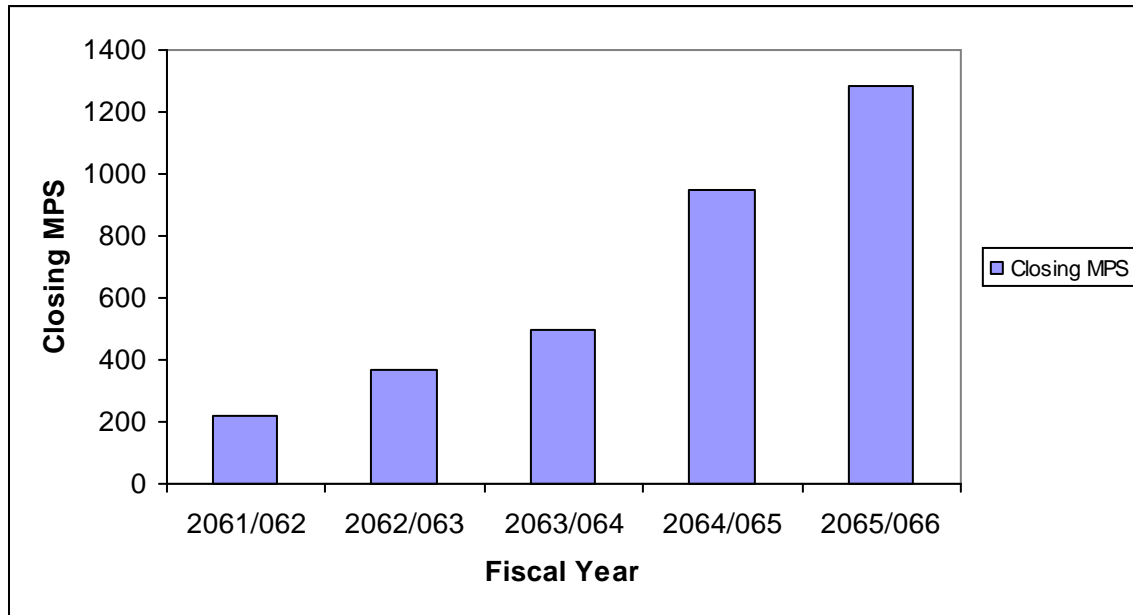
Table 4.22

Average Rate of Return, Standard Deviation and Co-efficient of Variance of NICB

Fiscal Year	Closing MPS	Total Dividend	$R=\dfrac{(P_t - P_{t-1})+D_t}{P_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$
2061/062	218	0	-0.0091	-06274	0.3936
2062/063	366	109	1.1798	0.5615	0.3153
2063/064	496	96	0.6162	-0.0021	0.0000
2064/065	950	258	1.4352	0.8169	0.6673
2065/066	1284	226	0.5897	-0.0286	0.0008
n = 5			R = 3.8118		$(R - R)^2$ = 1.377

Average Return $(\overline{R}) = \dfrac{\sum R}{n} = \dfrac{3.8118}{5} = 0.76$

Standard Deviation ( ) $= \sqrt{\dfrac{\sum(R-\bar{R})^2}{n-1}} = \sqrt{\dfrac{1.377}{5-1}} = 0.5831$

Variance (Var) $=\ ^2 = (0.5831)^2 = 0.34$

Co-efficient of Variance (C.V.) $= \dfrac{\sigma}{\bar{R}} \times 100\ \% = \dfrac{0.34}{0.76} \times 100\ \% = 44\ \%$

Figure 8

Annual Return of Common Stock of NICB Bank
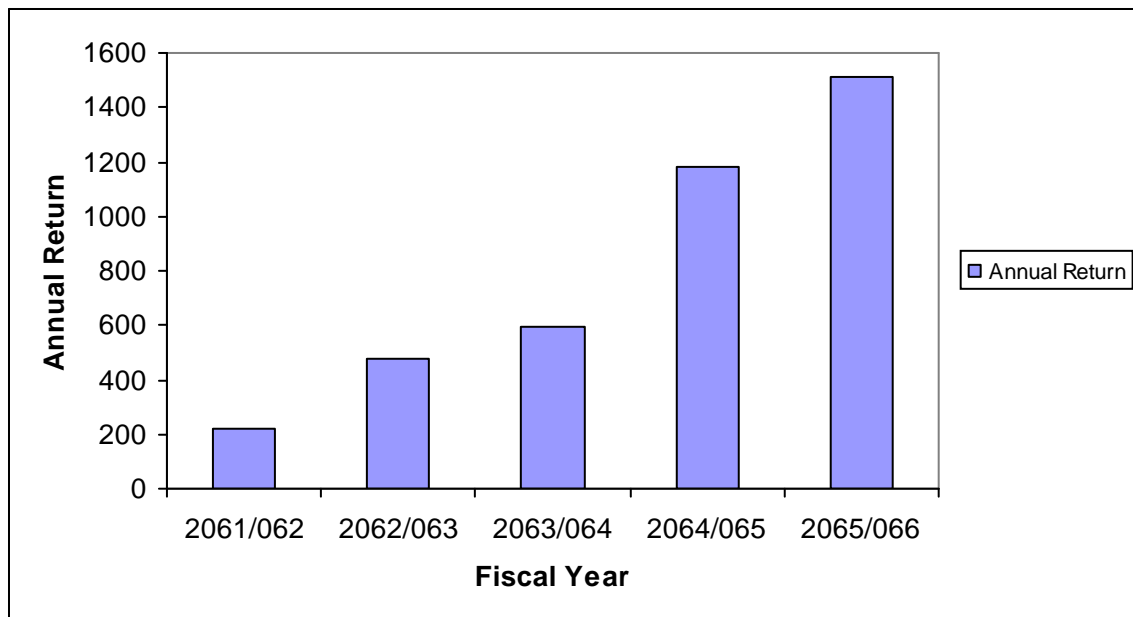
The annual return on share of NICB was at maximum in the fiscal year 2065/066 with Rs. 1510, this is the most profitable year to its shareholders, while fiscal year 2061/062 is the year least return with annual rate of return Rs. 218.

Everest Bank Limited

Everest Bank Limited (EBL) started its operations in 1994 joint venture with Punjab National Bank (PNB), holding 20% equity in the bank, is the largest nationalized bank in India with its presence virtually in all the important centers at India. The bank has Rs. 1,000,000,000/- authorized capital Rs. 843,200,000/- issued capital and Rs. 831,400,000/- paid up capital as of the end of fiscal year 2065/066.

The bank is providing customer-friendly services through its 35, one representative office in India and over 250 correspondent banks across the globe. All the branches of the bank are connected through Anywhere Branch Banking System (ABBS). EBL was one of the first banks to introduce Any Branch Banking System (ABBS) in Nepal.

The bank has been conferred with "Bank of the Year 2006, Nepal" by the banker, a publication of financial times, London. The bank was bestowed with the "NICCI Excellence award" by Nepal India chamber of commerce for its spectacular performance under finance sector. EBL has pioneered in extending various customer friendly products such as Home Loan, Education Loan, EBL Flexi Loan, EBL Property Plus (Future Lease Rental), Home Equity Loan, Vehicle Loan, Loan Against Share, Loan Against Life Insurance Policy and Loan for Professionals. EBL has introduced Mobile Vehicle Banking system to serve the segment deprived of proper banking facilities through its Birtamod Branch, which is the first of its kind.

Table 4.23

Market Price per Share (MPS) and Dividend of EBL for F/Y 2061/062–2065/066

| Fiscal Year	Closing MPS	Cash Dividend	Stock Dividend (%)	Total Dividend
2061/062	680	20	0	20
2062/063	870	0	20	276
2063/064	1379	25	0	25
2064/065	2430	10	30	950
2065/066	3132	20	30	757
2066/067	2455	0	0	0

Sources from Annual Report

EBL has maximum closing MPS in fiscal year 2065/066 at Rs. 3,132 and minimum in fiscal year 2061/062 at Rs. 680.

Total Dividend Amount = Cash Dividend + % Stock Dividend x Next year's MPS

Figure 9

Movement of Closing MPS of EBL Bank
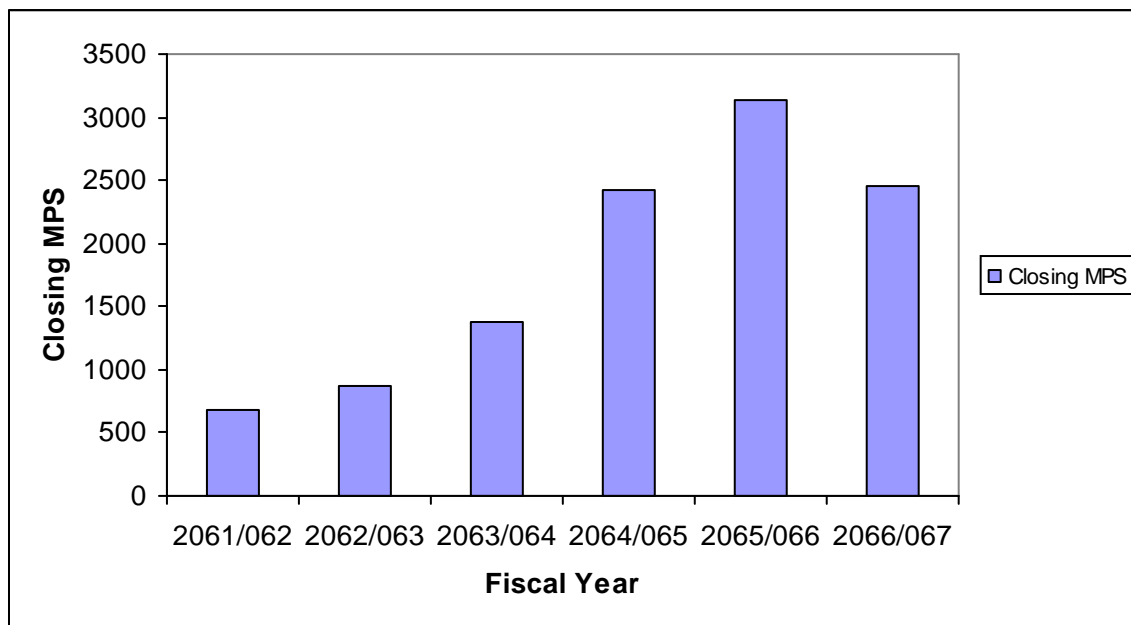
Table 4.24

Average Rate of Return, Standard Deviation and Co-efficient of Variance of EBL

Fiscal Year	Closing MPS	Total Dividend	$R=\dfrac{(P_t - P_{t-1})+D_t}{P_{t-1}}$	$(R-\overline{R})$	$(R-\overline{R})^2$
2061/062	680	20	0.5730	-0.1055	0.0111
2062/063	870	276	0.6850	0.0065	0.0000
2063/064	1379	25	0.6138	-0.0647	0.0042
2064/065	2430	950	1.4508	0.7723	0.5964
2065/066	3132	757	0.6002	-0.0783	0.0061
n = 5			R = 3.9228		$(R-R)^2$ = 0.6168

Average Return $(\overline{R}) = \dfrac{\sum R}{n} = \dfrac{3.9228}{5} = 0.78$

Standard Deviation $(\ ) = \sqrt{\dfrac{\sum(R-\overline{R})^2}{n-1}} = \sqrt{\dfrac{0.6168}{5-1}} = 0.3873$

Variance $(Var) = \ ^2 = (0.3873)^2 = 0.15$

Co-efficient of Variance (C.V.) $= \dfrac{\sigma}{\overline{R}}$ x 100 % $= \dfrac{0.15}{0.78}$ x 100 % = 19 %

Figure 10

Annual Return of Common Stock of EBL Bank
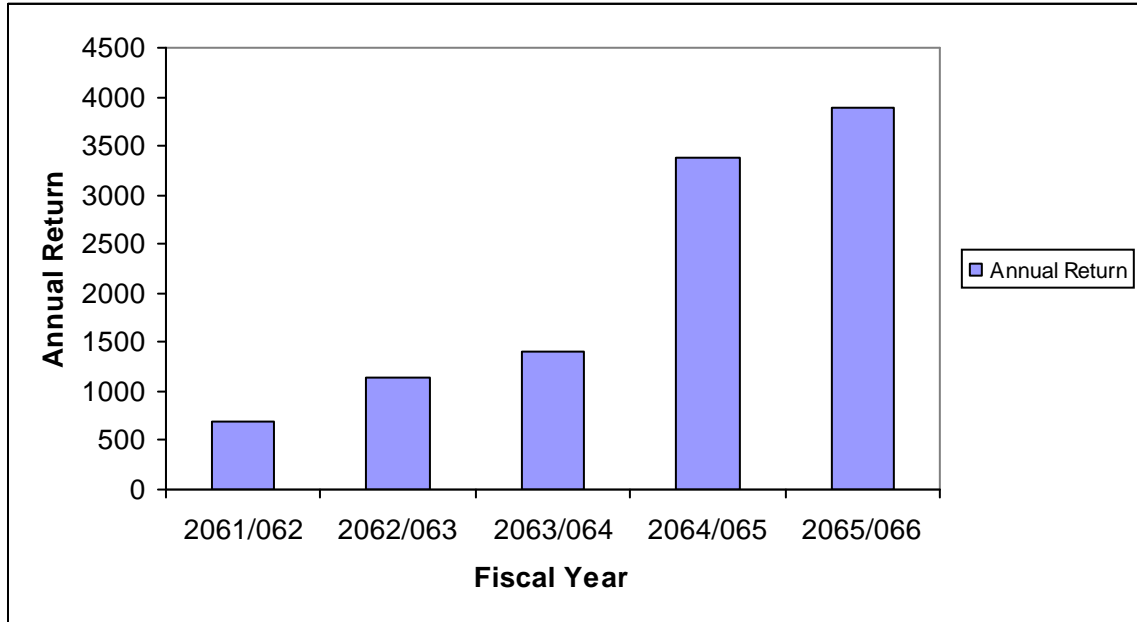
The annual return on share of EBL was at maximum in the fiscal year 2065/066 with Rs. 3889, this is the most profitable year to its shareholders, while fiscal year 2061/062 is the least profitable year with annual return Rs. 700.

4.8 Major Finding of the Study

On the basis of the above analysis and presentations the major findings of the study are as follows.

⌡ NABIL's common stock is yielding the highest rate of return with 72.89% whereas it is the lowest 48.07% in case of SBI. The other banks rates of return are 67.85%, 61.83% and 51.00% of EBL, NICB and NIB respectively.

⌡ The selected commercial banks average return is 60.33% which is higher than NIB and SBI whereas NABIIL, NICB and EBL are higher rate of return than average of five commercial banks.

- NABIL's common stock consists of the highest 75.75% risk which is the riskiest whereas EBL's stock is the least risky as is consist of only 42.41% risk.

- The higher risk of common stock may have greater possible return.

- With the coefficient of Variance analysis it is clearly depicted that there is the highest percentage of per unit risk for SBI whereas it is the lowest for EBL.

- NABIL's stock is more aggressive i.e. market sensitive, to the market changes as evaluated by the highest beta coefficient of 1.3221. Similarly, SBI's stock is also sensitive to the market with beta coefficient of 1.1672. However, the stocks of NIB, NICB and EBL are defensive type to market and their respective beta coefficient are 0.1963, 0.8652 and 0.7349 i.e. means this securities are less affected by market changes.

- The first hypothesis is based on the test of significance of single means (i.e. Banks return and market return). The study was found that the null hypothesis is accepted at 5% level of significance, which means average return of commercial banks is equal to market return.

- The second hypothesis is based on the test of significance of different means (i.e. different commercial banks return). The study was found that the null hypothesis is accepted at 5% level of significance, which means there is no significant difference between the average return of common stock of listed commercial banks.

- Average return of common stock of selected commercial banks is equal to the market return- hypothesis 1 i.e. evaluated by t-test.

- There is no significant difference in average return of common stock of selected commercial banks – hypothesis 2 i.e. evaluated by F-test.

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

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 for the individual or private too. Risk and return is getting highlight in financial management. Financial ratios have been used for centuries as a rule of thumb to aid in understanding trade-off between risk and return. Development in the field of finance has led to the application of many new concepts and models to deal with various issue related to corporate financial management.

Investors have varying perception towards risk and enterprising activity. Investors would want their investment to yield favorable return. Hence they invest in those opportunities which has certain degree of risk is associate with it. Finance mostly deals on the monetary risk and return, which is the most affecting matter for an individual to a large corporation.

Investors sacrifice their current cash in securities in anticipation of higher future benefits than in risk of free sector. An investor seeking common stock investment usually pays the price for the stock based on his estimation about future dividends and growth in stock price. However, in case of imperfect capital market so many financial and non financial factors play a great role in price determination.

It can be said that the rate of return on investment is a function of many factors including the real cost of money, inflation, risk etc. the investors willingly offer more capital at higher rate of return, whereas users of capital always show their readiness to use more capital at lower rate. Common stock is a source of capital, which is considered to be riskier, and lifeblood of stock market. Therefore investment in common stock is very sensitive regarding risk. Dividends to common stock holders are only paid if the firm

makes an operating profit after tax and preference shareholders dividend. The company can return the principal in case of its liquidation only to the extent of the residual assets after satisfying to all of its preference shareholders. Beside this the investors have to sacrifice the return on their investment in common stock, which would be earned investing elsewhere.

The main objectives of the study are to analyze the risk and return of common stocks in Nepalese context that's why is focused on the common stock of listed commercial banks of Nepal. The study has taken a sample of listed five commercial banks as reference to analyze the risk and return in common stock investment, while analyzing the risk and return, brief reviews of related studies has been performed. Tables, graphs and diagrams are used to present the results of the analysis.

Secondary data are collected from NEPSE, previous studies, NRB publications and publications of selected commercial banks journals, books and Internet. Other types of information are collected through personal visit to the executives and officers of the companies and official of security board of Nepal (SEBON) and NEPSE.

5.2 Conclusion

In general, majority of the stock investment has been taking place without base the logical financial evaluation, for most of the investors it is the blind game. Many people have unrealistically optimistic or pessimistic expectations about stock market investments or perhaps the fear of the unknown. This study enables investors to put the return they can expect and the risks they may take into better perspective.

Nepalese stock market is in emerging stage and very new phenomenon to majority of the people though in recent years they have shown participation in stock investment due to growing commercial banks in the country. Our stock market is not sensitive to international stock markets. Its development is getting acceleration after multiparty system in country, since 2046 B.S. It takes place after economic liberalization in national economy since 1992. But due to the lack of proper information and poor knowledge,

Nepalese individual investors cannot analyze the securities as well as market properly. This study may helps to have some understanding about stock investment, returns and associated risk there on.

5.3 Recommendations

Based on the study and inference made by statistical and financial analyses researcher would like to recommend the following.

Stock market investment is a risky job as there is a chance of more returns that of expected as well as there is also a chance of heavy loss. So, it should invest spare money in the stock market that do not need for other commitments. The stock market is undoubtedly risky in the short term and investor needs to be prepared for it. Private investors should try and work out their attitude towards risk of various investment strategies.

One of the most important things to consider when choosing investment strength is the balance between risk and return that you are comfortable with.

All the commercial banks required rate of return is less than expected, which means that they are under priced; therefore it may be beneficial to the investors who are going to purchase the selected companies' common stock.

It's further recommended to get the information about stock investment with expert, join investor clubs, make habits to study the economic page of news paper and up-to date information about the particular companies you may think to invest or already bought the stock rather take blind decision.

The beta coefficients of commercial banks are 1.4591, 0.3201, 1.2792, 0.9899 and 0.8096 NABIL, NIB, SBI, NICB and EBL respectively. Higher the beta coefficient the investment is more aggressive and vice versa. Since the beta coefficient three banks they are NIB, NICB and EBL are less than one and stocks of these banks are market defensive

type investment and less affected my market changes and only two banks i.e. NABIL'S and SBI has beta coefficient more than one and these two are aggressive investment. Among selected five commercial banks NABIL investment is more aggressive because its beta coefficient is highest i.e. 1.4591. Therefore investors should take more considerations while buying the share of NABIL. However, NABIL's investment gives more return than other four banks i.e. average return of

NABIL's is highest among others.

Government needs to amend the rules and regulation regarding stock market and to make the policy that protects the individual investors' right. On the other hand, government needs to implement such rules properly and to monitor them time to time. Further government should implement those plans, which enacted for at least five years.

Information is also a free advertisement. If private investors and even any public ask for any information welcome them heartily. If you are holding your facts you are losing your future and you are reducing your business unseemly.

The coefficient of variation shows the risk per unit of return and it provides a more meaningful basis for comparison. While considering the C.V. of commercial banks it is found that three bank's per unit risk is much higher. Among them SBI has the highest C.V. i.e. 1.5663 and it is the lowest in case of EBL that is 0.6251. This seems that there exists the highest risk i.e. 1.5663 per unit of return for SBI. Therefore it indicates that EBL should be more favorable for the investors because the risk per unit of return is less than among selected other four commercial banks.

It is recommended not follow the general trend of buying the securities when it is going up and sell those securities which is going down that is risky strategy. It will be to make decision based on fact and figures rather use intuition and go blindly.

It is further recommended not to fully based on these studies as it's only provides inferences based on six years data of selected commercial banks and only represent the small proportion of the market. It's only provided the basis for logical judgment.

The researcher recommends study on the portfolio optimization i.e. Markowitz Model and further developed by William F. Sharpe, in common stock investment.