CHAPTER - I
INTRODUCTION

1.1 Background of the Study

Integrated and speedy development of the nation highly depends upon numerous activities. Among them economic activity is one of the most important activity. It is considered as the backbone of economic development. So, the economy of the nation is strictly based upon the proper and efficient utilization of available resources with well planned management and frequent revision which helps to appreciate the wealth position of an individual and the nation. Securities are financial assets. So, security market means market of financial assets on which an investor can make his investment decision. The piece of paper serving as an evidence of property rights is called a security. Security market helps to generate capital from the savings of public and utilize those funds properly. Security market is a place where buying and selling of securities takes place in an organize way. Investors, intermediaries and specialists are involved in this market. Security market provides option to all the categories of investors and makes the financial market more competitive. The position of liquidity and profitability & the degree of risk associated with it are only the indicators taken into consideration while selecting the best option for investment.

'Investment in the broadest sense means sacrifice of current dollars for future dollars. Two different attributes are generally involved; time and risk. The sacrifice takes place at present and is certain. The reward comes later, if at all, the magnitude is generally uncertain (Jack C. Francis, 1968: 68).

Investment in it's simplest form means employing excess funds to generate extra value in the future. But in broadest sense, investment means the sacrifice of current rupees and resources for the sake of future rupees and resources.

Every investment either real or financial must have some degree of risks. If we invest some amount of money at present, we get reward in the future which always remains uncertain. Investment is not merely a gambling rather it should be a systematic and scientific way of employing current rupees for expected future return. The investment can be a real investment i.e. investment made on tangible assets such as land and building, machinery real estate etc. and financial investment i.e. investment made on financial securities like common stock, bond, option, warrant etc. But here, focus is given to the financial investment. To enhance the wealth position of the investors through the return from the investment in different alternatives the investor should be aware of various measures, perception and choices. As we know, all the financial trading of securities is performed in a security market. In Nepalese context, these activities are conducted in only Nepal Stock Exchange (NEPSE) which is an organized security market in Nepal. There are two parties involved in security market are known as buyer and seller of securities. Security market brings them together in the market. Security market is divided into primary and secondary market on the basis of securities traded. In this market any firms can sell their securities to investment bankers when needed. Primary market is basically concerned with the accumulation of fund. It leads to direct transfer of money from savers to issuers of the securities. Markets in which issued or existing securities are traded among investors are called secondary market. Nepal Stock Exchange is an example of a secondary market.

In which corporations raise a new capital are known as primary market. An organization can sell new securities to raise necessary fund. It is known as primary issue. The agents, people or institutions responsible for finding out investors for initial public offering of securities sold in the primary market are called investment bankers. The investment bankers buy the primary issues from the issuing company and then resell them to the investors. For acting the role of a mediator, the investment bankers receive the difference between the price they pay for the securities and the price at which the securities are resold to the

public. The investment bankers make primary market Before the establishment and operation of the stock exchange in Nepal, bank deposit was only one option left for the investors. But the establishment of Nepal Stock Exchange has provided an avenue for the investors to invest the available funds in the securities. The Nepalese investors are not acquainted with the financial status of the public companies on which securities they want to invest their funds. They are just found to be running after market trend. Therefore, sometimes the decisions made by the investors lead them to suffer loss instead of ample return due to lack of necessary data and information.

Investor can reduce the risk of capital loss and improves the expected return through the diversification of fund in different securities. The one popular saying 'Don't put all the eggs in one basket' gives us the knowledge that investors should not invest their all funds in one security. Rather, they should invest their funds in different securities to minimize the risk. It means, there must be proper diversification of funds to diversify the risk. As a result, investors always stand on the safe side. The diversification of funds represents the portfolio investment. Portfolio investment is investment in various securities in order to increase return by reducing risk. It is the selection of optimal alternatives available and attainable that provides highest possible return from lowest possible risk.

1.2 Securities Market

The securities market can be defined as a place where the securities of different companies are bought and sold. It brings together buyers and sellers of financial assets in order to facilitate trading. Security market is divided into primary and secondary Markets. Therefore, primary issue is performed in primary market.

Generally, investors purchase the securities in the secondary market by calling a securities brokerage. After an account has been opened, the broker relays the

investors order to a dealer to handles those securities. Brokers utilize the services of security dealers at either the organized stock exchanges or over the counter markets. It forms the existence of secondary market. In the secondary markets, the investors buy and sell the securities themselves. The issuer never gets any cash flows from the trade.

1.3 Focus of the Study

Every investor invests their money in different securities. Since all investors are always in favour of making a pretty return against their investment. But always it can't be possible. Some of the investor invests their lifetime earning in the securities without analyzing the various indicators but only by running after the melodious slogans which may lead them to suffer loss rather than enjoying gain. Therefore, the main focus of this study is to find out the profitable investment alternatives with the help of empirical study of the stocks of the companies listed in NEPSE under Grade 'A' category. As we know, every investment entails some degree of risk. The growth of an individual's wealth is possible only when s/he invests in profitable sector. Therefore, investors must consider the both risk and return. There is no doubt that every rational investor attempts maximize return and minimize return. For this, investor must know the concepts and measurement of risk and return of securities on which they want to make their investment. Therefore, the study will basically focus on the on the concepts and measurement of risk and return of securities of different companies listed in NEPSE under Grade 'A' category. Formation of optimum investment is based on the monthly analysis of risk and return of securities of the companies under one industry i.e. banking and across industries, banking, finance and insurance. For this purpose, the securities of 24 companies listed in NEPSE under Grade 'A' have been analyzed on the basis of monthly data from Mid July 2005 to Mid July 2006 for the formation of optimum investment portfolio.

1.4 Statement of the Problem

It is observed that most of the Nepalese investors invest there funds in tangible assets like land ,building ,machineries, jewelleries etc .or deposit their funds in banks .The investors might not be familiar with the knowledge that investment in securities can be the best investment alternatives to appreciate there wealth .Due to the lack of knowledge about risk and return the investors who invest their funds in some companies may have to suffer more risk and less return .Therefore, the problem of this study is to find out the best investment alternatives with the concept of portfolio investment .Despite the saying 'No risk, no gain ;more risk ,more gain', the investor generally attempt to reduce the level of the risk and increase the level of the return. the investors should be acquainted with the various statistical and financial tools and techniques that help maximize return by reducing the level of risk .It is found that the portfolio investment technique is the most fruitful which helps reduce the risk by increasing the expected rate of return if the portfolio analysis is thoroughly studied .Each rational investor should thoroughly analyze the expected profit and the level of risk associated with it .For this, the investors need the knowledge of investment analysis and other technical tools. In the present market of investment, there seems the increase in volatility leading the risk factors to be increased. This study basically focuses on:

- ➢ Which securities the investors prefer to invest their excess fund in?
- ➢ Which will be the other securities in which the possible risk can be reduced?
- ➢ Expected rate of return in which securities can be increased?
- ➢ Which will be the optimum investment portfolio among the securities of the companies selected for analysis?

1.5 Objectives of the Study

The general objectives of this study is to analyze the risk-return characteristics of the securities with a view to from an optimum investment portfolio among the securities of the companies listed in NEPSE under Grade 'A' on the basis of monthly data from Mid July 2003- Mid march 2005.

The specific objectives are:
- ➤ To measure profitability of securities of the sample.
- ➤ To measures yearly return and risk of securities of the sample.
- ➤ To measure risk of the securities
- ➤ To provide suggestions based on the analysis of data.

1.6 Significance of the Study

Basically, this study is performed to apply the theoretical concept and knowledge of portfolio analysis to the practical aspect as a practical fulfillment of the requirement of Masters of Business Studies (MBS) under the faculty of Management, Tribhuvan University. As a result of economic liberalization in Nepal, the investment opportunities have been wider and the investment practices are in increasing day by day .However, the investment opportunities are increasing and the security market being wider, there found to be finger count researches and studies are done in connection to the securities market. As the fulfillment of the objective of the study, the investors should be well familiar with the leading factors for making decision regarding the choice of investment, therefore, this type of study will help them provide the basic knowledge regarding the choice of investment alternatives and help them being rational in making investment decision.

This study basically, tries to inform the investors existing and potential regarding the assessment of risk, return of the securities of the companies listed NEPSE under Grade 'A' and formation of the optimum investment portfolio among the securities on the basis if available data and information. This study focused to assess the systematic investment specifically, in securities.

Eventually, this study will try its best to maximize return by reducing the level of risk with the help of optimum investment portfolio which will provide a guideline for rational investors are exciting or potential willing to make investment in securities.

1.7 Limitation of Study

Since, each study is conducted under some constraints. So, the specific limitations   which might create deficiencies in the study are summarized as:

- ➢ This study is based on secondary data. Due to lack of required data and relevant information the Portfolio analysis can be limited within a narrow scope.
- ➢ Though an infinite number of portfolios can be constructed, only a limited number of portfolios are formed.
- ➢ Stock divided has not been considered; as a result the study may have some deficiencies.
- ➢ Time/ budget constraints and the lack of experience may be the other limitations of this study.

Despite those above mentioned limitations, this study has tried its best to provide valid result as far as possible and in depth study of portfolio analysis for the formation of optimum investment portfolio

1.8   Organization of Study

The organization of this research study will be as follows:

Chapter -I: Introduction

First chapter will describe about the research itself by defining various aspects of portfolio investment which will help develop the conceptual framework about the research problem and subject matter.

Chapter -II: Review of Literature

Second chapter, i.e. review of literature will advance the knowledge about subject matter as well as general method of doing research in portfolio investment and formation of optimum investment portfolio.

Chapter - III: Research Methodology

Third chapter, i.e. research methodology is a policy and frame work within which the best alternative for forming portfolio among available securities can be ascertained.

Chapter - IV: Data Presentation and Analysis

Fourth chapter, i.e. data presentation and analysis will evaluate and examine the prospects of investment portfolio formation in Nepal.

Chapter - V: Summary, Conclusion and Recommendations

Fifth chapter includes the summary and conclusion of research study and remedial measure that can be applied for further creation, up gradation, advancement of portfolio investment opportunities for the existing and potential investors.

CHAPTER - II
REVIEW OF LITERATURE

2.1 Theoretical Review

As per the objective of the study, emphasis is given to the review of major related literature on the investment, investment portfolio and its analysis. The primary objective of this study is to focus on portfolio management which helps in diversification concept & risk return characteristics of the securities of selected companies. Therefore, this chapter deals basically to the Theoritical aspects of risk & return, the basic requirement of portfolio formation for investors**.** In this connection, the concepts are reviewed in the light of research perspectives, different studies, thesis related books, journals & articles.

2.1.1 Investment

Simply, investment means employing excess funds to generate extra value in the future. But in broadest sense, investment means the sacrifice of current rupees and resources for the sake of future rupees and resources. Every investment either real or financial must have some degree of risks. Or two different attributes 'time and risk' are generally involved in investment. If we invest some amount of money at present, we get reward in the future which always remains uncertain. So, such type of risk can be minimized through the creation of optimum investment portfolio. An investment of fund may be the question of appreciation or depreciation of the position of individual's wealth. Thus, investor must think seriously before making an investment decision. "Investment in its broadest sense means the sacrifice of certain present value for (possibly uncertain) future values" (William F. Sharpe & Gordon J. Alexander, 1995: 1).

"Investment is the employment of funds with the aim of achieving additional income of growth in values" (Preeti Singh , 1996: 1).

From the above definitions, it can be concluded that investment means to trade a known rupee amount today for some expected future stream of payments or benefits.

2.1.2   Investment Process

The investment process describes how an investor should make investment decision with regard to what marketable securities to invest in how extensive the investment should be, and when the investment should be made. The investment process can be highlighted as below:-

- ➢ Setting investment policy
- ➢ Performing security analysis
- ➢ Construction of portfolio
- ➢ Portfolio revision
- ➢ Portfolio performance evaluation

Setting Investment Policy

It is the initial step that helps in determining the investor's objectives & the amount of his invest able wealth or fund. Investment is always related with risks & returns. Making money alone can't be an appropriate objective. It is appropriate to state the investment objectives should be stated in terms of both risks & returns. This step also involves the identification of the potential categories of financial assets for consideration in the ultimate portfolio. The identification of assets depends upon many things like investment.

Performing Security Analysis

This is second step of investment process that involves the analysis of securities with in the broadest categories of financial assets previously identified. The main purpose of analyzing securities is to find out the mis-priced securities. There are many approaches that can be used to analyze the securities. How ever, these approaches can be classified into in to two types. They are technical analysis & fundamental analysis.

Fundamental analysis is based on the fundamental or the information relating to the companies. The person who analyzes the securities on the basis of fundamental facts & figure is called a fundamental analyst. A fundamental analyst is concerned with such matters as future earnings and dividends, so the fundamental tends to look forward. The different models explained earlier are the basics of fundamental analysis.

The next approach to analyze the security is technical analysis. The persons who analyze the securities on the basis of this approach are called technical analysts. In this approach, different charts and diagrams are used to analyze the securities. Therefore, such analysts are also called chartists. Past data are used to analyze the securities, and thus the technicians tend to look backward and they think little about future earnings & dividends. A technical analyst usually attempts to predict short term price movements and thus recommendations concerning the time of purchase and sales of securities. In this step, investor analyzes each security available in the market. The investor evaluates the securities among available alternatives in terms of their price i.e. overpriced, under priced, risk associated with that specific security, expected return and real return and so on.

Construction of Portfolio

Portfolio Construction is the third step of investment process. In this process, investors identify assets in which to invest and what proportion of the investor's wealth to put in each one. Risk can be minimized through the creation of portfolio rather than investing in a single asset. When constructing a portfolio, the selectivity, timing and diversification need to be addressed by the investors.

Portfolio Revision

This process concerns with the periodic repetition of previous three steps considering that portfolio once constructed mayn't be optimal. Over the period of time, the objectives of the investor may change and the current portfolio may

not longer be optimal. In this situation, the investor can sell some unattractive securities and introduce attractive once to form a new optimal portfolio. Similarly, some securities that are initially unattractive may turnout to be attractive later & vice versa.

Portfolio Performance Evaluation

It is the last step of investment process. It is concerned with the evaluation of investment performance. The performance should be evaluated not only in terms of return but also risk experienced by the investors.

2.1.3 Investment Portfolio

A portfolio is usually defined as a combination of assets. It is a collection of securities. 'Portfolio means the lists of holdings in securities owned by an investor or institution' (Oxford Dictionary, New Edition, 1997). Portfolio analysis considers the determination of future risks and returns in holding various blends of individual securities. Portfolio theory deals with the selection of optimal portfolios; i.e. portfolio that provides the highest possible return for any specified rate of return. Portfolio theory has been developed for the financial assets. Thus, portfolio that provides the highest rate of return with least possible amount of risk is the real investment portfolio."A portfolio simply represents the practice among the investors of having their fund in more than one asset. The combination of investment assets is called portfolio" (Weston & Brigham, 1982: 245).

"'A' portfolio simply means collection of investments. For an investor in the stock exchange, the portfolio is a collection of different types of securities in different companies" (Manohar K. Shrestha, Rajan B. Poudel & Dipak B. Bhandari, 2003).

2.1.4   Common Stock

"Common stock represents a commitment on the part of a corporation to pay periodically whatever its board of directors deems appropriate as a cash

dividend. It is a residual claim, in this sense that creditors and preferences shareholders must be paid as scheduled before common stock shareholders can receive any payments. In bankruptcy, common stockholders are in the principal entitled only to any value remaining after all other claimants have been satisfied" (William F. Sharpe, Gordon J. Alexander & Jeffery V. Bailey, 2000:7).

Common stock holders are entitled certain rights, which can be highlighted as:
- ➢ Control through voting right
- ➢ Pre-emptive right
- ➢ Residual right
- ➢ Limited liability
- ➢ Right to income and distribution of additional shares

2.1.5 Risk on Common Stock

Simply, risk is the deviation of actual returns with expected returns. The more the deviation, the more will be the risk. It is uncertainty or lack of definite outcome or chance of losing something due to presence of some unfavorable events. However, risk is the product of uncertainty. Its magnitude depends upon the degree of variability in uncertain cash flows and it is measured in terms of standard deviation.

"In a world of uncertainty, expected return mayn't be realized. Risk can be thought of as the possibility that the actual return from holding a security will deviate from expected return. The greater the magnitude of deviation and greater the probability of its occurrence, the greater is said to be the risk of security" (C. Van Horne James, 2000: 35).

"Financial analysts' statisticians prefer to use a quantitative risk surrogate called the variance of returns, denoted by Var ($_2$).The variance of an asset's rate of return equals the sum of the product of standard deviations of each possible

rate of return from the expected rate of return multiplied by the probability that the rate of return occurs" (Jack C. Francis, 1998: 12-13).

$$\text{Var} (\sigma_2) = \sum_{t=1}^{n} Pt\, [r_t - E(r)]^2$$

$$P_1 [r_1 - E(r_1)]^2 + P_2 [r_2 - E(r_2)]^2 + \dots\dots\dots P_n [r_n - E(r_n)]^2$$

The square root of variance is called the standard deviation ( ) of the rate of return.

$$\text{S.D.} (\sigma_2) = \sqrt{\text{Var}(\sigma^2)}$$

The variance and standard deviation are equally acceptable and conceptually equivalent quantitative measures of and asset's total risk.

Risk

In a financial analysis, risk is the variability of return. The deviation between the expected and actual return brings variability in the return and the variability is termed as risk. The higher the deviation between expected and actual return, the higher will be the risk. In other words, Risk is defined as uncertainty of returns. If there is certainty there is no risk at all. Risk and return in investment go together and without risk no more return can be expected.

Sources of Investment Risk (Bhattarai Rabindra, 2006)

Various factors play roles to make the actual return differ from expected return and such factors are known as sources of risk. Numerous factors may contribute to investment uncertainty. The uncertainty makes investment risky. The sources of uncertainty that contribute to investment risk are as follow:

Liquidity Risk

Liquidity risk is associated with uncertainty created by the inability to sell the investment quickly for cash. The return variability will increase if price

discounts and sales commission are to be given in order to liquidate assets in time. The less the liquidity, the greater will be the risk. So, two factors - price and time - are associated with liquidity.

Interest Rate Risk

It is the potential variability of a return caused by changes in the market interest rates. Market interest rate influences the value of an asset and hence its return. If the market interest rate rises, the value of an asset (bond) will decrease. A higher interest rate means a higher discount rate and a higher discount rate causes a lower present value of any asset.

Callability Risk

Some securities are issued with a call provision i.e. a company may call back the securities issued before their maturity. The callability risk is the portion of a securities total variability of return that derives from the possibility that the issue may be called.

Default Risk

Default risk is related to the probability that some or all of the initial investment will not be returned. The degree of default risk is closely related to the financial condition of the company issuing the security and the security rank in claims on assets in the event of a default or bankruptcy.

Convertibility Risk

Convertibility risk is that portion of the total variability of return from a convertible bond or convertible preferred stock that reflects the possibility that the Investment may be converted into the issuer's common stock at a time or under terms harmful to the investor's best interests.

Bull Beer Market Risk

The various market forces make securities price upward and downward. The upward trend of market price (bull market) and downward trend of market (bear market) create a long lasting source of investment risk.

Industry Risk

Industry risk is that portion of and investment's total variability of return caused by events that affects the products and the firms that make ups and downs to the industry. Some of the factors which affect all the firms in an industry may be the industry's life cycle, international tariffs or quotas, industry-related taxes and availability of industry related raw materials. For example, the Nepalese textile industry is facing the same industry risk in the near future because the quota provided by the US is going to expire.

Management Risk

A company's management and Board of Directors are involved in the decisions ranging from product innovation and production methods to finance and acquisitions. All these decisions made by the management materially affected the risk faced by investors. Sometimes, the management may make a decision, which turns out to be wrong later on.

For ex: the poor management of Nepal Bank Limited arouses the investment risk to the shareholders. The share price continuously fell and had to de-list from the Nepal Stock Exchange. This has been creating risk to the investors.

Since, management errors are difficult to analyze, investors can reduce their risk by buying shares in those corporations in which the executives have the significant equity investment instead of buying shares in the corporation in which executives have no equity investment.

Political Risk

Political risk is the portion of asset's total variability of return caused by changes in the political environment (domestic and international as well as the internal changes of the company). The current Nepalese political environment has made a significant impact on the investment to increase losses.

Purchasing Power Risk

Purchasing power risk is the variability of return an investor suffers because of inflation. Inflation erodes the purchasing power of the rupees and investment risk. The rate of inflation is measured by percentage change in the consumer price index (CPI) over the period. The consumer price index is calculated by collecting the prices of consumer goods. This index, in Nepal, is calculated by NRB. Inflation for a single period can be measured as follows:

$$q_t = \frac{CPI_{t+1} - CPI_t}{CPI_t} \times 100$$

Where,

q_t = rate of inflation at time t

CPI_t = consumer price index at time t or at beginning

CPI_{t+1} = consumer price index at time t+1or at the end.

The return calculated or earned without an adjustment of inflation or elimination of inflation is called the nominal rate of return .for example; interest rate paid by a bank in its savings account, holding period return or annual return earned on investment are the nominal return .these nominal returns can divided into the real rate of return (rr) and inflation (q).

$$\text{Real rate of return (rr)} = \frac{1+r}{1+q} - 1$$

Where,

rr = real rate of return

r = nominal rate of return

q = rate of inflation

2.1.6 Return on Common Stock

The Single Period Rate of Return

A single period return is also known as a holding period return. A holding period return is simply the total return an investor would earn during the period of holding the securities. The single period rate of return is the basic random variable in investments analysis. It helps to measure the increase or decrease of investor's wealth. It is denoted by r which simply indicates the total return that an investor receives during the holding period. It implies that the value may increase through

A direct cash payment to the investor i.e. dividend payment / interest
Or increase in the market price of the investment relative to the original purchase price.

The rate of return over the holding period or holding period return can be computed as:

$$HPR = \frac{Ending\ Price - Beginning\ Price + Cash\ Receipts}{Beginning\ Price}$$

Holding period returns are often calculated for periods other than one year, for this reason the length of the holding period must always by indicated for a specific HPR.

Many HPRs over periods shorter than one year are annualized. In general, if the length of holding period is not specified, it is assumed to be one year. HPRs are reported as annual equivalent; therefore, one possible measured of annualized HPR might be the average of several HPRs which can be stated as:

$$HPR = \sum^{n} \frac{(HPR_t)}{N}$$

$$t = 1$$

However, the annual rate of return can be stated as:

Annual Rate of Return $= (1 + HPR)^{\frac{1}{n-1}}$

Required Rate of Return

The required rate of return is the minimum rate of return that an investor expects from his investment in risky assets It is the function of real rate of return and risk, the required rate of return is the return on risk free assets i.e. government securities plus premium .It is determined by the help of CAPM/SML .The required rate of return with the help of CAPM/ SML can be expressed as:

Required Rate of Return (k) $= r_f + [E (r_m - r_f)] b$

"When setting the required rate of return on investments, an investor must consider the real rate of return, expected inflation and risk. Because consumption is forgone today, the investor is entitled to a rate of return that compensates for this deferred consumption. Since the investor expects to receive in increase in the real goods purchased later, and assuming for the movement, zero inflation and risk; the required rate of return could equal the real rate of return, in which case it would represent the pure time value of money. The capital markets determine the rate based upon the supply of money to be invested relative to the demand for borrowed money" (John M. Cheney & Edward A. Moses, 1985: 33-34).

Expected Rate of Return

Expected rate of return is that return which can be expected from the investment by an investor. If an investment has to be made, the expected rate of return expected holding period return should be equal to or greater than the required rate of return for that investment. The expected rate of return is based

upon the expected cash receipts i.e. dividend or interest over the holding period and the expected ending or selling price of the asset. It is an unknown future return. If the investor can describe the variables that will influence each of the possible rates of return and assign probabilities to these outcomes. The expected rate of return should equal the weighted average of the various possibilities

2.2 Portfolio

2.2.1 Introduction

A portfolio is a combination of investment assets. The portfolio is the holding of securities and investment in financial assets i.e. stocks, bonds etc. Portfolio management is related to the efficient portfolio investment in financial assets. The objectives of the portfolio can be classified into primary and secondary objectives. The primary objectives are: to maximize return and minimize risk and secondary objectives are: regularity in return with stability, appreciation of wealth, liquidity, easy marketability, safety of investment and tax benefits.

2.2.2 Portfolio Analysis

In portfolio analysis, we estimate the expected return and risk of holding securities in a portfolio. Portfolio return is a weighted average of an expected return of individual securities, weights being the proportion of wealth invested in individual securities. Portfolio risk is the variability of the return of portfolio. It is measured by the variance or standard deviation of the portfolio.

2.2.3 Portfolio Return

The weighted average return of the expected return of individual securities in the portfolio is the return of the portfolio Here weight age is the amount of wealth (fund) invested in the individual security out of total invested .so the return of the portfolio depends on (i) the expected rate of return of each security in the portfolio (ii) the amount invested in each security. The portfolio expected return may be expressed as:

$$(r_p) = W_1R_1 + W_2R_2 + W_3R_3 + \ldots\ldots\ldots + W_nr_n$$

Where,

r_p = Portfolio expected return

W_1 = Weight of stoke 1

W_2 = Weight of stoke 2

W_3 = Weight of stoke 3

R_1 = Expected return of stoke 1

R_2 = Expected return of stoke 2

R_3 = Expected return of stoke 3

W_n = Weight of stock n

r_n = Expected return of stock n

2.2.4 Portfolio Risk

The portfolio risk is the extent to which the actual return may deviate from the expected return. Standard deviation and variance are the statistical measure of total risk. The standard deviation or variance of returns from an investment is the total risk of our investment. Covariance measures the degree of relationship between the returns a pair of securities. In other words, covariance is the joint variance of any two securities. Covariance may be the positive, negative or zero. Positive covariance shows that the variables move together. But negative covariance indicates return of securities move in opposite direction. Similarly Zero covariance indicates no relationship between the securities return. The total risk is measured by using the following equation:

$$\text{Vary } (\sigma^2_p) = \sum_{i=1}^{n} \sum_{j=1}^{n} W_i \, W_j \, \text{Cov}_{ij}$$

Where,

W_i = Proportion (weight) of investment in security i

W_j = Proportion (weight) of investment in security j

Cov_{ij} = Covariance of the returns between security i and j

n = Number of assets included in portfolio

Var(σ^2_p) = Variance of portfolio i.e. σ^2_p

As the main objective of the portfolio management is to reduce the level of risk. But it is not possible to eliminate the risk totally. Therefore, the total risk can be comprised of two components.

Total Risk = Systematic risk + Unsystematic risk

Systematic Risk

The systematic or undiversifiable risk is the portion of the total risk which arises due to market factors. The market factors affect to the market price of the securities. So they are the sources of the systematic risk. Because of the systematic nature: investors can not reduce the risk whatever efficient portfolio they hold. Thus this type of risk is also called undiversifiable risk. The systematic nature of the undiversifiable portion of the security's return is stated formally as follows:

$$E(r_i) = a_i + b_i\, E(r_m)$$

Where,

a_i = constant variable that is called asset`s alpha.

b_i = index of undiversifiable risk that gauges how much the ith asset's return typically reacts to a change in the market portfolio return.

$E(r_m)$ is the expected return from a highly diversified portfolio.

Unsystematic Risk

Unsystematic risk or diversifiable risk is the portion of the total risk which is unexplained by overall market movements. It can be diversified away. It derives from the variability of the stock's excess return not associated with movements in the excess return of the market as a whole.

Events such as labor strikes, management errors, inventions, advertising, campaigns, shifts in consumer taste and lawsuits cause unsystematic variability in the value of a

Figure 2.1

Risk and Diversification Management
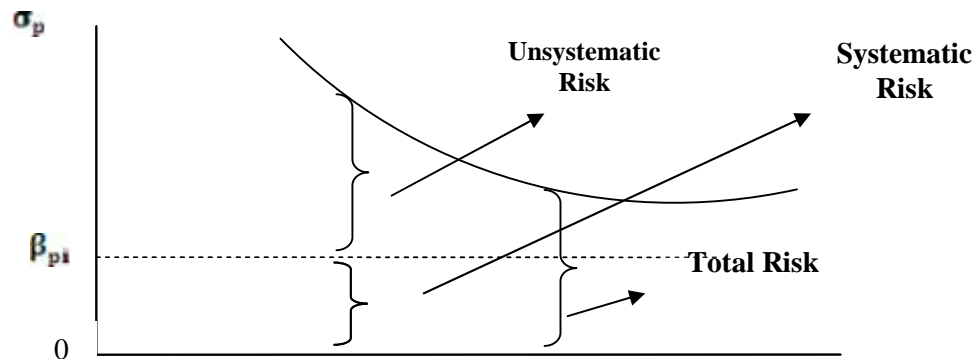
Source: James C. Van Home. Financial and Management Policy

Market asset. Since unsystematic security price movements are statistically independent from each other and so they may be averaged to zero when different assets are combined to form a diversified portfolio. Therefore, unsystematic risk is also called diversifiable risk (Jack C. Francis, 1998:264 - 265).

2.2.5 Diversification of Risk

As mention earlier, diversification can help to reduce portfolio risk by reducing unsystematic risk. Certainly, risk occurs in our investment. Therefore, different diversification techniques have been developed for reducing portfolios risk. Simply, diversification means spreading investment upon different securities of different industries. Diversification among companies, industries and asset classes affords the greatest protection against financial risk, business risk, and volatility.

"Investors can reduce their potential for loss through diversification…. the key to diversification is the age-old adage, "don't put all of your eggs in one basket." The main point of diversification is to reduce risk rather than improve expected return….This is the power of diversification; the whole is greater than the sum of its parts" (http://www.dfaus.com).

Following are some different diversification techniques for reducing a portfolio risk (Bhattarai Rabindra, 2006).

Simple Diversification

Simple diversification is defined as not putting all the eggs in one basket. Under this diversification: securities are selected randomly and are equal weight. If we add 10 to 15 assets in our portfolio then we can minimize the portfolio's total risk to the undiversifiable level. The following figure clarifies more about it.
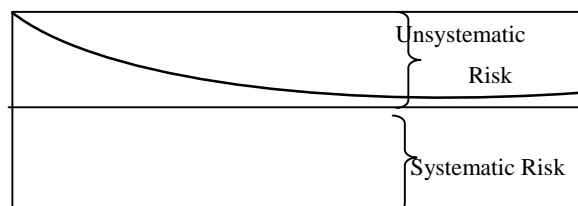
Diversification Across Industries

Another technique to diversify the portfolio is diversification across industries. Under this technique, assets in the portfolio are selected from different industries rather than from one industry. For example, Nepal Stock Exchange (NEPSE) has divided the total listed companies in to eight sectors. Each sector represents one industry. The eight sectors are Commercial Banks, Development Banks, Finance Companies, Insurance Companies, Trading Companies, Manufacturing Companies, Hotel Companies and others.   We can diversify our portfolio for selecting securities from different sectors (industries) rather

than selecting from one. This type of diversification is called diversification across industries.

We diversify our portfolio to minimize the total risk, though many empirical researchers have shown that diversifying across industries is not much better than selecting securities randomly. Similarly, increasing the number of different assets (securities) held in a portfolio above eight doesn't significantly reduce the portfolio's risk.

Sector wise Distribution of listed Companies in Nepal Stock Exchange

S.N.	Sectors	No. of Companies
1	Commercial Banks	15
2	Development Banks	16
3	Finance Companies	52
4	Insurance Companies	16
5	Manufacturing processing companies	21
6	Trading Companies	6
7	Hotel Companies	4
8	Others	5
	Total	135

Superfluous Diversification

Under a simple diversification a maximum risk reduction is attained through the inclusion of 10 to 15 assets in the portfolio. If we add further more assets in the portfolio , such diversification is called superfluous diversification , no further risk reduction is possible but instead it arouses more portfolio management problems like ,high research cost, high transaction costs, impossibility of good portfolio management etc. the performance of portfolio will not improve and will lower the net return to the investor. Hence, the superfluous diversification should be avoided.

Simple Diversification across Quality Rating Categories

Diversification of our portfolio is also possible across the quality rating assets or securities. Different rating agencies rate different companies and their assets on the basis of the possibility of default risk or the risk of bankruptcy. Under a simple diversification across quality rating categories, we select assets randomly from the homogeneous quality ratings. The highest quality portfolio of randomly diversified stock will be able to achieve lower levels of risk than the simple diversified portfolio of lower quality stocks. In Nepal, Nepal stock exchange Ltd. categories the total listed companies into two categories: A and B. The following are the bases for selecting A category stocks:

➢ Companies record of profit for the last three years.

➢ The book value of shares should be greater than it's paid up value.

➢ Submission of co.'s financial statement to NEPSE within six months after the expiry of the fiscal year.

➢ Paid up capital of a company shouldn't be less than Rs.20 millions.

➢ The number of share holders should be at least 1,000.

➢ Securities should have been issued in the proportion as mentioned in the securities Listing Bye-laws, 1996.

Markowitz Diversification

Markowitz diversification is a more analytical technique to diversify a portfolio. This is also called the modern theory of portfolio management. This theory is developed by Harry M. Markowitz, who derived the expected rate of return for a portfolio of assets and expected risk measure. This diversification is based on the correlation. Under this, if portfolio is made by combining assets which are less than perfectly positively correlated, the reduction in risk is possible without sacrificing portfolio returns. The lower the correlation between assets, this diversification will be more able to reduce the portfolio's risk. If the assets are perfectly negatively correlated, the risk less portfolio is possible.

2.2.6 Markowitz Portfolio Selection Model

Of course, the portfolio investment is the best tool of risk diversification but there exits a problem of portfolio selection. Portfolio is the collection of securities. Investors always face a problem of selecting optimal portfolio from a set of portfolios. Harry M. Markowitz, in 1952, published a paper that is generally viewed as the origin of the portfolio theory approach to investing.

Markowitz`s approach begins by assuming that an investor has a given sum of money to invest at the present time. This money will be invested for a particular length of time known as the investor's holding period. At the end of holding period, the investor will sell the securities purchased at the beginning of that period.

Markowitz`s model is a theoretical framework for the analysis of risk-return choices. Decisions are based on the concept of efficient portfolios. A portfolio is said to be efficient when it provides maximum expected return for the same level of risk or provides minimum risk for the same level of return.

Portfolio Theory Assumptions

The portfolio selection model was first propounded by Harry M. Markowitz, which is based on several assumptions regarding investor's behavior (Bhalla, V.K, 2001: 439 - 440).

➢ Investor considers each investment alternative as being represented by a probability distribution of expected returns over same holding period.

➢ Investors maximize one period-expected utility curve, which demonstrates diminishing marginal utility of wealth.

➢ Individuals estimate the risk on the basis of variability of expected returns.

➢ Investor's base decision solely on expected return and variance of returns only.

> For a given risk level, investors prefer high return to lower returns. Similarly, for a given level of expected return, investors prefer less risk to more risk.

2.2.7 The Efficient Set Theorem

Investor can prepare an infinite number of portfolios for investment. It is not necessary to evaluate all the portfolios which he/she creates. The investor can select an optimal portfolio from a feasible set of portfolios. i.e. the efficient portfolio that

> Offers maximum expected returns for varying of risk, and
> Offers minimum risk for varying level of expected return.

The set of portfolio meeting these two conditions is known as the efficient set. The efficient set can be identified from the feasible set. The feasible set simply represents all portfolios that could be formed from a group of N securities. All the possible portfolios, which could be formed, lie either on or within the boundary of feasible set. In general, this set will have an umbrella type shape similar to the one shown in the following figure:

Figure 2.2

Feasible and efficient set
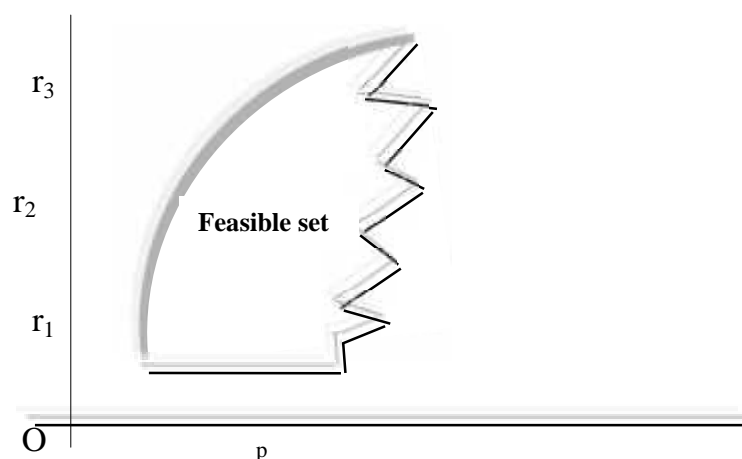
2.2.8 Selection of Optimum Portfolio

(Willoam F. Sharpe, Gordon J. Alexander & Jeffery V. Bailey, 2000: 195).

"Given the efficient frontier and the risk return indifference curves, the optimal portfolio is found set point of tangency between the efficient frontier and a utility indifference curve. This point represents the highest level of utility the investor can reach" (Prasanna Chandra, 1998:13). To select an optimal portfolio an investor should plot his or her indifference curves on the efficient set and then proceed to choose the portfolio on the indifference curve that is farthest northwest. This portfolio will correspond to the point at which an indifference curve is just tangent to the efficient set. That can be seen in the following figure:

Figure 2.3
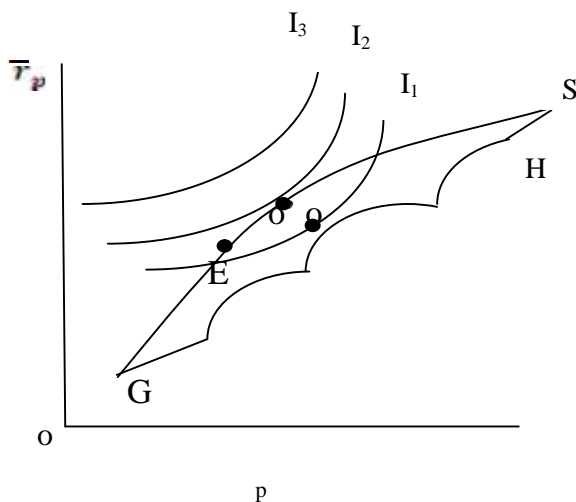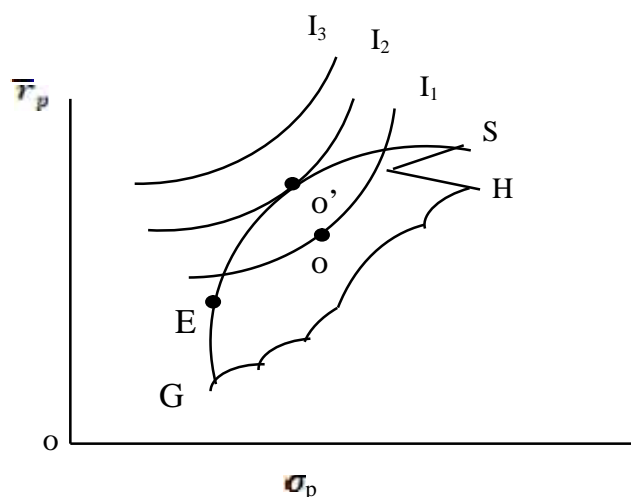
Portfolio selection for a

Highly Risk - Avarse investor

Figure 2.4

Selecting an Optimal Portfolio

Source: William F. Sharpe et al. Investments. 6th ed.

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Portfolio 'O' is the optimal portfolio which lies on indifference curve I_2. Although the investor would prefer a portfolio on I3, no such portfolio exists; wanting to be on this indifference curve is just wishful thinking. In regard to I1, there are several portfolios that the investor could choose (e.g. o). However, the figure shows that portfolio 'o` dominates such portfolios because it is on an indifference curve that is farther northwest. The portfolio selection for a highly risk-averse investor has been shown in figure.

Upon reflection, the efficient set theorem is quite rational. The efficient theorem stating that the investor needs to be concern only with portfolios that lie on the northwest boundary of the feasible set, is a logical consequence

2.3 Portfolio Performance Evaluation (Bhattarai Rabindra, 2006)

2.3.1 Sharpe's Portfolio Performance Measure

Portfolio performance evaluation on the basis of return only will be insufficient; therefore, it is necessary to consider both risk and return. William Sharpe, who won a Nobel Prize for his work on financial economics, developed a ratio called Sharpe ratio to evaluate the performance of portfolios. The Sharpe ratio (also called an index of portfolio performance) measures the amount of return from an investment portfolio for a given level of risk. It does this by dividing a measure of portfolio volatility (the standard deviation of its returns over a specific period) in to the excess returns generated by the portfolio over a risk free rate of return for the same period. The higher the resulting number (index), the better is the portfolio performance. This ratio, also known as the reward- to-variability ratio, is used to rank the performance of investment funds.

Sharpe index of Portfolio Performance (s_p) = $\dfrac{Risk\ premium}{Total\ Risk} = \dfrac{\overline{r_p} - r_f}{\sigma_p}$

Where,

S_p=Sharpe index of portfolio performance

$\bar{r}_p$= average return on portfolio

r_f = risk free rate of return

2.3.2 Treynor's Portfolio Performance Measure

The concept of performance measurement of William Sharpe and jack Treynor is not different but Treynor uses systematic risk instead of total risk to calculate the performance index. Therefore, Treynor suggests the use of beta coefficient of portfolio, a measure of systematic risk index, instead of standard deviation of portfolio. The following equation measures the portfolio performance under Treynor's concept.

$$T_p = \frac{Risk\,Premium}{Systematic\,Risk\,Index} = \frac{\bar{r}_p - r_f}{b_p}$$

Where,

T_p = Treynor index of portfolio performance

$\bar{r}_p$ = average return for portfolio

r_f = risk free rate of return

b_p = systematic risk index of portfolio

The higher the Treynor index, the better is the portfolio performance. Moreover, the higher the risk premium per unit of a systematic risk index, the better the portfolio performance.

2.3.3 Jensen's Portfolio Performance Measure

Jensen's measure of portfolio performance is based on the capital asset pricing model (CAPM). This measure of portfolio performance is the average return on the portfolio over and above that predicted by the CAPM, given the portfolio beta and the average market return. Under this approach, Performance can be measured by using the following equation:

$$_p = \bar{r}_p - r_f + [E(r_m) - r_f]\, b_p$$

Where, The value can be obtained from

$$r_p = \sum \frac{[\bar{r}_p - rf]}{n}$$

Similarly,

$$b_p = \frac{Cov\,[(r_p - r_f)]\,(r_m - r_f)]}{Var\,(r_m - r_f)}$$

$$E(r_m) = \sum \frac{(r_m - r_f)}{n}$$

Where,

$_p$ = Jensen's performance measure

r_p = average realized rate of return from portfolio

r_f = risk free rate of return

$E(r_m)$ = expected market return

b_p = beta of portfolio

r_p = one period rate of return on portfolio

r_m = one period rate of return on market portfolio

n = no. of observation

$Var(r_m, r_f)$ = Variance of risk premium on market

2.4 Review of Related Studies

Durgamani Sharma (2004) in his study "Portfolio Management of Listed Commercial Banks and Insurance Companies in Nepal" conducted by Mr. Sharma, submitted to Shanker Dev Campus in 2004 is found to be a support of this study. The main objectives of this study are:

➢ To analyze the return and risk of the common stock of Commercial Banks and Insurance Companies

➢ To analyze the diversifiable and undiversifiable risk of the return on common stocks.

➢ To analyze the profit return and risk etc.

He has used five years historical data from F/Y 1998 to F/Y 2002. Following are some of the findings of him.

➢ On the basis of risk and return, the shares of all the commercial banks are attractive for investment.

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- ➢ The political and economic scenario is worsening day by day and it had the adverse impact on economic activities of the companies.
- ➢ The overall market return can't be regarded as attractive with respect to its risk. The risk per unit of return of market is very low.
- ➢ Unsystematic risk of all the companies is high in comparison to total risk.

Pramila Tuladhar (2002) entitled "A Study on Risk and Return Analysis of Common Stock Investment" in 2002 is found to be one of the supports for the study. The study is based on eleven companies selecting two from each group that is categories by NEPSE.

The main objectives of this study are:
- ➢ To describe the risk return and other relevant variables those are very important in decision making on stock investment.
- ➢ To identify the problems faced by the individual investors in stock market.
- ➢ To analyzed the risk and return of common stock and their portfolio.
- ➢ To access the past and present state of investment of common stock.

The study is based on randomly selected 11 companies. The study is based on recent historical data. It covers 7 year period from F/Y 2000/01 to F/Y 2005/06. The study has summarized the following findings.

- ➢ Among each sample, ERR of Everest Bank Ltd. is the highest.
- ➢ Himalayan Bank Ltd. has the lowest S.D. According to sector-wise

Roopak Joshi (2002) in his study "Investor's Problem in Choice of Optimum portfolio of stock in Nepal Stock Exchange" the main objectives of the study are to find out and analyze the major problem of investor facing regarding the selection of most profitable stocks in NEPSE. He has used the historical data to

achieve his objective. He has summarized his finding as "portfolio management is a new concept for Nepalese investors. Due to lack of sufficient information, proper investment is not possible. Proper investment needs huge information internal as well as external. The stock market of Nepal is also in growing stage only. There is only one stock exchange located in Kathmandu. Traditional cry system for trading stocks, limited number of securities broker, lack of opportunity of investment and many reason are there, which are acting as barrier of development NEPSE".

Joshi further stated that Nepalese investors don't know in which stock to make investment and how to construct a portfolio. Many brokers are not willing to provide information to the investors; investors are trading the securities mostly under the pressure of brokers.

Prakash Kumar Gautam (2005) in his study "Selection of optimum investment portfolio in NEPSE" by constructing the portfolio in the stock of Grade 'A' Companies listed in NEPSE till Mid July 2004 on the basis of monthly data for 12 months i.e. (Mid July 2003-Mid July 2004).

The main objectives of the study were as follow:
  ➢ To develop understanding for portfolio investment
  ➢ To find out the risk and return variables of securities
  ➢ To find out the optimum portfolio investment
  ➢ To suggest the measures for the improvement of improvement of investment rationalities.

The study was concluded with commercial banks be the best for investment because of positive earning and risk per unit of earning. The diversification is limited with in the boundary of two industries i.e. banking and insurance. The stocks are found to be positively correlated which will not help in construction of efficient portfolio.

2.5 Research Gap

The present thesis submitted by me reflects the following research gap:

This thesis work has covered the period study until mid July 2001 to mid July 2006 A.D. where as I found that the previous thesis has covered only up to 2003. This thesis has fulfilled the objectives of the research by analyzing all types of tools & techniques related to risk and return.

We have lots of research related to portfolio management. Among them, some research focuses on risk and return in detail whereas some focuses on others.

This study also focuses on all the above issues related to portfolio management with similar type of analysis tools. In now a day, many banks, Finance companies, insurance companies and other companies are found in the Nepalese capital market. But this thesis have focused only those companies which in Grade 'A'. Due to time limitations, only 24 companies are selected for research purpose.

CHAPTER- III
RESEARCH METHODOLOGY

This chapter deals with the research methodology to achieve the objective of the study. It includes the research design, population and sample, sample selection method, tools and techniques of data collection and their analysis.

3.1 Introduction

Research methodology is the process of arriving at the solution of problem through planned and systematic dealing with the collection, analysis and interpretation of facts and figures. Research methodology in other words, refers to the various methods or practices applied by the researcher in the entire aspect of the study. "Research is a systematic method of finding right solutions for the problem where as research methodology refers to the various sequential steps to adopt by a researcher in studying a problem with certain objective in view" (C.R. Kothari, 1989).

The basis objective of this study is to form an optimum investment portfolio of securities of the companies listed in NEPSE under Grade 'A' with regular trading. Therefore, this study will also be able to make some useful and meaningful recommendations so that all concerned would find something useful for them from this study.

3.2 Research Design

This study is mainly based on two types of research design i.e. descriptive and analytical .Descriptive research design describes the general concept of Nepalese investor, problem of portfolio management etc where as analytical research design makes analysis of collected facts and information and makes a critical evaluation of them." Research design is a plan, structure and strategy

investigation conceived so as obtain answer of research question and to control variance" (F. N. Kerlinger, 1983).

This design will help examine and find out the problem and possibility of formulating the portfolio investment for the Nepalese investor with special reference to the securities of the listed companies in NEPSE under Grade 'A' category .The study is based on monthly data Mid July 2005 to Mid July 2006 (Specifically of the data of 12 months). The securities of the sample companies have been analyzed in descriptive and analytical way with formation of suitable portfolios of the companies which give positive return assuming that any rational investor does not prefer to invest in the securities of the companies which give positive return assuming that any rational investor does not prefer to invest in the security that gives negative return .Therefore ,the securities of the companies giving negative return are ignored for portfolio formation purpose and also the companies that fall in minority in number are also put aside from the formation of portfolio. The companies selected for portfolio formation specially fall under three industries i.e. banking, finance companies and insurance companies. Therefore, the study is limited to the formation of optimum investment portfolio under three industries they fall under Grade 'A' category listed in NEPSE till Mid August 2007.

3.3 Population and Sample

Population of data denotes the data of each company which is within the boundary of specific industry whereas sample data denotes to those companies which have been selected from the whole population in a few numbers. The populations of this study are the data of all companies listed in NEPSE till Mid August 2007. At present there are 134 listed companies in NEPSE. For the study purpose, only the companies, which fall under Grade 'A' have been considered. Presently, there are 66 companies under Grade 'A'. Out of them only 24 companies are selected for sampling purpose under banking, finance and insurance industries. The list of number of listed companies, under Grade

'A' and the companies selected for sample size from each industry viz. banking, finance and insurance is presented below.

Industries	No. of listed companies	Grade 'A' Companies	Sample Selection
Commercial Banks	15	12	8
Development banks	16	4	1
Finance Companies	52	36	9
Insurance Companies	16	11	6
Manufacturing & processing	21	2	-
Hotels	4	-	-
Trading	5	-	-
Others	5	1	-
Total	134	66	24

The selected companies under Grade 'A' category till August 2007 are listed below:

S.N	Banks	S.N	Finance Co.	S.N.	Insurance Co.
1	NABIL Bank Ltd	1	Narayani Finance Ltd	1	Premier Insurance Nepal Ltd.
2	Nepal Investment Bank Ltd	2	Kathmandu Finance Ltd.	2	United Insurance Co. Ltd
3	Standard Chartered Bank Nepal Ltd	3	Gorkha Finance Ltd.	3	Sagarmatha Insurance Ltd.
4	Himalayan Bank Ltd.	4	National Finance Ltd.	4	Neco Insurance Co. ltd.
5	Nepal SBI Bank Ltd.	5	Mahalaxmi Finance Ltd.	5	Himalayan General Insurance Co. Ltd.
6	Everest Bank Ltd.	6	Nepal Merchant Banking &Finance Ltd.	6	Alliance Insurance Co. ltd.
7	Bank of Kathmandu Ltd.	7	Pashchimanchal Finance Ltd.		
8	Nepal Industrial and Commercial bank	8	Universal Finance Ltd.		
9	Development Credit Bank Ltd.	9	Citizen Investment Trust		

3.4 Sources of Data and Method of Data Collection

Since this research study is based on secondary data, the required data for the study are collected from the concern publications like annual report, reports and reviews of SEBO, trading report of NEPSE and report of NRB. The other sources are the articles, previous thesis and dissertation, textbox and journals. basically, this research is based on secondary data, the data collections are made in the following ways -

Field visit/Library Research/Study

Internet, home page and related link visit specifically the official website   of NEPSE http://www. nepalstock.com.

Study articles, journals and related materials from various sources

Collection and reviews of reports of NEPSE, NRB, SEBO, etc.

3.5 Data Processing Procedures and Analysis Tools

As mentioned earlier, the study is based on secondary data .The required data are manipulated according to the need of the study .They are sorted out, classified and tabulated in a tabular from in such a way that they ultimately represented some qualitative and quantitative results as the outcome of the study .As data analysis tools, various financial and statistical tools according to need of the study are used. They are summarized as:-

Average (mean) Holding Period Return (HPR)

Correlation coefficient

Standard Division (   )

Coefficient of Variation (C.V)

3.6 Portfolio Return

The portfolio return is the weighted average expected return of the individual stocks in the portfolio with weights being the fraction of the total portfolio

invested in each stock. The portfolio expected return has been calculated as follows:

$$R_P + W_1 R_1 + W_2 R_2 + \ldots\ldots\ldots\ldots + W_n R_n$$

Where,

W_1 = Weight of stoke stock

W_2 = Weight for stoke 2

R_1 = Expected return for stoke 1

R_2 = Expected return for stoke 2

3.7 Portfolio Risk

Portfolio risk is the total risk involved in the portfolio of different stocks with different weights .The portfolio risk can be measured by using the following model:

$$(\sigma^2{}_p) = \sum_{i=1}^{n} \sum_{i=1}^{n} W_i W_j i_j \sigma_i \sigma_j$$

For three assets portfolio, the above model is expanded as below:

$$\sigma_p = \sqrt{W_1{}^2 \sigma_1{}^2 + W_2{}^2 \sigma_2{}^2 + W_3{}^2 \sigma_3{}^2 + 2\,W_1 W_2 r_{12} \sigma_1 \sigma_2 + 2\,W_1 W_3 r_{13} \sigma_1 \sigma_3 + 2\,W_2 W_3 r_{23} \sigma_2 \sigma_3}$$

Where,

W_1 = Weight of stoke stock1

W_2 = Weight for stoke 2

W_3 = Weight for stoke 3

σ_1 = Standard deviation of stock 1

σ_2 = Standard deviation of stock 2

σ_3 = Standard deviation of stock 3

r_{12} = Correlation coefficient between stock 1 & 2

r_{13} = Correlation coefficient between stock 1 & 3

r_{23} = Correlation coefficient between stock 2 & 3

3.7.1 Holding Period Rate of Return (HPR)

Holding period rate of return or single period rate of return is simply the total return an investor would receive during the investment period or holding period stated as a percent of the investment's price at the start of the holding period. It can be calculated as:

$$(HPR) = \frac{Ending\ price - Beginning\ price + Cash\ dividend}{Beginning\ price}$$

It can be expressed symbolically as:

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

Where,

P_{t+1} = Market price at the end of period P_{t+1}

P_t = Market price at the end of period P_t

C_t = Cash dividend received during the period

3.7.2 Expected Return (Mean Return)

Simply, expected return is the return which we expect in the future. Since the calculation is based upon the historical data rather than based on probability, the arithmetic mean of return is represented by the average return of the securities that can be expressed as:

$$r = \frac{\sum r}{n}$$

Where,

r = Summation of monthly return of stocks.

n = No. of observations

3.7.3 Standard Deviation ( )

Standard Deviation is the square root of variance. Variance and standard deviation are equally acceptable and conceptually equivalent measures of total risk. Generally, it is used to measure the risk of return which is the measure of spread return. It has been calculated by using following expressions:

$$S.D. = \frac{\Sigma \bar{\bar{X}}}{N}$$

3.7.5 Coefficient of Variation (C.V)

Coefficient of variation is another standard method of measuring the risk. It shows the risk per unit of return and it provides a more meaningful basis for comparison when the expected return on the two alternatives is the same. Lowest C.V is preferable. It has been calculated as:

$$C.V = \frac{\bar{\bar{X}}}{\sigma} \times 100$$

3.7.6 Sharpe's Single Index Model

It is the simplification of the Markowitz model. This model is introduced by William Sharpe. He assumed the return on a security could be regarded as being linearly related to a single index. The model can be applied with the help of following formula:

$$\text{Cut - off point (C*)} = \frac{\sigma_m^2 \sum_{i=1}^{1} \frac{(R_i - T)/\beta_{im}}{\sigma_{ei}^2}}{1 + \sigma_m^2 \sum_{i=1}^{1} \frac{\beta_{im}^2}{\sigma_{ei}^2}}$$

Where,

σ_m^2 = Variance of the market index

σ_{ei}^2 = Variance of a security's movement that is not associated with the movement of the market index; this is security's unsystematic risk.

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β_{im} = Ratio of a change in the security's excess return to a change in the market portfolio

The value of β_{im} for the security can be easily stated as:

$$\beta_{im} = \frac{\text{Cov}(\overline{R}_i - T, \overline{R}_m - T)}{\text{Var}(\overline{R}_m - T)}$$

To construct the optimum portfolio, the proportion invested for each selected security in the optimal portfolio is to be calculated. The proportion invested in each security is:

$$X_i = \frac{Z_i}{\sum_{i=1}^{n} Z_i}$$

Where,

$$Z_i = \frac{\beta_{im}}{\sigma_{ei}^2}\left[\frac{(R_i - T)}{\beta_{im}} - C*\right]$$

The first expression simply scales the weight on each security so that they sum to 1. And the second expression determines the relative investment in each security. Then the residual variance on each security σ_{ei}^2 plays an important role in determining how much to invest in each security.

CHAPTER - IV
DATA PRESENTATION AND ANALYSIS

In the previous chapter the presentation on the Research Methodology is being adopted this study. In this chapter, the focus is on the presentation and analysis part of the data in detail. It is basically concerned with the risk and return characteristics of the common stocks (securities) of the selected companies under Grade 'A' listed in NEPSE have been thoroughly analyzed and interpreted on the basis of secondary data . Risk and return characteristics of three assets portfolio formed by them have been thoroughly analyzed. According to the need of study various tables, diagrams, charts etc are used to depict the observed information in a valid form. The study is divided in to three parts (i) Single Assets Analysis (ii) Portfolio Analysis and (iii) Sharpe: The Single Index Model

4.1 Risk and Return of Common Stocks

The risk is the possibility that the actual return from holding a stock may deviate from the expected rate of return. It is measured by variance of standard deviation of return.

The return on common stocks is the increase/decrease in share price and any cash receipts such as dividends over a specified period of time. In this study, the yearly holding period returns (HPR) are calculated. (The calculations are shown in Annex V.1)

Banking Industries (Banks)

Yearly average rate of return, standard deviations and coefficient of variations of different Banks are tabulated in table 4.1 (The calculations are shown in Annex V.1)

Table 4.1

Banking Industries (Banks)

(Mid July 2001-Mid July 2006)

S.N.	Name of Banks	Return (r)	Standard Deviation( )	CV%
1	NABIL Bank Ltd (NABIL)	39.35	21.02	53.42
2	Nepal Investment Bank Ltd	17.65	26.77	151.67
3	Standard Chartered Bank Nepal Ltd	33.08	22.27	67.32
4	Himalayan Bank Ltd	4.25	12.70	298.82
5	Nepal SBI Bank Ltd	6.95	56.55	84.47
6	Everest Bank Ltd	184.76	288.27	156.02
7	Bank of Kathmandu Ltd	46.02	43.65	94.85
8	Nepal Industrial and Commercial Bank Ltd	26.03	36.25	139.26
9	Development Credit Bank Ltd	37.50	41.04	109.67

The statistical analysis depicts that on the basis of yearly analysis it is found that the stock of Everest Bank Ltd (EBL) offers the highest rate of return i. e. (184.76) per share whereas the stock of Himalayan Bank Ltd (HBL) offers the lowest return i.e. (4.25).The various stocks of various Banks have different rates of returns ranging from 4.25 to 184.76. On the basis of average return over the period, the stock of EBL seems to be the best stock for investment.

The decision making regarding the investment may mislead only by analyzing the risk characteristics because every return is influenced by the uncertainty or risk. Risk can explain the variability of return from its central tendency. Therefore, the risk is measured by the standard deviation of the return. By observing the standard deviation of the returns of individual banks, it is concluded that Himalayan Bank Limited (HBL) has the lowest S.D i.e. 12.70 whereas the SD of Everest Bank Limited (EBL) has the highest i.e. 288.27. From this observation based on risk analysis it is found that the stock of Himalayan Bank Limited is the best in investment alternative being the less risky stock.

Being the dissimilarity in the average rates of return of the stocks of various banks, the standard deviation may not provide a meaningful basis for measuring risk. Therefore, the decision solely based on risk and return can not be the rational investment decision. In this regard, coefficient of variation can depict the exact position of risk per unit of return. Therefore, the lower coefficient of variation is preferable. As a consequence from the above table it is observed that the coefficient of variation (CV) of NABIL is the lowest i.e. (53.42%) among all the stocks of Banks ignoring the CV of Himalayan bank (HBL) being the highest C.V. which is beyond the scope of investment.

Finance Companies

Yearly average rate of return, standard deviation and coefficient of variation of finance companies are tabulated in table 4.2 (calculations are shown in Annex V.2)

Table 4.2
Finance Companies
(Mid July 2001 to Mid July 2006)

S.N.	Name of the Finance Companies	Return (r)	Standard Deviation( )	CV%
1	Narayani Finance Limited (NAFL)	13.26	14.68	110.71
2	Kathmandu Finance Limited(KFL)	-16.64	11.52	-69.23
3	Gorkha Finance Limited (GFL)	5.72	16.91	290.38
4	National Finance Limited (NFL)	9.34	74.07	793.04
5	Mahalaxmi Finance Limited (MFL)	36.85	43.62	118.37
6	Nepal Merchant Banking & Finance Ltd. (NMBFL)	14.40	25.37	176.18
7	Pashchimanchal Finance Ltd. (PFL)	7.78	9.16	117.74
8	Universal Finance Ltd. (UFL)	7.17	22.55	314.5
9	Citizen Investment Trust (CIT)	25.20	4.56	18.09

From the statistical analysis of the stocks of the different finance companies, it is observed that the stock of Mahalaxmi Finance Ltd. is best for investment because it gives higher return i.e. 36.85 per share. The returns on stock of

finance companies ranging from 5.72 to 36.85 are observed from the above table ignoring the stock giving negative return. If the investment decision has to be made, on the basis of return, a rational investor will choose the stock of Mahalaxmi Finance Ltd (MFL).

The decision made only on the basis of return may not be rational. Therefore, the risk factor should also be considered while making investment decision. On the basis of risk, Citizen Investment Trust (CIT) is best for alternative for investment decision because it has less s. d. i.e. 4.56.

Similarly, the decision made only on the basis of return & risk might not be rational. Therefore, a rational investor should consider coefficient of variation which denotes risk per unit of the stock. The above observation shows that the Citizen Investment Trust (CIT) is best alternative for investment decision among all other finance companies because it has less coefficient of variation i. e. 18.09 % ignoring the stock that gives negative return which is beyond the scope of rational investment. Therefore, a rational investor will definitely choose the stock of Citizen Investment Trust (CIT).

Insurance Companies

Yearly average rate of return, standard deviation and coefficient of variation of insurance companies are tabulated in table 4.3 (calculations are shown in Annex V.3)

Table 4.3
Insurance Companies
(Mid July 2001 to Mid July 2006)

S.N.	Name of the Insurance Companies	Return (r)	Standard Deviation(σ)	CV%
1	Premier Insurance Co. Ltd. (PICL)	5.86	9.05	144.44
2	United Insurance Co. Ltd. (UICL)	-6.61	18.51	-280.03
3	Sagarmatha Insurance Co. Ltd. (SICL)	8.44	18.93	224.29
4	Neco Insurance Co. Ltd. (NICL)	-9.72	9.35	-96.19
5	Himalayan General Insurance Co. Ltd. (HGICL)	-2.41	11.37	-471.78

| 6 | Alliance Insurance Co. Ltd. (AICL) | -1.27 | 5.83 | -459.05 |

The statistical analysis depicts that on the basis of yearly analysis. The above observation shows that Sagarmatha Insurance Co. Ltd. (SICL) and Premier Insurance Co. Ltd. (PICL) give positive returns & it is found that the stock of Sagarmatha Insurance Co. Ltd. (SICL) offers the highest rate of return i.e. 8.44 per share whereas the stock of Premier Insurance Co. Ltd (PICL) offers the lowest return i.e. (5.86).The various stocks of various insurance companies have different rates of returns ranging from 5.86 to 8.44 On the basis of average return over the period, the stock of Sagarmatha Insurance Co. Ltd. (SICL) seems to be the best stock for investment.

The decision making regarding the investment may mislead only by analyzing the risk characteristics because every return is influenced by the uncertainty or risk. Risk can explain the variability of return from its central tendency. Therefore, the risk is measured by the standard deviation of the return. By observing the standard deviation of the returns of individual banks, it is concluded that Alliance Insurance Co. Ltd. (AICL) has the lowest s. d i.e. 5.83 whereas the s. d. of Sagarmatha Insurance Co. Ltd. (SICL) has the highest i.e. 18.93. From this observation, based on risk analysis it is found that the stock of Alliance Insurance Co. Ltd. (AICL) is the best in investment alternative being the less risky stock.

The dissimilarity in the average rates of return of the stocks of various insurance companies, the standard deviation may not provide a meaningful basis for measuring risk. Therefore, the decision solely based on risk and return can not be the rational investment decision. In this regard, coefficient of variation can depict the exact position of risk per unit of return. Therefore, the lower coefficient of variation is preferable. As a consequence from the above table it is observed that the coefficient of variation (CV) of Premier Insurance Company (PICL) is the lowest i.e. (144.44%) among all the stocks of insurance companies ignoring the coefficient of variations of stocks that give negative

return. Therefore, a rational investor would undoubtedly choose the stock of Premier Insurance Company (PICL).

Since, the objective of the study is not only limited to the scope of single asset investment rather it is focused on the analysis of portfolio management (i.e. portfolio investment) and formation of optimum investment portfolio among various securities. The proper management of portfolio helps to reduce the risk than making investment in a single asset. From the above observation, it is concluded that the lower coefficient of variation is preferable for making investment decision on the stocks that give positive return. Here, three stocks with lower coefficient of variations that give positive return are selected for portfolio management. On the basis of the analysis observed from annex V the following stocks are found for the formation of portfolio. Similarly, the above observations show that only the banks are found to be the best alternatives for making investment.

Table 4.4

(Mid July 2001 to Mid July 2006)

S.N.	Stocks	Return (r)	Standard Deviation ( )	C.V. %
1	NABIL Bank Ltd. (NABIL)	39.35	21.02	53.42
2	Standard Chartered Bank Nepal Limited (SCBNL)	33.08	22.27	67.32
3	Nepal SBI Bank Ltd. (NSBIBL)	6.95	56.55	84.47

4.2 Portfolio Analysis

It is true that the portfolio reduces the level of risk as compared to make investment in single asset. However, all the portfolios are not equally risky. The portfolio risk and return depend upon the single asset's return, standard deviation, return & proportion of investment upon the assets. As per the objective of the study, portfolio return of three assets can be calculated as:

$E(r_p) = W_1 E(r_1) + W_2 E(r_2) + _{W3} E(r_3)$

Where,

$E(r_p)$ = Expected return on portfolio

W_1 = Weight of asset 1

W_2 = Weight of asset 2

W_3 = Weight of asset 3

$E(r_1)$ = Expected rate of return on asset 1

$E(r_2)$ = Expected rate of return on asset 2

$E(r_3)$ = Expected rate of return on asset 3

The calculated expected rate of return of the portfolio with different weight or proportions of investable amount are presented in the table below. The calculations are shown in annex VI.

Table 4.5

Computation of Portfolio Return with Different Weights

(Mid July 2001 to Mid July 2006)

Opportunity Sets	Stocks			E(Rp)
	NABIL W1	SCBNL W2	NSBIBL W3	
A	0	0	1	66.95
B	0	1	0	33.08
C	1	0	0	37.32
D	0.50	0.50	0	35.2
E	0.50	0	0.50	52.13
F	0	0.50	0.50	50.01
G	0.40	0.30	0.30	44.93
H	0.30	0.40	0.30	44.51
I	0.30	0.30	0.40	47.90
J	0.35	0.50	0.15	39.64
K	0.40	0.40	0.20	41.55
L	0.20	0.40	0.40	47.47
M	0.40	0.20	0.40	48.32

Here, thirteen opportunity sets are formed and the stocks of the three companies having least coefficient of variation are selected out of thirteen sets. The above table shows that the set 'A' gives the highest rate of return which mayn't be suitable for portfolio analysis. Therefore, another opportunity set should be selected. Set E is the best portfolio which gives the highest portfolio return i.e. 52.13. It implies that making 50% investment in the stock of NABIL and 50% in the stock of NSBIBL. The objective of the study is not only making investment decision on the basis of portfolio return. Therefore, investors also should consider the risk characteristics associated with the return and it would be rational to analyze the risk characteristics of each opportunity set.

Before the analysis of risk characteristics, it should be clear about the correlation coefficient between the assets chosen for the formation of portfolio. The correlation coefficient lies between -1 to +1. Negative coefficient refers that the assets are negatively correlated which means they move in opposite direction. As a result, it gives pretty return. It is said that perfectly correlated stocks are best for investment which is very rarely possible to exist in the real market or world. Positively correlated stocks are riskier for the investment. The formation of portfolio with the positively correlated stocks helps only to reduce the level of risk but it is not able to eliminate the risk completely. As per the objective of the study, it is supposed to make the portfolio of less risky stocks considering the less coefficient of variation (CV). The correlation coefficient between different stocks is given below. (The calculation is shown in Annex VII)

Correlation Coefficient between the stock of NABIL and SCBL (P12) = 0.72
Correlation Coefficient between the stock of NABIL and NSBIBL (P13) = -0.83
Correlation Coefficient between the stock of SCBL and NSBIBL (P23) = -0.21

The above observation shows that the two stocks are negatively correlated. The portfolio formed by them will minimize the risk as expected. However, it helps to form the portfolio with positively and negatively correlated stocks but not perfectly.

The portfolio return, portfolio risk and coefficient of variation of the stocks under different opportunity sets are presented below: (The calculations are shown in annex VI and VIII)

Table 4.6

Expected Return on Portfolio, Risk and Coefficient of Variation with Different Weights and Sets

(Mid July 2001 to Mid July 2006)

Opportunity Sets	E(rp)	p	CV %
A	66.95	56.55	84.47
B	33.08	22.27	67.32
C	37.32	21.02	56.32
D	35.20	30.06	85.40
E	52.13	53.80	103.20
F	50.01	19.38	38.75
G	44.93	20.63	45.92
H	44.51	15.79	35.47
I	47.90	19.46	40.63
K	41.55	10.21	24.57
L	47.47	12.88	27.13
M	48.32	25.08	51.90

Where, $CV = \dfrac{\sigma_p}{E(r_p)} \times 100$

The above observation shows that the expected portfolio return of the opportunity set A is the highest i.e. 66.95 among the other sets. An investor always prefers the portfolio with highest expected return if the decision is to be

made only on the basis of return. But the decision regarding investment only on the basis of return is not rational because of the risk associated with it.

On the basis of portfolio risk i.e. (Standard deviation), the opportunity set K is the less risky portfolio with $_p$ = 10.21, which contradicts to the opportunity set A. On the basis of the analysis of the stocks under different opportunity sets, it is observed that the expected returns are not uniform in all the sets. Therefore, the risk factor may not also be the crucial factor that one can make the investment decision. Ultimately, it would be rational to make investment decision on the basis of per unit of return i.e. the coefficient of variation which is the best measure for the investment decision.

The above table 4.6 depicts that opportunity set K has the least coefficient of variation (CV) i.e. 24.57%. On the basis of the objective of the study, it is concluded that opportunity set K is found to be the optimum investment portfolio. It gives the guideline to the investor to make investment 40% in the stock of NABIL and 40% in the stock of SCBNL and 20% in the stock of NSBIBL. The portfolio helps us to increase the expected return up to 41.55% and to decrease risk up to 10.21% per share.

Although the formation of portfolio is optimum with the 40% investment in NABIL, 40% in SCBNL and 20% in NSBIBL the result is not able to fulfill the requirement of the study. As per the objective and purpose of the study, it is not only to construct a portfolio under one industry rather it is supposed to diversify the portfolio among the industries viz. banking, finance and insurance. Therefore, the focus is given here, for the portfolio among industries. By fulfilling the conditions such as the positive earning and least coefficient of variation (CV), an infinite number of opportunity sets can be formed. Considering the constraints and limitation, here 13 opportunity sets are constructed with the stocks of NABIL (Banking), CIT (Finance) and PICL (Insurance) with different weights.

Table 4.7
Selected Stocks with Different Weights for Portfolio

S.N.	Stocks	Return (r)	Standard Deviation ( )	(CV)%
1	NABIL	39.35	21.02	53.42
2	CIT	25.20	4.56	18.09
3	PICL	5.86	9.05	154.44

The statistical calculations show that the stocks selected for the portfolio purpose from different industries viz. banking, finance and insurance are negatively correlated which means that they move in opposite direction as a result an investor can earn ample return by investing in those stocks in an appropriate proportion. Comparing the portfolio (diversification) across industries with the portfolio constructed only in one industry i.e. banking considering the positive return and least CV, it is obviously concluded that the portfolio across industries is found to be efficient because the selected stocks are negatively correlated. The calculated expected returns of the portfolio with different weights within the three industries are presented in the table below. (The calculations are shown in Annex X.)

Table 4.8
Computation of Portfolio Return within the Industry

Opportunity Set	Stocks			E(rp)
	NABIL (W_1)	CIT (W_2)	PICL (W_3)	
A	0	0	1	5.86
B	0	1	0	25.20
C	1	0	0	37.32
D	0.50	0.50	0	31.26
E	0.50	0	0.50	21.59
F	0	0.50	0.50	15.53
G	0.40	0.30	0.30	24.25
H	0.30	0.40	0.30	23.03
I	0.30	0.30	0.40	21.21
J	0.35	0.50	0.15	26.54
K	0.40	0.40	0.20	26.18
L	0.20	0.40	0.40	19.89
M	0.40	0.20	0.40	22.31

On the basis of the analysis of three stocks one from each industry i.e. banking finance and insurance, thirteen opportunity sets are formed on the conditions based on positive return and least coefficient of variation (CV). If the investor has to make investment decision on the basis of expected portfolio return he/she will definitely choose opportunity set 'C' which gives the highest returns i.e. 37.32% per share. It is not suitable choice because it does not follow the concept of portfolio properly. Therefore, a rational investor should go for another alternative. Set 'D' can be the best alternative because it gives the highest portfolio return i.e. 31.26 with 50% investment in NABIL and 50% in CIT. But decision making regarding investment only on the basis of return is irrational because every return entails some degree of risk. Therefore, the risk characteristics would be the other option for making investment decision. For the purpose of risk analysis one should be familiar with correlation coefficient of the stocks. The positively correlated stocks are riskier than negatively correlated stock. Negative correlated stocks will undoubtedly minimize the risk in comparison to positively correlated stocks. The correlation coefficients between the stocks are presented below. (Calculation is shown in Annex XII)

1. Correlation Coefficient between stock of NABIL and CIT (p12) = 0.10
2. Correlation Coefficient between stock of NABIL and PICL (p13) = -0.91
3.   Correlation Coefficient between stock of CIT and PICL (p_{23}) = -0.01

It is clear that all two stocks are negatively correlated they will be able to minimize the risk. As a consequence, the portfolio formed by them would be a less risky portfolio.

The portfolio return, portfolio risk and coefficient of variation of the stocks of three industries viz. banking, finance and insurance with different opportunity sets are presented below. (The calculations are shown in Annex X, XI & XII)

Table 4.9

Portfolio Return, Portfolio Risk and Coefficient of Variation

Opportunity Set	$E(r_p)$ %	σ_p	CV%
A	5.86	9.05	154.44
B	25.20	4.56	18.09
C	37.32	21.02	56.32
D	31.26	10.98	35.12
E	21.59	6.34	29.36
F	15.53	5.05	32.52
G	24.25	6.22	25.65
H	23.03	4.49	19.50
I	21.21	5.26	24.80
J	26.54	6.74	25.40
K	26.18	7.16	27.35
L	19.89	2.55	12.82
M	22.31	5.30	23.76

The above table shows that an investor prefers opportunity set 'C' that gives highest portfolio return i.e. 37.32. If the decision has to be solely made based on return. But the investment decision based only on the expected return is not a scientific one because every return entails some degree of risk. Therefore, the investor should go through the risk characteristics i.e. standard deviation. The opportunity set L is the best for investment being less risky set i.e. 2.55. An adverse investor always prefers less risky asset. But making investment decision only on the basis of risk and return mayn't be rational. Therefore, it would be rational to make investment decision on the basis of risk per unit of return which is represented by coefficient of variation. It is considered as the best measure for investment decision. From the above table it is concluded that the opportunity set 'L' has the least coefficient of variation (CV) i.e. 12.82 % among all the other sets. Based on the objective of the study within the constraints and limitations it can be concluded that the opportunity set 'L' is as an optimum investment portfolio which leads the investor to invest 20% in the stocks of NABIL (Banking), 40% in CIT (Finance) and 40% in PICL (Insurance).

Based on the data analysis for a period of five years (yearly basis), it is observed that making portfolio investment within the industry is better than in the stocks of single industry because the stocks of within the industry are negatively correlated whereas the stocks of one industry i.e. banking are positively correlated and risk can't be minimized as we expected.

4.3 Selection under Sharpe Single Index Model

After analyzing the five stocks i.e. NABIL, SCBNL, CIT, NSBIBL and PICL under one and different industries according to the Sharpe Single Index model we are able to form an optimum investment portfolio. This model gives the percentage investment to be made in the corresponding securities on the basis of cut - off point (C*). Based on the calculations shown in the annex XIII - XVIII, β_{im}, $_{ei}{}^2$ and cut - off point can be summarized as:

Table 4.10

Ranking (Arranging) Stocks from Highest Excess Return to

Beta to Lowest

S.N	Stocks	$\dfrac{[E\,(r_i)\text{-}T]}{\beta_{im}}$	β_{im}	$(_{ei}{}^2)$	C
1	NABIL	21.23	0.33	407.47	5.2100
2	SCBNL	18	0.23	479.25	5.8580
3	CIT	54.10	1.60	2389.89	135.39
4	NSBIBL	2.59	0.12	16.20	5.7500
5	PICL	-1.13	0.02	81.77	62.340

The table shows that all the securities whose excess return to risk ratio above the cut - off rate (C*) are selected for optimum portfolio formation.

Since the securities are ranked from highest excess return to beta to lowest, all the securities having [$\dfrac{E\,(r_i)-T}{\beta_{im}}$] greater than cut - off point are included in the optimum portfolio securities They are NABIL, SCBNL, NSBIBL, CIT and PICL.

Referring to Annex XVIII the percentage investment in the securities should be made are as follows:

NABILZ = 5.45%
SCBNL = 3.44%
CIT = -3.10%93
NSBIBL = -6.37%
PICL = 100.58%

With the investment of such proportion the portfolio gives the expected return E (r) = 4.1306% per share

CHAPTER - V
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The previous chapter was concluded with the presentation and analysis of necessary data required for the fulfillment of the objective of the study. This chapter is concerned with the summary of the study, conclusion and recommendations on the basis of the findings of study. This study is divided into three sections

- ➢ Summary
- ➢ Conclusions
- ➢ Recommendations

5.1 Summary

It is unexceptionally true that the economic development of the nation solely depends upon the active economic activities without any obstacles and hurdles. Capital market is the backbone of the economic activities. Now the capital market has uplifted its standard with introduction and expansion of security market by providing the interested investors an avenue to invest their excess fund in securities rather than solely depositing their surplus in the banks. The security market in Nepal is achieving its grip among the investors by providing a floor for the trading of securities of different companies through stock brokers.

The security market helps to boost up the economic activities by mobilizing financial resources, by providing best investment opportunities & by transferring the funds from surplus savings to need based sectors through the transactions of financial instruments.

Securities market is the place where the stocks of different companies are traded. It is the largest financial market in the world. It comprises of (i) primary market (ii) Secondary market.

Primary market can also be called as an issuer of the securities to the public offering through investment bankers whereas the secondary market is said to be the organized financial market where the securities of different organizations are traded.

Investment is concerned with earning some expected return in the future. Therefore, every rational investor seeks to minimize the inefficient deviation between risk and expected rate of return associated to investment. For the minimization of the inefficient deviations, diversification is essential for the creation of an efficient investment which helps to reduce the variability of returns around the expected return. For this purpose, one has to understand the concept of portfolio investment and its analysis. The expected portfolio return is simply the weighted average return of the expected returns from the investment represented by a portfolio.

The total risk of the investment is measured by the variance of the portfolios rate of return that depends upon the risk of individual securities and the covariance between the returns of the individual securities. However, this study is basically focused on the portfolio risk and return within the conceptual framework of the portfolio analysis and management.

Portfolio management is basically concerned with the efficient management of portfolio investment made in financial assets, including shares and debentures of companies. But it has some problems. Formation of investment objective or goal and then decide the best to reach the goal with the securities available are The basic problem of portfolio management. It leads the investors to obtain

maximum return with minimum risk. It focuses on planning, implementing and monitoring.

The study is based on 24 companies listed in NEPSE under Grade 'A' in different industries specifically, banks, finance companies and insurance companies. The study is based on the secondary data within the period from 2001 to 2005. As per the objective of the study, only the stocks that give positive return are selected ignoring the stocks giving negative return assuming that a rational investor prefers only the stock with positive return. For this purpose, only three stocks viz. NABIL, SCBNL and NSBIBL in one industry i.e. banking and three stocks viz. NABIL, CIT and PICL one from each industry i.e. banking, finance and insurance are selected on the basis of the lesser coefficient variation.

With the help of chosen stocks different opportunities sets are formed with different weight. Portfolio return, portfolio standard deviation, correlation coefficient and coefficient of variation are used as the tools and techniques for the analysis and formation of optimum investment portfolio.

5.2 Conclusion

Based on the analysis and findings of the study conducted on the stocks of different industries such as banks, finance companies and insurance companies that fall under Grade 'A' in NEPSE. The following conclusions can be drawn.

After analyzing the stocks of different companies for five years period it is observed that almost all of the stocks of the banks are attractive investment alternatives because of being the stocks with positive return within the period of the study. On the basis of the return characteristics the stock of NABIL Bank Limited is the best for investment.

Since the stocks of one industry i.e. banking which is the attractive investment alternative are both positively and negatively correlated. We aren't able to reduce the portfolio risk if portfolio is made from highly positively correlated assets. So, it felt necessary to perform the study across industries viz. banking, finance and insurance. In this analysis it is found that the stocks selected for portfolio purpose are negatively correlated. Therefore, it would be beneficial to construct investment portfolio among the stocks of different industries rather than limiting within one industry.

On the basis of the analysis of the portfolio return, portfolio standard deviation and coefficient of variation the formation of the portfolio with the stocks of NABIL with 40% SCBNL with 40% and NSBIBL with 20% investment proved to be the optimum investment in one industry whereas 20% NABIL, 40% CIT and 40% PICL proved to be the even better investment portfolio because of the spread across industries and the stocks being negatively correlated.

5.3 Recommendations

On the basis of the analysis and findings the following recommendations can be forwarded to the individuals, institutions and others to overcome the problem associated with portfolio investment and its management.

The investment made in the securities might be the best investment alternatives rather than merely depositing the saving in the banks. Therefore, the investors are suggested to make investment on the securities i.e. stocks on the basis of scientific analysis but not only running after the market trend and melodious slogans.

It is found that making investment in single asset is even riskier than portfolio investment. Considering the proverb 'Don't put all the eggs in one basket' the

investors are suggested to diversify their investment which helps them to minimize the level of risk and maximize the expected return.

On the basis of comparative study made on the stocks of one industry i.e. banking and three industries i.e. banking finance and insurance are suggested to make investment portfolio across industries because the stocks are found to be negatively correlated.

As it is very difficult to make decision regarding investment, therefore all the concerned individuals, organizations should remain up to date with the fresh information when and as required.