# CHAPTER I

# INTRODUCTION

## 1.1 General Background:

Financial management is a basic element that underlies for successful operation of every industry and organization. Management of money directs, determines and enhances the health and productivity of total financial sector hence reciprocating its performance directly to the growth of economy. So financial development of country largely depends upon effective mobilization of its resources and investment upon good return. But it is often unreasonable to predict and realize the normal return on business investment due to the competitive market and other environmental constraints which may serve sometime as opportunity and other times threat. Changing nature of competition and increasing pressure of globalization on today's business world, investment management has become the most critical determinant of the economy. The most important fact of international business operation is continuous change in economic, political and social dimensions. These changes are beyond the control of international business concern. In recent years international investors are attracted towards the financial markets of developing countries. As a result many joint ventures and multinational companies are being established in the country.

The growth of economy depends on availability of funds to finance the increased needs, not only of government and business, but also of individuals. Private domestic investment can be the contributor to economic growth and employment generation in the developing country. For the economic development of any country, public participation plays a vital role. If the people are rich, the country will be rich and people will have enough to invest on development of the country. “To the extent that public investment expenditure result in the provision of public services which reduce the cost of production of the private sector, they have a positive effect on private profitability and investment”(Chhibbeer and Dailami, 1990:47). An investment in any funds is made to have some positive rate of return. Nobody is ready to bear risk without any return but to have returned one must ready to face some risk. To minimize the risk at the given rate of

return the concept of portfolio diversification is necessary. Portfolio is simply a collection of securities gathered to achieve certain investment goals. Usually investors diversify their portfolios to have minimum risk and maximum the return. So, to meet the investment goals there should be well-managed portfolio. Most investors hope that if they hold several securities then even one goes bad; the others will provide some protection from an external loss.

"A systematic investment process should be followed to win the stock market. Investment process describes how an investor should go about making decisions with regard to what marketable to invest in, how extensive the investment should be and when the investment should be made. A five-step procedure for making these decisions forms the basis of the investment process:

- Set investment policy
- Perform security analysis
- Construct a portfolio
- Revise the portfolio
- Evaluate the performance of the portfolio" (Sharpe and Bailey, 2003:11).

Portfolio theory explores how risk-avert investors construct portfolios in order to optimize expected returns for a specified level of risk. The theory quantifies the benefits of diversification. Out of a universe of risky assets, an efficient frontier of optimal portfolios could be constructed. Each portfolio on the efficient limit offers the maximum possible expected return for a given level or risk. Investors should hold the maximum possible expected return for a given level of risk. Investors should hold one of the optimal portfolios on the efficient limit and adjust their total market risk by leveraging or de-leveraging that portfolio with positions in the risk-free asset. Based upon strong simplifying assumptions, a capital asset pricing model concludes that the market portfolio sits on the efficient frontier and all investors should hold that portfolio leveraged and
De-leveraged with positions in the risk-free asset. Portfolio theory provides a broad context for understanding the interactions of systematic risk and return. It has profoundly shaped how institutional portfolios are managed, and motivated the use of passive investment management techniques. The mathematics of portfolio theory extensively

applies in financial risk management and is a theoretical precursor for today's value-at-risk measures. Financial management is concerned with efficient management of portfolio investment in financial assets including shares and debenture, preference share, warrants, option etc. A portfolio of an individual or corporate unit is the holding of securities and investment in financial assets. A portfolio of an individual or corporate unit is the holding of securities and investment in financial assets. These holding are the results of individual preference and decision regarding risk and return.

Portfolio management is the art of handling a pool of funs. Portfolio management preserves not only its original worth but also appreciates its value and yield over time an adequate return consistent with the level of risk assumed. The objectives of portfolio management is to analyze different individual assets delineate efficient portfolios, provide safety through precaution, risk minimization, generating income, marketability, liquidity et, Generally environment indicates factor which have some influencing power to the object. In the same way, investment environment is the bond of factors which influence the investment. Investment environment refers all internal as well as external factors which can alter in investment decision. Investment environment directly and indirectly influences the financial market. Investment environment consists investors, shareholders, brokers, financial intermediaries, stock exchange, government polices, political and social customs and so on.

If the security markets are highly efficient, a search for undervalued securities is not likely to yield return. If market is efficient, a passive portfolio management practices like indexing the portfolio to some market index may be the most cost effective approach. Active portfolio management practices are only appropriate because of significant market deficiencies that exploited legally and beneficially.

Among these investment processes the research is focused on security analysis and portfolio selection. Security analysis involves examine of individual securities or group of securities within the broad categories of financial assets. Portfolio construction identifies those specific assets in which to invest determining the proportion of the investor's wealth. Diversification should be done to minimize the risk and maximize the return. Portfolio performance involves determining periodically how the portfolio performs in

terms of not only the return earned, but also the risk experienced by the investor”( Sharpe et al., 2003:12-14).

Financial market facilitates the flow of funds from surplus to deficit units. Those financial markets that facilitate the flow of short-term funds, that is, less than one year are known as money markets, while those that facilitate the flow of long-term funds are known as capital markets. There are two types of market securities. Securities having life less than one year are called money market securities and securities having life of more than one year are called capital market securities. Money market securities generally have higher liquidity whereas capital market securities are used to generate a higher annual return to investors.

Stock market is a financial market which probably has the greatest glamour and is perhaps the least understood. Some observers consider it as a legalized heaven for gambling and many investors consider stock marker investing as a game in which the sole purpose is pocking winners

The well functioning stock market allows stockholders to achieve efficient diversification, which reduces risk, which in turn, lowers the risk premium component in the cost of capital. Stock markets lower the cost of capital by liquidating investors' investment. It encourages investors to retain their earning and convert it into cash by selling shares in the stock market. The stock market provides an opportunity to the portfolio managers and public for direct participating and sharing the gain of economic progress.

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

This study occupies an important role in the development of stock market. In the market, stock index can be affected by interest rate, inflation and strengths of the rupee. The risk of a stock can be measured by its price volatility and its beta, business sector is the most dynamic part of economy, which collects unused funds and mobilizes it in needed sectors. It is the heart Nepalese economy. In Nepal, stock market is not doing well because lack of awareness towards stock market and lack of knowledge financial investment among the Nepalese people and inefficient financial policy of government. Nowadays, the business activities are growing in the country due to improved and stable political scenario.

However this study of risk and return is basically focused on business sector of Nepal and this study analyze the risk and return associated with investment among these sectors on the basis of market index of stock.

### 1.2 Focus of the study:

The main focus of this study is the risk and return analysis of the common stock investment of the business sectors of NEPSE. Common stock is comparatively risky assets than other security in the capital market. The main purpose of the study is to analyze how one can get sustainable profit by minimizing the risk. For this purpose, market return, expected return, total risk, are analyzed to give an idea to get sustainable profit by diversifying the risk to avoid future loss of the common stock investment.

### 1.3 Statement of the problem:

Portfolio management is relatively new concept in Nepalese context. Many companies still have no awareness towards it. The study has examined the investor's awareness about the portfolio management of the financial institutions while investing. In this study investors refer to the institutional or individual investors.

Investors can be classified into three categories on the basis of risk and return. First types of investors are risk lover investors who become ready to face high risk in the hope of high return. The second types of investors are risk avoider investors who try to avoid facing high risk and became ready to be satisfied in low return. The third types of investors come along in between these two investors. They are ready to bear medium risk

and have medium return. These are the three types of institutional investors. The study has examined whether these investors are aware about the portfolio management of the institutions they are investing or not. How effectively the financial institutions are mobilizing their investment and whether the return that investors get back is sufficient or not in compare to the risk they are bearing. It is not necessary that the investors who bear high risk have high return. The investors may bear high risk and have relatively low return or vice versa. The portfolio return is the straight weighted average of returns from the individual assets. But the portfolio risk is affected by the variance of returns as well as the covariance between the returns of individual assets included in the portfolio and their representative weight.

The study has examined about the condition of portfolio management in different business sector whether the institutions have maintained portfolio management or not.
If they have portfolio management then what is the rate of risk in their institutions? And for bearing that risk what is the rate of return they are having. But if the institutions are careless about the portfolio management how much profit maximization they are having and how they are maintaining their earning? What is the difference between the rate of return of the institutions that portfolio management and do not have portfolio management. The study has also tried to find out the relationship between each sector.

In an efficient market condition, stock price is equal to the intrinsic value of stock. When required rate of return and expected rate of return are not equal, then intrinsic value and market value of stock will not be equal. It is also assumed that all stock remain in security market line, and if the case is not so, they strive towards this line. But theoretical and practical knowledge may not always much each other.
Therefore it needs courage and at the some time faith to invest in common stock. In most of the time which can be generated through proper evaluation with giving view to the prevailing market atmosphere. But what are the criteria for evaluation that the stock they are holding will give them favorable return?

Some research problems are as follows:

1. In what extent, the investors should be compensated for taking a certain degree of risk?

2. How do they know the scale and intensity of risk?
3. One expects favorable returns by holding stock. But what are the criteria for evaluation?
4. How can one make higher return assuming lower risk?

**1.4 Objectives of the study:**

The basic objectives of the study are as follows:

1. To examine the portfolio management practices in Nepalese Stock Market
2. To analyze portfolio attributes of Nepalese Stock Market in relation to risk and return.
3. To make comparative study of listed business sectors in Nepal, in terms of overpriced, under priced or equilibrium by analyzing the risk and return of the individual share.
4. To measure the optimum portfolio among the different Business Sector.

**1.5 limitations of the study:**

This study is to fulfill the requirement of Master Degree in Business Studies. It cannot cover all the dimension of the subject matter and resource. The major limitations of the study are as follows.

1. The problem of non-availability of required data and information regarding portfolio management may limit the scope of the study.
2. The study has only analyzed index of different business sector of NEPSE.
3. The study has not analyzed dividend yield of each sector due to unavailability of needed data and limited time period.
4. The study is mainly depending on secondary data.
5. Risk and return measurement is taken as the tools of the methodology.
6. Average return of the individual business sector is taken as expected return.
7. Since the Treasury bill issued by NRB is only of short term of 91 days, there is confusion in calculating risk free rate. So we have calculated required rate of return using treasury bills annualize rate and national saving bond interest rate as risk free rate
8. The study is to fulfill the requirement of Master Degree in Business Studies. So the study cannot cover all the dimension of the subject matter and time period is also limited.

## 1.6 Organization of Study

This research has been organized in five chapters. The titles of this chapter are listed below:

**Chapter-I: Introduction**

This chapter is introductory and deals with subject matter of the study including general background of the study, problem of the study, objectives of the study, significance of the study, limitation of the study, organizing of the study etc.

**Chapter-II: Review of Literature**

This chapter contains the profound review of available literature related to the area of this study. It is directed towards the review of conceptual framework and review of major related studies. Risk and return, its relationship, determinants, measuring techniques and methods etc. are reviewed from the various available literatures.

**Chapter-III: Research Methodology**

This unit presents research methodology used in the study which includes various tools and techniques of data. It consists of research method as library research and field research, sources of data, population and sample, research design, methods of data analysis etc.

**Chapter-IV: Presentation and Data Analysis**

This chapter presents the analysis and presentation of data by using various methods of statistical and financial tools. Tables, pie charts, etc. will be used accordingly.

**Chapter-V: Summary, Conclusion and Recommendation**

This chapter is for summary of main findings conclusion, recommendation and suggestions for further important.

# CHAPTER II
# REVIEW OF LITERATURE

This chapter is mainly concerned with the competent exploration of the background to the work and a comprehensive review of recent and relevant literature. In this regard some basic academic course books, journals, and other related studies are reviewed. But so far nominal research has been performed in this topic in Nepal. Our stock market is on emerging state and unable to provide necessary information concerning to this study.
Some master degree thesis available in Shanker Dev Campus, and Tribhuvan University Library, related to some extends to the topic “portfolio risk and return” are reviewed. Apart from these, independent studies carried out by well-known experts are also taken in consideration.

## 2.1 CONCEPTUAL FRAMEWORK:

Various books relating to theoretical aspect of portfolio management and risk & return are taken into consideration. In this research risk and return has been taken as special tools to analyze the portfolio management of the commercial banks. So the main focus is given on risk and return.

### 2.1.1 Portfolio Analysis:

So far in Nepalese context the previous researches show that many Nepalese private investors placed their entire wealth in a single asset or investment. It is because of the lack of proper awareness and knowledge about portfolio management. If they construct a portfolio for investment they can reduce unsystematic risk without losing considerable return. Therefore, analyzing risk and return on portfolio context is necessary.

"While the portfolio expected return is a straight forward weighted average of returns on the individual securities, the portfolio standard deviation is *not* the simple weighted average of individual security standard deviations. To take a weighted average of individual security, standard deviations would be to ignore the relationship or covariance between the returns on securities. This covariance, however, doesn't affect the portfolio's expected return"(Horne and Wachowicz, 1995:96).

### 2.1.2 Return on Common Stock

**Returns:**

A major purpose of investment is to get a return or income on the funds invested. On a bond an investor expects to receive interest and on stock dividends may be anticipated. So return from investment has different meaning to different investors. Some companies seek near term cash inflows and give less value to more distant returns. Other investors are concerned primarily with growth. Still others measure return using financial ratios. They might seek to invest in a company that has a high return on investment.

Investor wants to maximize expected returns subject to their tolerance for risk. Return is the motivating force and it is the key method available to investors in comparing alternative investments. Realized returns and expected returns are two terms which is often used in the language of investment. Realized return is after the fact return, return that was earned or it is history. Expected return is the return from an asset that investor will earn over some future period. It is a predicted return, which may or may not occur.

The rate of return formula can be restated in a form appropriate for almost any investment.

$$\text{Single period rate of return } (\Upsilon_t) = \frac{Ending\ \text{Price} - Beginning\ \text{Price} + Dividend}{Beginning\ \text{Price}}$$

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

Where,

$P_t$ = Stock price at the end of period t.

$P_{t-1}$= Stock price at the end of period t-1.

$D_t$ = Cash dividend received during the $t^{th}$ period.

This formula can be used to calculate both actual single period return (base on historical data) as well as expected single period return (based on expected dividend and price).

**Expected Rate of Return:**

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

The simple arithmetic mean, $E(r_t) = \frac{\sum_{t=1}^{n} r_t}{n}$

Where,

$E(r_t)$ = arithmetic mean of return

n = Number of year

$r_t$ = single period rate of return

"The expected rate of return or holding period return is based upon the expected cash receipts over the holding period and the expected ending or selling price. Depending upon the assumption made about cash receipts and ending price, a number of expected rates of return are possible. These possible rates of return estimated by the investor are summarized in an expected rate of return. The expected rate of return must be greater or equal to the required rate of return in order for the investor to find the investment acceptable" (Cheney and Moses, 2000:34).

**2.1.3 Risk:**

Risk and uncertainty are real in life. Everyone encounters uncertainty in everyday life. Uncertainty about the weather, about the performance of one's investment and about one's health. Uncertainty exists when a decision maker knows all the possible outcomes of a

certain act but for one reason or another cannot assign probabilities to the various outcomes.

Risk, on the other hand exists when the decision maker knows not only the various outcomes but also the probability associated with each one.

Risk and uncertainty are an integral part of an investment decision. Risk can be defined as a situation where the possible consequence of the decision that is to be taken is known. 'Uncertainty' is generally defined to apply to situations where the probabilities cannot be estimated. However risk and uncertainty are used interchangeably.

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

returns are volatile.

### 2.1.4 Measurement of Risk:

**Standard Deviation:**

It is a statistical concept and is widely used to measure risk from holding a single asset. The standard deviation is derived so that a high standard deviation represents a large dispersion of return and is a high risk a low deviation is a small dispersion and represents a low risk. It provides more information about the risk of the asset. Its advantage is that the uncertainties of returns can b e summarized into a single easily calculated number. The major disadvantage is that the standard deviation considers possible returns above the expected value to be as risky as returns below the expected value.

Standard deviation is donated by the 'σ' (sigma) symbol. It can be expressed mathematically as:

$$\sigma = \sqrt{\frac{\sum_{t=1}^{n}\left[r_t - E(r)\right]^2}{n}}$$

where,

σ = Standard deviation

$r_t$ = Return for $t^{th}$ possibility

E(r) = Expected rate of return

n = Number of years.

**Coefficient of Variation:**

If risk is measured by the standard deviation, then risk per unit of expected return can be measured by the coefficient of variation (C.V.). The larger the C.V the larger the relative risk of the investment.

The coefficient of variation shows the risk per unit of return and it provides a more meaningful basis for comparison when the expected return on two alternatives is not the same.

The standard deviation can sometimes be misleading in comparing the risk or uncertainly surrounding alternatives if they differ in size. To adjust for the size or scale, problem, the standard deviation can be divided by the expected return to compute the coefficient of variation (C.V.)

Coefficient of Variation (C.V.) = $\frac{\pm}{E(r)}$

Where,

$\sigma$ = Standard deviation

E(r) = Expected rate of return.

The coefficient of variation is a measure of risk per unit of expected return. The larger the C.V., the larger the relative risk of the investment

The coefficient of variation is more useful when we consider investments, which have different expected rates of return and different levels of risk. (Weston and Brigham, 1993, p. no)

**Beta:**

"The relevant risk associated with an individual stock is based on its systematic risk, which depends on how sensitive the firm's operations are to economic events such as interest rate changes and inflationary pressures. Because the general movements in the economy, the market risk of the stock can be measured by observing its tendency to move with the market, or with an average stock that has the same characteristics as the market. The measure of the stock's sensitivity to market fluctuations is called its beta coefficient. Beta is a key element of the CAPM"(Weston, Besley and Brigham, 1996:202).

"The beta is simply the slope of the characteristic line. It depicts the sensitivity of the security's excess return to that of the market portfolio if the slope is one, it means that excess return for the stock vary proportionally with excess return for the market portfolio. In other words, the stock has the same unavoidable or systematic risk as the market as a whole. A slope steeper than one means that the stock's excess return varies more than proportionally with the excess return of the market portfolio."(Horne,1995)

"Beta measures non-diversifiable risk. Beta shows how the price of a security responds to market forces. In effect, the more responsive the price of a security is to changes in the market, the higher will be its beta. Beta is calculated by relating the returns on a security with the returns for the market. Beta can be positive or negative. But nearly all betas are positive"(Fischer and Jordan, 2002:82).

### 2.1.5 Portfolio Return and Risk:

Portfolio is combination of individual or a group of assets. Portfolio is the holding of securities and investment in financial assets like, common stock, preferred stock, bound, debenture etc. Investor have different types of investment opportunity but they have limited resource for investment so that investors have to select that investment, which maximizes return for a given level of risk. Therefore it is needed to extent analysis of risk and return to include portfolio. There are two types of objectives, primary objective and secondary objective. The primary objective of portfolio are to maximize return and to minimize risk and secondary objectives is

regular and stable return, safety of investment, appreciation of capital, tax benefits etc.

The expected return on a portfolio is simply the weighted average of expected returns on the individual assets in the portfolio with weights being the fraction of the total portfolio invested in each asset.

Symbolically,

$$E(r_p) = w_i E(r_i) + w_j E(r_i)$$

where,

$E(r_P)$ = portfolio return
$w_i$ = proportion of wealth invested in i assets.
$w_j$ = proportion of wealth invested in j assets.
$E(r_i)$ = expected return on i assets.
$E(r_j)$ = expected return on j assets.

Portfolio risk is the risk of individual securities plus covariance between the securities.

Symbolically,

$$\sigma_P = \sqrt{w_i^2 \pm_i^2 + w_j^2 \pm_j^2 + 2 w_i w_j \operatorname{cov}(R_i, R_j)}$$

where,
$\sigma_P$ = Portfolio standard deviation
$w_i$ = The proportion of portfolio devoted by security i .
$\sigma_i$ = The standard deviation of security i.
$w_j$ - The proportion of portfolio devoted by security j.
$\sigma_j$ =The standard deviation of security j
Cov ($R_i$, $R_j$) = Covariance between return of security i and j.

**2.1.6 Capital Asset Pricing Model:**

Three economist William Sharpe, John Linter and Jack Treynor developed Capital Asset Pricing Model or CAPM in mid 1960's. CAPM is a model that describes the relationship between risk and expected return. It explains the behavior of security price. It also describes how the price and interest rate on risky financial assets are determined in the capital market. In this model, a security's expected return is the risk free rate plus a premium based on the systematic risk of the security, where risk is measured by the beta coefficient. The main massage of the model is in a competitive market, the expected risk premium varies in direct proportion to beta. This means that all investments must plot along the security market line.

"CAPM provides a measure of risk and method of estimating the market's risk return line. The market or systematic risk of security is measured in terms of its sensitivity to the market movement. This sensitivity is referred to the security's beta. Investors can eliminate unsystematic risk when they invest their wealth in a well diversified market portfolio" (Pandey, 1995:344).

The CAPM is sometimes used to estimate the required rate of return for any firm with publicly traded stock. The CAPM is based on the premise that the only important risk of a firm is systematic risk, or the risk that results from exposure to general stock market movements. The CAPM is not concerned with so called unsystematic risk, which is specific to an individual firm, because investors can avoids that type of risk by holding diversified portfolios. (Madura, 2001:278)

The CAPM states that the expected risk premium on each investment is proportional to its beta, this mean that each investment should lie on the sloping security market line connecting treasury bills and market portfolio

"The graphical version of CAPM is called the security market line which shows the relation between risk and the required rate of return

The security market line clearly shows that return is the increasing function. The SML equation as suggested for the computation of expected rate of return on common stock.

The model is,

$E(r_j) = r_f + [E(r_m) - r_f] \beta_j$

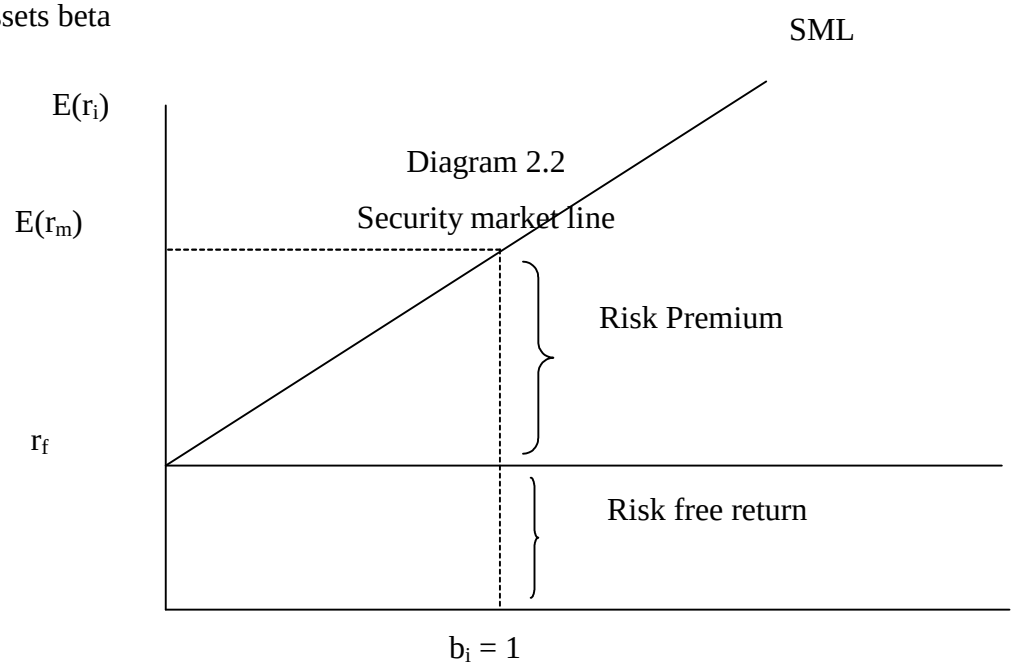
where,

$E(r_j)$ = Expected return on security j.

$r_f$ = Risk free rate.

$E(r_m)$ = The expected market return.

$\beta_j$ = Assets beta

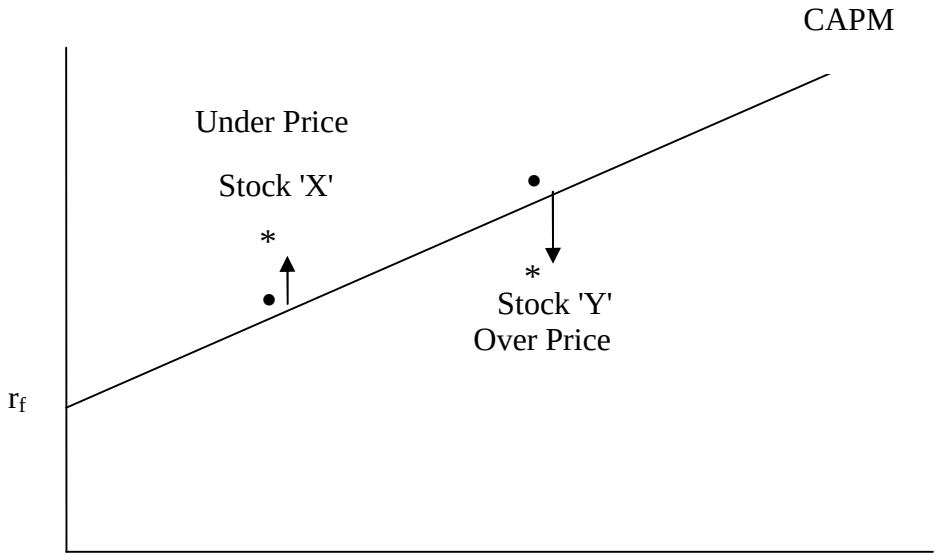



Source: Francis, 1991 : 627

"In market equilibrium the required rate of return on stock equals its expected return. That is all stocks will be on the security market line, what happens when this is not so? The primary concern of portfolio management is to identify the overpriced and under priced of security. Overpriced and under priced securities are identified either comparison of their value with market price or compassion of required rate of return and expected return.

Diagram 2.3

Under price and over-priced stock during temporary market disequilibrium




- Required return * Expected return

Source : Francis, 1991 : 628

As a result, stock 'X' is expected to provide a rate of return grater than the required, base on its systematic risk. Stock 'Y' is expected to provide a lower return than required to compensate for its systematic risk. Investors seeing the opportunity for superior returns by investing in stock X, should rush to buy it. In the case of stock 'Y' , investors holding this stock would sell it, recognizing than they could obtain a higher return for the same amount of systematic risk with other stocks."(Francis, 1991:654-655)

The CAPM is based on the efficient market hypothesis and provides a basis to measure the systematic risk in terms of covariance of its return with the market return.

**2.2 Reviews from Nepalese Studies:**

In the topic of finance very few independent studies can be found. However, the available independent studies which are related to the Nepalese stock market and about shareholders democracy, views expressed by different person in their articles regarding

risk and return of common stock of commercial banks are presented or reviewed here in the topic.

**Pradhan and Balampaki (2005)** "Fundamentals of stock Returns in Nepal", is based on pooled cross sectional data of 40 listed companies in NEPSE Ltd and traded in the stock market. The study examines if dividend yield, capital gain yield and total yield are related to earning yield, book to market ratio and cash flow yield. Pradhan and Balampaki have summarized the following results.

- Earnings yield and cash flow yield have significant positive impact on dividend yield, and an insignificant impact on book to market value, whereas, size has negative impact on dividend yield. In the case of earnings yield and cash flow yield, cash flow yield has been found to be more informative than earnings yield.
- Capital gain yield is positive influenced by earnings yield and size, whereas, the same is negatively influenced by book to market value and cash flow yield. Book to market value has been found to be statistically strong in predicting capital gain yield.
- Similarly, total yield is positively determined by earnings yield and size, where as, the same is negatively determined by book to market value has been found to be more informative than other variables.
- The positive relationship exists among earnings yield, book to market value and cash flow yield. However, the size is negatively related to these three variables."

**Sherestha, (2007)** "Shareholders Democracy and Annual General Meeting Feed Back", critically analyzed the situation of common stock investors and the situation that is not improving till date.

Mr. Shrestha's study has been divided into two parts. The first part includes view on the rights of the shareholders regarding how they can exercise then in democratic perspective and second part consists of feedback and the issues raised by shareholders at different annual general meeting of Public Limited Companies and financial institutions.

"In this study, he mentions that government is not interested in formulating separate act to protect the right of shareholders, although the size of shareholders population in Nepal has been growing constantly and, he has viewed the need of separate

act regarding the protection of shareholders right. Company and others acts relating to financial and industrial sector has provisioned rights of the shareholders as:

i. Voting right
ii. Participation in general meeting
iii. Right of getting information
iv. Electing as a board of director
v. Participation in the profit and loss of the company
vi. Transferring shares
vii. Proxy representation

The collective rights of the shareholders are:

i. Amend the internal by laws
ii. Authorize the sale of assets
iii. Inter into merger
iv. Change amount of authorize capital

In many caser of the existing authoritarian mentality of management seems to have not considered the shareholders in deciding the managerial plans and policies. Top level decision often by passes the interest of shareholders. As the management lacks serious concern about the protection of shareholder's rights and expectations. The annual general meeting has become a platform for shareholders to express opinions and grievance in front of the management and board of directors. Many general meetings feedback reveal no serious response to the felling of shareholders. It reflects unwillingness of the management and board of directors to change their traditionally held activities towards shareholders.

**Ojha (2000)** "Financial performance and common stock pricing**"** concluded that: "An investment in common stock of a corporate from neither ensures annual return nor ensure the return of principle. Therefore, investment in common stock is very sensitive on the ground of the risk. Dividend to common stockholders is paid only of the firm marker on operating profit after tax and performance dividend. The company can return the principal in case of its liquidation only to extent of the residual assets after satisfying to all of its creditors and preferential shareholders. Besides this, investor have to sacrifice the

return on their investment in common stock, which could be earned investing fund elsewhere in the next best opportunity.

The Study focused on the financial performance where financial activities involve decision regarding

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

Further, Ojha added that the stock price in Nepal is determined more by other factors rather than the financial performance of the concerned company.

**Pokharel (2006)** "Stock market doing petty**"** is reviewed here.'The investment made in the shares of Himalayan Bank ltd. in October last year, before Dashing has fetched twice as much in return now. If I had invested the some capital in the shares of Bank of Kathmandu Ltd. the returns would have been three times as much. If the investment were on the shares of Nepal Ltd or Blotters Nepal Teri, the capital appreciation would be more attractive than that. This is how a stock investor shared his feeling with his friends, who has deposited his saving into an attractive scheme of a finance company that would get him 14% interest per annum''

Mr. Pokharel has analysed "was it better to invest in common stocks or not" by analyzing the data from October 2004 to 2005. And the found that the shares of individual company showed very good performance even the market price of nearly dead NCM mutual fund has been doubled in the year. NEPSE index show upward friend for all shares in this period.

Mr. Pokharel gave following reasons behind the appreciation of shares price.

- Reasonably, same companies have rewarded the shareholders over time.
- Reduction on interest rate of money market diverted savings towards stock investment.

Financial institutions and co- operatives have provided loan to the stock investors their share as collaterals.

**Ghimire (2001)** "Nepali Share Market an investor Prospects" is reviewed here.

In this study Mr. Ghimire has concluded that Nepalese share prices are decreasing because of many more unbalanced factors. He has given such a lovely and realistic logics about our market. According to Mr. Ghimire;

"Currently share prices are on the decline. On March a3rd 1999 Nepalese index was 178.81(base Feb. 1994=100), it was the highest on December 2000 at 545.25 and then within five months, on May 17, 2001, it plunged to 334.29.

The major reason behind the movement in the index is the domination of banking sector scripts in Nepal stock exchange's transactions. The price changes in bank shares have mostly no justification. When they increased, the companies. These mismanagement practices cannot help the growth of a share market.

The broker organizations are very private, and run a one –man show. Most of them do not have real education and knowledge about the market. They do not have analysts or advisors to make suggestion to the investors. Their primary motto is to make transactions and earn commission. They have not paid a single rupee from the earning they have made from this market for its promotion. They have not even spent on their basic office automation and systematic transaction recording. One of the reason for such aloofness is the security Provided by NEPSE and Board hakims, denying other qualified institutions a free entry into the market.

The public has invested recklessly. They just believe what one broker or the investor says about scrip. They must study (be informed) about the company before making the investment. One of the prime motives for the investment is to earn return on it. Capital market is a long – term concept. The investment on secure and good company does yield good returns in the long run."

Finally, he concluded that general investors should be alert and aware to these situations. They must receive the financial information before they make investment and act rationally

## 2.3 Review from journals:

**Bates and Bradford (1980) "**An analysis of the portfolio behavior of Black Owned Commercial Banks" argues that Commercial banks have traditionally been formed to service loan demands of local markets with funds derived primarily from depositors in those same markets.

According to the researchers "Data analyzed in this study do not support this pessimistic view of Black banks. These institutions face a number of problems that are completely unrelated to the presence or absence of management risk."

Black banks have lower average deposit account sizes than non-minority banks and the variability of these deposits is substantial.

Following findings have been found from the research:

- The lack of significance of the age variable for explaining Black bank liquidity may be caused by 1) the fact that all of the sampled banks had been in existence for at least three full years and 2) small sample.
- Explanatory variables describing deposit structure and behavior were extremely important determinants of the asset composition observed in Black bank portfolios.

- The high correlation between demand deposit and time deposit variability is a noteworthy fact.

From the research following conclusions have been made:

- Black bank liquidity has been incorrectly interpreted by the existing banking literature.
- Bank racial grouping per se doesn't appear to be causally related to bank liquidity.
- Because of government programs to assist them, Black banks hold U.S. government deposits that are relatively large proportion of their total deposits.

**Brennan and Cao, (2005)** "International portfolio investment flows**"** critically analyzed and develop a model of international equity portfolio investment flows based on differences in informational endowments between foreign and domestic investors.

It is shown that when domestic investors possess a cumulative information advantage over foreign investors about their domestic market, investors tend to purchase foreign assets in periods when the return on foreign assets is high and to sell when the return is low.

Followings are the conclusion from the article:

- The article has developed a model of international equity portfolio flows that relies on informational differences between foreign and domestic investors.
- The model predicts that if foreign and domestic investors are differentially informed then portfolio flows between two countries will be a linear function of the contemporaneous returns on all national market indices; and if domestic investors have a cumulative information advantage over foreign investors about domestic securities, the co-efficient of the host market return will be positive.
- Portfolio flows are associated with returns on national market indices as the symmetric information hypothesis implies.
- The examination of U.S. portfolio investment in emerging markets shows the strong evidence that U.S. purchases are positively associated with local market returns in many countries.
- This model is able to explain only a small proportion of the variance of international equity portfolio flows.

**Elton (1997)** "Expected return, realized return and asset pricing tests" critically analyzed that, one of the fundamental issues in finance is what the factors are that affect expected return on assets, the sensitivity of expected return to those factors, and the reward for bearing this sensitivity. The data set covers the period from July 1, 1991 through December 31, 1997. The history shows almost all the testing are done taking realized return as a proxy for expected return. Using realized return as a proxy for expected return is that the unexpected returns are independent, so that as the observation interval increases they tend to a mean of zero.

The purpose of this article is to convince the reader there is a distinction and worth to find out alternative ways to estimate expected returns.

Following preliminary tests are done in the study:

- A constant risk premium

- Forward rates and risk premium
- Factor analysis
- Changing risk premiums

According to the researcher "Realized returns are a very poor measure of expected return and that information surprises highly influence a number of factors in asset pricing model". The empirical use of judgment and factor dependability can be used to draw implication which will govern to the great extent the pricing decision fix and accurate.

**Enally and Ravenscraft (1999) "**The performance of Hedge Funds: Risk Return, and Incentives" journal of finance, has been reviewed here. "Hedge funds may be enhancing returns by taking on extra risk. Many hedge funds use tools designed to reduce systematic rather than total risk. Though this is obviously true for short sellers and market neutral funds techniques such as short sales are employed by most hedge funds. Combination of incentives alignment and investment flexibility gives hedge funds a clear performance advantage over funds. Incentive funds are the most important and significant determinants of risk adjusted return. Using 2,4,6 and 8 year sample all ending in December 1995 with 547, 272, 150 and 79 hedge fund observations, main findings of this study are the average hedge fund sharp ratio is higher than comparable mutual fund sharp ratio and this performance advantage increases when we match fund by reign Hedge funds achieve this sharp ratio superiority despite their higher total risk. In this study, the average total risk is higher for hedge funds. Thus, some of the characteristics that enhance hedge fund performance may not be appropriate for mutual funds that attract undiversified, risk-averse clients.

These hedge fund concluded that the Flexible investment options employed by hedge funds make it difficult to classify hedge funds, identify the correct benchmark, and thus measure relative performance. Standard deviation of returns measure of total risk may not fully capture the complex risk taking from hedge funds dynamic, highly levered strategies. Monthly incentive fees, therefore, contain an unknown reporting bias that may be as important as depreciation rates, common cost allocation, and transfer pricing issues in accounting profits."

**Bowman (2003)** “The theoretical relationship between systematic risk and financial variable" had the purpose of the study was to examine the relationship between risk and

financial variables. Systematic risk of livered firm is equals to the systematic risk of the same firm without leverage. There is no direct relationship between earning variability and market risk. Systematic risk is directly related to the accounting beta. There is no theoretical basis for relationship of dividend payout and beta. There is not only theoretical relationship between dividends and systematic risk but also size and growth of the firm and systematic risk.

This study shows that there is a theoretical relationship between systematic risk and firms accounting beta and systematic function are not a function of earning variability, dividends policies and size and growth of firm."

**Gopal and Sanchez (2005)** Analysis or Costumer portfolio and relationship management model" The objective of the study is to find The customer portfolio and relationship management have been of contemporary interest to the academics and practitioners. This paper aims to systematically analyze there view and critique of this important area and broadly to discuss the customer portfolio theories and their implications in reference to marketing and purchasing perspectives.

The study concluded with customer portfolio models reviewed in the paper conceptually address the functional relationships between the customers and suppliers in the process of marketing. The new thought process has been exhibited in the market environment and value determines in order to enhance the scope of the existing portfolio models. Customer relationship management may be described as the strategic process involved in developing interactions between a company and its customers with an objective of optimizing current and lifetime values of customers. The customer relationship strategies implant values that help in managing portfolios and retaining the customer and market segments for long-run in maximizing the profit of the firm.

### 2.4 Review of relevant thesis:

Review of thesis is a section of review of literature where various thesis are reviewed which are related its topic and which may be helpful for this study. In this section some thesis are reviewed which have done on risk and return topic and the objective of this

section is to know how the relation between risk and return is described and measured by different thesis.

**Shrestha (2007)** "Portfolio behavior of commercial banks in Nepal" where he took five commercial banks viz. Nepal Bank ltd., Rastriya Banijya Bank, Nabil Bank, Nepal Credit and Commerce Bank Data are collected from various sources from 2001 to 2005 A.D. The objective of the research was to evaluate the financial performance of the commercial banks, to analyze the investment pattern of commercial banks on securities and loans, to observe the relationship of bank portfolio variables with national income and other fiscal variables. Among these objectives financial performances of the commercial banks and observe bank portfolio variables is somehow related to this research.

From the analysis of commercial banks, the researcher made following conclusions:

- The general trend of commercial banks asset holding is growing.
- Spread of foreign banks is relatively higher than that of Nepalese banks.
- The relationship of banks portfolio variables is found to be best explained by log linear equations.
- Borrowing of commercial banks from the central bank has been found to be positively affected by the cash reserve requirement, bank rate and Treasury bill rate.
- Following suggestions have been point out from the research:
- The evaluation of the performance of the commercial banks can be made only with reference to the government policy and regulation framework of the central bank.
- Some of the problems of resource mobilization and resource deployment by the commercial banks in Nepal can be directly traced to the fiscal policy of the government and heavy regulatory procedures of the central bank.

The joint venture between foreign banks and Nepalese banks should be encouraged in Nepal, especially in merchant and investment banking, leasing and other new creative financial services. The entry of foreign joint venture banks hopefully will bring healthy competition in the environment that will improve work and service efficiency of Nepalese banks too.

**Bhatta (1995) "**Assessment of the performance of listed companies in Nepal" where he used a sample size of 10 companies in between 1990 to 1995. One of the major objectives

of this study is to analyze the performance of listed companies in terms of risk and return and internal rate of return, systematic risk and diversification of risk through portfolio context.

Following are the findings of this study:

- A highly significant positive correlation ship has been addressed between risk and return character of the company. Investors expect higher return form those stock which associates higher risk. Nepalese capital market is not efficient one. So the stock price doesn't contain all the information relating to market and company itself. Neither investor's analyze the overall relevant information of the stocks or the member of stock exchange try to disseminate the information. So the market return and risk both may not shows high priced stocks such ad BBC, NIB, NIC has higher risk than others. These companies thus require higher returns to satisfy the investors for their risk premium.
- Investors in Nepal have not yet practiced to invest in portfolio of securities. An analysis of the two securities portfolio shows that the risk can e totally minimizes if the correlation is perfectly negative. In this situation, the risk can totally be diversified, but when there is perfectly positive correlation ship between the returns of the two securities, the risk is not diversifiable. The analysis shows some has negative correlation and some has positive on. Negative correlation between securities returns is preferred for diversification of risk.

The following recommendations are made by the researcher:

- Developed institutions to consult investor for risk minimization
- Establish an information channel in Nepal Stock Exchange and
- Make proper amendment on trading rules

**Sapkota (2001)** "Risk and Return Analysis in common stock Investment" where the main objective to analyze the risk and return of the common stock in Nepalese stock market. This study was focused on the common stock of commercial banks. Sapkota found that the banking sector is the biggest one in terms of market capitalization and turnovers. Expected return on the common stock of Nepal Bank Ltd is maximum (i.e. 66.99%) and common stock of Nepal SBI Bank Ltd. is found minimum. Common stock of NBL is the most risky and common stock of Nepal SBI is the most risky and common stock of Nepal SBI is least risky. Sapkota has concluded that common stock of Nepal Bangladesh Bank

is the best one for investment. On the other hand, portfolio return between the common stock of Nepal Grindlays Bank and Nepal SBL is 26.66 percent but portfolio standard deviation is only 14.97 percent, which is less than single stocks standard deviation. Sapkota has recommended reducing the risk; investors should diversity this fund proper construction of portfolio never creates any considerable less. Private investors should try and work out their attitude towards the risk of various investment and HMG needs to manage the trading of government securities in NEPSE."

**Shakya (2006)** "Risk and Return Analysis on Common Stock Investment" with the specific objectives of study are to asses the general investors perception, attitude and awareness towards risk associated with return, to calculate risk and return of selected securities and there portfolio and to analyzed the volatility of common stocks and other valuates. The Researcher's result reveals that 58.3 percent investor consider return, and 33.3 percent investor consider risk before investing: To invest in common stock 50 percent prefer primary market, 21.7 percent prefer secondary and 28.3 percent of total investor prefer bath market. 71.7 percent of total investors give first preference to the banking sector. 46.7 percent investors have knowledge about correlation coefficient, 48.3 percent of total investors prefer C.V and 36.7 percent prefer S.D. for measuring risk. Shakya recommended that, if negatively correlated assets are combined in portfolio, and then risk can be minimized to some extent only negatively correlated assets which are favorable with view paint of diversification.

## 2.5 Research Gap

A Brief review of above mention dissertation. It is seen that most of enterprise are not operating effectively. The previous researches have also not applied the full concepts of portfolio analysis but the previous studies can't be ignored because they provide the foundation of present study. In others words they has to be continuity in research. This continuity in research is ensured by linking the present study with the past research studies .Here it is clear that the new research can't be found on the exact topic. portfolio analysis of market study.

The purpose of this study is develop some view in one's area to see new contributes can be made and receive some ideas, knowledge and suggestions in effective investment in securities sectors and making portfolio for investment in Nepalese sectors.

There fore to fulfill this gap this research is selected. To complete this research work may book, journals, articles, and various published and unpublished dissertates are followed as guideline to make the research easier and smooth.

Previous researchers couldn't cover all aspects of share market and its studies and impact of overall investors and relation between inter sectors of company. There fore this study is useful to public sectors and all level investors as well as different purpose such as share holders, investors, policy maker of government and researches etc.

## CHAPTER III

# RESEARCH METHODOLOGY

The research methodology is the systematic way of solving research problems. This chapter refers to the overall research processes, which is a researcher conducts during his/her study. It includes research design, sources of data, analytical tools, and procedures of collection and analysis of data. Research is systematic and organizational effort to investigate a specific problem that needs a solution. This process of investigation involves a series of well though out activities of gathering, recording, analyzing and interpreting the data with the purpose of finding answer to the problems. The research is based on scientific methods. On the basis of historical data, using both statistical tools and financial tools, detail analysis is performed of different variables Results are presented in simple way in order to easy to understand. Detailed research methods are described below.

### 3.1 Research Design:

Research design is necessary to fulfill the objectives of well-set research. Research design may be defined as framework, plan and structure far collecting, analyzing and evaluating data. It is a procedure and techniques, which provide ways for research viability

This research is belongs to portfolio risk and return analysis so the research is based on recent historical data of last seven years. The end of fiscal year is taken as 15 July (Ashad 31) and the data range is from 16 July 2002(1 Sharwan 2060 to 15 July 2008(31 Ashad 2065). The research is mainly focused on risk and return and portfolio management of the different business sector of NEPSE. It deals with the common stocks of business sectors on the basis of available information. As the title of the study suggests, it is more analytical and empirical but less descriptive.

Since the given time to finish the research is very limited, more part of the research is analytical rather than descriptive.

### 3.2 Data Collection Procedure:

The data required for the research is collected from the secondary sources and Most of data used in the research are secondary data. During the study, informal opinion survey

has also been taken with the individual investors. Data related to the market index of stocks are taken from the annual report published by NEPSE, trading report of NEPSE, the website of Nepal Stock Exchange (i.e. www.nepalstock.com) and periodicals of NRB are used as secondary data. NEPSE periodicals, articles and previous research report etc. has also been considered.

Most of data used in the research are secondary data. Annual reports of NEPSE, trading report of NEPSE and periodicals of NRB are used as secondary data.

### 3.3 Sample

The population of the study is all the listed companies in NEPSE index. These are 163 companies listed in NEPSE until 2064/065. They consist of 17 commercial bank, 24 development bank, 17 insurance companies, 57 finance companies, 29 manufacturing companies, 4 hotels, 8 trading companies and 7 others. This study is concentrated in business sectors of NEPSE. All the business sectors of Nepal Stock Exchange are selected as sample to attain the objectives. They are:

1. Commercial Bank.
2. Manufacturing and Processing.
3. Hotel.
4. Trading
5. Insurance
6. Finance.
7. Development Bank.
8. Others Sectors.

### 3.4 Tools for Analysis:

To achieve the objectives of research, this study has used various financial and statistical tools that are necessary to find out results. The following tools shall analyze the data

presented in the study. The data presented in the study shall be analyzed by the following tools.

### 3.4.1 Market Index of sectors' Stock (MIS) :

There are mainly three types of MIS available in NEPSE annual report. They are high MIS, low MIS and closing MIS. Closing Index is not an average price of high and low MIS but rather it is calculated by considering the whole years MIS. For the closing MIS trading report is followed.

### 3.4.2 Return on common stock investment (R):

It is known as realized rate of return or single period rate of return. It is cash received plus price changes in period of stock (capital gain/loss). It is calculated in the form of percentage. It is calculated by adding change in market price with total dividend and than dividing by market price of previous year. This is the annual realized return received on a investment and any change in market price, usually expressed in a percent of the beginning price of the investment.

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

Where,

R= Actual realized return on common stock at time t.

$D_t$= Cash dividend received at time t.

$P_t$ =Price of a stock at time t.

$P_{t-1}$ = Price of stock at time (t-1).

### 3.4.3 Expected return on common stock ( $\overline{R}$ ):

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

$$E(R_j) = \overline{R}_j = \frac{\Sigma R_j}{n}$$

Where,

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

n = Number of years that the return is taken.

Σ = Sign of summation

### 3.4.4 Standard deviation (±):

Standard deviation is a statistical measure and is widely used to measure risk from holding a single asset. It is also a statistical measure of the variability of a set of observations. The standard deviation represents a large dispersion of return and is a high risk and vice versa. The symbol is called (σ) sigma. It is the measure the total risk on stock investment. Standard deviation can be calculated using following formula,

If data given as time series;

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

If data is probability distribution;

$$\pm_j = \sqrt{\sum_{t=1}^{n} \left[R_j - E(R_j)\right]^2 P}$$

Where,

$\sigma_j$ = Standard Deviation on of return sock j during the time period n.

$P_j$ = Probability distribution of the observation.

$R_j$ = Single period rate of return on stock j.

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

n = Number of years that the returns are taken.

### 3.4.5 Coefficient of Variation (C.V):

It is the relative measurement of risk with return. It measures the risk per unit of return. It provides a more meaningful basis for comparison when the expected returns on two

alternatives are not the same. The higher coefficient of variation, higher the risk. It is calculated as

$$C.V. = \frac{\pm_j}{E(R_j)}$$

Where,

C.V. = Coefficient of variation of stock.

$\sigma_j$ = Standard deviation of return on stock j.

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

**3.4.6 Capital Assets Pricing Model:**

Capital Assets Pricing Model describes the relationship between risk and required return. A security's expected return is the risk-free rate plus a premium based on the systematic risk of the security.

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

Where,

$E(R_i)$ = the expected return on the $j^{th}$ risky assets.

$R_f$ = the rate of return on a risk less assets.

$E(R_m)$ = the expected return on the market portfolio.

$\beta_i$ = Cov ($R_i$, $R_m$) / Var $R_m$ = a measure of the undiversifiable risk per unit of the $j^{th}$ security.

**3.4.7 Beta Coefficient ( ):**

Beta coefficient shows the market sensitivity of stock. Higher the beta, greater the sensitivity and reaction to the market movement. Beta coefficient of a particular stock will be less than equal or more than 1, but the beta for market will be always 1.

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

Where,

$\beta_j$ = Beta coefficient of stock j .

Cov ($R_j$, $R_m$ ) = Covariance between return on stock j and return on market .

$$= \frac{\sum [R_j - E(R_j)][R_m - E(R_m)]}{n-1}$$

$\sigma^2_m$ = Variance of market return.

### 3.4.8 Correlation Coefficient:

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

Correlation coefficient measures the relationship between two variables in quantitative terms. Correlation coefficient always lies in the range of +1 to –1. A positive correlation coefficient indicates that the returns from two securities generally move in the same direction and vice versa. It can be calculated as.

$$P_{ij} = \frac{Cov_{ij}}{\pm_i \pm_j}$$

where,

$P_{ij}$ = Correlation coefficient for securities i and j.

$Cov_{ij}$ = Covariance between securities i and j.

$\sigma_i$ $\sigma_j$ = Standard deviation of returns for securities i and j.

### 3.4.9 Return on market (Rm)

It is the percentage increase in NEPSE index. Market return is the average return of the market as a whole. It is calculated as.

$$R_m = \frac{NI_t - NI_{t-1}}{NI_{t-1}}$$

Where,

$R_m$ = Return on Market

$NI_t$ = NEPSE index at time t

$NI_{t-1}$ = NEPSE index at time t-1.

### 3.4.10 Expected return on market, $E(R_m)$

It is average return of future expectation. It is calculated by summing up the past return and dividing by number of samples period.

$$E(R_m) = \frac{\sum R_m}{n}$$

Where,

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

### 3.4.11 Portfolio Risk and Return

Portfolio is combination of individual or a group of assets. Investors have different types of investment opportunity but they have limited resource for investment so that investors have to choose that investment opportunity which maximizes return for a given level of risk or minimize risk for a given level of return. Thus the combination of these investment is called portfolio

#### 3.4.11.1 Portfolio Return:

The expected return on a portfolio is simply the weighted average of expected returns on the individual assets in the portfolio with weights being the fraction of the total portfolio invested in each asset.

Symbolically,

$$E(r_p) = w_i E(r_i) + w_j E(r_i)$$

where,

$E(r_P)$ = portfolio return

$w_i$ = proportion of wealth invested in i assets.

$w_j$ = proportion of wealth invested in j assets.

$E(r_i)$ = expected return on i assets.

$E(r_j)$ = expected return on j assets.

### 3.4.11.2 Portfolio Risk:

It is the combined standard deviation of individual stock return. It is the risk of individual securities plus covariance between the securities. The formula for the calculation of portfolio risk for two assets case is given by

Symbolically,

$$\sigma_P = \sqrt{w_i^2 \pm_i^2 + w_j^2 \pm_j^2 + 2 w_i w_j \operatorname{cov}(R_i, R_j)}$$

where,

$\sigma_P$ = Portfolio standard deviation

$w_i$ = The proportion of portfolio devoted by security i .

$\sigma_i$ = The standard deviation of security i.

$w_j$ - The proportion of portfolio devoted by security j.

$\sigma_j$ =The standard deviation of security j

Cov ($R_i$, $R_j$) = Covariance between return of security i and j.

### 3.4.12 Optimum Proportion of stock:

It is the portfolio with lowest level of risk in the efficient frontier. In other word it is the proportion of stock that minimizes the risk. With the help of Cov ($R_i$, $R_j$), we can calculate optimal weight of stock i and j which minimize the risk. In two stock portfolio the optimal weight to invest in stock i and j are calculated as follows

$$W_i = \frac{\pm_j^2 - Cov(R_i, R_j)}{\pm_i^2 + \pm_j^2 - 2\,Cov(R_i, R_j)}$$

$W_j = 1\text{-}W_i$

Where,

$w_i$ = optimal weight to invest in stock i.

$w_j$ = optimal weight to invest in stock j.

$\sigma_j^2$ = Variance of stock j.

$\sigma_i^2$ = Variance of stock i.

Cov ($R_i$, $R_j$) = Covariance of returns between stock i and j.

## 3.5 Method of Analysis And Presentation:

Data collected from various sources are properly organized, analyzed and presented in appropriate tables and formats. Such tables and formats are interpreted and explained as necessary and obtain the results. To make report simple and easily understandable charts, diagrams and graphs have been used. Results are presented in tabular form and clear interpretation on it is given simultaneously. All the method of analysis and presentation are applied as simple as possible. Detail calculations are presented in appendices at the end of report. The risk and return measures are obtained by using risk and return analysis techniques. Standard deviation and beta test are used to test the risk of different listed companies and correlation between these tests is done.

# CHAPTER IV

# DATA PRESENTATION AND ANALYSIS

This chapter is the main part of study. In this chapter the effort has been made to analyze risk and return on common stock investment, which includes, detail data of market index of stock of different business sectors and their interpretation and analysis. With reference to the various readings and literature review in the preceding chapter effort is made to analyze the recent Nepalese stock market movement to the business sectors. The analysis of data consists of organizing, tabulating and assessing financial and statistical result. Different table and Figures are used to make the result easily understandable.

Risk and return is considered one of the best ways to analysis the behavior of changing market price of common stock. In this analysis, it is attempted to find out periodical realized returns to the investors, its expected return or average rate of return, standard deviation, co-efficient of variation, portfolio risk and portfolio return. In the following paragraph each sector is introduced and their common stock's risk and return are analyzed here.

## 4.1 Analysis of Individual Sector

### 4.1.1 COMMERCIAL BANK

Following table 4.1 represents the closing, beginning, high and low index per share of Commercial Bank for the purpose of risk and return analysis.

**Table 4.1**

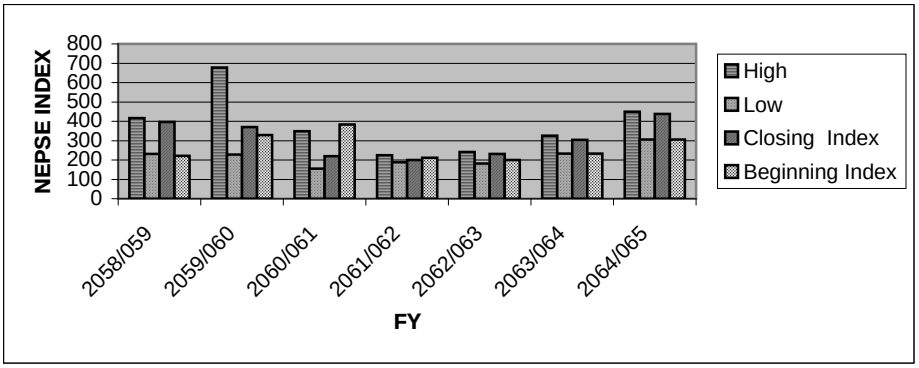
**Commercial Bank's Stock Status During different year**

| Fiscal Year | High | Low | Closing Index | Beginning Index |
|---|---|---|---|---|
| 2058/059 | 416.08 | 230.83 | 397.17 | 220.7 |
| 2059/060 | 677.22 | 228.89 | 370.38 | 329.71 |
| 2060/061 | 349.1 | 155.16 | 219.35 | 384.08 |
| 2061/062 | 225.43 | 188.60 | 199.9 | 210.79 |
| 2062/063 | 241.48 | 181.75 | 231.97 | 199.33 |
| 2063/064 | 326.06 | 232.87 | 304.64 | 232.87 |
| 2064/065 | 449.79 | 306.52 | 437.49 | 306.52 |

*Data Source: Trading Report of NEPSE*

Figure 4.1 shows the status of stocks of Commercial Bank.

Figure 4.1



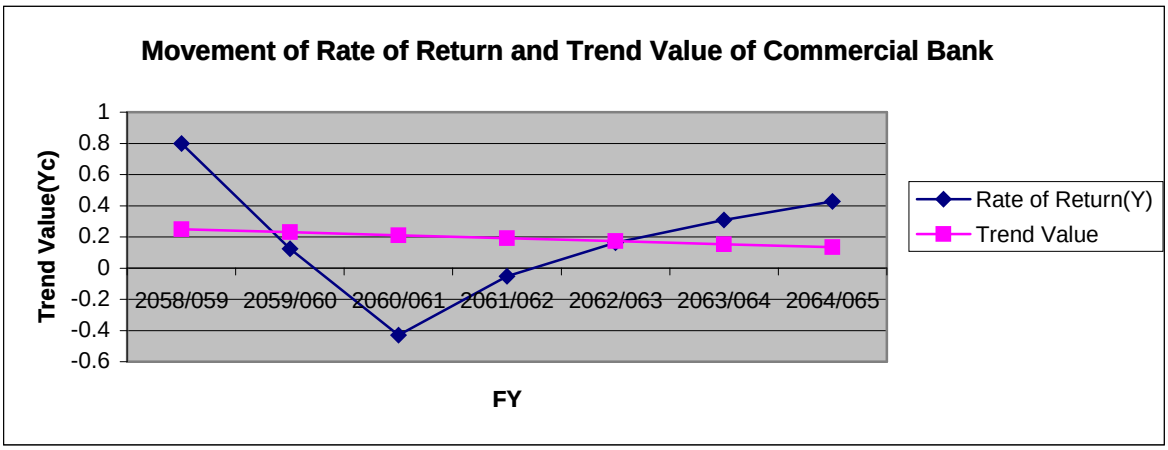

Data Source: Table 4.1

Index is maximum in year FY 2059/060 and lowest in year 2060/061

**Rate of Return and Trend Line of Rate of Return of Commercial Bank**

Closing index and beginning index are used to calculate realized rate of return and Trend line for each year.

Figure 4.2




*Data Source: Appendix 1, Table No. 2*

The above Figure shows the movement of index of common stock of Commercial Bank is rate of return (R) and trend line. In the beginning (FY 2058/059) R is high after that it started to move down to very fast in (FY 2059/060) and it goes to negative i.e. (-0.4289) in (FY 2060/061) but in the FY 2061/062 the situation is improved because of that of moved up from but not in positive condition. Again it moves up positively in FY 2062/063 constantly moves up rapidly up to 2064/65. Similarly the trend line shows in the beginning high in FY 2058/059aand moved downward up to 2064/065

### 4.1.2 MANUFACTURING & PROCESSING

Following table 4.2 represents the closing, beginning , high and low index per share of Manufacturing & Processing for the purpose of risk and return analysis.

**Table No. 4.2**

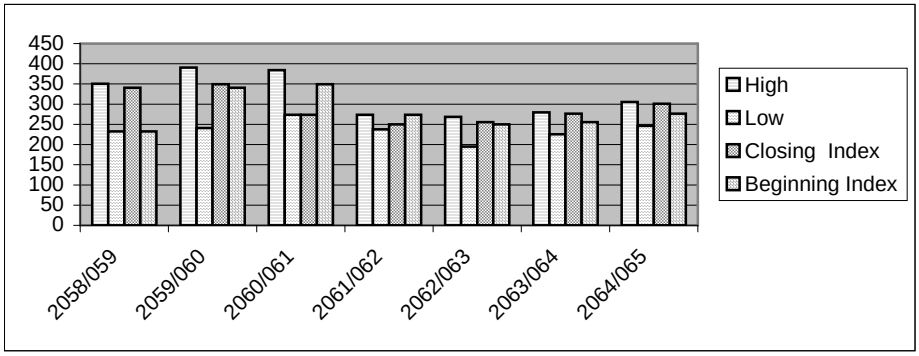
**Manufacturing and Processing's Stock Status During different year**

| Fiscal Year | High | Low | Closing Index | Beginning Index |
|---|---|---|---|---|
| 2058/059 | 350.71 | 232.38 | 340.59 | 232.38 |
| 2059/060 | 390.66 | 240.82 | 349.31 | 340.59 |
| 2060/061 | 384.08 | 273.67 | 273.67 | 349.31 |
| 2061/062 | 273.67 | 237.84 | 250.13 | 273.67 |
| 2062/063 | 268.38 | 194.76 | 255.58 | 250.13 |
| 2063/064 | 279.8 | 225.58 | 276.5 | 255.58 |
| 2064/065 | 305.45 | 246.43 | 301.11 | 276.5 |

Data Source: Trading Report of NEPSE

Figure 4.3shows the status of stocks of Manufacturing & Processing.

Figure 4.3



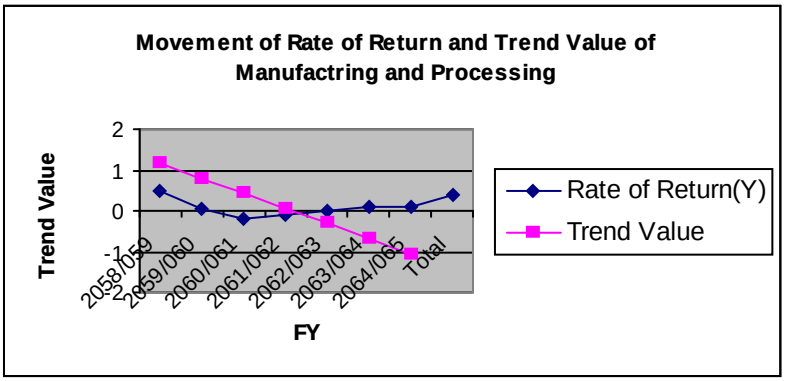

Data Source: Table 4.2

Market price per share is maximum in FY 2059/060 and Lowest in FY 2062/063.

**Rate of Return and Trend Line of Rate of Returns of Manufacturing & Processing.**

Rate of return for each year are calculated for the basis of closing index of common stock of respective year.

Figure 4.4




Data Source: Appendix 1, Table No. 4

The trend line above Figure shows the movement of common stock index of Manufacturing & Processing's rate of return (R) and Trend line ($Y_c$). In the beginning R went down from FY 2058/059 and it move down up to FY 2060/061, but in FY 2061/62 it started to move positive upward. Similarly shows in the beginning high in FY 2058/059 to down ward movement and negative in FY 2062 /63 and goes down negative up to 2064/065.

### 4.1.3 HOTEL

Following table 4.3 represents the closing, beginning, high and low index per share of Hotel for the purpose of risk and return analysis.

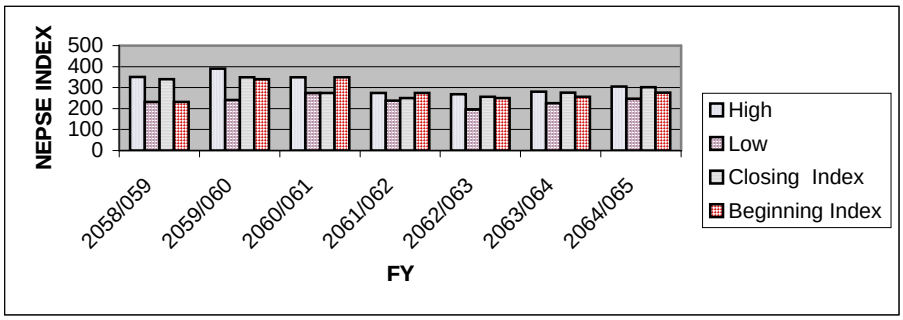
**Table No. 4.3**

**Hotel Sector's Stock Status During different year**

| Fiscal Year | High | Low | Closing Index | Beginning Index |
|---|---|---|---|---|
| 2058/059 | 350.71 | 232.38 | 340.59 | 232.38 |
| 2059/060 | 390.66 | 240.82 | 349.31 | 340.59 |
| 2060/061 | 349.1 | 273.67 | 273.67 | 349.31 |
| 2061/062 | 273.67 | 237.84 | 250.13 | 273.67 |
| 2062/063 | 268.38 | 194.76 | 255.58 | 250.13 |
| 2063/064 | 279.8 | 225.58 | 276.5 | 255.58 |
| 2064/065 | 305.45 | 246.43 | 301.11 | 276.5 |

*Data Source: Trading Report of NEPSE*

Figure 4.5 shows the status of stocks of Hotel sectors.



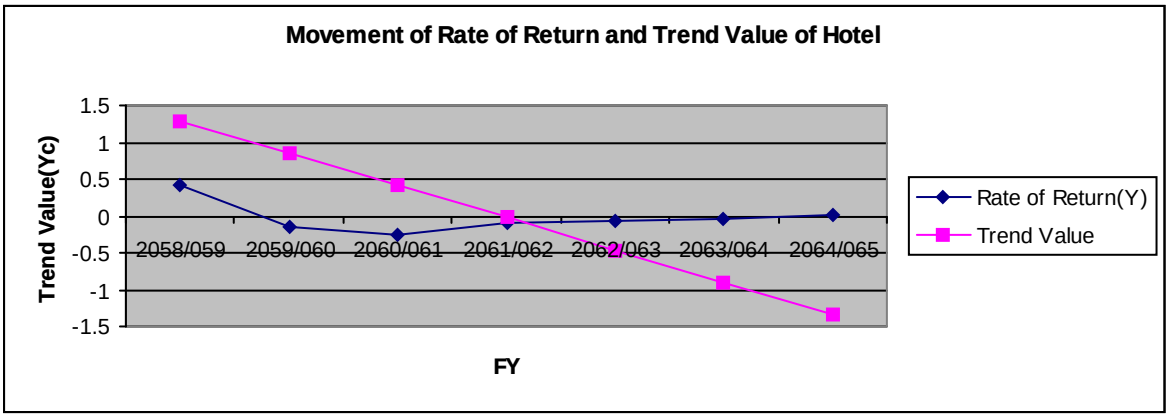

*Data Source: Table 4.3*

Market price per share is maximum in FY 2059/060 and Lowest in FY 2062/063.

**Rate of Return and Trend Line of Rate of Returns of HOTEL.**

Rate of return for each year are calculated for the basis of closing index of common stock of respective year.

Figure 4.6




Data Source: Appendix 1, Table No. 6

The Figure 4.6 shows the movements of common stock of Hotel's rate of rate of return and trend line. In FY 2058/059 R is high after that it started to move down ward in FY 2059/060. Again move downward up to in FY 2060/061. From FY 2061/062 It moved up very slowly up to 2064/065. Similarly the trend line in the FY 2058/059 is very high but it started to move down ward very fast ultimately negative in FY 2062/063 and move down negative up to 2064/065.

### 4.1.4 TRADING

Following Table 4.4 represents the closing, beginning, high and low market index per share of TRADING for the purpose of risk and return analysis.

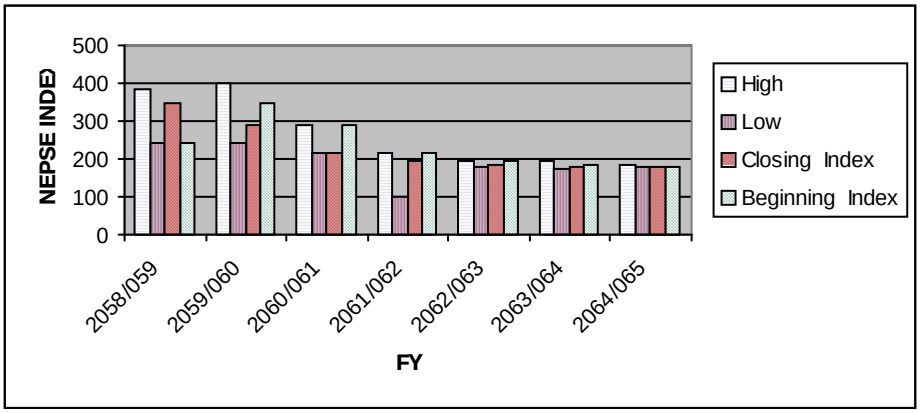
**Table No. 4.4**

**Trading Sector's Stock Status During different year**

| Fiscal Year | High | Low | Closing Index | Beginning Index |
|---|---|---|---|---|
| 2058/059 | 384.38 | 240.46 | 346.15 | 242.52 |
| 2059/060 | 402.46 | 244.57 | 291.34 | 346.15 |
| 2060/061 | 291.34 | 214.5 | 216.51 | 291.34 |
| 2061/062 | 216.51 | 100.00 | 196.68 | 216.51 |
| 2062/063 | 196.68 | 178.85 | 184.41 | 196.68 |
| 2063/064 | 194.98 | 172.25 | 178 | 184.98 |
| 2064/065 | 183.55 | 177.23 | 180.77 | 178 |

Data Source: Trading Report of NEPSE

Figure 4.7 shows the status of stocks of Trading sectors .




*Data Source: Table 4.4*

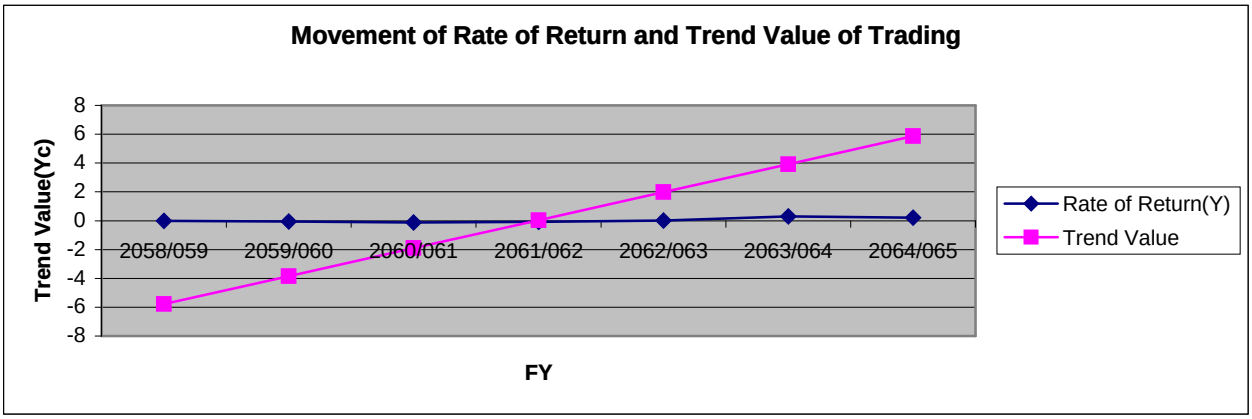
Market index per share is maximum in FY 2059/60 and lowest in FY 2064/065.

**Rate of Return and Trend Line of Rate of Return of Trading.**

Rate of return for each year are calculated for the basis of closing index of common stock of respective year. Rate of returns (Trend Value) for each year are

calculated on the basis of rate of return on common stock of Trading respective year by using least square method .

Figure 4.8




*Data Source: Appendix 1, Table No. 8*

The above Figure 4.8 shows the movement of common stock of trading's rate of return (R) and trend line. Here, in the beginning (FY 2058/059) R is negative and this condition stay up to 2061/062.. But it started to move up slowly From FY 2062/063 and the situation is improved, as a result the return is positive. Similarly, the trend line ($Y_c$) in the beginning is very low and negative up to FY 2060/061. But it started to move up ward slowly from 2061/062 and ultimately very high in future.

### 4.1.5 INSURANCE

The following table 4.5 represents the closing, beginning, high and low market index per share of insurance for the purpose of risk and return analysis.

**Table No. 4.5**

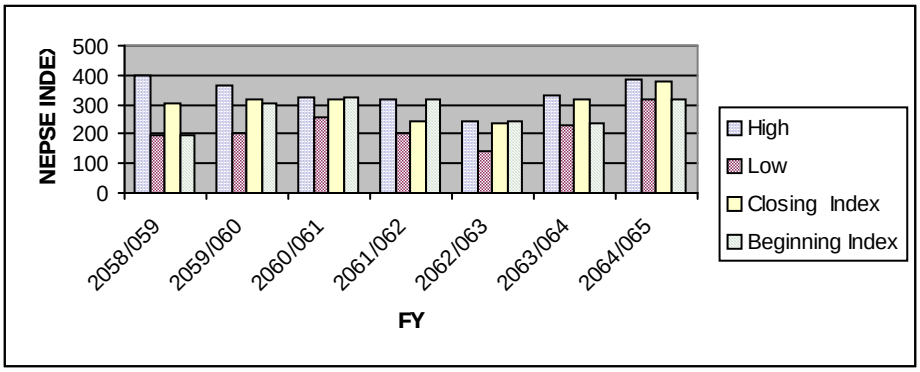
**Insurance Sector's Stock Status During different year**

| Fiscal Year | High | Low | Closing Index | Beginning Index |
|---|---|---|---|---|
| 2058/059 | 398.87 | 195.96 | 305.98 | 195.96 |
| 2059/060 | 364.02 | 203.77 | 318.67 | 306.02 |
| 2060/061 | 327.28 | 258.27 | 315.22 | 325.89 |
| 2061/062 | 315.14 | 200.00 | 240.64 | 315.14 |
| 2062/063 | 244.52 | 139.52 | 237.62 | 240.64 |
| 2063/064 | 333.09 | 230.21 | 320.24 | 237.39 |
| 2064/065 | 381.79 | 314.19 | 381.25 | 319.95 |

Data Source: Trading Report of NEPSE

Figure 4.9 shows the status of stocks of Insurance sectors.

Figure 4.9



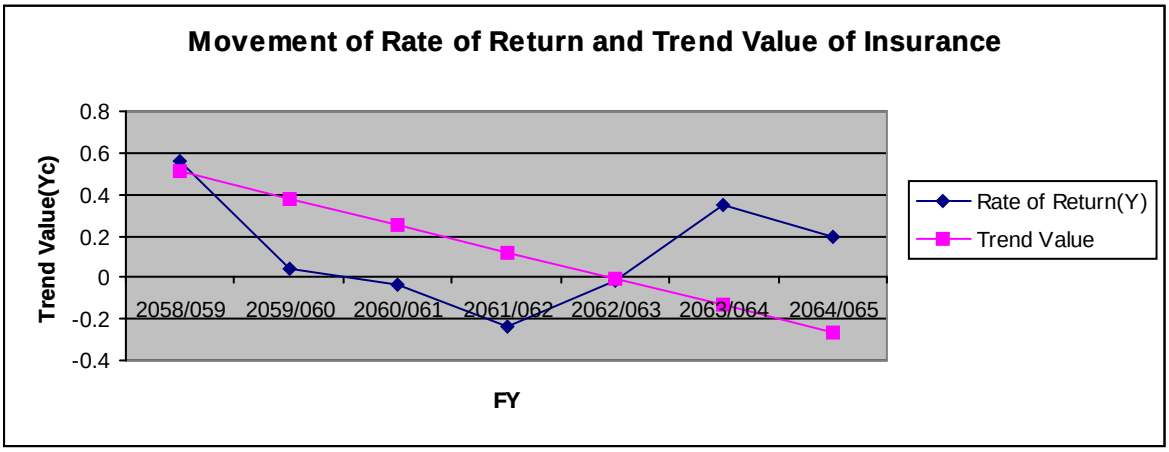

*Data Source: Table 4.5*

Market index per share is maximum in FY 2059/060 and Lowest in FY 2062/063.

**Rate of Return and Trend Line of Rate of Returns**

Rate of returns (Trend Value) for each year are calculated on the base of rate of return on index of common stock of Insurance of respective year by using least square method .

Figure 4.10




*Data Source: Appendix 1, Table No. 10*

The Figure 4.10 shows the movement of index of common stock of Insurance's rate of returns and trend line. In the FY 2058/059 R is very high but the R is negative in FY 2060/061. The situation is little bit improved in FY 2062/063 but not positive return. From FY 2063/064 it goes upward positively but again starts to move slowly down from 2064/065. Similarly the trend line is high in FY 2058/059 and started to move downward slowly and it is negative in FY 2062 /063 and this condition exists up to FY 2064/065.

### 4.1.6 FINANCE

The following table 4.6 represents the closing, beginning, high and low market index per share of Finance for the purpose of risk and return analysis.

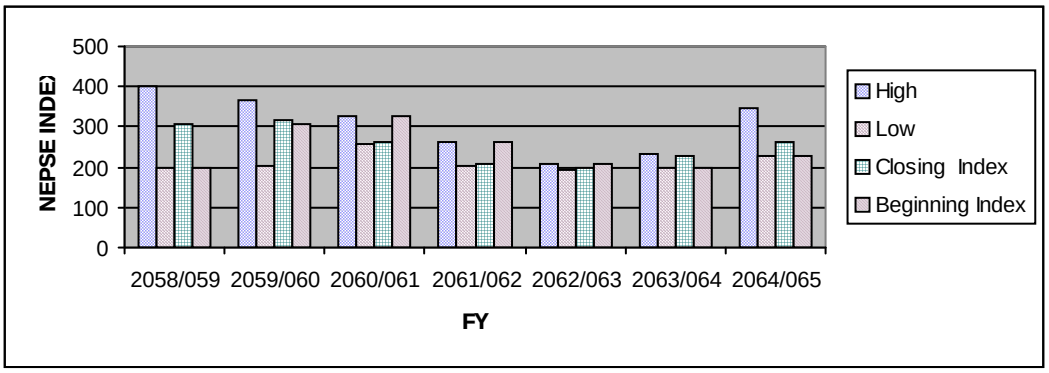
**Table No. 4.6**

**Finance Sector's Stock Status during different year**

| Fiscal Year | High | Low | Closing Index | Beginning Index |
|---|---|---|---|---|
| 2058/059 | 398.87 | 195.96 | 305.98 | 195.96 |
| 2059/060 | 364.02 | 203.77 | 318.67 | 306.02 |
| 2060/061 | 327.28 | 255.87 | 262.29 | 325.89 |
| 2061/062 | 263.65 | 205.18 | 208.14 | 262.29 |
| 2062/063 | 207.93 | 192.03 | 195.99 | 207.93 |
| 2063/64 | 231.34 | 196.19 | 228.39 | 196.32 |
| 2064/065 | 348.15 | 228.54 | 261.37 | 228.54 |

*Data Source: Trading Report of NEPSE*

Figure 4.11 shows the status of stocks of Finance.



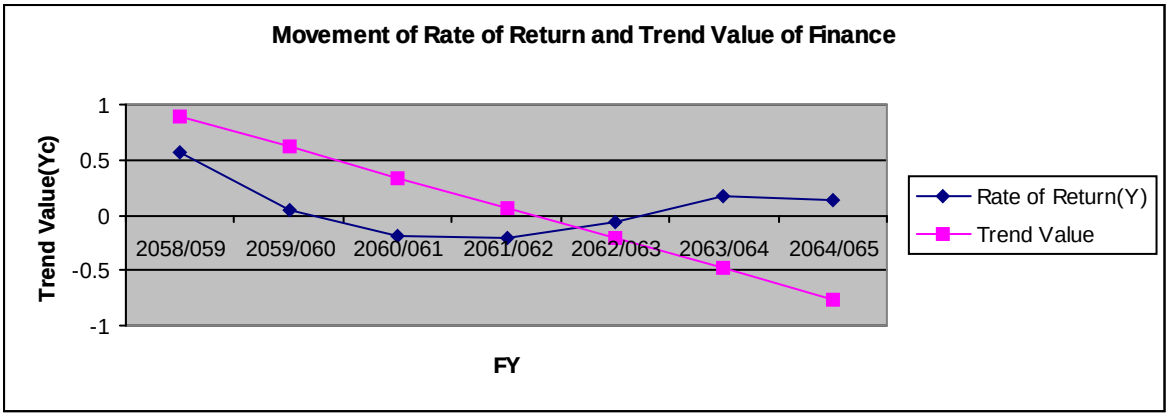

Data Source: *Table 4.1*

Index is maximum in year FY 2058/059 and lowest in year 2062/063.

**Rate of Return and Trend Line of Rate of Returns of Finance**

Rate of return for each year are calculated for the basis of closing index of respective year..

Figure 4.12




Data Source: Appendix 1, Table No. 12

The Figure 4.12 shows the movement index of common stock of Finance Sector's rate of return and trend line. In FY 2058/059 R is very high after that it goes to negative in FY 2060/061and this condition exist up to FY 2062/063. From FY 2063/064 it goes upward very slowly. Similarly the trend line in the beginning is very high but it started to move downward ultimately negative in FY 2062/063, FY 2063 /64 and 2064/065 in study period.

### 4.1.7 DEVELOPMENT BANK.

Following table 4.19 represents the market index per share of Development Bank Sector for the purpose of risk and return analysis.

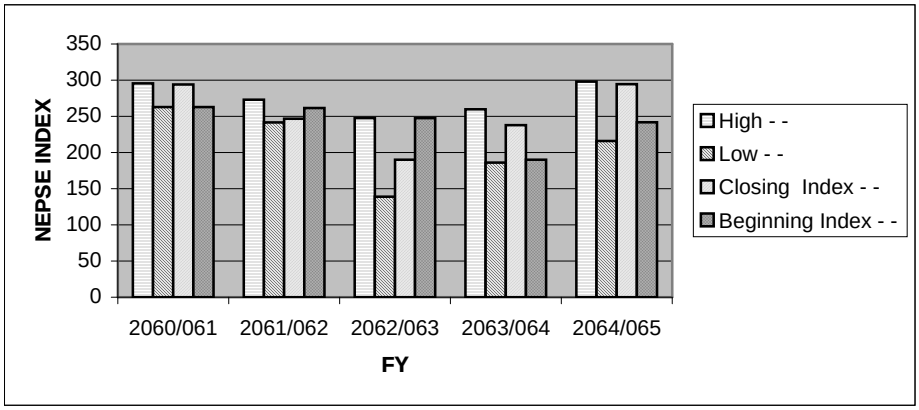
**Table No. 4.7**
**Development Bank Sector's Stock Status During different year**

| Fiscal Year | High | Low | Closing Index | Beginning Index |
|---|---|---|---|---|
| 2058/059 | □ | □ | □ | □ |
| 2059/060 | □ | □ | □ | □ |
| 2060/061 | 295.53 | 262.94 | 293.96 | 262.94 |
| 2061/062 | 273.08 | 241.67 | 246.72 | 261.53 |
| 2062/063 | 247.49 | 138.83 | 190.03 | 247.49 |
| 2063/064 | 259.72 | 186.04 | 237.86 | 190.02 |
| 2064/065 | 298.05 | 215.94 | 294.4 | 241.85 |

Source: Trading Report of NEPSE

Figure 4.13 shows the status of stocks of Development Bank.

Figure 4.13




*Data Source: Table 4.7*

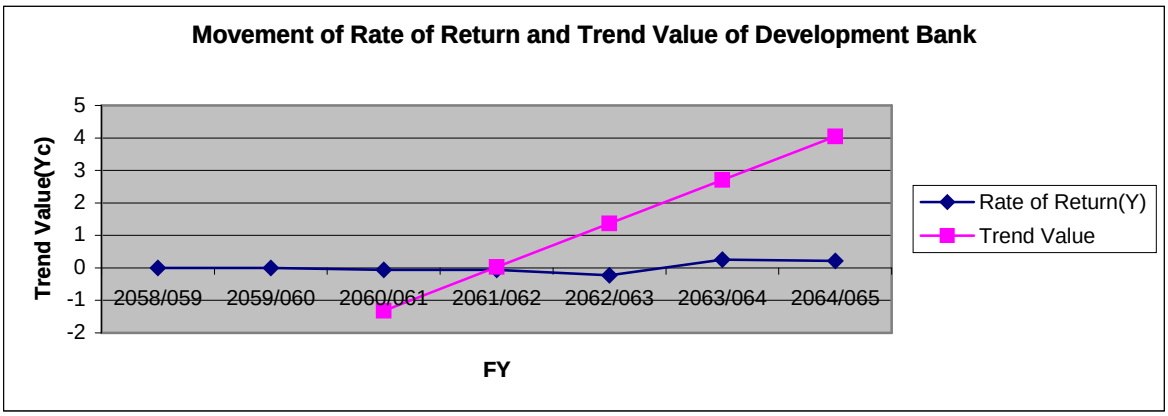
Market index per share is maximum in FY 2064/065 and Lowest in FY 2062 /063.

**Rate of Return and Trend Line of Rate of Returns of Development Bank sector**

Rate of return for each year are calculated for the basis of closing index of respective year.

Rate of returns (Trend Value) for each year are calculated on the base of rate of return on common stock index of Development bank sector of respective year by using least square method.

Figure 4.14




*Data Source: Appendix 1, Table No. 14*

The Figure 4.14 shows the movement of common stock index of Development Bank Sector's realized rate of return (R) and trend line. Here, in the beginning (FY 2060/061) R is very low and negative and this condition stays up to FY 2062/063. But it moved up slowly in FY 2063/064. It started to move up positively in FY 2064/065. Similarly, the trend line in the beginning it is negative in FY 2060/061 but it started to move upward positively from FY 2061/062 and ultimately high in FY 2064/065.

### 4.1.8 OTHER SECTOR

The following table 4.8 represents the closing, beginning, high and low market index per share of Other Sector for the purpose of risk and return analysis.

**Table No. 4.8**

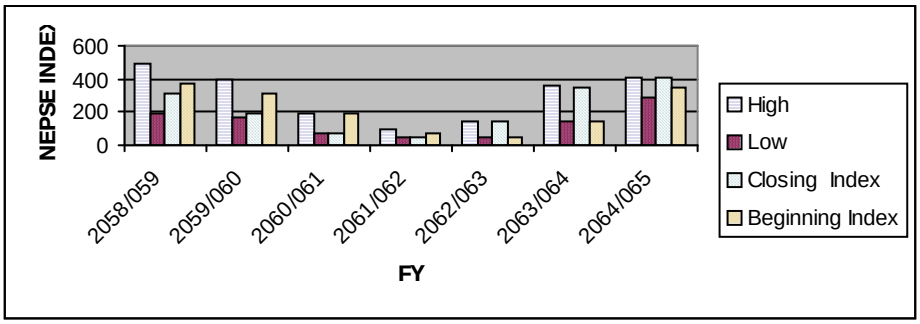
**Other Sector's Stock Status During different year**

| Fiscal Year | High | Low | Closing Index | Beginning Index |
|---|---|---|---|---|
| 2058/059 | 488.34 | 195.29 | 308.46 | 372.09 |
| 2059/060 | 392.74 | 172.08 | 190.9 | 309.6 |
| 2060/061 | 192.9 | 77.34 | 77.34 | 192.9 |
| 2061/062 | 90.6 | 42.75 | 48.56 | 77.34 |
| 2062/063 | 143.94 | 48.56 | 142.65 | 48.56 |
| 2063/064 | 354.67 | 142.13 | 347.65 | 142.65 |
| 2064/065 | 410.38 | 290.01 | 410 | 347.65 |

Source: Trading Report of NEPSE

Figure 4.15 shows the status of stocks of Other Sector.

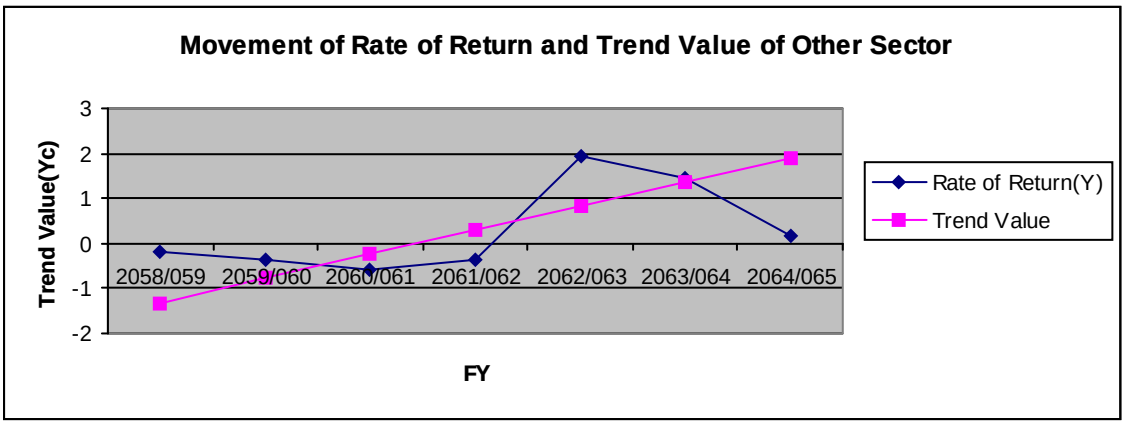
Figure 4.15




*Data Source: Table 4.8*

Market index per share is maximum in FY 2058/059 and Lowest in FY 2061/062 Rate of returns (Trend Value) for each year are calculated on the base of rate of return on common stock index of Other Sector of respective year by using least square method.

Figure 4.16




*Data Source: Appendix 1, Table No. 16*

The Figure 4.16 shows the movement of common stock index of Other Sector's realized rate of return (R) and trend line. Here, in the beginning (FY 2058/059) R is very low and negative and this condition stays up to FY 2061/062. But it moved up slowly in FY 2062/063. It started to move up very positively in FY 2063/064 and 2064/2065. Similarly, the trend line in the beginning it is negative in FY 2058/059 but it started to move upward positively from FY 2061/062 and ultimately high in FY 2064/065.

## 4.2 ANALYSIS OF MARKET RISK AND RETURN

In Nepal these is only one stock market, namely Nepal Stock Exchange. Overall market movement is represented by NEPSE index. To calculate annual return, expected return on market, market standard deviation and coefficient of variation of overall market is presented below in table 4.9

**Table No. 4.9**

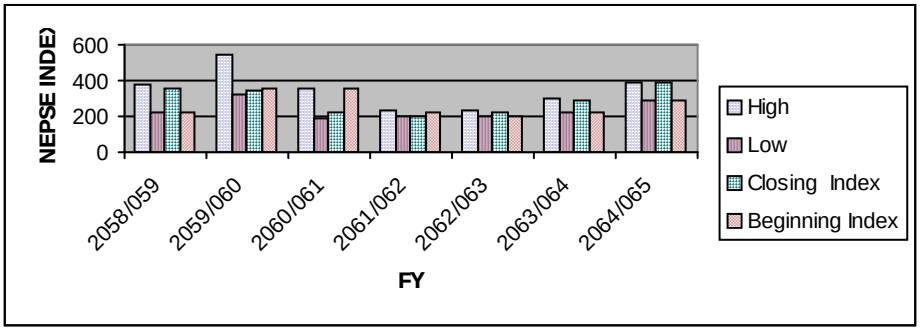
**Market's Stock Status during different year**

| Fiscal Year | High | Low | Closing Index | Beginning Index |
|---|---|---|---|---|
| 2058/059 | 373.46 | 218.32 | 360.7 | 218.32 |
| 2059/060 | 545.82 | 322.74 | 348.48 | 358.06 |
| 2060/061 | 352.25 | 186.22 | 227.54 | 352.25 |
| 2061/062 | 230.01 | 198.44 | 204.86 | 222.06 |
| 2062/063 | 227.83 | 195.14 | 222.04 | 204.41 |
| 2063/064 | 298.78 | 222.65 | 286.67 | 222.65 |
| 2064/065 | 388.49 | 287.90 | 386.83 | 287.9 |

*Source: Trading Report of NEPSE*

Figure 4.18 shows the status of stocks of Market.

Figure 4.17




*Data Source: Table 4.9*

Market index per share is maximum in FY 2059/060 and Lowest in FY 2061/062 Rate of returns (Trend Value) for each year are calculated on the base of rate of return on common stock index of Other Sector of respective year by using least square method.

## 4.3 INDEX EVALUATION OF EACH SECTOR

CAPM is model that assumes stock's required rate of return is equal to the risk free rate plus its risk premium where risk is measured by the beta , coefficient. Beta coefficient play vital role in CAPM approach. If the required rate of return is less than expected rate of return, the stock is said to be under priced and required rate of return is more than expected rate of return, the stock is said to be over priced. For this analysis the risk free rate of return is needed, which is taken from the interest rate of treasury bill issued by Nepal Rastra Bank. NRB issued treasury bill, 91 days and 364 days time duration. Table 4.10 shows the required rate of return, expected return and price evaluation. Weighted average treasury bill rate is taken as a risk free rate from web site [http: nrb.org.np/pdm/tba/Treasury-bill-Auction htm of NRB. Which is approximately 4.32 percent in date 05/04/2006.

**Table No. 4.10**

**Calculation of Required Rate of Returns and Price Evaluation by CAPM Model**

| *S.No.* | *Sectors* | *Beta Coeff.* | *Required Rate of Return* | *Expected Return E ( $r_i$)* | *Price Situation* |
|---|---|---|---|---|---|
| 1 | Commercial Bank | 1.1831 | -0.0002 | 0.0163 | Underpriced |
| 2 | Mfg. and Processing | 0.577 | 0.0220 | 0.001 | Overpriced |
| 3 | Hotel | 0.5865 | 0.0217 | -0.0022 | Overpriced |
| 4 | Trading | 0.2698 | 0.0333 | 0.001 | Overpriced |
| 5 | Insurance | 0.7707 | 0.0149 | 0.0089 | Overpriced |
| 6 | Finance | 0.6612 | 0.0189 | 0.0056 | Overpriced |
| 7 | Development Bank | 0.5462 | 0.0232 | 0.0137 | Overpriced |
| 8 | Other Sector | 2.2349 | -0.0388 | 0.0322 | Underpriced |

Required Rate of Return $E(r_i) = r_i + [E(r_m) - r_f)b_i$

=

*Data Source Appendix 2*

Where,

E(R) = Expected rate of return (from table 4.35)

$R_f$ = Risk free rate of return (0.0365)

$E(R_m)$ = Market rate of return (0.0532)

β = Beta of individual sample Banks (From table 4.35)

The stocks of commercial bank, Insurance and other sector are under priced so the investor can gain from buying the stock. Their stocks value will be increased in the near future providing the investors higher return. So investor should buy these stocks and who are holding they shouldn't sell. And the stocks of Manufacturing & Processing, Hotel, Trading, Finance and Development Bank are over priced so the investor can gain from selling the stock. Their stocks value will be decreased in the near future providing the investors loss or lower return. So investor should sell these stock and who are intending to buy they shouldn't buy.

## 4.4 PORTFOLIO AND RISK DIVERSIFICATION ANALYSIS

Portfolio is a combination of more than two types of assets for the investment. In this study the portfolio analysis has done to find out, that portfolio return is more than individual security's return. It is a group of assets compiled to minimize the risk on investment. To invest in single security is risky, but to be relatively safe if hold in a portfolio. The major objective of portfolio analysis is to suggest the assets for investment that stabilized the earnings and minimize the risk. It helps to minimize the chance of loss from the change in stock price.

The risk diversification is based on two asset portfolio and tools for analysis are persecuted in research methodology chapter.

### 4.4.1 Portfolio Between Commercial Bank And Manufacturing & Processing Sector

Here, the portfolio of the common stock of commercial bank and manufacturing & processing is analyzed. The following results are obtained by constructing portfolio. (Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Commercial Bank = -0.9082 , Manufacturing & Processing = 1.9082
- The return of this portfolio is, $E(r_p)$ = -0.0701
- The portfolio risk is , $\sigma p$ = 0.10947

Since the optimal weight of stock of commercial bank was -0.9082 and stock of manufacturing & processing is 1.9082. when holding portfolio of commercial bank and manufacturing & processing, weight of manufacturing & processing is greater than 1, so weight of commercial bank is negative.

Using the diversification, we can reduce the risk. Standard deviation of commercial bank and manufacturing & processing was 0.3563and 0.1950 respectively before the diversification. But after portfolio construction, the portfolio risk is 0.10947, which is lower than the average risk of these two sector. But expected return of this portfolio is negative, so it is recommended that investor should not select this portfolio for investment.

### 4.4.2 Portfolio Between Commercial Bank And Hotel

Here, the portfolio of the common stock of commercial bank and hotel is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Commercial Bank =-0.6411 , Hotel = 1.6411
- The return of this portfolio is, $E(r_p) = -0.1613$
- The portfolio risk is , $\sigma p = 0.15798$

Since the optimal weight of stock of commercial bank is -0.6411and weight of stock of hotel is 1.6411.When holding portfolio of commercial bank and hotel, weight of hotel is greater than 1, so weight of commercial bank is negative.

Using the diversification, we can reduce the risk. Standard deviation of commercial bank and hotel is 0.3563and 0.2013 respectively before the diversification. But after portfolio construction, the risk is minimized at 0.10947. . But expected return of this portfolio is negative, so it is recommended that investor should not select this portfolio for investment.

### 4.4.3 Portfolio Between Commercial Bank And Trading

Here, the portfolio of the common stock of commercial bank and trading is analyzed. Table 4.3 shows the calculation of, portfolio returns and portfolio risk of given two stocks

and the proportion of these stock that minimizes the risk(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Commercial Bank =-0.0316 , Trading = 1.0316
- The return of this portfolio is, $E(r_p)$ = 0.0300
- The portfolio risk is , $\sigma p$ = 0.14295

Since the optimal weight of stock of commercial bank is -0.0316 and trading is 1.0316 when holding portfolio of commercial bank and trading, weight of trading is greater than 1, so weight of commercial bank is negative.

Using the diversification, we can reduce the risk. Standard deviation of commercial bank and trading was 0.3563and 0.1433 respectively before the diversification. But after portfolio construction, the portfolio risk is minimized at 0.14295. But expected return of this portfolio is very low so it is recommended that investor should not select this portfolio for investment.

**4.4.4 Portfolio Between Commercial Bank And Insurance**

Here, the portfolio of the common stock of commercial bank and insurance is analyzed(Detail calculation is shown in Appendix-3).

- . The stock must be in the following proportion:

  Commercial Bank = -0.2460 , Insurance = 1.2460
- The return of this portfolio is, $E(r_p)$ = 0.1062
- The portfolio risk is , $\sigma p$ = 0.24131

Since the optimal weight of stock of commercial bank is -0.2460 and insurance is 1.2460. when holding portfolio of commercial bank and insurance, weight of insurance is greater than 1, so weight of commercial bank is negative.

Using the diversification, we can reduce the risk. Standard deviation of commercial bank and insurance was 0.3563and 0.1231 respectively before the diversification. But after portfolio construction, the portfolio risk is 0.24131 which is not minimized than average risk of these two stock . So it recommended investor should not select this portfolio.

### 4.4.5 Portfolio Between Commercial Bank And Finance

Here, the portfolio of the common stock of commercial bank and finance is analyzed. Table 4.5 shows the calculation of, portfolio returns and portfolio risk of given two stocks and the proportion of these stock that minimizes the risk(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Commercial Bank = -0.8957, Finance = -0.1611

  The return of this portfolio is, $E(r_p)$ = 0.1062

- The portfolio risk is , $\sigma p$ = 0.20150

Since the optimal weight of stock of commercial bank is -0.8957and finance is 1.8957 when holding portfolio of commercial bank and finance, weight of finance is greater than 1, so weight of commercial bank is negative.

Using the diversification, we can reduce the risk. Standard deviation of commercial bank and finance was 0.3563and 0.2447 respectively before the diversification. . But after portfolio construction, the portfolio risk is minimized at 0.2015. But expected return of this portfolio is very negative so it is recommended that investor should not select this portfolio for investment.

### 4.4.6 Portfolio Between Commercial Bank And Development Bank

Here, the portfolio of the common stock of commercial bank and development bank is analyzed. Table 4.6 shows the calculation of, portfolio returns and portfolio risk of given two stocks and the proportion of these stock that minimizes the risk(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Commercial Bank = 0.4689, Development Bank = 0.5311

- The return of this portfolio is, $E(r_p)$ = 0.1024
- The portfolio risk is , $\sigma p$ = 0.26666

Since the optimal weight of stock of commercial bank is 0.4689 and development bank is 0.5311. when holding portfolio of commercial bank and development bank, weight of development bank is smaller than 1, so weight of commercial bank is positive.

Using the diversification, we can reduce the risk. Standard deviation of commercial bank and development bank was 0.3563and 0.3386 respectively before the diversification. But after portfolio construction, the portfolio risk s is minimized at 0.26666 and expected portfolio return is 0.1024 which is positive and satisfactory. So it recommended investor should select this portfolio for investment.

### 4.4.7 Portfolio Between Commercial Bank And Other Sector

Here, the portfolio of the common stock of commercial bank and other sector is analyzed. Table 4.7 shows the calculation of, portfolio returns and portfolio risk of given two stocks and the proportion of these stock that minimizes the risk(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Commercial Bank = 0.9393, Other Sector = 0.0607

- The return of this portfolio is, $E(r_p)$ = 0.1977
- The portfolio risk is , $\sigma p$ = 0.35203

Since the optimal weight of stock of commercial bank is 0.9393 and other sector is 0.0607.

Using the diversification, we can reduce the risk. Standard deviation of commercial bank and other sector was 0.3563and 0.921 respectively before the diversification. . But after portfolio construction, the portfolio risk is 0.35203 which is not minimized. But expected return of this portfolio is satisfactory, so it is recommended that investor should not select this portfolio for investment.

### 4.4.8 Portfolio Between Manufacturing & Processing and Hotel

Here, the portfolio of the common stock of manufacturing & processing and hotel is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Manufacturing and Processing = 0.9236 , Hotel = 0.0764
- The return of this portfolio is, $E(r_p) =$ 0.0486
- The portfolio risk is , $\sigma p = 0.19496$

Since the optimal weight of stock of manufacturing & processing is -0.9236 and hotel is 0.764 when holding portfolio of manufacturing & processing and hotel.

Using the diversification, we can reduce the risk. Standard deviation of manufacturing & processing and hotel was 0.195and 0.2013 respectively before the diversification. . But after portfolio construction, the portfolio risk is **0.19496** which is not minimized. And expected return of this portfolio is satisfactory, so it is recommended that investor should not select this portfolio for investment

### 4.4.9 Portfolio Between Manufacturing & Processing and Trading

Here, the portfolio of the common stock of manufacturing & processing and trading is analyzed.

- The stock must be in the following proportion:

  Manufacturing and Processing =0.2974 Trading = 0.7026
- The return of this portfolio is, $E(r_p) =$ 0.0408
- The portfolio risk is , $\sigma p = 0.12930$

Since the optimal weight of stock of manufacturing & processing is -0.2974and trading is 0.7026 when holding portfolio of manufacturing & processing and trading.

Using the diversification, we can reduce the risk. Standard deviation of manufacturing & processing and hotel was 0.195and 0.1433 respectively before the diversification. . But after portfolio construction, the portfolio risk is **0.1293** which is

minimized. And expected return of this portfolio is satisfactory, so it is recommended that investor should select this portfolio for investment

### 4.4.10 Portfolio Between Manufacturing & Processing and Insurance

Here, the portfolio of the common stock of manufacturing & processing and insurance is analyzed. Table 4.9 shows the calculation of, portfolio returns and portfolio risk of given two stocks and the proportion of these stock that minimizes the risk(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Manufacturing and Processing = 1.1920, Hotel = -0.1920

  The return of this portfolio is, $E(r_p)$ = 0.0413

  The portfolio risk is , $\sigma p$ = 0.19343

Since the optimal weight of stock of manufacturing & processing is 1.1920 and hotel is -0.1920 when holding portfolio of manufacturing & processing and insurance.

Using the diversification, we can reduce the risk. Standard deviation of manufacturing & processing and insurance was 0.195and 0.2013 respectively before the diversification. . But after portfolio construction, the portfolio risk is 0.19343 which is not minimized. And expected return of this portfolio is low, so it is recommended that investor should not select this portfolio for investment

select this portfolio.

### 4.4.11 Portfolio Between Manufacturing & Processing and Finance

Here, the portfolio of the common stock of manufacturing & processing and finance is analyzed (Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Manufacturing and Processing = 2.7285, Finance = -1.7285
- The return of this portfolio is, $E(r_p)$ = 0.0374
- The portfolio risk is , $\sigma p$ = 0.15289

Since the optimal weight of stock of manufacturing & processing is -2.7285 and finance is -1.7285 when holding portfolio of manufacturing & processing and finance.

Using the diversification, we can reduce the risk. Standard deviation of manufacturing & processing and hotel was 0.195and 0.2447 respectively before the diversification. . But after portfolio construction, the portfolio risk is 0.15289 which is minimized. And expected return of this portfolio is low, so it is recommended that risk averter investor should select this portfolio for investment

### 4.4.12Portfolio Between Manufacturing & Processing Sector and Development Bank

Here, the portfolio of the common stock of manufacturing & processing and development bank is analyzed (Detail calculation is shown in Appendix-3)

- The stock must be in the following proportion:

  Manufacturing and Processing = 0.7803, Development Bank = 0.2197
- The return of this portfolio is, $E(r_p)$ = 0.0477
- The portfolio risk is , $\sigma p$ = 0.17728

Since the optimal weight of stock of manufacturing & processing is -0.7803 and development bank is 0.2197 when holding portfolio of manufacturing & processing and development bank.

Using the diversification, we can reduce the risk. Standard deviation of manufacturing & processing and development bank was 0.195and 0.3386 respectively before the diversification. . But after portfolio construction, the portfolio risk is **0.1773** which is minimized. And expected return of this portfolio is satisfactory, so it is recommended that investor should select this portfolio for investment portfolio.

### 4.4.13Portfolio Between Manufacturing & Processing and Other Sector

Here, the portfolio of the common stock of manufacturing & processing and other sector is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Manufacturing and Processing = 0.9784, Other Sector = 0.0216

- The return of this portfolio is, $E(r_p)$ = 0.0596
- The portfolio risk is , $\sigma p$ = 0.19398

Since the optimal weight of stock of manufacturing & processing is -0.9784 and other sector is 0.0216 when holding portfolio of manufacturing & processing and other sector.

Using the diversification, we can reduce the risk. Standard deviation of manufacturing & processing and other sector was 0.195and 0.921 respectively before the diversification. . But after portfolio construction, the portfolio risk is **0.19398** which is not minimized. And expected return of this portfolio is very low, so it is recommended that investor should not select this portfolio for investment

### 4.4.14 Portfolio Between Hotel and Trading

Here, the portfolio of the common stock of Hotel and trading is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Hotel = 0.3138 , Trading = 0.6862

- The return of this portfolio is, $E(r_p)$ = 0.0167
- The portfolio risk is , $\sigma p$ = 0.12350

Since the optimal weight of stock of Hotel is 0.3138 and trading is 0.6862 when holding portfolio of Hotel and trading.

Using the diversification, we can reduce the risk. Standard deviation of Hotel and trading was 0.2013 and 0.1433 respectively before the diversification. But after portfolio construction, the portfolio risk is **0.12350** which is minimized. And expected return of

this portfolio is higher than the average expected return of these two stocks, so it is recommended that investor could select this portfolio for investment

### 4.4.15 Portfolio Between Hotel and Insurance

Here, the portfolio of the common stock of Hotel and trading is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Hotel = 0.9426 , Insurance = 0.0574
- The return of this portfolio is, $E(r_p) = -0.0150$
- The portfolio risk is , $\sigma p = 0.20111$

Since the optimal weight of stock of Hotel is 0.9426 and insurance is 0.0574 when holding portfolio of Hotel and Insurance.

Using the diversification, we can reduce the risk. Standard deviation of Hotel and Insurance was 0.2013 and 0.2468 respectively before the diversification. But after portfolio construction, the portfolio risk is 0.2011 which is little bit minimized. And expected return of this portfolio is negative so it is recommended that investor should not select this portfolio for investment.

### 4.4.16 Portfolio Between Hotel and Finance

Here, the portfolio of the common stock of Hotel and trading is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Hotel = 1.7408 , Finance = 0.6862
- The return of this portfolio is, $E(r_p) = -0.0884$
- The portfolio risk is , $\sigma p = 0.19037$

Since the optimal weight of stock of Hotel is 1.7408 and Finance is 1.9082 when holding portfolio of Hotel and Finance.

Using the diversification, we can reduce the risk. Standard deviation of Hotel and Finance was 0.2013 and 0.2447 respectively before the diversification. But after portfolio

construction, the portfolio risk is 0.19037 which is minimized. And expected return of this portfolio is negative, so it is recommended that investor should not select this portfolio for investment

### 4.4.17 Portfolio Between Hotel and Development Bank

Here, the portfolio of the common stock of Hotel and Development is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Hotel = 0.7578 , Development Bank = 0.2422
- The return of this portfolio is, $E(r_p) = -0.0120$
- The portfolio risk is , $\sigma p = 0.17913$

Since the optimal weight of stock of Hotel is 0.7578 and Development Bank is 0.2428 when holding portfolio of Hotel and Development Bank.

Using the diversification, we can reduce the risk. Standard deviation of Hotel and Development Bank was 0.2013 and 0.3386 respectively before the diversification. But after portfolio construction, the portfolio risk is 0.17913 which is highly minimized but expected return of this portfolio is negative, so it is recommended that investor should not select this portfolio for investment

### 4.4.18 Portfolio Between Hotel and Other Sector

Here, the portfolio of the common stock of Hotel and Other Sector is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Hotel = 0.9619 Other Sector = 0.0381
- The return of this portfolio is, $E(r_p) = -0.0115$
- The portfolio risk is , $\sigma p = 0.03925$

Since the optimal weight of stock of Hotel is 0.9619 and Other Sector is 0.0381 when holding portfolio of Hotel and Other Sector.

Using the diversification, we can reduce the risk. Standard deviation of Hotel and Other Sector was 0.2013 and 0.9210 respectively before the diversification. But after portfolio construction, the portfolio risk is 0.03925 which is not minimized but expected return of this portfolio is negative, so it is recommended that investor should not select this portfolio for investment

### 4.4.19Portfolio Between Trading and Insurance

Here, the portfolio of the common stock of trading and Insurance is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Hotel = 0.9255, Insurance = 0.0745

  The return of this portfolio is, $E(r_p) = 0.0416$

- The portfolio risk is , $\sigma p = 0.14238$

Since the optimal weight of stock of Trading is 0.9255 and Insurance is 0.0745 when holding portfolio of Trading and Insurance.

Using the diversification, we can reduce the risk. Standard deviation of Trading and Insurance was 0.1433 and 0.2468 respectively before the diversification. But after portfolio construction, which is lower than the risk is 0.14348. which is minimized but expected return of this portfolio is low, so it is recommended that investor should not select this portfolio for investment

### 4.4.20 Portfolio Between Trading And Finance

Here, the portfolio of the common stock of trading and Finance is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Hotel = 0.8602, Finance = 0.1398

- The return of this portfolio is, $E(r_p) = 0.0391$
- The portfolio risk is , $\sigma p = 0.13953$

Since the optimal weight of stock of Trading is 0.8602 and Finance is 0.1398 when holding portfolio of Trading and Finance.

Using the diversification, we can reduce the risk. Standard deviation of Trading and Finance was 0.1433 and 0.2447 respectively before the diversification. But after portfolio construction, the portfolio risk is minimized at 0.13953 and portfolio return is satisfactory. So, it recommended the investor could select this portfolio.

**4.4.21Portfolio Between Trading and Development Bank**

Here, the portfolio of the common stock of trading and Development Bank is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Hotel = 0.9688 , Development Bank = 0.0312
- The return of this portfolio is, $E(r_p) = 0.0346$
- The portfolio risk is , $\sigma p = 0.14296$

Since the optimal weight of stock of Trading is 0.9688 and Development Bank is 0.0312 when holding portfolio of Trading and Development Bank.

Using the diversification, we can reduce the risk. Standard deviation of Trading and Development Bank was 0.1433 and 0.3386 respectively before the diversification. But after portfolio construction, the portfolio risk is 0.14296 and the average risk of these two stocks is 0.2409 which is minimized by 0.0913. The expected portfolio return is 0.0346 and average return of these two stock is 0.0292 which is also increased by portfolio construction. So it highly recommended that investor should select this portfolio for higher return with comparatively lower risk.

### 4.4.22 Portfolio Between Trading and Other Sector

Here, the portfolio of the common stock of trading and Other Sector is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Hotel = 1.0558 , Other Sector = -0.0558

- The return of this portfolio is, $E(r_p) = 0.0208$
- The portfolio risk is , $\sigma p = 0.13496$

Since the optimal weight of stock of Trading is 1.0558 and Other Sector is -0.0558 when holding portfolio of Trading and Other Sector.

Using the diversification, we can reduce the risk. Standard deviation of Trading and Other Sector was 0.1433 and 0.9210 respectively before the diversification. But after portfolio construction, the portfolio risk is 0.13496 which is not minimized and the expected portfolio return is also very low. So it recommended investor should not select this portfolio.

### 4.4.23 Portfolio Between Insurance and Finance

Here, the portfolio of the common stock of Insurance and Finance is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Insurance = 0.3706, Finance = 0.6294

- The return of this portfolio is, $E(r_p) = 0.0862$
- The portfolio risk is , $\sigma p = 0.24358$

Since the optimal weight of stock of Insurance is 0.3706 and Finance is 0.6294 when holding portfolio of Insurance and Finance.

Using the diversification, we can reduce the risk. Standard deviation of Insurance and Finance was 0.2468 and 0.2447 respectively before the diversification. But after

portfolio construction, the portfolio risk is 0.24358 which is not minimized and the expected portfolio return is also comparatively low . So it is recommended that investor should not select this portfolio.

### 4.4.24 Portfolio Between Insurance and Development Bank

Here, the portfolio of the common stock of Insurance and Development Bank is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Insurance = 0.6991, Development Bank = 0.3009
- The return of this portfolio is, $E(r_p) = 0.0931$
- The portfolio risk is , $\sigma p = 0.22066$

Since the optimal weight of stock of Insurance is 0.6991 and Development Bank is 0.3009 when holding portfolio of Insurance and Development Bank.

Using the diversification, we can reduce the risk. Standard deviation of Insurance and Development Bank was 0.2468 and 0.3386 respectively before the diversification. But after portfolio construction, the portfolio risk is 0.22066 and the average risk of these two stocks is 0.2927 which is minimized by 0.07204. The expected portfolio return is 0.0931and average return of these two stock is 0.0733 which is also increased after portfolio construction. So it is highly recommended that investor should select this portfolio for higher return with comparatively lower risk.

### 4.4.25 Portfolio Between Insurance and Other Sector

Here, the portfolio of the common stock of Insurance and Other Sector is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Insurance = 0.9711, Other Sector = 0.0289
- The return of this portfolio is, $E(r_p) =$ **0.1279**
- The portfolio risk is , $\sigma p =$ **0.24539**

Since the optimal weight of stock of Insurance is 0.9711 and Other Sector is 0.0289 when holding portfolio of Insurance and Other Sector.

Using the diversification, we can reduce the risk. Standard deviation of Insurance and Other Sector was 0.2468 and 0.9210 respectively before the diversification. But after portfolio construction, the portfolio risk is 0.24539 which is minimized but the expected portfolio return is comparatively low . So it is recommended that investor should not select this portfolio.

### 4.4.26 Portfolio between Finance and Development Bank

Here, the portfolio of the common stock of Finance and Development Bank is analyzed(Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Finance = **0.6927**, Development Bank = **0.3073**
- The return of this portfolio is, $E(r_p)$ = **0.0518**
- The portfolio risk is , $\sigma p$ = **0.21553**

Since the optimal weight of stock of Finance is **0.3073** and Development Bank is **0.0518**.

Using the diversification, we can reduce the risk. Standard deviation of Finance and Development Bank was 0.2447 and 0.3386 respectively before the diversification. But after portfolio construction, the portfolio risk is 0.21553 and the average risk of these two stocks is 0.2916 which is minimized by 0.0761. The expected portfolio return is 0.0518 and average return of these two stock is 0.0439 which is also increased after portfolio construction. So it is highly recommended that investor should select this portfolio for higher return with comparatively lower risk.

### 4.4.27 Portfolio Between Finance and Others

Here, the portfolio of the common stock of Finance and Other Sector is analyzed (Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

Finance = **0.9565**, Other Sector = **0.0435**

- The return of this portfolio is, $E(r_p)$ = **0.0742**
- The portfolio risk is , $\sigma p$ = **0.24134**

Using the diversification, we can reduce the risk. Standard deviation of Finance and Other Sector was 0.2447 and 0.921 respectively before the diversification. But after portfolio construction, the portfolio risk is 0.24134 which is not minimized. At the same time portfolio return is also comparatively lower than the average return of these two stocks. So it is recommended that investor should not select this portfolio.

### 4.4.28Portfolio Between Development Bank and Other Sector

Here, the portfolio of the common stock of Development Bank and Other Sectors is analyzed. (Detail calculation is shown in Appendix-3).

- The stock must be in the following proportion:

  Development sector = **0.8752**, Other Sector = **0.1248**
- The return of this portfolio is, $E(r_p)$ = **0.0567**
- The portfolio risk is , $\sigma p$ = **0.31533**

Since the optimal weight of stock of Development Bank is 0.8752 and stock of Other Sector is 0.1248

Using the diversification, we can reduce the risk. Standard deviation of Development Bank and Other Sector was 0.3386 and 0.921 respectively before the diversification. But after portfolio construction, the portfolio risk is 0.31533 which is lower than the average risk of individual stock but the portfolio return is very low than the average expected return of these two stocks. So it is recommended that investor should not select this portfolio for the reason of very low portfolio return.

## 4.5 CORRELATION BETWEEN SECTORS

The correlation coefficient always lies between + 1 and -1. Returns of securities are very perfectly together when the correlation coefficient is +1 and in perfectly opposite direction when it is -1. A zero correlation coefficient implies that there is no relationship

between the returns of securities. Correlation between the returns of the two securities plays a significant role in risk reduction by portfolio construction. The table no. 4.14 presented below shows the various consolations between each sector.

**Table no. 4.11**

**Correlation Matrix**

| S.No. | Sectors | C. Bank | Mfg. Pro. | Hotel | Trading | Insurance | Finance | Dev Bank | Other |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Commercial Bank | 1 | 0.9643 | 0.9035 | 0.4642 | 0.8165 | 0.934 | 0.1807 | 0.2350 |
| 2 | Mfg. and Pro. | | 1 | 0.9630 | 0.2756 | 0.8561 | 0.975 | 0.1212 | 0.1097 |
| 3 | Hotel | | | 1 | -0.1283 | 0.7890 | 0.940 | 0.0836 | 0.0388 |
| 4 | Trading | | | | 1 | 0.4807 | 0.368 | 0.3586 | 0.4705 |
| 5 | Insurance | | | | | 1 | 0.967 | 0.2429 | 0.1619 |
| 6 | Finance | | | | | | 1 | 0.1955 | 0.0989 |
| 7 | Dev. Bank | | | | | | | 1 | -0.0234 |
| 8 | Other Sector | | | | | | | | 1 |

Source: Appendix1 and Appendix 2

Above table no. 4.11 shows that correlation between each sector's stocks. There is positive correlation between various sectors. But correlation between Hotel & Trading and Development Bank & Other Sector are negative. If correlation between stocks is +1, any part of risk can not be reduced by diversification. On the other hand, If correlation between stocks are -1, the proper combination of two stocks can reduces all the risk. So in conclusion it can be say that as long as correlation between securities return is negative, construction of portfolio is benefit able.

## 4.6 Primary Data Analysis

This chapter deals with the analysis of primary data collected from questionnaire techniques.

Questionnaires are given to the various respondents from different level, gender, occupation, age, education and income group who are interested in common stock investment. All the questions have multiple choices to select ranging from 2 to 4 options. All questions given to respondents are structured and closed ended but some are opened ended.

The respondents are selected on stratified random basis on the visit to the stock exchange, broker company and regarding the questionnaire their views, and analyzed.

Altogether 100 respondents are selected on the stratified random basis

## *A. Knowledge about common stock:*

***B.*** Given questions, have three different options for respondents. Table 4.15 shows the number of answer selected by 100 respondents.

Table 4.12

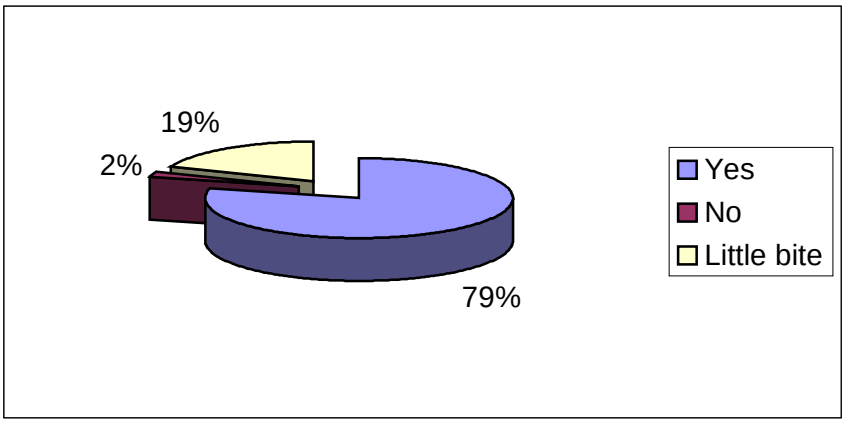
**Knowledge about common stock**

| Yes | No | Little bite | Total |
|---|---|---|---|
| 79 | 2 | 19 | 100 |

(See questionnaire in appendix 4)

Figure 4.18

**View the knowledge toward common stock**



From the table 4.12 and figure 4.18 shows that out of 100 respondents, 79% respondents have knowledge about common stock, 2% respondents have no ideas and 19% respondents have little knowledge.

## *C. Selecting sector of investing common stock:*

Given questions have three different options for responding. Table 4.16 shows the number of answer selected by 100 respondents.

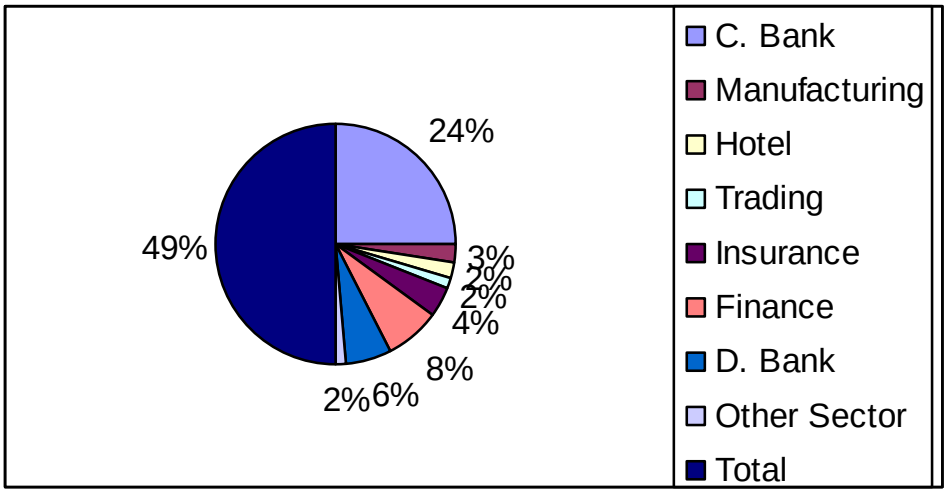
Table 4.13

**Sector of investing common stock:**

| C. Bank | Manufacturing | Hotel | Trading | Insurance | Finance | D. Bank | Other Sector | Total |
|---|---|---|---|---|---|---|---|---|
| **50** | **4** | **5** | **4** | **8** | **14** | **12** | **3** | **100** |

(See questionnaire in appendix 4)

Figure 4.19




From the table 4.13 and figure 4.19 shows that out of 100 respondents 50% respondents are interested to invest in commercial banking sector, 4% respondents are interested in to invest in manufacturing sector, 5% respondents are interested to invest in hotel sector, 4% respondents are interested to invest in hotel trading, 8%, respondents are interested to invest in insurance sector, 14% respondents are interested to invest in finance sector, 12%, respondents are interested to invest in development banking sector and 3% respondents are interested to invest in other sector

**C. Performance of Stock Market in Nepal:**

Given question, have four options for respondent table 4.17 shows the no. of answer selected by 100 respondents.

Table 4.14

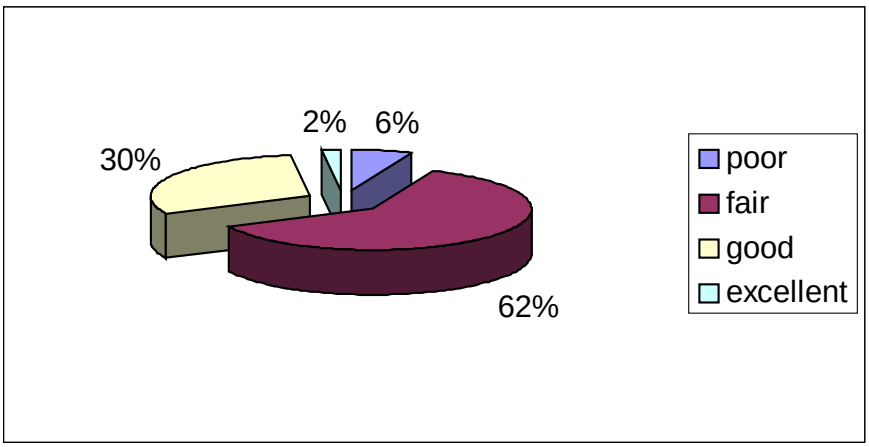
**Respondents towards performance of stock market in Nepal:**

| Poor | Fair | Good | Excellent | Total |
|---|---|---|---|---|
| 6 | 62 | 30 | 2 | 100 |

(See questionnaire in Appendix 4)

Figure 4.20

**Respondents towards performance of stock market in Nepal**




From the above table 4.14 and figure 4.20 shows that out of 100 respondents 62%respondents view is fair, 30% respondents view is good, 6% respondents view is poor and only 2% respondents view is excellent towards the performance of banking industries in Nepal.

## *D. Basis for selection of specific company's shares:*

Given question, have four different options for respondents. The options selected by 100 respondents are shown in table 4.18

Table 4.15

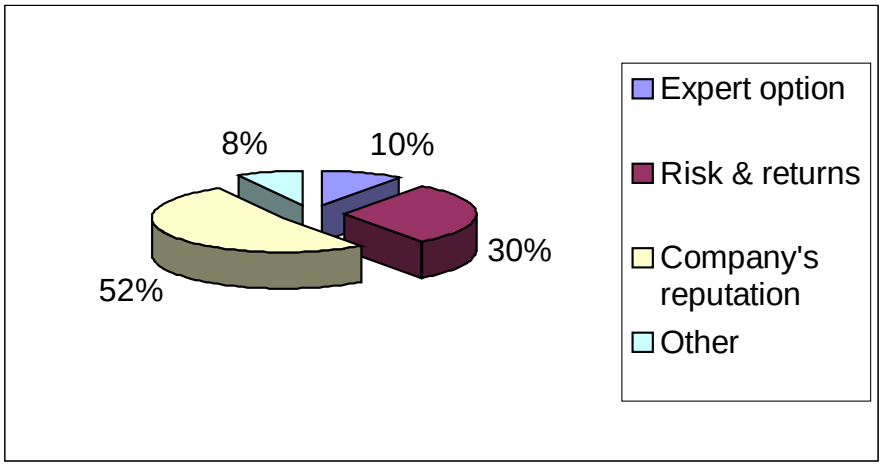
**Respondents view on basis for selection of specific company's share**

| Expert option | Risk & returns | Company's reputation | Other | Total |
|---|---|---|---|---|
| 10 | 30 | 52 | 8 | 100 |

(See questionnaire in Appendix 4)

Figure 4.21

**Respondents view on basis for selection of specific company's share**




From table 4.15 and figure 4.21 shows that of 100 respondents,10% respondents are taken expert opinion , 30% respondent go after risk and return analysis, 52% go after company's reputation and 8% go after other included market price, ratio analysis , income statement, etc. for selection of specific company's share.

## E. Method use for calculation of return:

Given question, have three options for respondents. Table 4.19 shows the no. of answer selected by 100 respondents.

Table 4.16

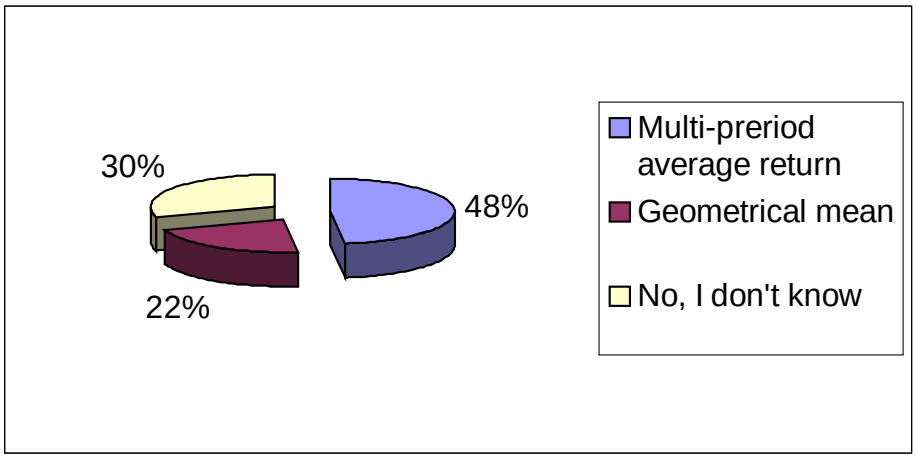
**Method use by the respondents to calculate return**:

| Multi-period average return | Geometrical mean | No, I don't know | Total |
|---|---|---|---|
| 48 | 22 | 30 | 100 |

(See questionnaire in Appendix 4)

Figure 4.22

**Method use by the respondents to calculate return**




From the above table 4.16 and figure 4.22 shows that out of 100 respondents, 48% respondents use multi period average method, 22% respondents use geometric mean method and 30% respondents do not calculate return.

## *F. Most reliable tool for measurement of risk:*

Given question has four options for respondents; the table 4.20 shows the no of answer selected by 100 respondents.

Table 4.17

**Most reliable tool for the measurement of risk**

| Variance | Standard deviation | Co-efficient of variance | I don't know | Total |
|---|---|---|---|---|
| 16 | 28 | 6 | 50 | 100 |

(See questionnaire in Appendix 4)

Figure 4.23

**Most reliable tool for measurement of risk**

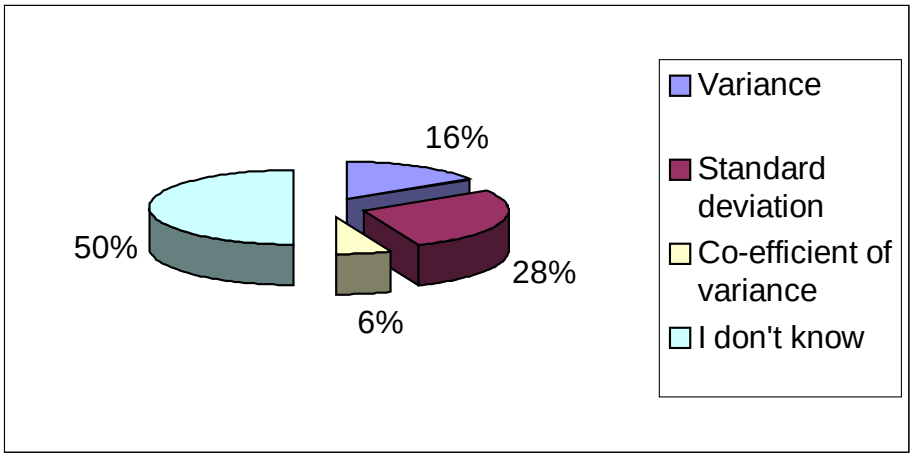



Table 4.17 and figure 4.23 shows that out of 100 respondents 16% respondents use variance, 28% respondents use standard deviation, 6% use coefficient of variance for measurement of risk and 50% respondents don't calculate risk or they don't know about risk measurement tools.

## *G. Main purpose of buying shares:*

Given question has four options for respondents. Table 4.21 shows the no. of answer selected by 100 respondents.

Table 4.18

**Options of respondent's purpose of buying shares.**

| For dividend | Buy& sell | Capital gain | I don't know | Total |
|---|---|---|---|---|
| 53 | 29 | 15 | 3 | 100 |

(See questionnaire in Appendix 4)

Figure 4.24

**Options of respondent's purpose of buying shares**

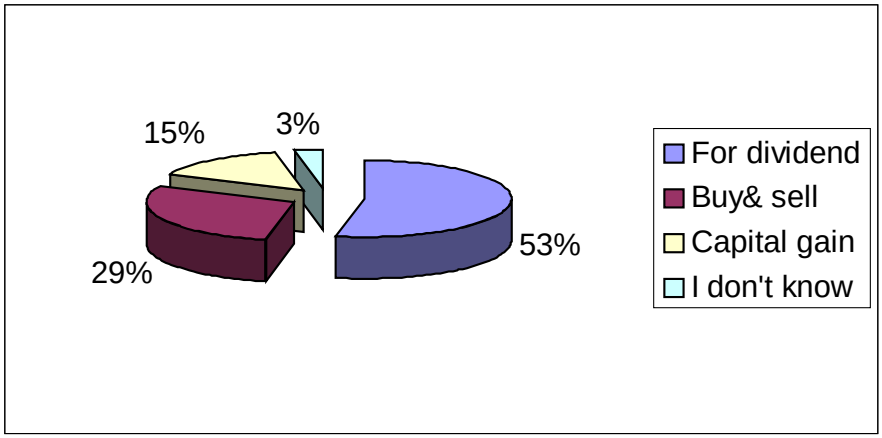



Table 4.18 and figure 4.24 shows that out of 100 respondents, 53% respondents purchase shares for dividend, 29% respondents purchase shares or buying and selling purpose, 15% respondents purchase shares for capital gain and 3% purchase shares for not any specific purpose.

## *H. Securities market index show the current situation of market:*

There are three options for answer. The table 4.22 shows the answer selected by 100 respondents:

Table 4.19

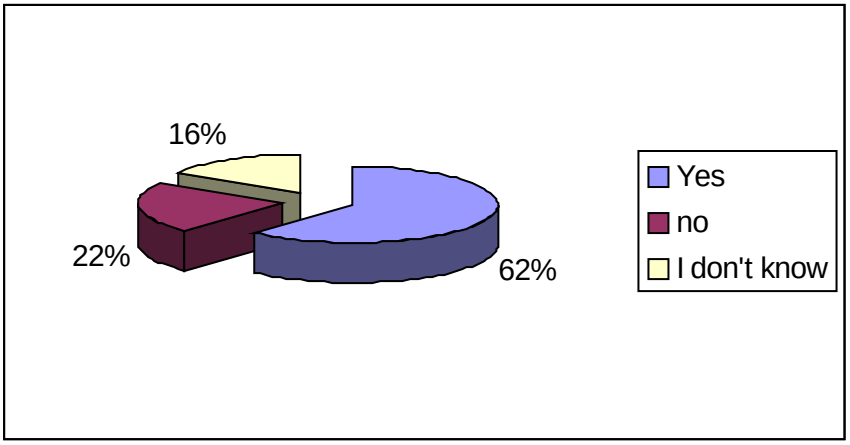
**Respondents view toward securities market index show the current situation of market**

| Yes | No | I don't know | Total |
|---|---|---|---|
| 62 | 22 | 16 | 100 |

(See questionnaire in Appendix 4)

Figure 4.25

**Respondents view toward securities market index show the current situation of market:**




From table 4.19 and figure 4.25 shows that out of 100 respondents, 62% respondents are positive, 22% respondents are negative on security market index show the current situation of market an d 16% respondents don't know about security index.

## *I.Dividend offers by the company:*

Given question has four options for answer. Table 4.23 shows the answer by selected by 100 respondents.

Table 4.20

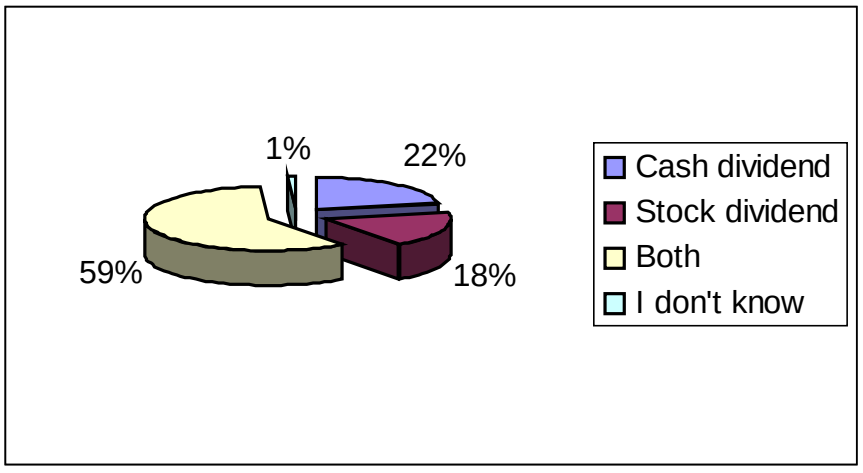
**Option of respondent toward dividend offer by the company**

| Cash dividend | Stock dividend | Both | I don't know | Total |
|---|---|---|---|---|
| 22 | 18 | 59 | 1 | 100 |

(See questionnaire in Appendix)

Figure 4.26

**Option of respondent toward dividend offer by the company**



From the table 4.20 and figure 4.26 shows that out of 100 respondents, 22% respondents prefer cash dividend, 18% respondents prefer stock dividend, and 59% respondents prefer both cash and stock dividend and 1% respondents don't know about dividend.

**J. Knowledge of portfolio Management**

Table 4.21

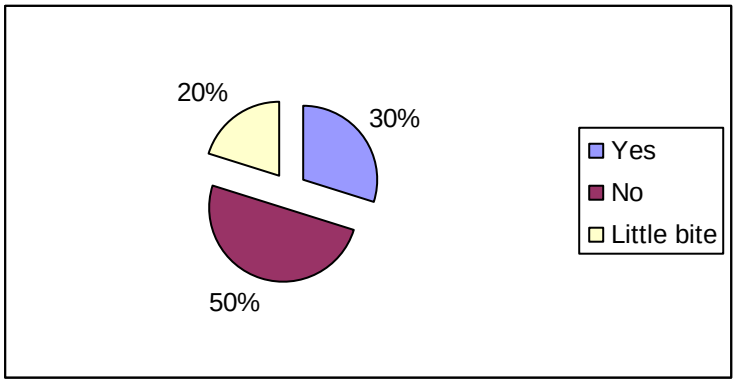
**Knowledge about portfolio management**

| Yes | No | Little bite | Total |
|---|---|---|---|
| 30 | 50 | 20 | 100 |

(See questionnaire in appendix 4)

Figure 4.27

**View the knowledge toward portfolio management**




From the table 4.21 and figure 4.27 shows that out of 100 respondents, 30% respondents have knowledge about Portfolio management, 50% respondents have no ideas and 20% respondents have little knowledge.

**K. Making portfolio minimizes the risk**

Table 4.22

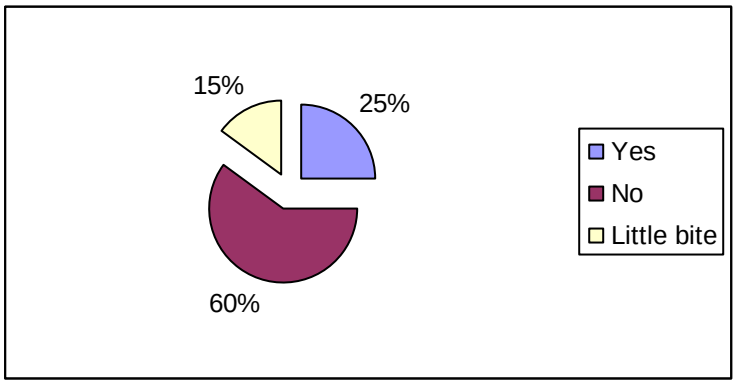
**Knowledge that portfolio minimizes risk**

| Yes | No | Little bite | Total |
|---|---|---|---|
| 25 | 60 | 15 | 100 |

(See questionnaire in appendix 4)

Figure 4.28

**View the knowledge toward portfolio management that minimizes risk**




From the table 2.22 and figure 4.28 shows that out of 100 respondents, 25% respondents have knowledge about Portfolio management minimizes the risk, 60% respondents have no ideas and 15% respondents have little knowledge.

## L. Constructing portfolio by investors before investing

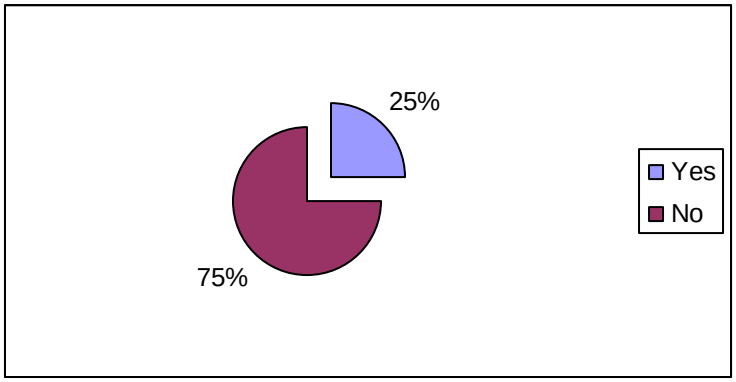
Table 4.23
**View from the investor**

| Yes | No | Total |
|---|---|---|
| 25 | 75 | 100 |

(See questionnaire in appendix 4)

Figure 4.29

**View from the investor**




From the table 4.23 and figure 4.29 shows that out of 100 respondents, 25% respondents that they make portfolio before investment, 75% respondents that they don't construct portfolio before investing.

## 4.7 FINDINGS OF THE STUDY

### 4.7.1 Finding from primary data analysis

- Out of 100 respondents, 79% respondents have knowledge about common stock, 2% respondents have no idea and 19% respondents have little knowledge about common stock Over all knowledge about common stock is positive.

- Out of 100 respondents 50% respondents are interested to invest in commercial banking sector, 4% respondents are interested in to invest in manufacturing sector, 5% respondents are interested to invest in hotel sector, 4% respondents are interested to invest in hotel trading, 8%, respondents are interested to invest in insurance sector, 14% respondents are interested to invest in finance sector, 12%, respondents are interested to invest in development banking sector and 3% respondents are interested to invest in other sector.

- Out of 100 respondents, 62% respondents' view is fair, 30% respondents' view is good, 6% respondents' view is poor and 2% respondents' view is excellent towards the performance of banking sector in Nepal. Most of the investors' view against performance of banking sector in Nepal is good.

- Out of 100 respondents, 10% respondents are taken expert option, 30% respondents go after Risk & Return analysis, 52% go after company's reputation and 8% go after other included market price, Ration analysis, income statement etc; for selecting of specific company's share.

- Out of 100 respondents, 48% respondents use multi-period average method, 22% respondents use geometric mean method and 30% respondents don not calculate return. Most of the respondents nearly half of the respondent uses multi-period method to calculate return. And unfortunately large chuck does not calculate return.

- Out of 100 respondents, 16% respondents use variation, 28% respondents use standard deviation, 6% use co-efficient of variance for the measurement of risk and 50% respondents don't calculate risk or they don't know about risk measurement tools. Only half of the respondents use measurement tools for calculation of the risk and unfortunately, half of the respondents do not know about it.

- From the analysis, it is clear that out of 100 respondents, 53% respondents purchase shares for dividend, 29% respondents purchase shares for buying and selling purpose, 15% respondents purchase share for capital gain and 3% respondents purchase share for not only specific purpose.

- From the analysis, it is clear that out of 100 respondents, 62% respondents are positive on market index, i.e. 2% said 'yes' that indicate, they believe in security's market indexes, 22% respondents go against index (i.e. they said No')

that mean securities market index don't show the situation of market. And unfortunately, 16% respondents do not know about security's market indexes.

- Out of 100 respondents, 22% respondents prefer cash dividend, 18%respondents prefer stock dividend (Bonus Share), and 59% respondents prefer both stock and cash dividend and only 1% respondents do not know about dividend.

- Out of 100 respondents, 30% respondents have knowledge about Portfolio management, 50% respondents have no ideas and 20% respondents have little knowledge.
- Out of 100 respondents, 25% respondents have knowledge about Portfolio management minimizes the risk, 60% respondents have no ideas and 15% respondents have little knowledge
- Out of 100 respondents, 25% respondents that they make portfolio before investment, 75% respondents that they don’t construct portfolio before investing.

- Investment decision would not be fruitful without proper analysis of individual security, industry and overall market. General knowledge on political, economical, social and technological trend will be more advantageous.

- Most of the investor invests in common stock. Common stock is the most risky securities than any other securities. Common stock of a corporate firm neither ensures annual return nor ensures the return of principle. Dividend or annual return of common stock is pad after tax and preference dividend paid, if a company gets profit.

- Most of the people do not have knowledge of common stock; they just invest in common stock as a shot in the dark.

### 4.7.2Finding from Secondary data analysis

It is very important part of the study. All people investors, researcher and other who are related to investment on common stock may gain advantage from the findings of this study. From the analysis of this study the major results on risk and return analysis of common stock investment in Nepalese business sectors are summarized as under

- Expected return on the common stock of other sector is the highest (i.e. 28.98%) among eight business sectors.
- Expected return on the common stock of Hotel is the lowest (i.e. -2.34%) among eight business sectors.
- On the basis of S.D., common stock of other sector is most risky since, it has high S.D.(i.e. 0.921) and common stock of Trading is least risky because of it has lowest S.D. (i.e. 0.2013).
- Coefficient of variation (C.V.) is more rational basis of investment decision, which measures the risk per unit of return. On the basis of C.V. common stock of Commercial Bank has lowest C.V. among eight business sectors. Commercial Bank has 1.8586 unit of risk per one unit of return. And common stock of Development Bank can be considered as more risk because it has the highest C.V. (i.e. 14.4104) among the selected eight business sectors.
- Beta coefficient measures the systematic risk and explain the sensitivity or volatility of stock with market. In this context, common stock of other sector is the most volatile (i.e.$\beta$=2.2349) and common stock of Trading is least volatile (i.e. 0.2698).
- The common stock of Commercial Bank and Other Sector are aggressive because it has beta more than beta coefficient of market ($\beta$>1). And common

stock of Manufacturing & Processing, Hotel, Trading, Insurance, Finance and Development Bank are defensive stock because has beta less than beta coefficient of market ($\beta<1$), its price fluctuations are less volatile than the market.

- Correlation coeff with market remaining
- Correlation between stock of Manufacturing & Processing and Finance is the highest positive (i.e. 0.975) nearly +1 and stock of Development Bank and Other sector, Hotel and Trading have found negative correlation.
- Unsystematic risk can reduce by making a portfolio of individual security significantly. If investor select the securities for investment, which have highly negative correlation of returns, the risk can be reduced totally. If the correlation between the return of two stocks is highly positive, risk reduced is not so significant. In this research Hotel and Trading, Development Bank and Other Sector have negative correlation between their returns, which is favorable with the view point of the diversification. And all remaining sectors have positive correlation among their returns.
- Calculation for the trend value least square method is used and drawn the trend line. The common stock of the Six sectors' trend line, when graphically presented shown the downward movement but Trend line of Development Bank and Other Sector when graphically presented shown upward movement.
- Capital Assets Pricing Model describes that the relationship between risk and return. We can identify the stock is over priced or under priced by comparison between expected rate of return and required rate of return. If required rate of return is lower than expected rate of return stock is known as under priced and if the required rate of return is greater than the expected rate of return, the stock is overpriced. This study shows that the stock of commercial bank and other sector are under priced and stocks of remaining six sectors are overpriced.

# CHAPTER V

# SUMMARY AND RECOMMENDATION

## 5.1 SUMMARY

Return is fundamental requirement of investment and a certain level of risk is attached with it. Saving is worthless until and unless used in productive investment. Finance mostly deals with the monetary risk and return which is the most influencing subject matter for an individual and to small and large corporations as well. Past trend shows that the field of finance is gradually improving and it has truly undergone a revolution and it is one of the leading sectors. Stock market has become a global phenomenon.

Generally, investors invest their current cash only to those areas where these is high return and low risk . And investor looking for the common stock investment usually pays the price for stock based on his estimation about future dividends and grown in stock price. This study occupies an important role in the development of stock market.

Lack of information and lean knowledge is chief problem faced by individual investor who are manipulated and exploited by the financial institutions and there market intermediaries. The attitude and perception of investors play chief role in investment decision which is influenced by the information and access to the data required for analysis. Investors invest their wealth on the basis of guess and hunches because they do not have any information about the financial asses and they also lack the idea to reach to ideal investment decision. Investor purchase stocks merely looking past trend of stock prices and sometimes they have to bear heavy loss due to inadequate knowledge and information related to the stock investment. One expects favorable returns by holding stock. How can one make higher return assuming lower risk?

Since the main objective of the study is to analyze the risk and return of common stocks and optimum portfolio measurement of Nepalese Stock Market in Nepalese context .The study is focused on the common stock of all business sectors. Thus all eight sectors are taken as sample to analyze the risk and return on common stock investment. While analyzing the risk and return, brief review of related studies has been performed. This analysis of risk and return is a significant in investment decision as will as managerial decision. It influences risk and return of the shareholders. Consequently the risk and return analysis influences the market price of stock. So before making and investment decision, a person must analyzed the risk and return from particular stock as well as they can make a good risk minimizing portfolio between their investments in the stock.

However, different scholars have suggested various statistical as well as financial tools like required rate of return, expected rate of return, standard deviation, variance, coefficient of variation, beta coefficient, correlation coefficient, portfolio risk portfolio return, least square regression equation and so on. Different diagrams, tables, graph are used to present the result. All the data are collected from the secondary sources. Secondary sources of data are NEPSE Report, trading report of SEBO, web site of NRB etc. Findings of analysis are summarized and conclusions are outlined below.

## 5.2 CONCLUSIONS

The basic objective of this study is to construct portfolio out of eight different sectors of Nepalese stock market. This constructed portfolio will maximize the return of the investment at given level of risk**.** Nepalese investors invest their current saving only to those areas where these are high return and low risk.

General tendency of Nepalese investors is to invest in the security on hearsay basis. This study has given the basic ground for investment. Investors can reduce risk by investing in the security of trading sector of the market. Since the standard deviation of the trading sector is the lowest while comparing with different other sector.

Expected return of the Other sector is highest among the other sector meaning different sector.

Invest in portfolio of hotel industry and trading sector will provide more return then other sector in the market since there exit negative correlation between two sector. The portfolio construction can reduce total risk with the condition that investments are made in more then two sector of the market.

The trend analysis suggests that the market has positive but very slow growth. This indicates that there exist investment environment but the return is not so attractive.

## 5.3 RECOMMENDATION AND SUGGESTIONS

Common stock is most risky security among all the marketable securities. Therefore, the investor must have proper knowledge and information to (make) take an investment decision. Before making an investment decision in stock market, the investors should analyze the market situation carefully by analyzing your own risk return attitude, needs and requirements. Make several discussions with stockbroker and make your decision on the basis of reliable information rather than rumor and imagination. Investor can join to investors groups and share experience, ideas and expertise to each other.

Proper analysis of individual stock industry and overall market is always demanded to make possible to beat the stock market. General knowledge is about economic, political technological trend is advantageous. This is proved by the present political situation of Nepal, which caused a great deterioration in the share price.

This study is focused on individual investors other related components of stock market are also taken into account to sources extent. On the basis of data analysis and major findings of this study following recommendation can be outlined.

- In this study, Since the return of Other Sector for given sample period is the highest so that investors could be more benefited if they invest in the

common stock of Other Sector. By the same time, the risk is also maximum of this stock which is consistent with risk and return theory. But

- From the correlation matrix the correlation coefficient of Hotel with stock of Trading is negative and Beta of Trading is 0.2698 which is defensive, investor can use stock of Trading to minimize the risk of portfolio.
- Since the correlation coefficient between different stock concept, correlation between Hotel with stock of trading and Development Bank with Other Sector have negative correlation and remaining Sectors are strongly positive correlated, the portfolio risk can not be minimized significantly. If the investors construct a portfolio of such securities which are negatively correlated, investor can be minimizing the risk.
- This study find out that the stock in sampling has higher return than market return and under the CAPM approach, stocks are under priced from this angle. Investors can grab the opportunity. New investors are suggesting purchasing and who are holding the stocks of this business sector, they do not sell the stocks.
- If the investor is risk averter. Then s/he can choose stock of Commercial Bank, if the investor is risk seeker the s/he can choose stock of Other Sector.
- To assess profitable investment, it is better to measure the coefficient of variation because C.V. is a measure of relative dispersion (risk), a measure of risk per unit of expected return and more useful than absolute one i.e. S.D. of a give security.

In conclusion, this study shows it is better to invest in individual sector rather than constructing portfolio between sectors to get higher return with bearing lower risk.

However, this study is done under certain limitation both methodological as well as scope limitation, further research in this field will give more information to the investors, market makers and corporate. For further study some recommendation are outlined.

- Portfolio Risk and return analysis of Nepalese stock market with reference to business sectors' index is completely untouched area in Nepalese context. It is strongly suggested that further study should be conducted on this topic and research should include primary data, all the listed companies of each sector and long period data will be use for research.
- It is recommended to use latest risk and return analysis tools and techniques. Risk and return based on optimal Portfolio.

# BIBLIOGRAPHY


Alexander, G. J., Sharpe, W. F. & Bailey, J.V. (2003). *Fundamentals of investment.* New Delhi: Prentice Hall.

Bhatta, G. P. (1995). *Assessment of the performance of listed companies in Nepal*. Kathamandu: An unpublished Master Degree Thesis submitted to Faculty of Management, TU

Bramante, R., and Gabbi, G. (2006). *Portfolio optimization under changing risk via time-varying beta, University*. Italy: Cattolica Del Sacro Cuore

Brands, S. and Gallagher, M (2005). *Portfolio selection, diversification and fund or funds.* Sydney: University of New South Wales.

Brealey, R.A. & Myers, S.C. (2001). *Principles of corporate finance*. New Delhi: Tata McGraw-Hill Publishing Company Limited.

Brigham, E. F. & Houston, J. F. (2001). *Fundamentals of financial management*. Singapore: A Harcourt Publishers International Company.

Chandra, P. (2002). *Financial management theory and practices*. New Delhi: Tata MC Graw Hill Publishing Company Ltd.

Cheney, J. M. & Moses, E. A. (1992). *Fundamentals of investment*, New York: West Publishing Company Ltd.

Fisher, D.E. & Jordan, R.J. (2000). *Security analysis and portfolio management*. New Delhi: Prentice Hall of India Pvt. Ltd.

Francis. J. Clark. (1990). *Investment analysis and management*. Chicago: Mc GrawHill.

Ghimire, A. R. (2001). *Nepali share market an investor prospects*. Kathamandu:

An unpublished Master Degree Thesis submitted to Faculty of Management, TU

Horne, V. and Copland, J. (2000). *Financial management and policy*. 11th Edition, New Delhi: Prentice Hall of India Private Limited.

Kansakar, S. (2003). *Risk and return analysis of manufacturing industries in Nepal*. Kathamandu: An Unpublished Master Degree Thesis submitted to the Faculty of Management. T.U.

Lawrence, L. G. (1995). *Principle of managerial finance*. New York: Harper Collins Publishers.

Lohani, N. (1999). *A Handbook to investment analysis*. Kathmandu: Nabin Prakashan.

Madura, J. (2001) .*Financial markets and institutions.* New Delhi: South Western College Publishing.

Pandey, I.M. (1995). *Financial management*. New Delhi: Vikas Publication House Pvt. Ltd.

Sapkota, J. B. (2001). *Risk and return in commercial bank in Nepal*. Kathamandu: An Unpublished Master Degree Thesis submitted to the Faculty of Management. T.U.

Shrivasta R.M. (1995).*Financial management*. India: Pragati Prakashan Meerut

Shakya, N. (2006). *Risk and return analysis on common stock investment*. Kathamandu: An Unpublished Master Degree Thesis submitted to the Faculty of Management. T.U.

Shrestha, S. (2007). *Portfolio Behavior of commercial banks in Nepal*. Kathamandu: An Unpublished Master Degree Thesis submitted to the Faculty of Management. T.U.

Upadhyaya, S. (2007). *Risk and return on common stock investment of commercial banks in Nepal*. Kathamandu: An Unpublished Master Degree Thesis submitted to the Faculty of Management. T.U

Westorn, J. F. and Brigham, E. F, (1981). *Managerial Finance*. Tokyo: Holt standers International Editions.

Wolff, H. K. and Pant, P. R. (2005). *A handbook for social science research and thesis writing*. Kathmandu: Buddha Academic Enterprises Pvt. Ltd. Putalisadak.

**Journal and reports**

Annual Reports of SEBO/N.

Bates, Timothy and Bradford, William (1980). *An analysis of the portfolio behavior of black owned commercial banks* Journal of Finance

Brennan, Michael J. and Cao, H. Henry, (1997). *International Portfolio Investment flows* Journal of Finance. Vol. 10 No. 2.

Chhibbeer, A, & Dailami, M. (1990). *Fiscal policy and private investment in developing Countries.* W. D.C World Bank.

Elton, Edwin J. (1999). *Expected Return, Realized return and asset pricing tests* Journal of finance. Vol. 25 No. 3

Enally and Ravenscraft (1999) *The performance of Hedge Funds: Risk Return, and Incentives.*

Gopal and Sanchez (2005) *Analysis or Costumer portfolio and relationship management mode*

Ojha (2000). *Financial performance and common stock pricing.*

Kulkarni.P.V. (1992). *Corporate finance, principal and problems, Bombay: Himalayan publishing house.*

Mitchell, J. and Pulvion, G. (2001). *Characteristics of risk and return in risk arbitrage. The Journal of the operational research society,* Vol. 52 No. 2

Nepal Stock Exchange Ltd. (1994). *An Introduction to NEPSE, Kathmandu: NEPSE.*

Pokhrarel, N. (2006). *Stock Market doing well*, Business age-Nov 2

Pradhan, R. S. and Balampaki S.B. (2004). *Fundamentals of stock Returns in Nepal.*

*Quarterly Economic bulletin of NRB*

*Trading and annual reports of NEPSE*

**Web sites**

www.nepalstock.com

www.sebonp.com

**Appendix-1**

**1) Commercial Bank**

**Table No. 1**

**Rate of Return, Expected return, Standard Deviation, Variance and Coefficient of Variation**

| Fiscal Year | Rate of Return (r) | Expected Return E(r) | r - E(r) | $[r-E(r)]^2$ |
|---|---|---|---|---|
| 2058/059 | 0.7996 | 0.1917 | 0.6079 | 0.3695 |
| 2059/060 | 0.1234 | 0.1917 | -0.0683 | 0.0047 |
| 2060/061 | -0.4289 | 0.1917 | -0.6206 | 0.3851 |
| 2061/062 | -0.0517 | 0.1917 | -0.2434 | 0.0592 |
| 2062/063 | 0.1637 | 0.1917 | -0.028 | 0.0008 |
| 2063/064 | 0.3082 | 0.1917 | 0.1165 | 0.0136 |
| 2064/065 | 0.4273 | 0.1917 | 0.2356 | 0.0555 |
| **Total=** | | | | 0.8885 |

$$\textbf{Standard Deviation } (\pm) = \sqrt{\frac{\Sigma[r - E(r)^2}{N}} = \mathbf{0.3562}$$

$$\textbf{Variance } (\pm^2) = \mathbf{0.1269}$$

$$\textbf{Coefficient of Variation (C.V.)} = \frac{\pm}{E(r)} = \frac{0.3562}{0.1917} = \mathbf{1.8585}$$

**Table No. 2**

**Year wise Expected Rate of Returns Data**

| Fiscal Year | Rate of Return(Y) | Deviation from FY 2059/60(X) | XY | $X^2$ | Trend Value |
|---|---|---|---|---|---|
| 2058/059 | 0.7996 | -3 | -2.3988 | 5.754 | 0.2493 |
| 2059/060 | 0.1234 | -2 | -0.2468 | 0.061 | 0.2301 |
| 2060/061 | -0.4289 | -1 | 0.4289 | 0.184 | 0.2109 |

| | | | | | |
|---|---|---|---|---|---|
| 2061/062 | -0.0517 | 0 | 0 | 0 | 0.1917 |
| 2062/063 | 0.1637 | 1 | 0.1637 | 0.027 | 0.1724 |
| 2063/064 | 0.3082 | 2 | 0.6164 | 0.380 | 0.1532 |
| 2064/065 | 0.4273 | 3 | 1.2819 | 1.643 | 0.1340 |
| Total | **1.3416** | 0 | -0.155 | 8.049 | |

We have,

The Equation of trend line is $Y_c = a + bx$

Here, $\Sigma X = 0$ , $a = \frac{\sum Y}{N} = \frac{1.3416}{7} = 0.1917$

$$b = \frac{\sum XY}{\sum X^2} = \frac{-0.155}{8.049} = -0.0192$$

**2) Manufacturing and Processing**

**Table No. 3**

**Rate of Return, Expected return, Standard Deviation ,Variance and Coefficient of Variation**

| Fiscal Year | Rate of Return (r) | Expected Return E(r) | r - E(r) | $[r-E(r)]^2$ |
|---|---|---|---|---|
| 2058/059 | 0.4657 | 0.0545 | 0.4112 | 0.16909 |
| 2059/060 | 0.0256 | 0.0545 | -0.0289 | 0.0008 |
| 2060/061 | -0.2165 | 0.0545 | -0.271 | 0.0734 |
| 2061/062 | -0.086 | 0.0545 | -0.1405 | 0.01974 |
| 2062/063 | 0.0218 | 0.0545 | -0.0327 | 0.0011 |
| 2063/064 | 0.0819 | 0.0545 | 0.0274 | 0.0008 |
| 2064/065 | 0.089 | 0.0545 | 0.0345 | 0.0012 |
| **Total=** | | | | 0.2661 |

**Standard Deviation (±) =** $\sqrt{\frac{\Sigma[r - E(r)^2}{N}}$ **= 0.1950**

**Variance ($\pm^2$) = 0.0380**

**Coefficient of Variation (C.V.) =** $\frac{\pm}{E(r)} = \frac{0.5348}{0.0010}$ **= 3.5776**

**Table No. 4**

**Year wise Expected Rate of Returns Data**

| Fiscal Year | Rate of Return(Y) | Deviation from FY 2059/60(X) | XY | $X^2$ | Trend Value |
|---|---|---|---|---|---|
| 2058/059 | 0.4657 | -3 | -1.3971 | 1.952 | 1.1677 |
| 2059/060 | 0.0256 | -2 | -0.0512 | 0.003 | 0.7966 |

| | | | | | |
|---|---|---|---|---|---|
| 2060/061 | -0.2165 | -1 | 0.2165 | 0.047 | 0.4256 |
| 2061/062 | -0.086 | 0 | 0 | 0 | 0.0545 |
| 2062/063 | 0.0218 | 1 | 0.0218 | 0.000 | -0.3166 |
| 2063/064 | 0.0819 | 2 | 0.1638 | 0.027 | -0.6876 |
| 2064/065 | 0.089 | 3 | 0.267 | 0.071 | -1.0587 |
| Total | **0.3815** | 0 | -0.779 | 2.100 | |

We have,

The Equation of trend line is $Y_c = a + bx$

Here, $\Sigma X = 0$ , $a = \frac{\sum Y}{N} = \frac{0.3815}{7} = 0.0545$

$$b = \frac{\sum XY}{\sum X^2} = \frac{-0.779}{2.100} = -0.3711$$

**3) Hotel**

**Table No. 5**

**Rate of Return, Expected return, Standard Deviation Variance and Coefficient of Variation**

| Fiscal Year | Rate of Return (r) | Expected Return E(r) | r - E(r) | $[r-E(r)]^2$ |
|---|---|---|---|---|
| 2058/059 | 0.4273 | -0.0234 | 0.4507 | 0.2031305 |
| 2059/060 | -0.1583 | -0.0234 | -0.1349 | 0.018198 |
| 2060/061 | -0.2568 | -0.0234 | -0.2334 | 0.0544756 |
| 2061/062 | -0.0916 | -0.0234 | -0.0682 | 0.0046512 |
| 2062/063 | -0.0624 | -0.0234 | -0.039 | 0.001521 |
| 2063/064 | -0.0377 | -0.0234 | -0.0143 | 0.0002045 |
| 2064/065 | 0.0156 | -0.0234 | 0.039 | 0.001521 |
| Total | | | | 0.2837 |

**Standard Deviation (±) =** $\sqrt{\frac{\Sigma[r-E(r)^2}{N}}$ **= 0.2013**

**Variance ($\pm^2$) = 0.0405**

**Coefficient of Variation (C.V.) =** $\frac{\pm}{E(r)}$ **= - 8.6033* [Risk per expected return is negative]**

**Table No. 6**

**Year wise Expected Rate of Returns Data**

| Fiscal Year | Rate of Return(Y) | Deviation from FY 2059/60(X) | XY | $X^2$ | Trend Value |
|---|---|---|---|---|---|
| 2058/059 | 0.4273 | -3 | -1.2819 | 1.643 | 1.2936 |
| 2059/060 | -0.1583 | -2 | 0.3166 | 0.100 | 0.8546 |
| 2060/061 | -0.2568 | -1 | 0.2568 | 0.066 | 0.4156 |
| 2061/062 | -0.0916 | 0 | 0 | 0 | -0.0234 |
| 2062/063 | -0.0624 | 1 | -0.0624 | 0.004 | -0.4624 |
| 2063/064 | -0.0377 | 2 | -0.0754 | 0.006 | -0.9014 |
| 2064/065 | 0.0156 | 3 | 0.0468 | 0.002 | -1.3404 |
| Total | **-0.1639** | 0 | -0.800 | 1.821 | |

We have,

The Equation of trend line is $Y_c = a + bx$

Here, $\Sigma X = 0$ , $a = \frac{\sum Y}{N} = \frac{-0.1639}{7} = -0.0234$

$b = \frac{\sum XY}{\sum X^2} = \frac{-0.80}{1.821} = -0.4390$

**4) Trading**

**Table No. 7**

**Rate of Return, Expected return, Standard Deviation, Variance and Coefficient of Variation**

| Fiscal Year | Rate of Return (r) | Expected Return E(r) | r - E(r) | $[r-E(r)]^2$ |
|---|---|---|---|---|
| 2058/059 | -0.002 | 0.035 | -0.037 | 0.0014 |
| 2059/060 | -0.0662 | 0.035 | -0.1012 | 0.0102 |
| 2060/061 | -0.1155 | 0.035 | -0.1505 | 0.0227 |
| 2061/062 | -0.0748 | 0.035 | -0.1098 | 0.0121 |
| 2062/063 | 0.0048 | 0.035 | -0.0302 | 0.0009 |
| 2063/064 | 0.2967 | 0.035 | 0.2617 | 0.0685 |
| 2064/065 | 0.2022 | 0.035 | 0.1672 | 0.0280 |
| **Total=** | | | | 0.1437 |

**Standard Deviation(±) =** $\sqrt{\frac{\Sigma[r-E(r)^2}{N}}$ **= 0.1433**

**Variance ($\pm^2$) = 0.0205**

**Coefficient of Variation (C.V.) =** $\frac{\pm}{E(r)}$ **= 4.093**

**Table No. 8**

**Year wise Expected Rate of Returns**

| Fiscal Year | Rate of Return(Y) | Deviation from FY 2059/60(X) | XY | $X^2$ | Trend Value |
|---|---|---|---|---|---|
| 2058/059 | -0.002 | -3 | 0.006 | 0.000 | -5.7919 |
| 2059/060 | -0.0662 | -2 | 0.1324 | 0.018 | -3.8496 |
| 2060/061 | -0.1155 | -1 | 0.1155 | 0.013 | -1.9073 |
| 2061/062 | -0.0748 | 0 | 0 | 0 | 0.0350 |
| 2062/063 | 0.0048 | 1 | 0.0048 | 0.000 | 1.9773 |
| 2063/064 | 0.2967 | 2 | 0.5934 | 0.352 | 3.9196 |
| 2064/065 | 0.2022 | 3 | 0.6066 | 0.368 | 5.8619 |
| Total | 0.2452 | 0 | 1.459 | 0.751 | |

We have,

The Equation of trend line is $Y_c = a + bx$

Here, $\Sigma X = 0$ , $a = \frac{\sum Y}{N} = \frac{0.2452}{7} = 0.0010$

$$b = \frac{\sum XY}{\sum X^2} = \frac{0.459}{0.751} = 0.0187$$

**5) Insurance**

**Table No. 9**

**Rate of Return, Expected return, Standard Deviation and Variance and Coefficient of Variation**

| Fiscal Year | Rate of Return (r) | Expected Return E(r) | r - E(r) | $[r-E(r)]^2$ |
|---|---|---|---|---|
| 2058/059 | 0.5614 | 0.1231 | 0.4383 | 0.1921069 |
| 2059/060 | 0.0413 | 0.1231 | -0.0818 | 0.0066912 |
| 2060/061 | -0.0327 | 0.1231 | -0.1558 | 0.0242736 |
| 2061/062 | -0.2364 | 0.1231 | -0.3595 | 0.1292403 |
| 2062/063 | -0.0125 | 0.1231 | -0.1356 | 0.0183874 |
| 2063/064 | 0.349 | 0.1231 | 0.2259 | 0.0510308 |
| 2064/065 | 0.1916 | 0.1231 | 0.0685 | 0.0046923 |
| Total | | | | 0.4264 |

**Standard Deviation (±)=** $\sqrt{\frac{\Sigma[r-E(r)^2}{N}}$ **= 0.2468**

**Variance ($\pm^2$) = 0.0609**

**Coefficient of Variation (C.V.) =** $\frac{\pm}{E(r)}$ **=** $\frac{0.5349}{0.0089}$ **= 2.005**

**Table No. 10**
**Year wise Expected Rate of Returns**

| Fiscal Year | Rate of Return(Y) | Deviation from FY 2059/60(X) | XY | $X^2$ | Trend Value |
|---|---|---|---|---|---|
| 2058/059 | 0.5614 | -3 | -1.6842 | 2.837 | 0.51123 |
| 2059/060 | 0.0413 | -2 | -0.0826 | 0.007 | 0.38185 |
| 2060/061 | -0.0327 | -1 | 0.0327 | 0.001 | 0.25248 |
| 2061/062 | -0.2364 | 0 | 0 | 0 | 0.12310 |
| 2062/063 | -0.0125 | 1 | -0.0125 | 0.000 | -0.00628 |
| 2063/064 | 0.349 | 2 | 0.698 | 0.487 | -0.13565 |
| 2064/065 | 0.1916 | 3 | 0.5748 | 0.330 | -0.26503 |
| Total | **0.8617** | 0 | -0.474 | 3.662 | |

We have,

The Equation of trend line is $Y_c = a + bx$

Here, $\Sigma X = 0$ , $a = \frac{\sum Y}{N} = \frac{0.8617}{7} = 0.1231$

$$b = \frac{\sum XY}{\sum X^2} = \frac{-0.474}{3.662} = -\ 0.1294$$

**6) Finance**

**Table No. 11**

**Rate of Return, Expected return, Standard Deviation, Variance and Coefficient of Variation**

| Fiscal Year | Rate of Return (r) | Expected Return E(r) | r - E(r) | $[r-E(r)]^2$ |
|---|---|---|---|---|
| 2058/059 | 0.5614 | 0.0644 | 0.497 | 0.247009 |
| 2059/060 | 0.0413 | 0.0644 | -0.0231 | 0.0005336 |
| 2060/061 | -0.1952 | 0.0644 | -0.2596 | 0.0673922 |
| 2061/062 | -0.2065 | 0.0644 | -0.2709 | 0.0733868 |
| 2062/063 | -0.0574 | 0.0644 | -0.1218 | 0.0148352 |
| 2063/064 | 0.1634 | 0.0644 | 0.099 | 0.009801 |
| 2064/065 | 0.1437 | 0.0644 | 0.0793 | 0.0062885 |
| Total | | | | 0.4192 |

**Standard Deviation(±) =** $\sqrt{\frac{\Sigma[r - E(r)^2}{N}}$ **= 0.2447**

**Variance ($\pm^2$) = 0.0599**

**Coefficient of Variation (C.V.) =** $\frac{\pm}{E(r)} = \frac{0.5349}{0.0056}$ **= 3.8001**

**Table No. 12**

**Year wise Expected Rate of Returns Data of Finance**

| Fiscal Year | Rate of Return(Y) | Deviation from FY 2059/60(X) | XY | $X^2$ | Trend Value |
|---|---|---|---|---|---|
| 2058/059 | 0.5614 | -3 | -1.6842 | 2.837 | 0.8869 |
| 2059/060 | 0.0413 | -2 | -0.0826 | 0.007 | 0.6127 |
| 2060/061 | -0.1952 | -1 | 0.1952 | 0.038 | 0.3385 |
| 2061/062 | -0.2065 | 0 | 0 | 0 | 0.0644 |
| 2062/063 | -0.0574 | 1 | -0.0574 | 0.003 | -0.2098 |
| 2063/064 | 0.1634 | 2 | 0.3268 | 0.107 | -0.4839 |
| 2064/065 | 0.1437 | 3 | 0.4311 | 0.186 | -0.7581 |
| Total | **0.4507** | 0 | -0.871 | 3.177 | |

We have,

The Equation of trend line is $Y_c = a + bx$

Here, $\Sigma X = 0$ , $a = \frac{\sum Y}{N} = \frac{0.4507}{7} = 0.0644$

$$b = \frac{\sum XY}{\sum X^2} = \frac{-0.871}{3.177} = -0.2742$$

**7) Development Bank**

**Table No. 13**

**Rate of Return, Expected return, Standard Deviation and Variance and Coefficient of Variation**

**Table: 4.4**

| Fiscal Year | Rate of Return (r) | Expected Return E(r) | r - E(r) | $[r-E(r)]^2$ |
|---|---|---|---|---|
| 2058/059 | J= | J= | J= | J= |
| 2059/060 | J= | J= | J= | J= |
| 2060/061 | -0.63 | 0.0235 | -0.6535 | 0.4270623 |
| 2061/062 | -0.0566 | 0.0235 | -0.0801 | 0.006416 |
| 2062/063 | -0.2322 | 0.0235 | -0.2557 | 0.0653825 |
| 2063/064 | 0.2158 | 0.0235 | 0.1923 | 0.0369793 |
| 2064/065 | 0.2173 | 0.0235 | 0.1938 | 0.0375584 |
| Total | | | | 0.5734 |

**Standard Deviation(±) =** $\sqrt{\frac{\Sigma[r - E(r)^2}{N}}$ **= 0.3386**

**Variance ($\pm^2$) = 0.1147**

**Coefficient of Variation (C.V.) =** $\frac{\pm}{E(r)}$ **= 14.4104**

**Table No. 14**

**Year wise Expected Rate of Returns**

| Fiscal Year | Rate of Return(Y) | Deviation from FY 2059/60(X) | XY | $X^2$ | Trend Value |
|---|---|---|---|---|---|
| 2058/059 | – | -3 | – | – | |
| 2059/060 | – | -2 | – | – | |
| 2060/061 | -0.063 | -1 | 0.063 | 0.004 | -1.3158 |
| 2061/062 | -0.0566 | 0 | 0 | 0 | 0.0235 |
| 2062/063 | -0.2322 | 1 | -0.2322 | 0.054 | 1.3627 |
| 2063/064 | 0.2518 | 2 | 0.5036 | 0.254 | 2.7019 |
| 2064/065 | 0.2173 | 3 | 0.6519 | 0.425 | 4.0411 |
| Total | **0.1173** | 0 | 0.986 | 0.736 | |

We have,

The Equation of trend line is $Y_c = a + bx$

Here, $\Sigma X = 0$ , $a = \frac{\sum Y}{N} = \frac{0.1173}{7} = 0.0235$

$$b = \frac{\sum XY}{\sum X^2} = \frac{0.986}{0.736} = 1.3392$$

**8) Other Sectors**

**Rate of Return, Expected return, Standard Deviation and Variance and Coefficient of Variation**

**Table 15**

| Fiscal Year | Rate of Return (r) | Expected Return E(r) | r - E(r) | $[r-E(r)]^2$ |
|---|---|---|---|---|
| 2058/059 | -0.171 | 0.2898 | -0.4608 | 0.2123 |
| 2059/060 | -0.3834 | 0.2898 | -0.6732 | 0.4532 |
| 2060/061 | -0.5991 | 0.2898 | -0.8889 | 0.7901 |
| 2061/062 | -0.3721 | 0.2898 | -0.6619 | 0.4381 |
| 2062/063 | 1.9376 | 0.2898 | 1.6478 | 2.7152 |
| 2063/064 | 1.4371 | 0.2898 | 1.1473 | 1.3163 |
| 2064/065 | 0.1793 | 0.2898 | -0.1105 | 0.0122 |
| Total | 2.0284 | 2.0286 | -0.0002 | 5.9375 |

**Standard Deviation (±)=** $\sqrt{\frac{\Sigma[r - E(r)^2}{N}}$ **= 0.9210**

**Variance ($\pm^2$) = 0.8482**

**Coefficient of Variation (C.V.) =** $\frac{\pm}{E(r)} = \frac{0.5402}{0.0322}$ **= 3.1780**

**Table No. 16**

**Year wise Expected Rate of Returns Data of Other Sector**

| Fiscal Year | Rate of Return(Y) | Deviation from FY 2059/60(X) | XY | $X^2$ | Trend Value |
|---|---|---|---|---|---|
| 2058/059 | -0.171 | -3 | 0.513 | 0.263 | -1.3148 |
| 2059/060 | -0.3834 | -2 | 0.7668 | 0.588 | -0.7800 |
| 2060/061 | -0.5991 | -1 | 0.5991 | 0.359 | -0.2451 |
| 2061/062 | -0.3721 | 0 | 0 | 0 | 0.2898 |
| 2062/063 | 1.9376 | 1 | 1.9376 | 3.754 | 0.8246 |
| 2063/064 | 1.4371 | 2 | 2.8742 | 8.261 | 1.3595 |
| 2064/065 | 0.1793 | 3 | 0.5379 | 0.289 | 1.8944 |
| Total | **2.0284** | 0 | 7.229 | 13.515 | |

We have,

The Equation of trend line is $Y_c = a + bx$

Here, $\Sigma X = 0$ , $a = \frac{\sum Y}{N} = \frac{0.0284}{7} = 0.2898$

$$b = \frac{\sum XY}{\sum X^2} = \frac{7.229}{13.515} = 0.5349$$

## 9) Market

**Table No. 17**

**Rate of Return, Expected Return, S.D. and C.V**

| Fiscal Year | Rate of Return (r) | Expected Return | r - E(r) | $[r-E(r)]^2$ |
|---|---|---|---|---|
| | | E(r) | | |
| 2058/059 | 0.6522 | 0.1302 | 0.522 | 0.2725 |
| 2059/060 | -0.0268 | 0.1302 | -0.157 | 0.0246 |
| 2060/061 | -0.354 | 0.1302 | -0.4842 | 0.2344 |
| 2061/062 | -0.0775 | 0.1302 | -0.2077 | 0.0431 |
| 2062/063 | 0.0862 | 0.1302 | -0.044 | 0.0019 |
| 2063/064 | | | | |
| 2064/065 | | | | |

Data Source : NEPSE Index.

We have, **Standard Deviation (±)=** $\sqrt{\frac{\Sigma[r - E(r)^2}{N}}$ **= 0.3040**

**Variance ($\pm^2$) = 0.0924**

**Coefficient of Variation (C.V.) =** $\frac{\pm}{E(r)}$ **= 2.3349**

**Table 18**

**Year wise Expected Rate of Returns**

We have,

The Equation of trend line is $Y_c = a + bx$

Here, $\Sigma X = 0$ , $a = \frac{\sum Y}{N} = \frac{0.9112}{7} = 0.1302$

$b = \frac{\sum XY}{\sum X^2} = \frac{0.143}{5.357} = 0.0267$

**Table 19**
**Covariance between Sectors**

$$\textbf{Cov(i,j)} = \frac{\Sigma[R_i - E(R_i)] \times [R_j - E(R_j)]}{N}$$

| Fiscal Year | Rate of Return(Y) | Deviation from FY 2061/062(X) | XY | $X^2$ | Trend Value |
|---|---|---|---|---|---|
| 2058/059 | 0.6522 | -3 | -1.9566 | 3.828 | 0.05009 |
| 2059/060 | -0.0268 | -2 | 0.0536 | 0.003 | 0.07678 |
| 2060/061 | -0.354 | -1 | 0.354 | 0.125 | 0.10348 |
| 2061/062 | -0.0775 | 0 | 0 | 0 | 0.13017 |
| 2062/063 | 0.0862 | 1 | 0.0862 | 0.007 | 0.15687 |
| 2063/064 | 0.2875 | 2 | 0.575 | 0.331 | 0.18356 |
| 2064/065 | 0.3436 | 3 | 1.0308 | 1.063 | 0.21025 |
| Total | **0.9112** | 0 | 0.143 | 5.357 | |

| **S.No.** | **Sectors** | C.Bank | Mfg. Pro. | Hotel | Trading | Insurance | Finance | Dev Bank | Other |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Commercial Bank | 1 | 0.0667 | 0.0648 | 0.0237 | 0.0718 | 0.0814 | 0.0218 | 0.0771 |
| 2 | Mfg. and Pro. | | 1 | 0.0378 | 0.0077 | 0.0412 | 0.0465 | 0.008 | 0.0197 |
| 3 | Hotel | | | 1 | 0.0037 | 0.0392 | 0.0463 | 0.0057 | 0.0072 |
| 4 | Trading | | | | 1 | 0.017 | 0.0129 | 0.0174 | 0.0621 |
| 5 | Insurance | | | | | 1 | 0.0584 | 0.0203 | 0.0368 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6 | Finance | | | | | | 1 | 0.0162 | 0.0223 |

**Calculation of Required Rate of Return and Price Evaluation By CAPM Model**

| *S.No.* | *Sectors* | *Beta Coeff.* | *Required Rate of Return* | *Expected Return E ( $r_i$ )* | *Price Situation* |
|---|---|---|---|---|---|
| 1 | Commercial Bank | 1.1831 | -0.0002 | 0.0163 | Underpriced |
| 2 | Mfg. and Processing | 0.577 | 0.0220 | 0.001 | Overpriced |
| 3 | Hotel | 0.5865 | 0.0217 | -0.0022 | Overpriced |
| 4 | Trading | 0.2698 | 0.0333 | 0.001 | Overpriced |
| 5 | Insurance | 0.7707 | 0.0149 | 0.0089 | Overpriced |
| 6 | Finance | 0.6612 | 0.0189 | 0.0056 | Overpriced |
| 7 | Development Bank | 0.5462 | 0.0232 | 0.0137 | Overpriced |
| 8 | Other Sector | 2.2349 | -0.0388 | 0.0322 | Underpriced |

Required Rate of Return = $E(r_i) = r_i + [E(r_m) - r_f)b_i$

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7 | Dev.t Bank | | | | | | | 1 | -0.0073 |
| 8 | Other Sector | | | | | | | | 1 |

**Table No. 20**

**Correlation Matrix**

| S.No. | Sectors | C. Bank | Mfg. Pro. | Hotel | Trading | Insurance | Finance | Dev Bank | Other |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Commercial Bank | 1 | 0.9643 | 0.9035 | 0.4642 | 0.8165 | 0.934 | 0.1807 | 0.2350 |
| 2 | Mfg. and Pro. | | 1 | 0.9630 | 0.2756 | 0.8561 | 0.975 | 0.1212 | 0.1097 |
| 3 | Hotel | | | 1 | -0.1283 | 0.7890 | 0.940 | 0.0836 | 0.0388 |
| 4 | Trading | | | | 1 | 0.4807 | 0.368 | 0.3586 | 0.4705 |
| 5 | Insurance | | | | | 1 | 0.967 | 0.2429 | 0.1619 |
| 6 | Finance | | | | | | 1 | 0.1955 | 0.0989 |
| 7 | Dev. Bank | | | | | | | 1 | -0.0234 |
| 8 | Other Sector | | | | | | | | 1 |

## Appendix 2

Calculation Beta Coeeficient of individual sector

**Covariance between Market and Commercial Bank**

**Table: 4.2**

| Fiscal Year | $r_m - E(r_m)$ (A) | $r_c - E(r_c)$ (B) | (A) *(B) |
|---|---|---|---|
| 2058/059 | 0.0213 | 0.035 | 0.0007 |
| 2059/060 | -0.0044 | 0.0026 | 0.0000 |
| 2060/061 | -0.0365 | -0.0488 | 0.0018 |
| 2061/062 | -0.0124 | -0.0188 | 0.0002 |
| 2062/063 | 0.0004 | -0.0032 | 0.0000 |
| 2063/064 | 0.014 | 0.0059 | 0.0001 |
| 2064/065 | 0.0175 | 0.0276 | 0.0005 |

| | | | |
|---|---|---|---|
| Total | Σ r - E(r)= -0.0001 | Σ r - E(r)= 0.0003 | 0.0033 |

COV (c,m) = 0.0005

$\beta_c = \frac{Cov(c,m)}{\sigma_m^2}$ = 1.1831

**Covariance between Market and Manufacturing and Processing**

**Table: 4.2**

| Fiscal Year | $r_m - E(r_m)$ (A) | $r_{mp} - E(r_{mp})$ (B) | (A) *(B) |
|---|---|---|---|
| 2058/059 | 0.0213 | 0.0315 | 0.0007 |
| 2059/060 | -0.0044 | 0.0031 | 0.0000 |
| 2060/061 | -0.0365 | -0.0186 | 0.0007 |
| 2061/062 | -0.0124 | -0.00876 | 0.0001 |
| 2062/063 | 0.0004 | -0.0179 | 0.0000 |
| 2063/064 | 0.014 | 0.0042 | 0.0001 |
| 2064/065 | 0.0175 | 0.0068 | 0.0001 |
| Total | Σ r - E(r)= -0.0001 | Σ r - E(r)= 0.0003 | 0.0016 |

COV (mp,m) = 0.0002

$\beta_{mp} = \frac{Cov(mp,m)}{\sigma_m^2}$ = 0.5770

**Covariance between Market and Hotel**

**Table: 4.2**

| Fiscal Year | $r_m - E(r_m)$ (A) | $r_h - E(r_h)$ (B) | (A) *(B) |
|---|---|---|---|
| 2058/059 | 0.0213 | 0.0375 | 0.0008 |
| 2059/060 | -0.0044 | -0.0107 | 0.0000 |
| 2060/061 | -0.0365 | -0.0195 | 0.0007 |
| 2061/062 | -0.0124 | -0.00482 | 0.0001 |
| 2062/063 | 0.0004 | -0.0038 | 0.0000 |
| 2063/064 | 0.014 | -0.0015 | 0.0000 |
| 2064/065 | 0.0175 | 0.0027 | 0.0000 |
| Total | Σ r - E(r)= -0.0001 | Σ r - E(r)= -0.0001 | 0.0016 |

COV (h,m) = 0.0002

$\beta_h = \frac{Cov(h,m)}{\sigma_m^2}$ = 0.5865

**Covariance between Market and Trading**

**Table: 4.2**

| Fiscal Year | $r_m - E(r_m)$ (A) | $r_t - E(r_t)$ (B) | (A) *(B) |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 2058/059 | 0.0213 | -0.0108 | -0.0002 |
| 2059/060 | -0.0044 | -0.004 | 0.0000 |
| 2060/061 | -0.0365 | -0.0094 | 0.0003 |
| 2061/062 | -0.0124 | -0.0089 | 0.0001 |
| 2062/063 | 0.0004 | 0 | 0.0000 |
| 2063/064 | 0.014 | 0.018 | 0.0003 |
| 2064/065 | 0.0175 | 0.015 | 0.0003 |
| Total | Σ r - E(r)= - 0.0001 | Σ r - E(r)= - 0.0001 | 0.0008 |

COV ($t$,m) = 0.0001

$\beta_t = \frac{Cov(t,m)}{\sigma_m^2}$ = 0.2698

**Covariance between Market and Insurance**

**Table: 4.2**

| Fiscal Year | $r_m - E(r_m)$ (A) | $r_i - E(r_i)$ (B) | (A) *(B) |
|---|---|---|---|
| 2058/059 | 0.0213 | 0.0376 | 0.0008 |
| 2059/060 | -0.0044 | -0.0052 | 0.0000 |
| 2060/061 | -0.0365 | -0.0163 | 0.0006 |
| 2061/062 | -0.0124 | -0.0304 | 0.0004 |
| 2062/063 | 0.0004 | -0.0101 | 0.0000 |
| 2063/064 | 0.014 | 0.0183 | 0.0003 |
| 2064/065 | 0.0175 | 0.0063 | 0.0001 |
| Total | Σ r - E(r)= - 0.0001 | Σ r - E(r)= 0.0002 | 0.0022 |

COV ($i$,m) = 0.0003

$\beta_i = \frac{Cov(i,m)}{\sigma_m^2}$ = 0.7707

**Covariance between Market and Finance**

**Table: 4.2**

| Fiscal Year | $r_m - E(r_m)$ (A) | $r_f - E(r_f)$ (B) | (A) *(B) |
|---|---|---|---|
| 2058/059 | 0.0213 | 0.0409 | 0.0009 |
| 2059/060 | -0.0044 | -0.0019 | 0.0000 |
| 2060/061 | -0.0365 | -0.0134 | 0.0005 |
| 2061/062 | -0.0124 | -0.0247 | 0.0003 |
| 2062/063 | 0.0004 | -0.0127 | 0.0000 |
| 2063/064 | 0.014 | 0.0061 | 0.0001 |
| 2064/065 | 0.0175 | 0.0055 | 0.0001 |
| Total | Σ r - E(r)= - 0.0001 | Σ r - E(r)= - 0.0002 | 0.0019 |

0.0003

$\frac{Cov(f,m)}{\sigma_m^2}$

COV (f,m) =

$\beta_f$ = 0.6612

**Covariance between Market and Development Bank**

**Table: 4.2**

| Fiscal Year | $r_m - E(r_m)$ (A) | $r_d - E(r_d)$ (B) | (A) *(B) |
|---|---|---|---|
| 2058/059 | 0.0213 | - | - |
| 2059/060 | -0.0044 | - | - |
| 2060/061 | -0.0365 | -0.0276 | 0.0010 |
| 2061/062 | -0.0124 | -0.0178 | 0.0002 |
| 2062/063 | 0.0004 | 0.0266 | 0.0000 |
| 2063/064 | 0.014 | 0.011 | 0.0002 |
| 2064/065 | 0.0175 | 0.0078 | 0.0001 |
| Total | Σ r - E(r)= - 0.0001 | Σ r - E(r)= - 0.0274 | 0.0015 |

COV (d,m) 0.0002

$\beta_d = \frac{Cov(d,m)}{\pm_m^2}$ 0.5462

**Covariance between Market and Other Sector**

**Table: 4.2**

| Fiscal Year | $r_m - E(r_m)$ (A) | $r_d - E(r_d)$ (B) | (A) *(B) |
|---|---|---|---|
| 2058/059 | 0.0213 | 0.0338 | 0.0007 |
| 2059/060 | -0.0044 | -0.0667 | 0.0003 |
| 2060/061 | -0.0365 | -0.096 | 0.0035 |
| 2061/062 | -0.0124 | -0.0658 | 0.0008 |
| 2062/063 | 0.0004 | 0.1279 | 0.0001 |
| 2063/064 | 0.014 | 0.084 | 0.0012 |
| 2064/065 | 0.0175 | -0.0173 | -0.0003 |
| Total | Σ r - E(r)= - 0.0001 | Σ r - E(r)= - 0.0001 | 0.0063 |

COV (o,m) 0.0009

$\beta_o = \frac{Cov(o,m)}{\pm_m^2}$ 2.2349

**Appendix-3**

**PORTFOLIO AND RISK DIVERSIFICATION ANALYSIS**E

$(R_p) = W_x\ E(R_x) + W_y\ E(R_y)$

$$\pm_p = \sqrt{\pm_x{}^2\ W_x{}^2 + \pm_y{}^2\ W_y{}^2\ x\ 2W_x\ W_y\ Cov.(R_x, R_y)}$$

$$W_i = \frac{\pm_j{}^2 - Cov(R_i, R_j)}{\pm_i{}^2 + \pm_j{}^2 - 2\,Cov(R_i, R_j)}$$

**1) Portfolio Between Commercial Bank And Manufacturing & Processing Sector**

**Table No. 1**

| Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|
| Commercial Bank | 0.1917 | 0.3563 | **0.0667** | **-0.9082** | **1.9082** |
| Mfg. and Processing | 0.0545 | 0.195 | | | |
| **W1(commercial bank)** | **W2(mfg & pro)** | **Portfolio Return** | **Portfolio Risk** | | |
| | | **$E(r_p)$** | **$\pm_p$** | | |
| -0.9082 | 1.9082 | **-0.0701** | **0.10947** | | |

**2) Portfolio Between Commercial Bank And Hotel**

**Table No. 2**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Commercial Bank | 0.1917 | 0.3563 | **0.0648** | **-0.6411** | **1.6411** |
| 2 | Hotel | -0.0234 | 0.2013 | | | |
| **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | | |
| | | **$E(r_p)$** | **$\pm_p$** | | | |
| -0.6411 | 1.6411 | **-0.1613** | **0.15798** | | | |

**3) Portfolio Between Commercial Bank And Trading**

**Table No. 3**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Commercial Bank | 0.1917 | 0.3563 | **0.0237** | **-0.0316** | **1.0316** |
| 2 | Trading | 0.035 | 0.1433 | | | |
| | **W1** | **W2** | Portfolio Return | Portfolio Risk | | |
| | | | **$E(r_p)$** | **$\pm_p$** | | |
| | -0.0316 | 1.0316 | **0.0300** | **0.14295** | | |

**4) Portfolio Between Commercial Bank And Insurance**

**Table No. 4**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | Commercial Bank | 0.1917 | 0.3563 | **0.0718** | **-0.2460** | **1.2460** |
| 2 | Insurance | 0.1231 | 0.2468 | | | |

| **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** |
|---|---|---|---|
| | | **$E(r_p)$** | **$\pm_p$** |
| -0.2460 | 1.2460 | **0.1062** | **0.24131** |

### 5) Portfolio Between Commercial Bank And Finance

**Table No. 5**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Commercial Bank | 0.1917 | 0.3563 | **0.0814** | **-0.8957** | **1.8957** |
| 2 | Finance | 0.0056 | 0.2447 | | | |

| **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** |
|---|---|---|---|
| | | **$E(r_p)$** | **$\pm_p$** |
| -0.8957 | 1.8957 | **-0.1611** | **0.20150** |

### 6) Portfolio Between Commercial Bank And Development Bank

**Table No. 6**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Commercial Bank | 0.1917 | 0.3563 | **0.0218** | **0.4689** | **0.5311** |
| 2 | Development Bank | 0.0235 | 0.3386 | | | |

| **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** |
|---|---|---|---|
| | | **$E(r_p)$** | **$\pm_p$** |
| 0.4689 | 0.5311 | **0.1024** | **0.26666** |

### 7) Portfolio Between Commercial Bank And Other Sector

**Table No. 7**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Commercial Bank | 0.1917 | 0.3563 | **0.0771** | **0.9393** | **0.0607** |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | Other Sector | 0.2898 | 0.921 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$-** | | |
| | 0.9393 | 0.0607 | **0.1977** | **0.35203** | | |

**8) Portfolio Between Manufacturing & Processing and Hotel**

**Table No. 8**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Mfg. and Processing | 0.0545 | 0.195 | **0.0378** | **0.9236** | **0.0764** |
| 2 | Hotel | -0.0234 | 0.2013 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$-** | | |
| | 0.9236 | 0.0764 | **0.0486** | **0.19496** | | |

**9) Portfolio Between Manufacturing & Processing and Trading**

**Table No. 9**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Mfg. and Processing | 0.0545 | 0.195 | **0.0077** | **0.2974** | **0.7026** |
| 2 | Trading | 0.035 | 0.1433 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$-** | | |
| | 0.2974 | 0.7026 | **0.0408** | **0.12930** | | |

**10) Portfolio Between Manufacturing & Processing and Insurance**

**Table No. 10**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Mfg. and Processing | 0.0545 | 0.195 | **0.0412** | **1.1920** | **-0.1920** |

| | | | | | | |
|---|---|---|---|---|---|---|
| 2 | Insurance | 0.1231 | 0.2468 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$-** | | |
| | 1.1920 | -0.1920 | **0.0413** | **0.19343** | | |

**11) Portfolio Between Manufacturing & Processing and Finance**

**Table No. 11**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Mfg. and Processing | 0.0545 | 0.195 | **0.0465** | **2.7285** | **-1.7285** |
| 2 | Finance | 0.0644 | 0.2447 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$-** | | |
| | 2.7285 | -1.7285 | **0.0374** | **0.15289** | | |

**12) Portfolio Between Manufacturing & Processing Sector and Development Bank**

**Table No. 12**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Mfg. and Processing | 0.0545 | 0.195 | **0.008** | **0.7803** | **0.2197** |
| 2 | Development Bank | 0.0235 | 0.3386 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$-** | | |
| | 0.7803 | 0.2197 | **0.0477** | **0.17728** | | |

**13) Portfolio Between Manufacturing & Processing and Other Sector**

**Table No. 13**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Mfg. and Processing | 0.0545 | 0.195 | **0.0197** | **0.9784** | **0.0216** |
| 2 | Other Sector | 0.2898 | 0.921 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |

| | | $E(r_p)$ | $\pm_p$- |
|---|---|---|---|
| 0.9784 | 0.0216 | **0.0596** | **0.19398** |

### 14) Portfolio Between Hotel and Trading

**Table No. 14**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Hotel | -0.0234 | 0.2013 | **0.0037** | **0.3138** | **0.6862** |
| 2 | Trading | 0.035 | 0.1433 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | $E(r_p)$ | $\pm_p$- | | |
| | 0.3138 | 0.6862 | **0.0167** | **0.12350** | | |

### 15) Portfolio Between Hotel and Insurance

**Table No. 15**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Hotel | -0.0234 | 0.2013 | **0.0392** | **0.9426** | **0.0574** |
| 2 | Insurance | 0.1231 | 0.2468 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | $E(r_p)$ | $\pm_p$- | | |
| | 0.9426 | 0.0574 | **-0.0150** | **0.20111** | | |

### 16) Portfolio Between Hotel and Finance

risk.

**Table No. 16**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Hotel | -0.0234 | 0.2013 | **0.0463** | **1.7408** | **-0.7408** |
| 2 | Finance | 0.0644 | 0.2447 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |

| | | $E(r_p)$ | $\pm_p$- |
|---|---|---|---|
| 1.7408 | -0.7408 | **-0.0884** | **0.19037** |

### 17) Portfolio Between Hotel and Development Bank

**Table No. 17**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Hotel | -0.0234 | 0.2013 | **0.0057** | **0.7578** | **0.2422** |
| 2 | Development Bank | 0.0235 | 0.3386 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | $E(r_p)$ | $\pm_p$- | | |
| | 0.7578 | 0.2422 | **-0.0120** | **0.17913** | | |

### 18) Portfolio Between Hotel and Other Sector

**Table No. 18**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Hotel | -0.0234 | 0.2013 | **0.0072** | **0.9619** | **0.0381** |
| 2 | Other Sector | 0.2898 | 0.921 | | | |
| | **W1** | **W2** | **Portfolio Return** | $\pm_p$- | | |
| | | | $E(r_p)$ | **0.00000** | | |
| | 0.9619 | 0.0381 | **-0.0115** | **0.03925** | | |

### 19) Portfolio Between Trading and Insurance

**Table No. 19**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Trading | 0.035 | 0.1433 | **0.017** | **0.9255** | **0.0745** |
| 2 | Insurance | 0.1231 | 0.2468 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | $E(r_p)$ | $\pm_p$- | | |
| | 0.9255 | 0.0745 | **0.0416** | **0.14238** | | |

### 20) Portfolio Between Trading And Finance

## Table No. 20

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Trading | 0.035 | 0.1433 | **0.0129** | **0.8602** | **0.1398** |
| 2 | Finance | 0.0644 | 0.2447 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$** | | |
| | 0.8602 | 0.1398 | **0.0391** | **0.13953** | | |

### 21) Portfolio Between Trading and Development Bank

## Table No. 21

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Trading | 0.035 | 0.1433 | **0.0174** | **0.9688** | **0.0312** |
| 2 | Development Bank | 0.0235 | 0.3386 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$** | | |
| | 0.9688 | 0.0312 | **0.0346** | **0.14296** | | |

### 22) Portfolio Between Trading and Other Sector

## Table No. 22

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Trading | 0.035 | 0.1433 | **0.0621** | **1.0558** | **-0.0558** |
| 2 | Other Sector | 0.2898 | 0.921 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$** | | |
| | 1.0558 | -0.0558 | **0.0208** | **0.13496** | | |

### 23) Portfolio Between Insurance and Finance

**Table No. 23**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Insurance | 0.1231 | 0.2468 | **0.0584** | **0.3706** | **0.6294** |
| 2 | Finance | 0.0644 | 0.2447 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$-** | | |
| | 0.3706 | 0.6294 | **0.0862** | **0.24358** | | |

### 24) Portfolio Between Insurance and Development Bank

**Table No. 24**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Insurance | 0.1231 | 0.2468 | **0.0203** | **0.6991** | **0.3009** |
| 2 | Development Bank | 0.0235 | 0.3386 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$-** | | |
| | 0.6991 | 0.3009 | **0.0931** | **0.22066** | | |

### 25) Portfolio Between Insurance and Other Sector

**Table No. 25**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Insurance | 0.1231 | 0.2468 | **0.0368** | **0.9711** | **0.0289** |
| 2 | Other Sector | 0.2898 | 0.921 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$-** | | |
| | 0.9711 | 0.0289 | **0.1279** | **0.24539** | | |

### 26) Portfolio Between Finance and Development Bank

**Table No. 26**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Finance | 0.0644 | 0.2447 | **0.0162** | **0.6927** | **0.3073** |
| 2 | Development Bank | 0.0235 | 0.3386 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$-** | | |
| | 0.6927 | 0.3073 | **0.0518** | **0.21553** | | |

### 27) Portfolio Between Finance and Others

**Table No. 27**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Finance | 0.0644 | 0.2447 | **0.0223** | **0.9565** | **0.0435** |
| 2 | Other Sector | 0.2898 | 0.921 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$-** | | |
| | 0.9565 | 0.0435 | **0.0742** | **0.24134** | | |

### 28) Portfolio Between Development Bank and Other Sector

**Table No. 28**

| S.No. | Sectors | Expected Return E ( r ) | Standard Deviation | Covariance | W1 | W2 |
|---|---|---|---|---|---|---|
| 1 | Development Bank | 0.0235 | 0.3386 | **-0.0073** | **0.8752** | **0.1248** |
| 2 | Other Sector | 0.2898 | 0.921 | | | |
| | **W1** | **W2** | **Portfolio Return** | **Portfolio Risk** | | |
| | | | **$E(r_p)$** | **$\pm_p$-** | | |
| | 0.8752 | 0.1248 | **0.0567** | **0.31533** | | |

## Appendix -4

# QUESTIONNAIRES

## PORTFOLIO RISK AND RETURN OF COMMON STOCK INVESTING IN DIFFERENT BUSINESS SECTORS

NAME:

AGE:

OCCUPATION:

REMUNERATION:

SEX:

I) BELOW 5000 (II) 5000-10000 (III) 10000-20000 (IV) ABOVE 20000

1. Do you know about common stock?

a. Yes b. No c. little bit

2. Which sector's stock do you want to buy?

a. Banking b. Manufacturing c. Hotel d. Trading

e. Insurance f. Finance g. Development Bank h. Other Sector

3. What you found in performance of stock market in Nepal?

a. Excellent b. Good c. Poor

4. What is the base for selecting specified shares?

a. Expert option b. Risk & Rate analysis c. Company reputation

d. Other

5. Which method do you use to calculate the return?

a. Multi period average returns b. Geometric Mean c. I don't know

6. Which one is the most reliable tool for the measurement of risk?

a. variance b. Standard deviation c. Co-efficient of variance

7. What is the main purpose of buying share?

a. For dividend b. Buy & Sell c. Getting capital gain

8. Do you think market index show the current situation of market?

a. Yes b. No c. I do not know

9. What types of dividend do you want from share?

a. Cash dividend b. Stock dividend (Bonus) c. Both

10. Would you know portfolio management?

a. Yes b. No, I don't know c. little bit

11. Would you know constructing portfolio between different type of securities minimize the risk?

a. Yes b. No, I don't know c. little bit

12. Would you construct portfolio between different types of securities before making investment?

a. Yes b. No, I don't construct.

# BIBLIOGRAPHY


Alexander, G. J., Sharpe, W. F. & Bailey, J.V. (2003). *Fundamentals of investment.* New Delhi: Prentice Hall.

Bhatta, G. P. (1995). *Assessment of the performance of listed companies in Nepal*. Kathamandu: An unpublished Master Degree Thesis submitted to Faculty of Management, TU

Bramante, R., and Gabbi, G. (2006). *Portfolio optimization under changing risk via time-varying beta, University*. Italy: Cattolica Del Sacro Cuore

Brands, S. and Gallagher, M (2005). *Portfolio selection, diversification and fund or funds.* Sydney: University of New South Wales.

Brealey, R.A. & Myers, S.C. (2001). *Principles of corporate finance*. New Delhi: Tata McGraw-Hill Publishing Company Limited.

Brigham, E. F. & Houston, J. F. (2001). *Fundamentals of financial management*. Singapore: A Harcourt Publishers International Company.

Chandra, P. (2002). *Financial management theory and practices*. New Delhi: Tata MC Graw Hill Publishing Company Ltd.

Cheney, J. M. & Moses, E. A. (1992). *Fundamentals of investment*, New York: West Publishing Company Ltd.

Fisher, D.E. & Jordan, R.J. (2000). *Security analysis and portfolio management*. New Delhi: Prentice Hall of India Pvt. Ltd.

Francis. J. Clark. (1990). *Investment analysis and management*. Chicago: Mc GrawHill.

Ghimire, A. R. (2001). *Nepali share market an investor prospects*. Kathamandu:

An unpublished Master Degree Thesis submitted to Faculty of Management, TU

Horne, V. and Copland, J. (2000). *Financial management and policy*. 11th Edition, New Delhi: Prentice Hall of India Private Limited.

Kansakar, S. (2003). *Risk and return analysis of manufacturing industries in Nepal*. Kathamandu: An Unpublished Master Degree Thesis submitted to the Faculty of Management. T.U.

Lawrence, L. G. (1995). *Principle of managerial finance*. New York: Harper Collins Publishers.

Lohani, N. (1999). *A Handbook to investment analysis*. Kathmandu: Nabin Prakashan.

Madura, J. (2001) .*Financial markets and institutions.* New Delhi: South Western College Publishing.

Pandey, I.M. (1995). *Financial management*. New Delhi: Vikas Publication House Pvt. Ltd.

Sapkota, J. B. (2001). *Risk and return in commercial bank in Nepal*. Kathamandu: An Unpublished Master Degree Thesis submitted to the Faculty of Management. T.U.

Shrivasta R.M. (1995).*Financial management*. India: Pragati Prakashan Meerut

Shakya, N. (2006). *Risk and return analysis on common stock investment*. Kathamandu: An Unpublished Master Degree Thesis submitted to the Faculty of Management. T.U.

Shrestha, S. (2007). *Portfolio Behavior of commercial banks in Nepal*. Kathamandu: An Unpublished Master Degree Thesis submitted to the Faculty of Management. T.U.

Upadhyaya, S. (2007). *Risk and return on common stock investment of commercial banks in Nepal*. Kathamandu: An Unpublished Master Degree Thesis submitted to the Faculty of Management. T.U

Westorn, J. F. and Brigham, E. F, (1981). *Managerial Finance*. Tokyo: Holt standers International Editions.

Wolff, H. K. and Pant, P. R. (2005). *A handbook for social science research and thesis writing*. Kathmandu: Buddha Academic Enterprises Pvt. Ltd. Putalisadak.

**Journal and reports**

Annual Reports of SEBO/N.

Bates, Timothy and Bradford, William (1980). *An analysis of the portfolio behavior of black owned commercial banks* Journal of Finance

Brennan, Michael J. and Cao, H. Henry, (1997). *International Portfolio Investment flows* Journal of Finance. Vol. 10 No. 2.

Chhibbeer, A, & Dailami, M. (1990). *Fiscal policy and private investment in developing Countries.* W. D.C World Bank.

Elton, Edwin J. (1999). *Expected Return, Realized return and asset pricing tests* Journal of finance. Vol. 25 No. 3

Enally and Ravenscraft (1999) *The performance of Hedge Funds: Risk Return, and Incentives.*

Gopal and Sanchez (2005) *Analysis or Costumer portfolio and relationship management mode*

Ojha (2000). *Financial performance and common stock pricing.*

Kulkarni.P.V. (1992). *Corporate finance, principal and problems, Bombay: Himalayan publishing house.*

Mitchell, J. and Pulvion, G. (2001). *Characteristics of risk and return in risk arbitrage. The Journal of the operational research society,* Vol. 52 No. 2

Nepal Stock Exchange Ltd. (1994). *An Introduction to NEPSE, Kathmandu: NEPSE.*

Pokhrarel, N. (2006). *Stock Market doing well*, Business age-Nov 2

Pradhan, R. S. and Balampaki S.B. (2004). *Fundamentals of stock Returns in Nepal.*

*Quarterly Economic bulletin of NRB*

*Trading and annual reports of NEPSE*

**Web sites**

www.nepalstock.com

www.sebonp.com

www.nepalsharemarket.com