CHAPTER I

INTRODUCTION

1.1 Background of the Study

Capital market plays vital role in the national economy. The growth of economy is tied with the growth of capital market in the country. Now a day, finance has become very important factor of every business. Without the development of financial sector economic development of a country is impossible. So, we can say development of financial sector is an indicator of economic development of the country. The managerial decision of any business is based on financial analysis. Therefore, finance is the backbone of the financial development.

Nepal is the least developed country. It has many obstacles for the development. There was no old history of industrialization in Nepal. Industrial revolution took place in Nepal with the establishment of Biratnagar Jute Mill in 1936 and Nepal bank Ltd. in 1937.The same time, shares were issued to general public and many others companies. Alone with their establishment followed the same trend and than slowly the system of trading securities took place. During that process financial sector started to collect unused deposit from public, mobilizing them in productive way and returning certain amount of their profit and benefit to the same public which on one hand deposited the economic standard of people, Establishment entrepreneurship, increase trade transaction etc. and on the other hand it led the country towards economic success.

Common stock financing is a long term source of financing of an organization. The fund raised from common stock is also known s equity capital and it is the first source of fund in any type of organization. The equity capital supports for borrowing to expand the business and activities.

In the stock market, the price of given stock is determine by the interacting forces of supply and demand. The brokers play important roles who act the purchase and sale of

securities on behalf of the investors. In the highly develop securities market, there would be the presence of large number of brokers. As a result they re able to buy of sale securities on the investors behalf in a matt of minutes (Sprecher, 1978) but in Nepal, stock market is small, brokers are also quite few and stock market is as infant stage.

At present, the expansion of stock market in Nepal is severally limited. The stock market of Nepal is small and it is at early stage of growth. There is a problem of systematic information between management of newly established Nepalese companies and investors who have poured their funds therein. Therefore, the country has not been able to realize the desired outcomes. There is need for efficient financial market where the people with surplus funds, interact with business firms which can utilize such funds efficiently (Pradhan, 1992:13)

Nepalese stock market is relatively small and underdeveloped to compare with developed market. The history of Nepalese stock market begins with listing of share of 16 companies that first took place in 1986 (Pradhan, 1993: 24). In the beginning of the organized open-out cry system, there was a break in stock market activities. Share price increased tremendously. The turn over volume was also high. The increased share price could not last for long and soon the prices begin to fall. That can be observed from the NEPSE index that was 97.78 in March 1993. It reached 254.29 in august 1994 and 1084.76 in august 2008.

Among the financial sectors, insurance companies can be taken as one of the major contributing financial institution. Insurance denotes contract, whereby one party in consideration of money payment called premium. Undertakes to indemnity another party against any loss to pay to that party some agreed money on the happening of certain event.

Risks are the fact of life, which are products of uncertainly and its magnitudes depend upon degree of variability in certain cash flow. Risk in fact is an indication of change of losing investment value. Our normal life and business are always concerned with

uncertain risk of loss. So the insurance companies are there to compensate for such possible loss and save individual or institution by cash payment in return for a payment of small share as premium. Insurance companies help to deposit certain amount of money, in source of time, that money is return to the same people in order to recover them for their loss. Investor always wants favourable return to the yield by its stock. They invest their belonging with an expectation of getting same reward for leaving its security. Hence they only invest in that opportunity where they can get higher return and they think that higher return can be obtained from insurance companies trend of investing in insurance companies are increasing day by day in Nepal in the hope of favourable return and to recover from their loss. In Nepal, insurance companies are in gradual growth and they are becoming more varied and re also offering different types of benefit as by other financial institution and banking companies. Insurance companies were properly developed after 2025 B.S. and registered under insurance company act 2025 B.S.

In the recent development there are 25 Insurance companies, out of them 17 are listed in NEPSE and five are considered for the study purpose. They are:

a. Everest insurance company Limited.
b. Himalayan General insurance company Limited.
c. United insurance company Limited.
d. Premier insurance company Limited.
e. Sagarmatha Insurance Company Limited.

1.2 Statement of the Problem

Nepal is a developing country. Most of the people of Nepal lie below poverty line. Most of people do not have enough ideas of investment and they do not have enough money to invest in the same way those who want to invest also are poorly educated. So lack of ideas, information, and knowledge is a great problem faced by individual investors who are being exploited by the financial institution and their market intermediaries to such an extent that in common stock is great hazardous. At the same time there is no separate institution, which provides risk and return on investment in our country there is no political establishment due to political condition government’s policy is found less

encouraging in promoting common stock investment. So, most of the investors are least familiar with the financial activities .They do not have knowledge. Ideas of risk and return, even the university graduate can't analyze risk and return properly making stock investment decision. In context of Nepalese people, very few people analyze risk and return associated with the stock. Some people feel that there is more risk and some people feel that there is more return in such investment than real one.

1.3 Scope of the Study

1. What are the criteria for evaluation that the stock are holding will give them favourable return?
2. What should be the compensations have to receive for bearing the risk?
3. How to know the magnitude of the risk?
4. How can higher return through risk?
5. Is there favourable return receive for bearing the risk?

1.4 Objective of the Study

The main aims of these studies are the risk associated with the common stock investment and other variable that helps to decide about the stock and investment in insurance companies. Following are the specific objective of this study:

1. To calculate the risk and return of the common stock and their portfolio.
2. To identify the correlation between return of insurance companies.
3. To identify the correlation between return of insurance companies and other companies.
4. To analyze the volatility of the different stock of insurance companies.
5. To make relevant suggestions and practical ideas and knowledge based on analysis of data.

1.5 Significance of the Study

Investment in stock plays vital role in the national economy. Capital market plays a crucial role in mobilizing fund channelling these financial resources for expanding productive capacity in the country. In the context of Nepal capital market is growing very slowly. Generally investors hesitate to invest on the common stock and some of the investors are invested without the knowledge of risk and return of common stock. Most of investors cannot analysis the risk and return associated with the investment and there are very few sources which gives information related to capital market and very few studies are made on the topic 'Risk and Return".

This study target to explore and increases stock investments, It is known that investors invest by imaginary unreal risk this study gives information about Nepalese capital market by analyzing risk and return of Nepalese insurance companies and comparisons with other companies. So, this study will be beneficial fit all those persons who are directly or indirectly related to Nepalese capital market and also helpful to other researchers in the area of investment.

1.6 Organization of the Study

This study is organized into five chapters each chapter deals with the specific aspect of the study, which are as follows.

Chapter one	Introduction
Chapter Two	Review of literature
Chapter Three	Research methodology
Chapter Four	Presentation and analysis of data
Chapter Five	Summary, conclusion and recommendations

The first chapter contains the introducing part of the study. As describe above the major issue to be investigates along with the general background of the statement of the problem, objective of the study and need and signification of the study.

Second chapter presents the theoretical analysis and revere of literature .third chapter describes the methodology employed in preparing the study. It deals with research design, population and sample, Sources of data for the study. It briefly mentioned the data collection and analysis the technique. Chapter is data presentation, interpretation and analysis. It is the main body of the study. In this chapter, the risk and return of selected companies are analyzed. The result obtained is compared to example of portfolio analysis are presented and the co-relation between the selected companies also presented. Last chapter present summary of the study and its implication and also presented in brief for convenience of the reader. This section also incorporates suggestions and an outlay for future research. Annex and Bibliography are also included of the study.

CHAPTER II
REVIEW OF LITERATURE

2.1 Introduction

In this chapter, some of basic literatures on the risk and return are reviewed. Literature, review is basically a stock taking of available literature in ones field of research. The literature review thus provides the students with the knowledge of the status of their field of research.

The concern of the study is to focus on risk and return. Theoretical aspect of risk and return has got the great concentration in financial management so; most of the books bear some paragraph of the issue. This chapter reviews some basic academic course, books and related studies. Unfortunately, so for nominal research has been performed in this topic in Nepal. Our stock market being in an emerging state is unable to provide information concerning to the studies. Some of the master degree theses have been also reviewed.

2.1.1 Common Stock

Common stock financing is a long term source of financing of any companies. It is the first source of term in any type of companies or organization.

“Stock is the ownership interest of a corporation each share of stock is fraction of the rights and privilege that belongs to the ownership of a business. A stock certificate is evidence that of fractional ownership, it is tangible evidence”. (Henderson Trennepaul and Wert, 1980:132)

“Common stocks have one important investment characteristics and one important speculative characteristic. Their investment value and average market price tend to increase irregularly but persistently over the decades as their net worth builds up through

the reinvestment of undistributed earning. However, most of the time common stock is subject to irrational and excessive price fluctuations in both directions as the consequence of the ingrained tendency of mist people to speculate or gamble, i.e. to give way to hope, fear and greed." (Grahm, 2003:134).

"Common stockholders of a corporation are its residual owners. Their claim to income and asset comes after creditors and preferences share holders have been paid in full. As a result, a stockholders return on investment is less certain than the return to lender or to a preferred stock can be authorized either with or without par value. The par value of the stock is merely a stated figure in the corporate charter and is of little economic significance accompany should not issue stock at a price less than par value because stockholders who brought stock for less than par value would be liable to creditors for the difference between the below par price they paid and the par value."(Van Horne, James C, 1997:31) but in case of Nepal as per the provision of Nepal company act 2057, no common stocks are allowed to issue without par value. Its par value most is either Rs10 or Rs100.

2.1.2 Stock Returns

Return is the reward to the investors for bearing certain risk. It is the main target of investment. It can be defined as the after tax increase in the value of the investment. Investment decision is based on return, so based on most of investment decisions are completely based on future return of present investment. The expected rate of for any asset is the weighted average rate of return using the probability of each rate of return for as the weight, (Francis, 1992: 11). It is based on the expected cash receipts (Dividend or interest) over the holding period and the excepted ending, or selling price. The expected rate of return is an extant or unknown future return (Cheney and Mosses, 1993: 34). If the rate of return is guaranteed most investors recognize that several rate of return are possible. Investors then summarize the possible rates of return into a single number called the expected rate of return.

There is the relationship between expected return and the expected level of associated risk. The nature of the relationship is that as the level of expected risk. Increase the level of expected return is also increases. The opposite is true as well low level of expected risk and are associated with expected returns. The relationship between risk and return is positive or direct relationship. If the investors can describe the possible rates of return and assign probabilities to these outcomes, the expected rate of return should equal to the weighted average of the various possibilities. Listing the possible investments results and assigning probabilities to each of these outcomes is the same as creating a probability distribution in statistics. Probability distributions are used to describe possible outcomes and to assign individual probabilities from zero to one to each possible outcome.

Therefore, the expected return E(r) is calculated by summing up the product of the rates of return and their respective probabilities as follows:

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

Where,

P_j= Probability distributions of rate of return for j outcomes

R_i= Rate of return for j outcomes.

According to (Van Horn 2000: 68) has proposed the CAPM developed by Markowitz (1959), the expected return for the individual security linking with the risk coefficient. According to him, the expected return (R1) for stock j(R_j) is:

$$E(R_j) = Rf + [E(Rm) - Rf]\ \beta j$$

Where,

$E(R_j)$= expressed return for stock j

Rf = Risk free rate

$E(R_m)$ = expected return for the market part folio.

βj = the beta co-efficient or systematic risk for security j.

He discussed that the relevant risk is not the standard of the security itself (total risk), but the marginal effect the security has in the standard deviation of an efficiently diversified portfolio (systematic risk). As a result a security expected rate of return should be related to its degree of systematic risk, not to its degree of total risk, systematic risk is the thing that matters to an investor holding a well diversified portfolio.

2.1.3 Risk

Risk is defined as the variability of the return of a period. Risk defined most generally is the probability of occurrence of unfavourable outcomes. Risk has different meaning in different context. In our context to measure developed from the probability distribution have been used as initial measures of return and risk T. fred Weston and Eugenef Brigham).There are the mean and standard deviation of the probability distribution. Instead of measuring risk the probability of a number of different possible outcomes the measure of risk should some how estimate the extent to which the actual outcome is expected outcome. Standard deviation is a measure that does this since it is an estimate of the likely divergence of actual return from expected return.

2.1.4 Systematic and Unsystematic Risk

Total risk or total variation of the rate of return for security individual of portfolio is measured by the standard deviation or variance of the rate of return. According to CAPM total risk of an asset can be divided into two parts. They are diversifiable risk or non market risk and undiversifiable risk or market risk or beta risk.

Systematic and unsystematic risks are the terms frequently used in the portfolio context combining securities that are not perfect positively correlated helps to reduce the risk of a portfolio to some extent. Systematic risk has its source factors that affect all the marketable assets and thus can not be diversified away. Systematic risk is due to the risk factor that affects the overall market such as change in national economy, tax reform by the government or changes in the World energy situation. Systematic risk is the portion

of the total risk of an individual security caused by market factors that simultaneously affect the prices of all securities. It stems from factors, which simultaneously affect all firms, such as war, inflation, recession, high interest rates, depression and long-term changes in consumption in the economy. Mathematically, the systematic risk (Beta) is measured as the covariance of the stock returns with the market returns expressed per unit of market variance as follows:

$$\text{Beta co-efficient } (\beta_j) = \frac{COV\,(R_m\,,\,R_j)}{\sigma_m^{\,2}}$$

$$= \frac{\rho_{jm} \times \sigma_j \times \sigma_m}{\sigma_{m^2}}$$

Where,

Cov (R_m , R_i) = covariance between the returns of security i and market.

σ_{m^2} = variance of market return

ρ_{jm} = correlation between the return of security j and market.

Unsystematic risk is risk unique to a particular company or industry. It is independent of economy, political and other factor that affects all securities in systematic manner. “For most stocks, unsystematic risk accounts for between 60 to 70 percent of stocks total risk or standard deviation.” (Van Horne and Wachowicz, 1995:9). This kind of risk can be reduced by diversification and even eliminated of diversion is efficient. Hence not all the risk involved in holding a stock is relevant since part of this risk is caused by events particulars to the firm like labour strikes, management errors, inventions etc. The relationship among systematic, unsystematic and total risk are shown below:

Total risk (σ_j) = systematic risk + unsystematic risk

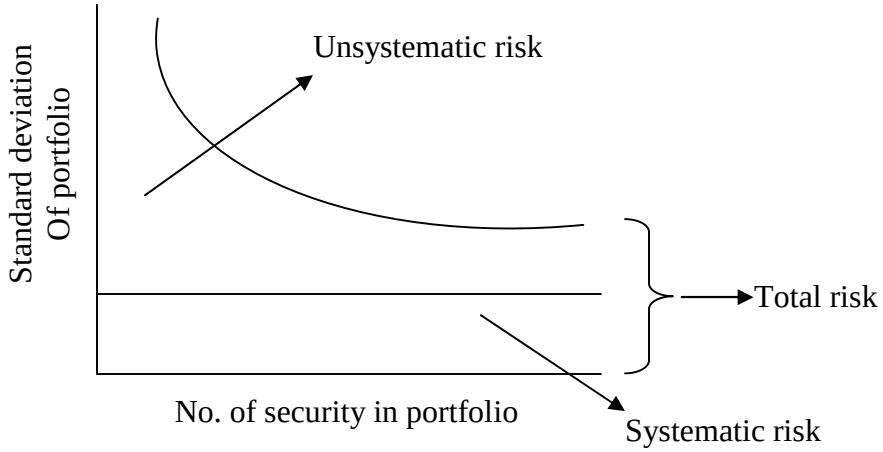
Where,

Systematic risk = $\sigma_j \rho_{jm}$

Unsystematic risk = $\sigma_j\,(1 - \rho_{jm})$

Here,

ρ_{jm} is the correlation coefficient between the return of given stock (j) and the Return on the market portfolio.



2.1.5 Standard Deviation

Standard Deviation measures the magnitude of difference between but possible return. So standard deviation measures the degree of risk of common stock. Because we have defined risk as the variability of returns, we can measure risk by examining the tightness of the probability, distribution, associated with the possible outcome. Standard deviation is denoted by (' σ ') sigma.

Mathematically it can be expressed as:

$$\sigma_j = \sqrt{\sum_{j=1}^{n} (R_j - \overline{R_j})^2 . p_j}$$

Where,

σ_j = standard deviation of return on stock j during time period.

R_j = Holding period return on stock j.

P_j = probability

$\overline{R_j}$ = Expected rate of return on stock j.

Standard deviation measure the variability of return. Standard deviation is the weighted average deviation from the expected value, and it gives an idea of how far above or below expected value and the actual value likely to be. It is the statistical tool for measuring risk. It measures the total risk of a security consisting both systematic and unsystematic risk. The lower value of standard deviation is acceptable. Standard deviation can sometimes be misleading in comparing the risk or uncertainty surrounding the alternatives if they differ in size. To adjust for the size, the standard deviation can be divided by the expected return to compute the coefficient of variance (C.V.).

$$\text{Coefficient of variance (C.V.)} = \frac{\sigma_j}{R_j}$$

Where,

σ_j = standard deviation of return on stock j.

$\overline{R_j}$ = Expected rate of return of stock j

Thus the co-efficient of variance is a measure of relative dispersion (risk) – a measure of risk per unit of expected return. The larger the C.V. the larger the relative risk of the investment. (Van Horne and Wachowicz, 1995: 94) C.V. is the ratio of the standard deviation of that distribution which is the measure of the relative risk.

2.1.6 Portfolio Analysis

A portfolio ratio is a combination of investment assets. The portfolio is the holding of securities and investment in financial assets i.e. stock, bond. Portfolio management is related to the efficient portfolio investment in financial assets.

Combination of investment in more than one asset is termed in portfolio. In portfolio standard deviation return plays a vital role in the risk reduction. Portfolio theory gives the concept of investment in a very good way that never keeps all your eggs in a single basket" (Peter Bernstein – 199 of country risk measures, such as institutional investor credit ratings, reviewed in Erb, Harvey, and Viskanta (1997). i.e. never invest your

entire amount on single assets. Investment on more than one security means diversification of minimization of risks. Portfolio shows how an inventor can reach his optimal portfolio position. The portfolio theory provides a nominative approach to the inventor's decision to invert in assets or securities under risk. It is based on assumption that the inventors are risk averse.

"Portfolio analysis considers the determination of future risk and return in holding various blends of individual securities. Portfolio expected return is the weighted average of the expected return of the individual securities but portfolio variance can be something less than a weighted average of the security variance. As a result inventors can sometime portfolio risk by adding another security with greater and individual risk than any other securities in portfolio." (Valla V.K. 2000:63)

A portfolio is collection of securities. The expected return of portfolio is simply a weighted average of the expected return of the securities containing in that portfolio but portfolio risk depends not only on the riskiness of the securities consisting the portfolio but also an the relationship among those securities. The optimal portfolio is that which is most suitable to the inventor. These are the portfolios that fit into the investor's range of risk parameters and can be placed into a utility of risk curve. Optimal portfolio shows us that it is possible for different portfolio to have varying level of risk and return. So, each investor is free to decide how much risk can be handling and like wise to choose the best portfolio.

"Portfolio is defined as combination of assets. Portfolios of assets usually offer the advantage of reducing risk through diversification. Portfolio deals with the selection of optimal portfolio that is portfolio that provides the highest possible return for any specified degree of risk or the lowest possible for any specified rte of return. Since portfolio theory has been developed most thoroughly for the financial assets. Stock and bonds we shall for the most part restrict our decision to these assets. How ever, extension of financial assets portfolio theory to physical assets re readily made and certainly the concepts are relevant in capital budgeting" (Weston, Copland 1999:133).

Market as a whole is defined as a portfolio of the total of all types of investment opportunities available. Portfolio theory developed by market wise is based on the following assumption: the expected return from on asset is the mean value of a probability distribution of return over some holding period. The risk on the individual assets of portfolio is based on the variability of return. Investors depend solely on their estimates of return and risk in making their investment decision. Investors adhere to dominance principal i.e. for any given level of risk investors prefer assets with higher expected return to assets withy the lower expected return. While selecting a portfolio that offers the highest expected return for the given standard deviation is known as efficient portfolio. That efficient portfolio is better than their entire portfolio, which offers the highest ratio of risk premium to standard deviation. The compensation of the best efficient portfolio depends upon the investor's assessment of the expected return and standard deviation. If everybody has the same set of information then that case everyone should hold the market portfolio. Don't look at the risk of stock is isolation but at its contribution to portfolio risk. The contribution depends on stocks sensitivity to changes in the value of portfolio.

2.1.7 Capital assets pricing model (CAPM)

The capital asset pricing model specifies the relationship between risk and required rate of return on assets when they are held in well diversified. Capital assets pricing model almost always refereed, as CAPM is a centre price of modern financial economies. Where portfolio theory deals with selection of optimal portfolio capital market theory deals with an equilibrium model of asset prices. CAPM describes the relationship between risk and expected return and it serves as a model for the pricing of the risky securities. CAPM says that expected return of security of a portfolio equals the rte of a risk free security plus a risk premium. If this expected return does not meet or beat our required return, the investment should not be undertaken.

"The CAPM is undoubtedly the most successful model to link the risk and the valuation of securities that follows, is the essence of the capital asset pricing model." (James. C. Van Horne, 1997:97)

CAPM assumes that investors can borrow and lend at the same risk free rate of interest.CAPM states that expected return on assets depend on:

a) The time value of money
b) The reward per unit of systematic risk
c) The asset systematic risk as measured by beta.

The CAPM model uses the theory of security market line (SML) to show the relationship between required return and beta. As per CAPM, a security's expected return should relate to its degree of systematic risk i.e. its beta, the greater is the risk and greater the expected return. CAPM indicates that assets required rate of return should be related to the risk free rate of return plus a risk premium based on the beta of the asset. In the CAPM model a security's expected return is the risk free rate plus a premium based on the systematic risk of the security. The model is:

$E(R_{j)} = Rf + [E(R_m)-Rf] B_j$

Where,

$E(R_j)$ = The required rate of return of asset j

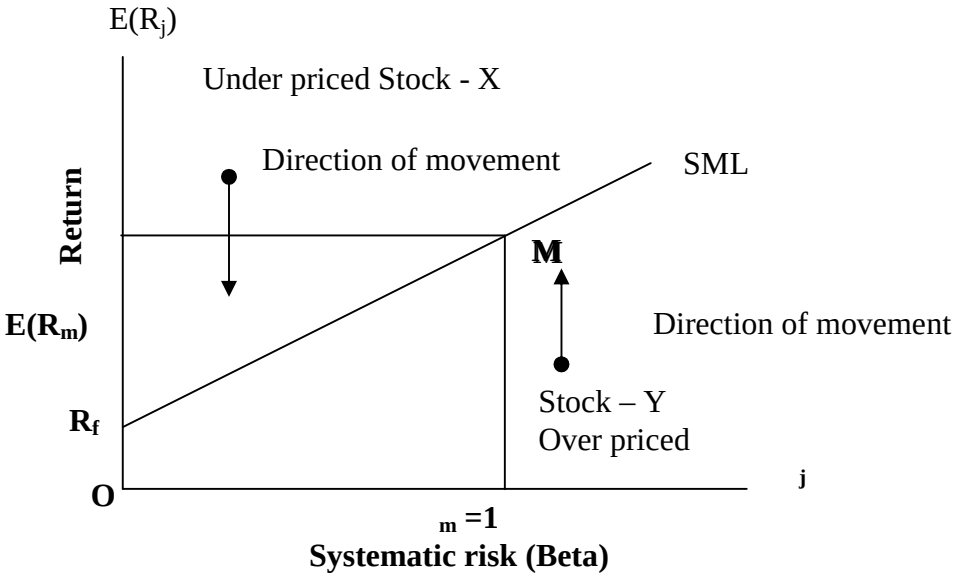
Rf = The nominal risk free rate of return (The real risk free rate of return plus risk premium for inflation)

B_j = Beta coefficient of stock j

$E(R_m)$ = The expected rate of return on the market portfolio

Hence CAPM helps us to decide whether to purchase or sell the stock of the particular company. We decide by comparing required rate of return with the expected rate of return. The capital asset pricing model provides us a means by which to estimate the required rte of return on a security. And on the basic of price and dividend date expected return can be calculated. With comparing of two return investors can analyze whether the stock is under priced or over priced.

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



(Sources: Van Horn & Wacho wich, P – 107)

"Above figure clarifies that stock X is under priced relative to security market line while stock Y is over priced. As a result stock X is expected to provide a rate of return greater than required based on its systematic risk. In contract, stock Y is expected to provide a lower return than that required to compensate for its systematic risk Investors seeing the opportunity for the superior return by investing on stock X, will rush to buy. This action would drive the price up and the expected return comes down, how long would this continue? It would continue until the market price was seen that the expected return would now lie on the SML. In the case of stock Y, investor holding this stock will start to sell it, recognizing that they could obtain a higher return for same amount of systematic risk with other stocks. This selling pressure would drive Y's market price down and its expected return goes up until the expected return match on the SML. When the expected

return for these two stocks returns to SML, market equilibrium will again prevail." (Van Horne and wachowicz, 1995: 107)

2.2 Reviews from Books

There are two books reviewed by Kent Hargis, (Goldman , Shacha and Co.) in the journal of finance,1999 was presented in the section of book review. The books are:

Emerging markets research, strategies and benchmarks by Michael Kepler and Martin Lenher Chicago Irwin professional Publishing, 1997.

Emerging Markets Portfolios: Diversification and Hedging Strategies. Edited by Mart Michael Papaioannou and George Tsetsekos ; Irwin Professional Publishing,1997.

"In recent years, we have seen an explosion of research into the opportunities and risks of investing in emerging equity markets, stimulated in part by the growing exposures of U.S. and European investors to these markets, but also following the rapid rise and fall of returns on the asset class, here we consider two more books in this growing portfolio. Both analyze the structural characteristics of the markets and issues related to asset allocation but they have different emphases.

In Emerging markets: Research, Strategies and Benchmarks, Keppler and Lechner focus on examine the performance of specific investments strategies. In Emerging markets portfolios: diversification and hedging strategies, Papaioannou and Tsetsekos focus more on regulatory issues and derivatives instruments in emerging market, following a number of chapters on the risk characteristics and potential diversification opportunities in emerging markets. Their books will be of greater interest to policy makers or a more academically inclined audience. Kepler and Lechner's book is divided into four parts: opportunities and risks of investing emerging markets, investment strategies, assets allocation and investment vehicles, and a summary of market characteristics in twenty five emerging market investing by park and Van Agtmael (1993), Stanley (1995), price

(1994) and George (1994) which examine the case for investing in emerging market, different investments vehicles, and structural characteristics of the market.

Keppler and Lechner provide a good description of recent trends and structural characteristics, tough they do not distinguish themselves from the rest of literature. Park and Van Agtamael (1993), although not as current, still provide a more detailed examination of structural characteristics of the markets, Posner (1998) is stronger in presenting investment vehicles such as American depositary receipts (ADR), mutual funds, and Bounds, and Barry, Peavy, and Rodriguez (1997) examine in depth the risk and diversification benefits. Malkiel and Mei (1998) are targeted more toward retail investors and is the most accessible book for introducing novice investors to emerging markets. So what is the value of added by Keppler and Lechner? The second section of the book on investment strategies is the most interesting and useful, with Keppler and Lechner systematically explore a large number of investment strategies. Second the presentation format, comparing emerging market investment strategies with previously published work by the authors e.g. Keppler and Trub (1993) in the developed markets effective. For example analysis of the small country effect in emerging markets is presented following discussion of the small country effect in developed markets. Third, the authors examine a wide range of measure of portfolio risk addition to standard deviation, which have not been analyzed in other work. Such measures include the probability and expectation of monthly loss, average loss, number of losing months and lowest monthly return. The Keppler ration is introduced as an alternative to the Sharpe ration, replacing the standard deviation by the expectation to the monthly loss. In many cases, the standard risk measure such as standard deviation are not shown to be misleading when compared to these other measures. Even though it is well known that emerging market returns are not normally distributed (Bekaert et al 1998), the comparing of various risks measure helps the practitioner to understand more effectively how this impacts portfolio allocation decisions. These measures complement the extensive analysis of country risk measures, such as institutional investor credit ratings, reviewed in Erb, Harvey, and Viskanta (1997).

Keppler and Traub (1993) argue that the case for active management in emerging markets is strengthened by features of those markets which makes indexing more expensive, such as frequent changes in the condition of the market indices and liquidity of many companies in the indices. They investigate the performance of various weighting strategies-equal, market, capitalization, liquidity, GDP, and manager composite e- and find the equality weighting markets results in higher returns and lower risks in both the developed and e merging markets, a result that it is driven in part by the small country effect present in both development and emerging markets. F or example and equally weighted portfolio of small countries outperforms and equally Berkaert et al. (1977) for a longer historical period, Bekaert et al. find that this strategy has been less effective since 1991.

Following Keppler's previous research, Keppler and Lechner show that returns on value strategies, based in part on looking at dividend yields and price to cash flows of different markets, are even greater that those based on the small country effect. Although risk is higher according to standard deviations, other risk measures show that these portfolios can also be less risky. The analysis is then extended to forming regional portfolios. Strategies based on industry selection and company selections are less promising. A strategy based on equally weighting individual companies within a market given small excess return.

The other three sections of the book provide a useful introduction and reference to the markets and are similar in content to others such as park and Van Agtamael (1993). The first section (Chapter 1 and 2) begins by discussion board trends in market capitalization, trading volume, and new issues. After receiving the historical growth experience across regions, the authors give and in - depth discussion into why emerging markets have grown faster that developed markets in the past, and they offer projections for the future. Among the factors analyzed are the liberation of capital markets, reduced debts servicing burden, expanding global trade and improving education and infrastructure.

Although higher growth rates have been achieved, the risks of investing in these markets are also greater. Keppler and Lechneer explore risks caused by political instability and corruption, high levels of foreign debt, commodity prices and short-term speculators .The causes of higher cash flow and greater risks are then analyzed in the context of the risk and return characteristics of the markets, followed by a discussion the different emerging markets benchmarks.

The third section (chapter 4 and 5) looks at asset allocation and at different way of investing in emerging markets. The section on asset allocation shows the standard result that adding emerging markets to a U.S. or global portfolio reduces risk. However, a detailed analysis of different asset allocations for investors with different risk tolerance and a large number of risk measures is also presented.

Vehicles for accessing these markets, such as direct share purchases, American depositary Receipts, open end and closed-end mutual funds, options, and multinationals are analyzed, with a focus on closed-end mutual funds. Given the movement by investors away from close-end funds into open-end mutual funds and American Depositary receipts, a more detailed examination of these latter investment vehicles would have been helpful.

The longest and final section (according to half of the book) is a summery of twenty-five emerging markets around the world accessible to foreign investors. The economic structure, recent economic and stock market developments, and foreign investments regulations for each market are reviewed. Thought the information is similar to that in other books, these chapters provide a useful introduction and reference for investors, and the presentation styles of the country summary tables is improved by the reformulation of many of the IFC valuation indicators. Returns on equity, earnings, book value, and dividend growth along with relative price/earning price/book value, and dividend yields are added to the standard indicators such as market price/earning s ratios.

The volume of papers assembled by Papaioannou and Tsetsekos in Emerging markets Portfolios: Diversification and Hedging Strategies will be of interest to both policymakers and portfolios managers concerned with quantifying and managing risk in emerging markets. Although the stated objective of this book is to "develop a framework for portfolio management" in emerging markets, many chapters focus on topics of direct concern to policymakers-topics that have received less attention on the literature, such as market-bases measures to manage commodity price risk and the preconditions for the development of derivatives markets in merging economics.

The book analyses four broad themes: investment risks and opportunities in emerging markets; structural features and the role of government in market development; the impact of return, correlation, and the development and use of derivatives markets in emerging economics by governments and investors. Although the chapters are separated into seven different parts, they do not fit very well into their groupings.

Chapter 2 and 4 survey the risks and opportunities faces by U.S. investors in emerging markets. The case for investing in emerging markets is argued to have become more important in asset allocation as correlation among developed markets are claimed to be increasing. A chapter on optimal asset allocation provided a useful analysis of how the portfolio allocation the emerging markets should vary under different assumptions for expected returns, correlation, and investor risk tolerance. Among with investment opportunities, additional risks such as volatility, currency and political risk lack of liquidity and information, market access and repatriation restrictions serve as deterrent to investing in these markets.

The chapter also discusses the role of policymakers in encouraging market development and concluded that the role of government is to provide a legal structure and promote policies that allow market forces to work. Recent institutional reforms and liberalization efforts should help to promote their development.

Chapters 6 to 9 present a number of empirical studies analyzing the ability of emerging markets to reduce risk for investors based in developed markets. Examining linkages in returns and volatility, co integration among markets and factor models accesses potential portfolio diversification benefits. Although the chapters were informative that often simply correlate the results of earlier studies, with a notable lack of data from recent years. These factors limit the value added of t he chapters.

The empirical studies support the view that diversification benefits of investing in emerging markets are present but have been reduces in recent years as a result of growing foreign institutional investor involvement and are less effective during periods of large market movements. Rather finds that the United States has little contemporaneous or casual influence on Latin American countries, with the U.S.-Mexico relationship being the most significant. Aggrawal and Leal demonstrate that daily correlation between U.S. Markets and emerging markets are low but increase during large market movements when longer time intervals are examined, and they recently have increased, Thought U.S. and world index returns can explain emerging market volatility to some extent, Asian markets are more linked with the United States and within the region than with Latin America. These findings are consistent with others such as Bekaert and Harvey (1997) in finding that foreign volatility only explains a small portion of emerging market volatility.

Tsetsekos does not find co-integration among any of the regions indication that correlation and corresponding diversification benefits are independed of time horizon. Buckberg finds that a two-factor model, which includes returns on a developing country market portfolio on addition to the world market portfolio, dominates a one-factor model for more markets the recent period. This indicates that growing institutional investor involvement has increased the sensitivity of these markets toward each other, s these investors treat individual emerging markets as one asset class.

Chapter 5 to 14 analyses derivative market developments and potential uses by investors on emerging markets. The cheater by claessens and Varangis presents the case successful for governments than widely used approaches such as price stabilization schemes and

reserve management. They analyze different mechanisms for risk management and the benefits of using these techniques. They argue that the precondition for establishment of commodities futures exchanges are not met in emerging markets. The lack of development of derivatives markets in emerging markets in claimed to be caused by exchange controls and government regulation through price stabilization and insurance.

Duck discusses the benefits futures contracts for lowering transaction costs and improving price transparency, but he stresses the difficulties of using these contracts in emerging Asian markets because of high transaction costs, lack of liquidity, and the difficulty of shorting equities. The final chapter shows how the introduction and use of derivatives in emerging markets can alter monetary policy. It is argued that the use of derivatives implies an increased loss of control of monetary policy, hindering the policymakers' ability to achieve broader economic goals.

These tow books provide a useful complement to the existing literature. That provide investors with valuable tools for investment strategies in emerging markets, and they provided policymakers with a framework fro analyzing the benefits and costs of developing derivatives markets and using market based techniques for managing risks in emerging market.

2.3 Reviews from Journals

Like books, there are not so much advanced and research based journals in the field of finance in Nepal. There are very limited numbers of journals available in the subject of management and it is further hard to find any article in the subject matter of finance and there is not any article in risk and return analysis in common stock investment. So, some foreign well-known journals, which is spread out all over the world are taken into consideration. Although articles published recently in these journals are based on the foreign stock market, it can give the sound conceptual framework and recent worldwide development on this research topic.

The journal of finance published bimonthly by American finance Association for many decades is taken into account. An article entitled "Local Return actors and Turnover in Emerging Stock Markets" by K. Greet Rouwenhorst, published in its August 1999 volume is reviewed here.

"There is growing empirical evidence that multiple factors are cross-sectionals correlated with average returns in the United State. Measured over long time periods, small stocks earn higher average returns than large stocks (Bang. 1981). Fama French (1992) and Lakon ishock, Shleifer, and Vishny (1994) show that value/stocks with high book-to-market(B/M), earning to price (E/P); on cash flow to price (C/P) out perform growth stocks with low B/M, E/P, or C/P. moreover, stock with high return over the past three months to one year continue to outperform stocks with poor prior performance (Jagadeesh and Titman (1993). The evidence that beta is also compensated for in average returns is weaker (Fama and French (1992), Kothari, Shakken and Stoan (1995).

The interpretation of the evidence is strongly debated. Some believe that the premiums are a compensation for pervasive risk factors; others attribute them to firm characteristics or inefficiency in the away market incorporate information into prices. Yet others average that survivorship or date snooping may bias the premiums.

This paper examines the sources of return vitiations in emerging stock markets. From the perspective of collecting independent samples, emerging market countries are particularly interesting because to their relative isolation form the capital markets of other countries. Compared to developed markets, the correlation between most emerging markets and other stock markets has historically been low (Harvey (1995); and until recently many emerging countries restricted investments by foreign investors. Interestingly, Bekaert and Harvey (1995) find that despite the recent trend towards abolition of these markets have actually become more segmented form world capital markets. A large portion of the equity capital of emerging economies is held by local investors who are likely to evaluate their portfolios in light of local economic and market condition (Bekaert and Harvey (1997).

On the above background Rouwenhorst attempts to answer tow sets of questions. "The first set of three questions concerns the existence of expected return premiums; (i) do the factors that explain expected return differences in developed equity markets also describe the cross section of expected returns of emerging market firms? (ii) Are the returns factors in emerging markets primarily local or they having global components as well? (iii) How does the emerging market evidence contribute to the international evidence from developed markets that similar return factors are present in markets around the world?

The second set of question of the paper includes (IV) is there a cross sectional relationship between liquidity and average returns in emerging markets? (v) Are the return factors in emerging markets cross sectional correlated with liquidity?
About the date Rouwnhorst sated that; as of April 1997 the Emerging Market database (EMDB) of the IFC contains data on more than 2200 firms form 31 emerging markets, but not all are included in the sample. Eleven countries are excluded b because of insufficient return histories, which leave 1705 firms in the 20 countries that the IFC tracks for at least seven years. For some firms monthly closing process and dividends are available dating back to 1975. Starting at various points during 1980s the IFC expanded its reporting to include monthly time series for price-to-book ratios, price-earning ratios, market capitalization, Trading volume, and eth number of days per month that a stock in traded.

Total returns are calculated as the sum of the dividend return and price appreciation, suing prices scaled by a capital adjustment factor, which the IFC computes to correct for price effects associated with stock splits, stock dividends, and right issues. Many emerging markets have firms with multiple classes of shares carrying different ownership restrictions. Firms with multiple share classes are treated as a single value-weighted portfolio of the outstanding equity securities.

In this paper Rouwenhorst has made detailed analysis of the data and interpreted the result in each section. At last, he has concluded his finding as follows.

"The first conclusion is that the return factors in emerging markets re qualitatively similar to those in developed markets; small stocks out perform growth stocks and emerging markets stocks exhibit momentum. There is no evidence that local market betas re associated with average returns. The low correlation between the country return factors suggests that the premiums have a strong local character. Furthermore, global exposures cannot explain the average factor returns of emerging markets. There is little evidence that the correlation between those local factor portfolios has increase, which suggests that the factors responsible for the increase of emerging market country correlation are separate form those t hat drive the differences between expected return within these markets. A Baysian analysis o premium in developed and emerging markets how that, unless one has strong prior beliefs to the contrary, the empirical evidence favours the hypotheses that size, momentum, and value strategies are compensated for in expected returns around the world. Finally, the paper documents there relationship between expected returns and share turnover, and examines the turnover characteristics of the local returns and factor portfolios. That is no evidence of a relation between expected returns and turnover, in emerging markets. However, beta, size, momentum, and value are prohibitively cross-sectional correlated with turnover in emerging markets. This suggests that the return premiums do not simply reflect a compensation for liquidity".

This study by Rouwenhort does not consider the analysis of single security. It has been analyzed the return factors in worldwide stock markets. However, it concentrates in the various emerging stock markets; hence that article contributes in the area of risk and return analysis in common stock investment.

2.4 Review form Thesis

A thesis submitted by Mrs. Pramina Pandey in 2000, entitled "Risk and return analysis of common stock investment" with special reference to investment portfolio of insurance companies is also related to my study.

In the study, she has taken six insurance companies in account and has given flowing concussing.

- On the basis of market capitalization, size of NIC is the biggest one, expected return on the common stock of NLGI is maximum i.e. 65.39%. T his high rate of return is due to unrealistic annual return in 2050/51. Expected return of common stock of HGI and EIC is lowest with negative value. In overall industrial sector expected return of finance and insurance sector is highest. Overall market expected return is over 50%. Annual realized return is unexpectedly high in the F/Y 2050/51 and the declines in the preceding years."
- Abut risk, she had conclude, "NLGI is regarded ad the most risky security. As we know higher the risk higher the return, NGLI expected return is highest which ultimate the standard deviation to be highest and EIC risk and return is lowest one. Standard deviation is not only a single known as relative measure of risk. Coefficient of variation (CV) also measures risk and is known as relative measure of risk. Minimum CV is best for investment in single security. NIC can be taken as a best for investment as per minimum CV and its return is also quite high, more than 50%".
- "Stocks that drop dramatically when the market falls are those with high betas, The good new is that these same high beta stocks recover more quickly when the market changes from bear to bull. Here in the study some examples of portfolio are given, which shows diversification between CS of NGB and NLGI is also not good for diversification, as their portion of weight minimizing risk is more than 100%. Selection of securities of CS of NIC and NIC and 34% on stock of NBL can reduce risk"
- Administration should be made further efficiently to check the performance of individual companies. Flow of information should be more regular. There is complete absence of sensitive index of stock prices and government is not much concerned to conduct a survey of investors in Nepal. Whatever are the drawbacks, stock?
- Market investment is important to improve the lives of people and to push the economic state of the country. So we along with government should understand their respective roles and should give proper attention to play their roles with sincerity.

Another thesis review here is of Neelam Thapa which is also related to my study. Since the main objective of her study is to analyze the risk and return of common stock, the study is focused on the common stock of listed insurance companies. Five listed insurance companies are taken into consideration to analyze the risk and return of common stock investment. With the aim of providing help to this study, Sound methodology has been used for the analysis of the collected information. Both financial and statistical tools have been used for analysis. Tables, graphs and diagrams are used to make the finding simple and easy to understand. This study primarily depend on the secondary data collected form Nepal stock exchange, NRB and the financial records of the studied company.

Major conclusions derived from her study are as follows

1. Stocks have greater risk than other form of securities hence investors must be prepared to face the ups and downs of stock marker.
2. On the bails of industry wise comparison HGIC has greatest market share of 48.7 % whereas PIC has the lowest market share of 1.2 % which means that HGIC is the biggest followed by EIC, NIC, UIC and PIC is the smallest company. On the basis of sector wise comparison-banking sectors has highest market share of 67.4 % where as trading sector has least market share of 1.3%. The size of the different sector in the market is in increasing order as banking man and pro, finance and insurance, others, hotels and trading respectively.
3. About return he had concluded return is the changes in the initial value plus and catch distribution in addition to the initial value. Expected return of the CS of EIC is highest at 41.2 % whereas that of NIC is least at 17.7 %. On the basic of sector wise comparison banking has maximum expected return where as hotel and trading sector has negative return.
4. The investment risk associated with common stock of selected companies are 46.45%, 37.7%, 78%, 39.6% and 58.5% of PIC, HEIC, EIC, UIC and NIC respectively. On the sector wise other sector has highest risk associated the common stock of 34% whereas trading sector has lowest

risk of 12.6%, coefficient of variation of UIC is list at 1.40 and that of NIC is highest at 3.28 in case of sector wise comparison coefficient to variation of man and pro is least at 0.066 whereas other is highest at 12.42 and hotel and trading sector has negative return..

5. From the investment point of view, EIC is best as it has high return and moderate risk due to moderate CV and form the view point of coefficient of variation UIC is best as it has reach CV. Form sector wise comparison banking is best or investment at is has highest return, low risk an moderate CV.
6. Since beta of all study companies is greater than one it indicates that share is more risky of volatile than the market. The beta coefficients of various companies are 1.24, 2.06, 2.0, 1.3 and 2.86 of PIC, HGIC, EIC, UIC and NIC respectively.
7. The P/E ratio of the sampled insurance company ranges from 0.3 to 20.76; generally price earning ratio indicates investor's expectations about the company performance the highest P/E ratio of HGIC where as lowest is that of NIC.
8. Among the selected companies stock of most are under prices. Stocks of PIC. HEIC, EIC, and UIC are under priced whereas the stock of NIC is overpriced.

CHAPTER III
RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology employed to fulfil the objective of the study. Research Methodology may be defined as the systematic process applied by the researcher in studying research problem with certain objectives in vies. A research methodology helps to fined out accuracy, validity and suitability of our study.

Research may be defines as a systematic and objective analysis and recording of controlled observation that may lead to the development of generalization, principles, of theories resulting in prediction and possibly ultimate control of event. Research may be understood as a science of studying hoe research is dome scientifically. Research is directed towards a solution and is based on observable experience and empirical evidence and it demands accurate observation and description.

This chapter refers tot the overall research method from the theoretical aspect to the collection and analysis of data. This study covers qualitative methodology in a greatest extends and also uses the descriptive part based on both technical and logical aspect. On the basis of historical data, performs a well designed quantitative research is very clear and direct way, using both financial and statistical tools. Details of research methods and described under following headings.

3.2 Research Design

The research design in a study acts as a general framework for carrying out it. According to Kerlinger “research design is the plan, structure and the strategy of investigation conceived so as to obtain answers to the research questions and to control variance”.(Kerlinger,1968: 275). Hence research design is a road map by which the researcher reaches to his/her objective correctly on time. Research design is planned structure and strategy of investigation. Conceived so as to obtain answer to research

question and to control variance, the research design followed in this study is descriptive and analytical one. The study covers data of five years starting from F/Y 2060/61 to 2064/65. It deals with the risk and return of insurance companies on the basis of available data.

3.3 Populations and Sample

Population of the study is all the insurance companies listed in the NEPSE are as fallows: but as a sample, have included five insurance companies in thesis name EIC, HGIC, UIC, PIC and SIC.

Table 3.1 Listed insurance companies in NEPSE

S.N.	Name of Company	Symbol	Listed value	Paid up value	Total paid up value
1.	Nepal Insurance Co.Ltd.	NICL	1,026,984	100	102,698,400
2.	Ratriya Beema Sansthan	RBS	995,138	100	995,13800
3.	National life ins. Co. Ltd.	NLICL	300,000	100	300,00000
4.	Himalayan gen. ins. Co. Ltd.	HGI	630,000	100	630,00000
5.	United ins. Co. Ltd.	UIC	600,000	100	600,00000
6.	Everest ins. Co. Ltd.	EIC	900,000	100	900,00000
7.	Premier ins. Co. Ltd.	PIC	300,000	100	300,00000
8.	Neco ins. Co. Ltd.	NIL	550,000	100	550,00000
9.	Alliance ins. Co. Ltd.	AIC	599,862	100	599,86200
10.	Sagarmatha ins. Co. Ltd.	SIC	785,400	100	785,40000
11.	NB ins. Co. Ltd.	NBIL	1,000,000	100	1,000,00000
12.	Nepal life ins. Co. Ltd.	NLIC	2,500,000	100	2,500,00000
13.	Life ins. Co. Ltd.	LICN	2,500,000	100	2,500,00000
14.	Prudential ins. Co. Ltd.	PICL	1,000,000	100	1,000,00000
15.	Lumbini general Co. Ltd.	LGIL	1,250,000	100	1,250,00000
16.	Shikhar ins. Co. Ltd.	SICL	1,250,000	100	1,250,00000
17.	Siddhartha ins. Co. Ltd.	SIL	1,000,000	100	1,000,00000

Source: http:/www.nepalstock.com/listedcompany.php

As a sample, have included five insurance companies in thesis name are as fallows:

a. Everest insurance company Limited.
b. Himalayan General insurance company Limited.
c. United insurance company Limited.
d. Premier insurance company Limited.
e. Sagarmatha Insurance Company Limited.

3.4 Data Collection Procedures

This study is heavily based on the secondary data, which has been published in books, booklets and magazines. Most of the data are taken from the annual reports and financial statements of different insurance companies published by NEPSE and also from respective companies.

3.5 Method of Data Collection

Data are collected from different annual reports and financial statements of different insurance companies published by NEPSE and also from the respective companies.

3.6 Source of Data

Data collected are mainly from secondary source, related financial books, booklet and magazines have also been studies and some related with the topic are taken from different website of the internet. NEPSE periodicals, articles and previous research reports are also considered.

3.7 Tools of Data Analysis

Methods of analysis are applied as simple as possible. Results are presented in tabular form and clear interpretations on it are given simultaneously .The collected data are analyzed by using various financial and statistical tools, which are presented below.

3.7.1 Financial Tools

a. Earning per share

Earning refers to the net income after taxes. It can be obtained by dividing net income by common stock outstanding. Symbolically it is represented as:

$$\text{EPS (Earning per share)} = \frac{\text{Net income after taxes}}{\text{Number of common stock outstanding}}$$

b. Marked price per share

One of the major data of this study is market price of stock. There are three-price records available i.e. low, high and closing price of each year. So two approaches either average price of (high or low) or closing price can be used .Main argument of average price may be that it represents the price of whole year. But to get the real average value and price of each transaction in the stock and duration of the time of each transaction in the whole year are essential. It is very difficult to obtain and include all these information and average of high and low price may not be reliable and representative information. Hence closing price is used as market price of stock, which has a specify time span of one year and the study has focused in annual basis.

c. Dividend

Common Stock holders are rewarded through dividend. Dividend is the part of earning which is distributed to the shareholders by the decision of board of directors. It is usually distributed from retained earning. It is useful in the computation of realized rate of return. Symbolically:

$$\text{Dividend per share } \frac{\text{Total amount of dividend paid}}{\text{No of common stocks outstanding}}$$

If a company declares stock only cash dividend, there were no problem to take dividend amount but if company declares stock dividend (bonus share) it is difficult to obtain the amount that has gained by the shareholders. In this case, they get extra number of share as dividend and simultaneously price of the stock declines as result of increased number of stocks. To get a real amount of dividends, there is no any formula. So the model has been developed considering practical as well as theoretical aspects.

The model

i. Total dividend amount = Cash Dividend +Stock dividend % next year's MPS

ii. In case of right issued at par

Total dividend amount =Cash Dividend +Stock dividend % next year's MPS

d. Expected return of common stock (R)

The expected rate of return is the arithmetic mean of the post year return. Symbolically,

$$\overline{Rj} = \frac{\sum R_j}{n}$$

Where $\overline{R_j}$ = Expected rate of return of stock

N = Number of year that the return is taken

$\sum$ = sign of summation

e. Return of common stock

Return is the income received on an investment plus any changes in market price, usually expressed as a percent of the beginning market price of the investment.

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

Where,

R= actual rate of return on common stock

D_t = cash dividend received at time t

P_t = price of stock at time t

P_{t-1} =price of stock at time (t-1)

f. Standard deviation

It is basically measure of variability of return. It is the square root of variance. Symbolically, it is represented as

$$\sigma = \frac{\sqrt{\sum (R_j - \overline{R_j})^2}}{n-1}$$

Where,

σ_j = standard deviation of return on stock during time period

R_j = holding period return

$\overline{R_j}$ = expected rate of return on stock j

g. Coefficient of variance (C.V.)

"It is the ratio of standard deviation of returns to the mean of that distribution. It is a measure of relative risk". More valid comparison is found by applying relative risk measure. Such as coefficient of variation, this is found by dividing the standard deviation by the expected value of net cash flow. Symbolically

$$\text{Coefficient of variance (C.V.)} = \frac{\sigma_j}{\overline{R_j}}$$

Where,

σj = standard deviation of return on stocks

R_j= expected rate of return of stock

h. Portfolio risk

The risk of the portfolio is measured by the standard deviation of the portfolio. Portfolio risk is measured by the combined standard deviation of the stocks held in the portfolio. Symbolically, it is represented

$$\sigma_P = \sqrt{W_A^2\sigma_A^2 + W_B^2.\,\sigma_B^2 + 2W_A.W_B.COV(_{A,B})}$$

Where,

σ_p = portfolio risk

W_A = the proportion of the portfolio developed by security A

W_B= the proportion of the portfolio devoted by security B

COV_{AB}= the covariance of return of the security A and B

i. Portfolio return

Portfolio is the combination of two or more than two assets. Portfolio is simply weighted average if the return of the different securities in the portfolio. Symbolically, it is represented as

$$\overline{R_p} = W_A\,\overline{R_A} + W_A\,\overline{R_B} + \ldots\ldots W_n\,\overline{R_n}$$

Where,

$\overline{R_p}$ = expected return on portfolio

$\overline{R_A}$ = expected return of assets A

$\overline{R_B}$ = expected return of assets B

W_A = weight of assets A

W_B= weight of assets B

$W_A + W_B$ = Weight of investment on assets =1

j. portfolio beta

The beta portfolio can be easily estimated by using beta of individual assets it includes. Symbolically, it is represented as

$$\beta_p = \sqrt{\sum_{j=1}^{n} W_j \beta_j}$$

Where,

W_j= proportion of the portfolio

βj= beta coefficient of security j

βp= portfolio of beta coefficient

k. Risk minimizing portfolio

It is ratio of two assets, which minimizes the risk. Symbolically,

$$W_A = \frac{\sigma_B^2 - COV(R_A, R_B)}{\sigma_A^2 + \sigma_B^2 - 2COV(R_A, R_B)}$$

Where,

W_A = weight of proportion of stock A that minimizes the portfolio risk

$W_A + W_B = 1$

$W_B = 1 - W_A$

l. Beta coefficient

B is a famous statistic in finance. It is functionally related to the correlation and covariance between the security and the market portfolio in the following way.

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

Where,

β_j = Beta coefficient of stock j

COV (R_j, R_m) = Covariance of the return of security j and the market portfolio

$$COV(R_jR_m) = \frac{\sum (R_j - \overline{R_j})(R_m - \overline{R_m})}{n-1})$$

R_m = Required rate of the portfolio of risky securities i.e. market

σ_m^2 = Variance of the required rate of return on the market

m. Correlation coefficient

It is the statistical measure of the relationship between series of number representing data of any kind, from to rest scores. If two series move in same direction they are positively correlates and if they move in opposite direction, they are negatively correlate. Correlation coefficient value ranges from -1 to +1. Symbolically it can be expressed as

$$r_{xy} = \frac{COV\ (R_x, R_y)}{\sigma x\ \sigma y}$$

$$r_{xy} = \frac{COV\ (R_x, R_y)}{\sigma_x\ \sigma_y}$$

n. Required rate of return

It is the amount, which an investor wants if he makes an investment. Without this amount an investor is not likely to invest his fund. It is always greater than risk free rate of return. This rate helps us to decide whether the stock in under priced of overpriced and we will easily take decision about the securities. Under priced assts are purchased whereas overprice assets must be sold. Symbolically it is expressed as:

Required rate of return $R_j = R_f + (\overline{R_m} - R_f)\ \beta_j$

Where

$\overline{R_j}$ = Required rate of return on security j

R_f = Risk free rate of return

$\overline{R_m}$ = expected rate on market

β_j = Beta coefficient on security j

3.7.2 Statistical Tools

Tools for testing hypothesis

"Test of significance for a single mean" is applied for hypothesis testing to test whether there is any significance differences between the portfolio beta of insurance companies and the market beta or vice versa. If the test of significance for a single mean, the test of statistics is: $t = \frac{\overline{x} - u}{\frac{s}{\sqrt{n}}}$

Where t = student's test statistics

$\overline{x}$ =Arithmetic mean of sample statistics

u = Arithmetic mean of population parameter

s = estimates standard deviation of population parameter which is given as

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

If deviation is taken from actual mean

$$s = \sqrt{\frac{1}{n-1}\left[\sum d^2 - \left(\sum \frac{d}{n}\right)^2\right]}$$

If deviation is taken from assumed mean

D= x- A where A = assumed mean

n= sample size

"Test of significance of difference mean" is applied for hypothesis testing (H) to test whether there is any significance difference between the portfolio return of the common stock of insurance companies and overall return of market portfolio or vice versa. Again if the test is "Test of significance of difference means", the test statistics (t) is

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{s^2\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

Where,

$\overline{x_1}$ = arithmetic mean of first sample

$\overline{x_2}$ = arithmetic mean of second sample

n_1 = first sample size

n_2 = second sample size

Test result:

If t calculates value ≤ t tabulated value accepts the null hypothesis or vice versa.

3.7.3 Hypothesis

The hypothesis tests are based on student's' test. 't' test is the test of significance for single or double mean, whose sample size is less than 30. This is also known as small sample test for mean.

Hypothesis 1

Null hypothesis (H_0): There is no significance difference between the portfolio return of the common stocks of insurance companies and overall market return. In other words, average return on common stocks of insurance companies is equal to the market return.

Alternative hypothesis (H_1): There is significance difference between the portfolio return of the common stocks of insurance companies and overall market return. In other words, average return on common stocks of insurance companies is not equal to the market return.

Hypothesis 2

Null hypothesis (H_0): There is no significance difference between the portfolio beta of the common stocks of insurance companies and overall market beta. In other words, portfolio beta on common stocks of insurance companies is equal to the market beta.

Alternative hypothesis (H_1): There is significance difference between the portfolio beta of the common stocks of insurance companies and overall market beta. In other words, portfolio beta on common stocks of insurance companies is not equal to the market beta.

CHAPTER IV

DATA PRESENTATION AND ANALYSIS

This chapter is the main body of the study. In this chapter includes the detailed collected date of market price of share, dividend per share, earning per share and price earning ratio of insurance companies as well as NEPSE index of each industry are presented and their analysis are done. Different tables, charts and diagrams have been used to make simple and easy readings.

4.1 Analysis of Individual Companies

In this chapter, selected companies are analyzed separately. All together there are 25 insurance companies. Out of them 17 insurance companies are listed in NEPSE but in my study I have included only 5 insurance companies as sample. They are as following:

a. Premier Insurance company (PIC)
b. Himalayan General Insurance company (HGIC)
c. Everest Insurance company (EIC)
d. United Insurance company (UIC)
e. Sagarmatha Insurance company (SIC)

The common stock of these insurance companies, their risk and return, portfolio construction and correlation are included in my study.

4.1.1 Premier Insurance Company(PIC)

Introduction

Premier Insurance Company was established under the company act in 1992 A.D. (2048 B.S.) and was listed with NEPSE in 1995 A.D. (01/05/52).

In 2063/64 it has authorized capital, issued capital and paid-up capital of Rs.200000000, Rs.120000000 and Rs.30000000 respectively. Paid-up value per share is Rs.100. similarly par value per share 100.

Table 4.1
MPS, EPS, dividend and P/E ratio of common stock of PIC

Fiscal year	MPS	Cash Dividend	Stock Dividend	Total Dividend	EPS	P/E ratio
2058/59	170	10.53	0	1053	28.73	5.92
2059/60	192	10	0	10	19.88	9.65
2060/61	210	8.80	0	8.80	25.12	8.36
2061/62	210	7.80	0	7.80	46.68	4.50
2062/63	200	7.15	0	7.15	43.54	4.59
2063/64	260	12.48	0	12.48	18.43	14.10
2064/65	300	0	0	0	NA	-

Data source: NEPSE and Beema samiti

The year end price movement and P/E ratio of PIC can show in line diagram as following:

Figure 4.1

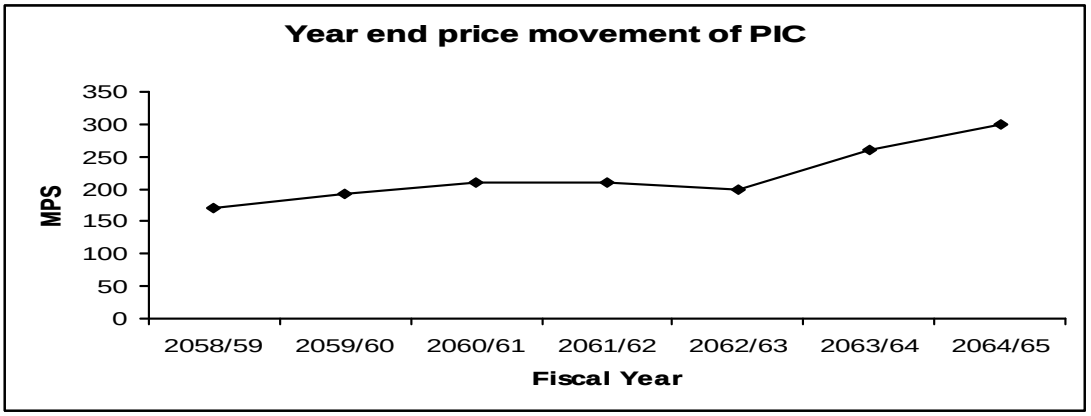
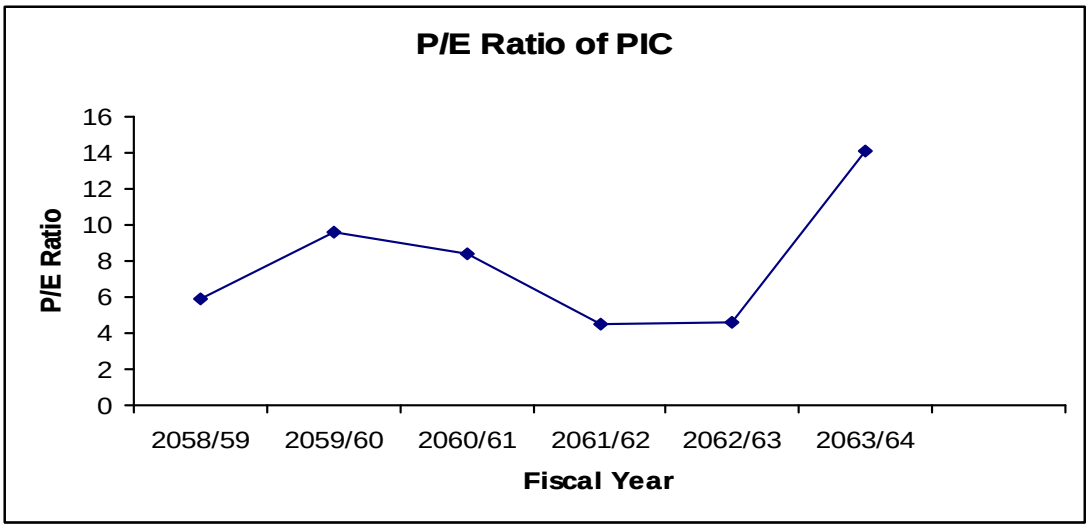


Figure 4. 2



The above table and diagrams show that the closing MPS of PIC is increasing from year 2058/59 to 2060/61 from Rs.170 to 210 then it has constant in the year 2061/62. Again it has increasing up to Rs. 300 at the end of 2064/65. As a whole we can see the MPS of PIC is in increasing trend.

Dividend of PIC is slightly changes in different year. The highest amount of dividend is provided in the year 2058/59 and it has not given dividend in the year 2064/65.

Similarly EPS shows fluctuating in the different year. It has greatest EPS in the year 2061/62 i.e. Rs. 46.68 and lowest EPS in the year 2063/64 i.e. Rs. 18.43. But P/E is found fluctuate it is highest at 14.10 in the year 2063/64 and lowest at 4.50 in the year 2061/62. It is not providing stock dividend.

Table 4.2
Realized Return, expected return, S.D. and C.V. of common stock of PIC

Fiscal year	MPS	Dividend	$R = \frac{D_1 + (P_t - P_{t-1})}{P_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$	Remark
2058/59	170	10.53	-	-	-	Base year
2059/60	192	10	0.188	0.044	0.0019	
2060/61	210	8.80	0.139	-0.005	0.0001	
2061/62	210	7.80	0.037	-0.107	0.0114	
2062/63	200	7.15	-0.014	-0.158	0.0249	
2063/64	260	12.48	0.362	0.218	0.0475	
2064/65	300	0	0.154	0.010	0.0001	
Total			$\sum R = 0.866$		$\sum (R - \overline{R})^2 = 0.0859$	

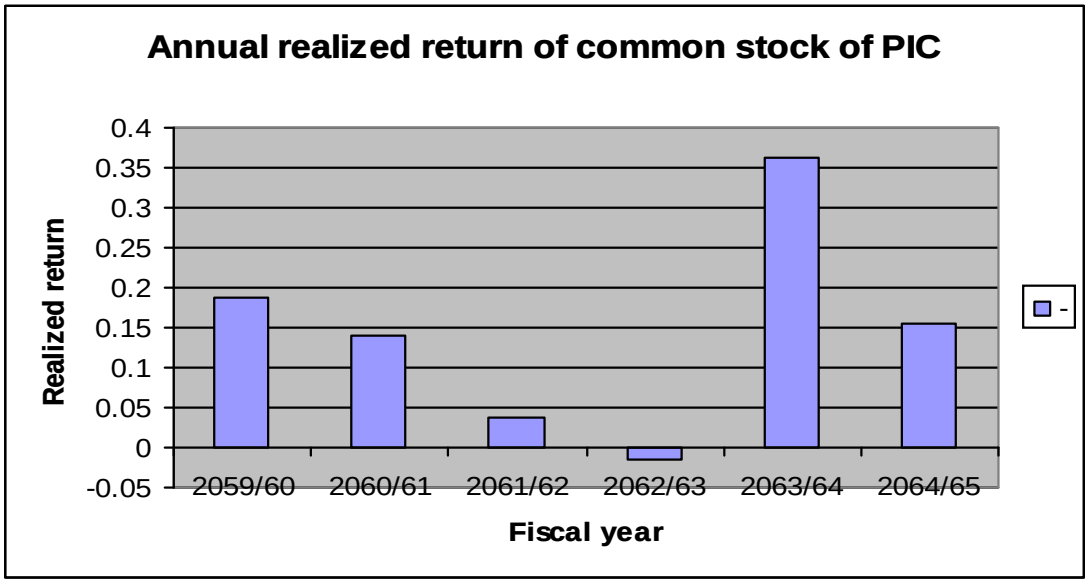
$$\text{Expected return } \overline{(R_j)} = \frac{\sum R}{n} = \frac{0.866}{6} = 0.144$$

$$\text{Standard deviation } \sigma) = \frac{\sqrt{\sum (R - \overline{R})^2}}{n-1} = \frac{\sqrt{0.0859}}{6-1} = \sqrt{0.0172} = 0.1311$$

$$\text{Coefficient of variation (C.V.)} = \frac{\sigma}{R} = \frac{0.1311}{0.144} = 0.91$$

The above table shows realized return, expected return, standard deviation and coefficient of variation of PIC. The realized return and expected return of PIC is 0.866 and 14.40%.Where as it standard deviation and C.V. is 13.11% and o.91 respectively. This means that for earning one extra unit of return from the share of PIC investors have to bear 0.91 unit of risk.

Figure 4.3



4.1.2 Himalayan General Insurance Company(HGIC)

Introduction

Himalayan General Insurance Company was established under the company act in 1988 A.D. (2044 B.S.) and was listed with NEPSE in 1994 A.D. (10/13/50). It was incorporated with the objective of undertaking non-life and re-insurance business from insurance board under insurance act 1992 and started its business from November, 1993 A.D.

In 2063/64 it has authorized capital, issued capital and paid-up capital of Rs.80000000, Rs.30000000 and Rs.30000000 respectively. Paid-up value per share is Rs.100. similarly its par value per share 100.

Table 4.3
MPS, EPS, dividend and P/E ratio of common stock of HGIC

Fiscal year	MPS	Cash Dividend	Stock Dividend	Total Dividend	EPS	P/E ratio
2058/59	225	10	0	10	25.5	8.82
2059/60	190	0	0	0	59.04	3.22
2060/61	175	3.32	0	3.32	45.13	3.88
2061/62	205	0	0	0	36.70	5.58
2062/63	189	0	0	0	39.90	4.74
2063/64	300	8.33	0	8.33	18.53	16.19
2064/65	345	0	0	0	NA	-

(Data source: NEPSE and Beema Samiti)

Figure 4.4

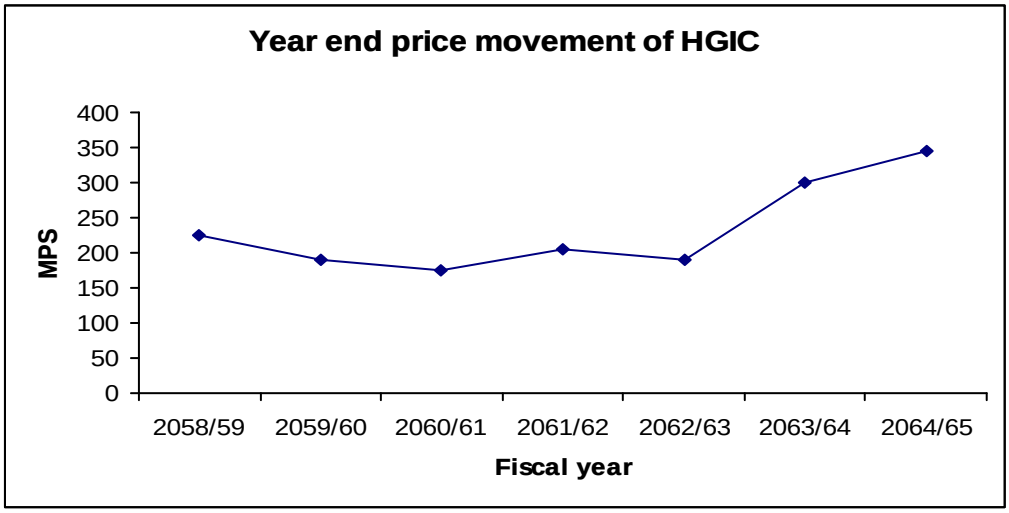
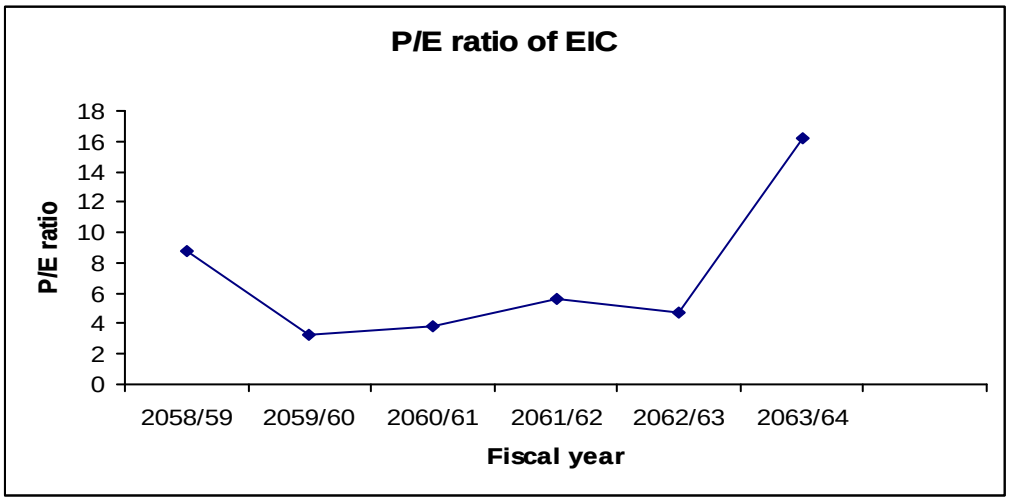


Figure 4.5



The above table and diagrams show that the closing MPS of HGIC is decreasing from year 2058/59 to 2060/61 from Rs.225 to 175 then it has slightly increased in the year 2061/62 and again it has increasing up to Rs.205 at the end of 2062/63 and again it has increased and reached up to Rs. 345 t the end of the year 2064/65. As a whole we can see the MPS of HGIC is not in constant trend.

Dividend of HGIC is not regularly provided. The highest amount of dividend is provided in the year 2058/59 i.e. Rs. 10 and it has not given dividend in the year 2059/60, 2061/62, 2062/63 and 2064/65.

Similarly EPS shows fluctuating in the different year. It has greatest EPS in the year 2059/60 i.e. Rs. 59.04 and lowest EPS in the year 2063/64 i.e. Rs. 18.53. But P/E is found fluctuate it is highest at 16.19 in the year 2063/64 and lowest at 3.22 in the year 2059/60. It is also not providing stock dividend.

Table 4.4
Realized return, expected return, S.D. and C.V. of common stock of HGIC

Fiscal year	MPS	Dividend	$R = \frac{D_1 + (P_t - P_{t-1})}{P_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$	Remark
2058/59	225	10	-	-	-	Base year
2059/60	190	0	-0.156	-0.292	0.0853	
2060/61	175	3.32	-0.061	-0.197	0.0388	
2061/62	205	0	0.171	0.035	0.0012	
2062/63	189	0	-0.078	-0.058	0.0034	
2063/64	300	8.33	0.631	0.495	0.2450	
2064/65	345	0	0.150	0.014	0.0002	
Total			$\sum R = 0.813$		$\sum (R - \overline{R})^2 = 0.3739$	

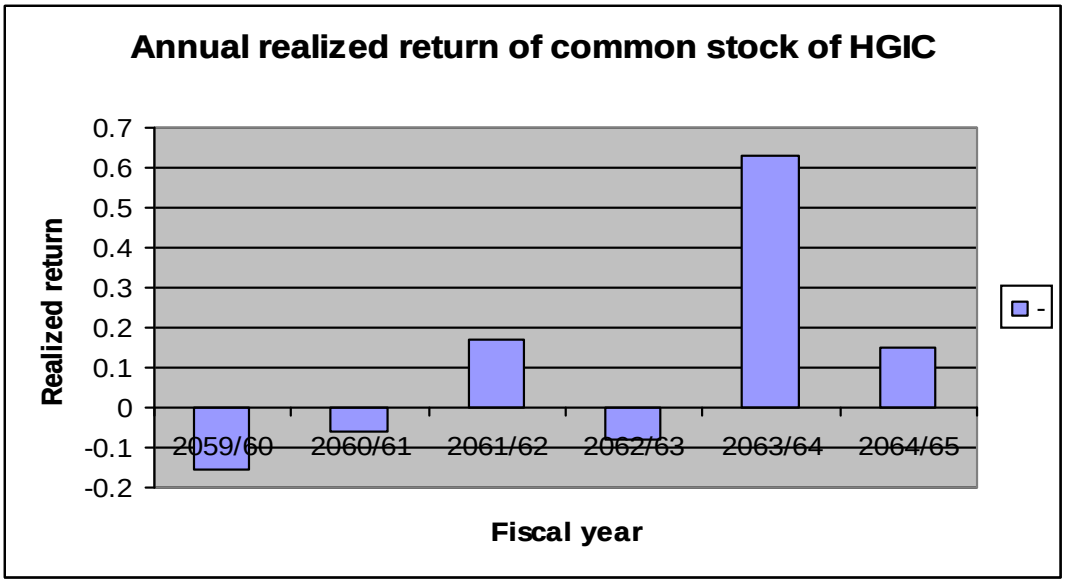
Expected return $\overline{R} = \frac{\sum R}{n} = \frac{0.813}{6} = 0.136$

Standard deviation $\sigma = \frac{\sqrt{\sum (R - \overline{R})^2}}{n-1} = \frac{\sqrt{0.3739}}{6-1} = \sqrt{0.0748} = 0.2735$

$$\text{Coefficient of variation c.v} = \frac{\sigma}{\overline{R}} = \frac{0.2735}{0.136} = 2.01$$

The above table shows realized return, expected return, standard deviation and coefficient of variation of HGIC. The realized return and expected return of HGIC is 0.813 and 13.60%.Where as it standard deviation and C.V. is 27.35% and 2.01 respectively. This means that for earning one extra unit of return from the share of HGIC investors have to bear 2.01 unit of risk.

Figure 4.6



4.1.3 Everest Insurance Company(EIC)

Introduction

Everest Insurance Company was established under the company act in 1992 A.D. (2048 B.S.) and was listed with NEPSE in 1995 A.D. (12/20/51B.S). The major objective of the company is carrying out life insurance and non-life insurance business in the country. In 2063/64 it has authorized capital, issued capital and paid-up capital of Rs.100000000, Rs.30000000 and Rs.30000000 respectively. Its Paid-up value per share is Rs.100 and par value per share 100.

Table 4.5
MPS, EPS, DPS and P/E ratio of common stock of EIC

		Dividend				
Fiscal year	**MPS**	**Cash**	**Stock**	**Total**	**EPS**	**P/E ratio**
2058/59	610	20	0	20	65.20	9.35
2059/60	610	10	0	10	61.74	9.88
2060/61	350	0	0	0	57.22	6.12
2061/62	325	8.52	0	8.52	33.74	9.63
2062/63	295	7.94	0	7.94	41.81	7.06
2063/64	290	1.74	0	1.74	24.54	11.82
2064/65	291	0	0	0	NA	-

(Data source: NEPSE and Beema samiti)

Figure 4.7

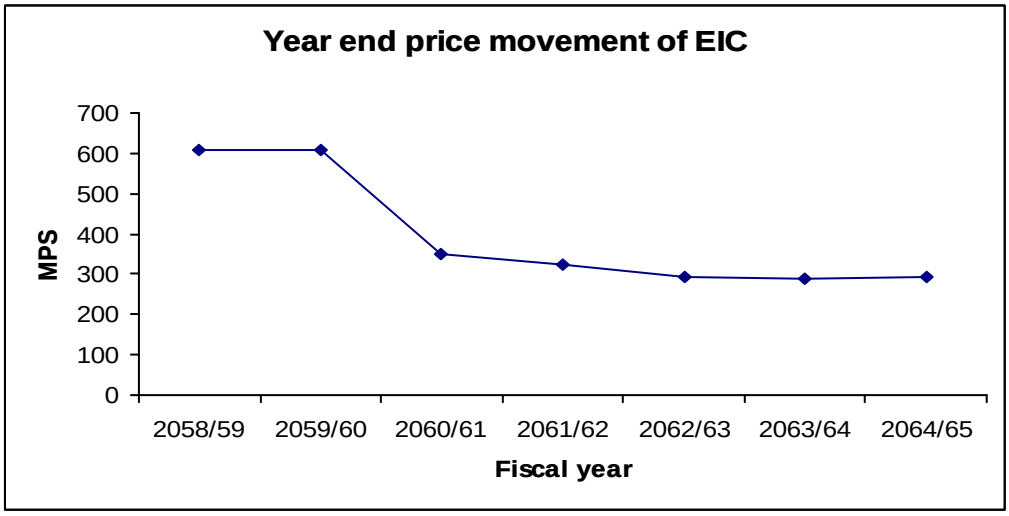
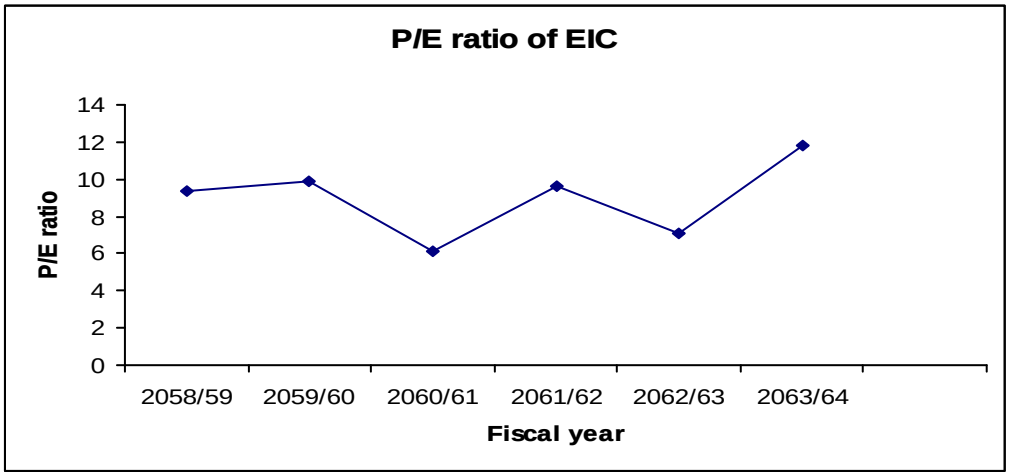


Figure 4.8



We can say from the above table and diagrams the closing MPS of EIC is decreasing from year 2058/59 to 2063/64 from Rs.610 to 290 then it has slightly increased in the year 2064/65. It has increasing up to Rs.291 at the end of 2062/63 and again it slightly increased and reached up to Rs.291 As a whole we can see the MPS of EIC is decreasing trend.

Dividend of EIC is not regularly provided. The highest amount of dividend is provided in the year 2058/59 i.e. Rs. 20 and it has not given dividend in the year 2060/61 and 2064/65.

Similarly EPS shows fluctuating in the different year. As a whole its EPS is also in decreasing. It has greatest EPS in the year 2058/59 i.e. Rs. 65.20 and lowest EPS in the year 2063/64 i.e. Rs. 24.54. But P/E is found fluctuate it is highest at 11.82 in the year 2063/64 and lowest at 6.12 in the year 2060/61. It is also not providing stock dividend.

Table 4.6
Realized return, expected return, S.D. and C.V. of common stock of EIC

Fiscal year	MPS	Dividend	$R = \frac{D_1 + (P_t - P_{t-1})}{P_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$	Remark
2058/59	610	20	-	-	-	Base year
2059/60	610	10	0.016	0.105	0.0110	
2060/61	350	0	-0.426	-0.337	0.1136	
2061/62	325	8.52	-0.047	0.042	0.0018	
2062/63	295	7.94	-0.068	0.021	0.0004	
2063/64	290	1.74	-0.011	0.078	0.0061	
2064/65	291	0	0.003	0.092	0.0085	
Total			$\sum R = -0.533$		$\sum(R - \overline{R})^2 = 0.1414$	

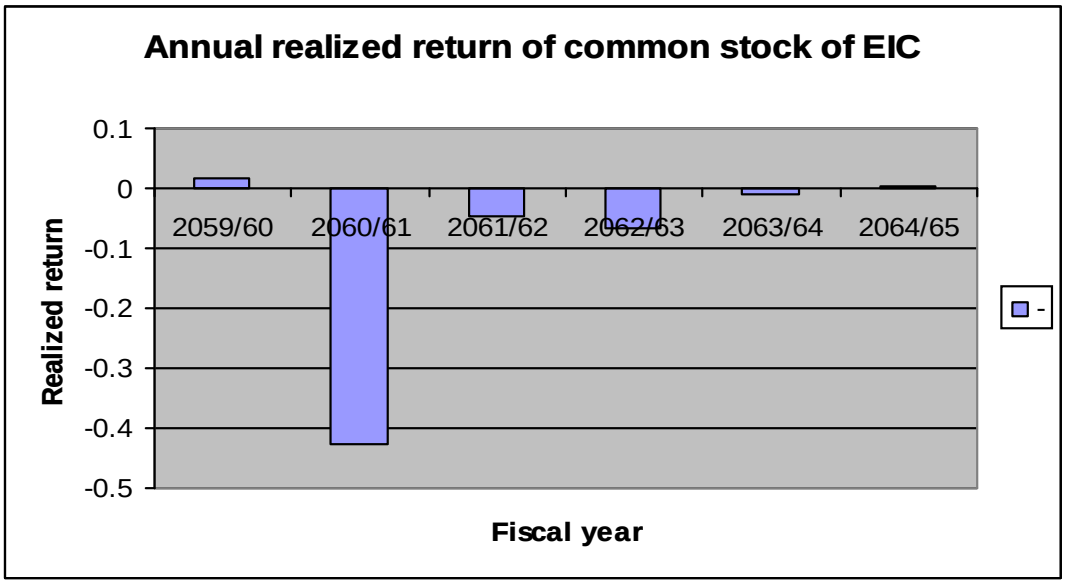
$$\text{Expected return } \overline{R} = \frac{\sum R}{n} = \frac{-0.533}{6} = -0.089$$

$$\text{Standard deviation } \sigma = \frac{\sqrt{\sum(R - \overline{R})^2}}{n-1} = \frac{\sqrt{0.1414}}{6-1} = \sqrt{0.0283} = 0.1682$$

$$\text{Coefficient of variation c.v} = \frac{\sigma}{R} = \frac{0.1682}{-0.089} = -1.89$$

The above table shows realized return, expected return, standard deviation and coefficient of variation of EIC. The realized return and expected return of EIC is -0.533 and -0.089%.Where as it standard deviation and C.V. is 16.82% and o.91 respectively. This means that for earning one extra unit of return from the share of EIC investors have to bear -1.89 unit of risk.

Figure 4.9



4.1.4 United Insurance Company(UIC)

Introduction

United Insurance Company was established under the company act in 1992 A.D. (2048 B.S.) with an objective of non-life insurance in the field of fire, machine, vehicle and miscellaneous insurance. It was listed with NEPSE in 1994 A.D.

In 2063/64 it has authorized capital, issued capital and paid-up capital of Rs.10000000, Rs.60000000 and Rs.56621500 respectively. Paid-up value per share is Rs.50. similarly its par value per share 100.

Table 4.7
MPS, EPS, dividend and P/E ratio of common stock of UIC

Fiscal year	MPS	Dividend Cash	Dividend Stock	Dividend Total	EPS	P/E ratio
2058/59	190	10	0	10	15.69	12.11
2059/60	138	0	0	0	31.28	4.41
2060/61	105	5.95	0	5.95	23.91	4.39
2061/62	128	3.22	0	3.22	16.86	7.59
2062/63	125	3.11	0	3.11	14.46	8.64
2063/64	219	3.05	0	3.05	9.71	22.55
2064/65	315	0	0	0	NA	-

(Data source: NEPSE and Beema samiti)

Figure 4.10

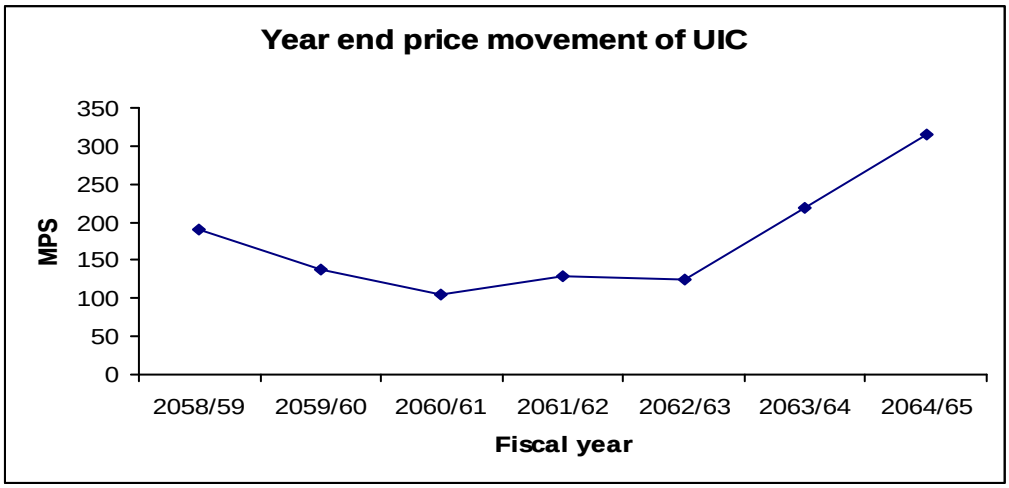
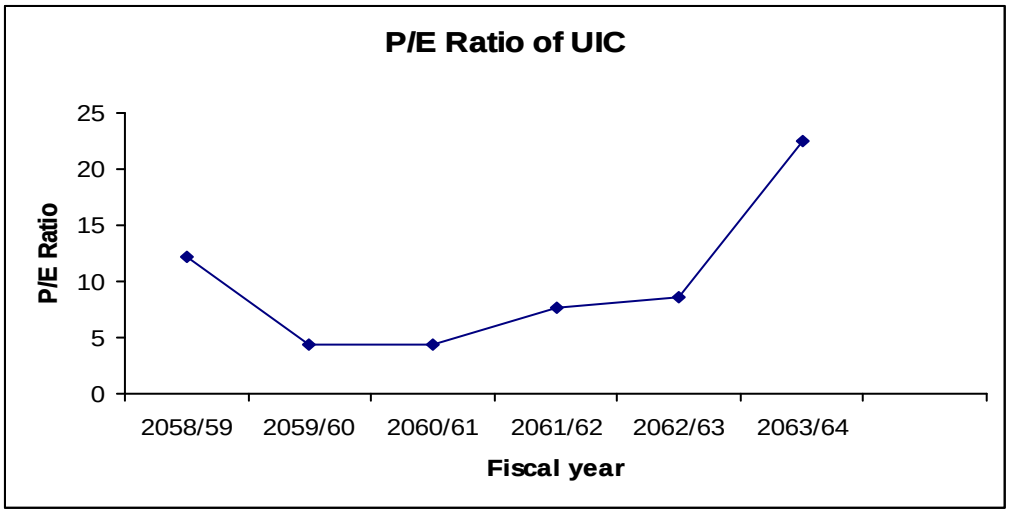


Figure 4.11



From the above table and diagrams the closing MPS of UIC is decreasing from year 2058/59 to 2060/61 from Rs.190to 105 then it has slightly increase in the year 2061/62 i.e. Rs.128. Again it has decreasing up to Rs. 219 at the end of 2063/64 and at the end of 2064/65 it is increased and reaches to Rs. 315. As a whole we can see the MPS of UIC is in decreasing trend except last year.

Dividend of UIC is slightly changes in different year. The highest amount of dividend is provided in the year 2058/59 and it has not given dividend in the year 2059/60, 2064/65. It is also not providing stock dividend.

Similarly EPS shows fluctuating in the different year. It has greatest EPS in the year 2059/60 i.e. Rs. 31.28 and lowest EPS in the year 2063/64 i.e. Rs. 9.71. But P/E is found fluctuate it is highest at 22.55 in the year 2063/64 and lowest at 4.39 in the year 2060/61.

Table 4.8
Realized return, expected return, S.D. and C.V. of common stock of UIC

Fiscal year	MPS	Dividend	$R = \frac{D_1 + (P_t - P_{t-1})}{P_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$	Remark
2058/59	190	10	-	-	-	Base year
2059/60	138	0	-0.274	0.440	0.1936	
2060/61	105	5.95	-0.196	0.362	0.1310	
2061/62	128	3.22	0.205	0.084	0.0071	
2062/63	125	3.11	0.001	0.165	0.0271	
2063/64	219	3.05	0.776	0.610	0.3721	
2064/65	315	0	0.438	0.272	0.0740	
Total			$\sum R = 0.995$		$\sum(R - \overline{R})^2 = 0.8050$	

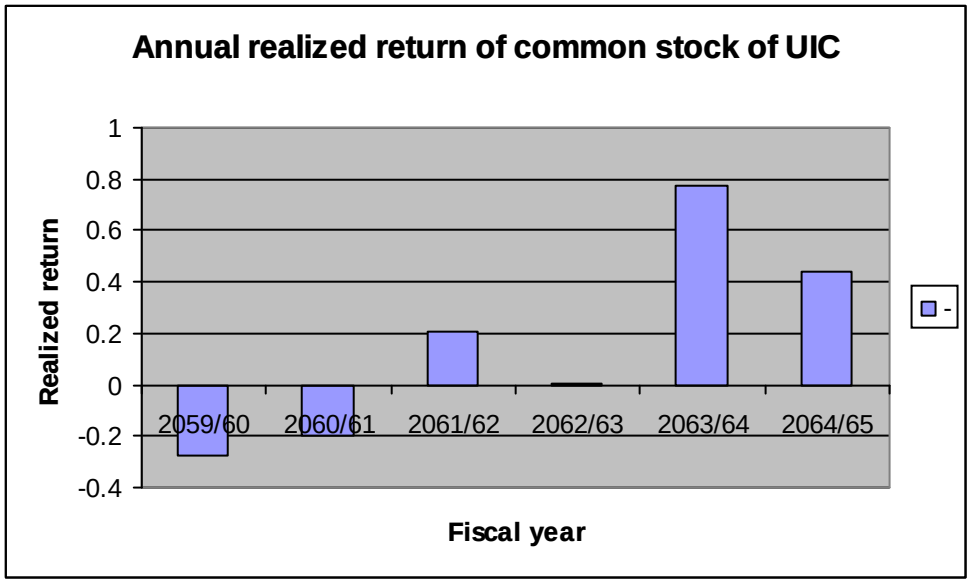
$$\text{Expected return } \overline{R} = \frac{\sum R}{n} = \frac{0.995}{6} = 0.166$$

$$\text{Standard deviation } \sigma = \frac{\sqrt{\sum(R - \overline{R})^2}}{n-1} = \frac{\sqrt{0.8050}}{6-1} = \sqrt{0.1610} = 0.4012$$

$$\text{Coefficient of variation c.v} = \frac{\sigma}{\overline{R}} = \frac{0.4012}{0.166} = 2.42$$

From the above table, it showing realized return, expected return, standard deviation and coefficient of variation of UIC. The realized return and expected return of UIC is 0.995 and 16.60%.Where as it standard deviation and C.V. is 40.12% and 2.42 respectively. This means that for earning one extra unit of return from the share of UIC investors have to bear 2.42 unit of risk.

Figure 4.12



4.1.5 Sagarmatha Insurance Company(SIC)

Introduction

Sagarmatha Insurance Company was established under the company act in 2053/3/12. and was listed with NEPSE in 1996 A.D.

In 2063/64 it has authorized capital, issued capital and paid-up capital of Rs.200000000, Rs.102102000 and Rs.78540000 respectively. Paid-up value per share is Rs.100.

Table4.9
MPS, EPS, dividend and P/E ratio of common stock of SIC

Fiscal year	MPS	Dividend			EPS	P/E ratio
		Cash	Stock	Total		
2058/59	146	0	0	0	14.63	9.98
2059/60	150	10.53	0	10.53	11.87	12.64
2060/61	131	0	0	0	7.90	16.58
2061/62	158	0	0	0	30.21	5.23
2062/63	210	0	0	0	30.12	6.97
2063/64	227	0	0	0	14.72	15.42
2064/65	306	0	0	0	NA	-

(Data source: NEPSE and Beema samiti)

Figure 4.13

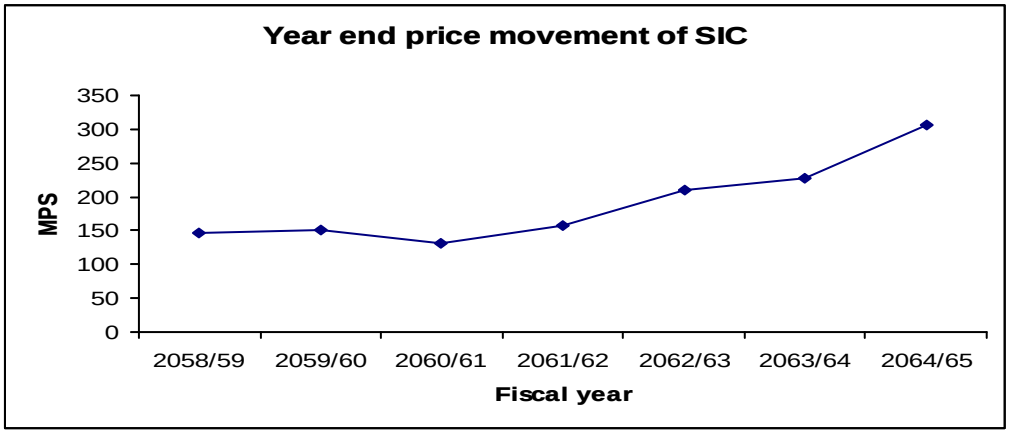
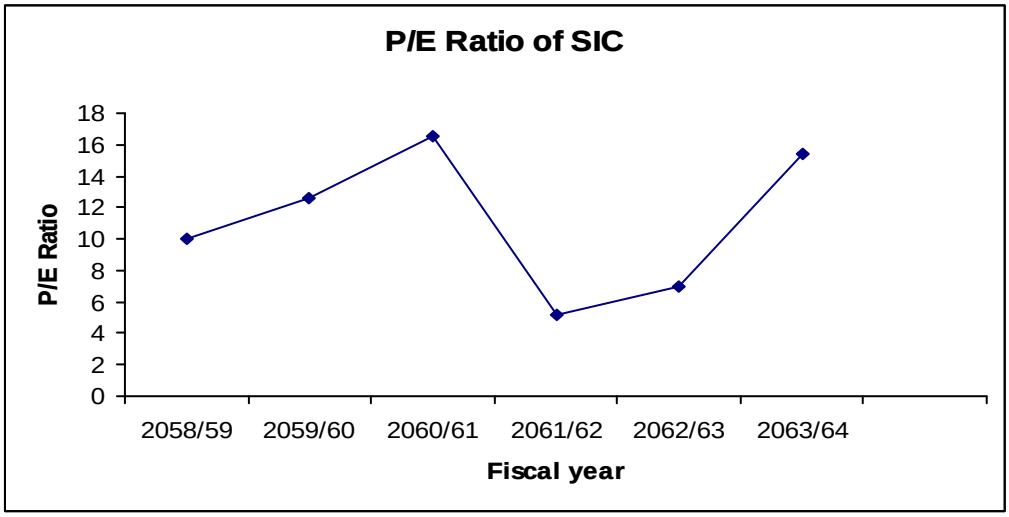


Figure 4.14



From the above table and diagrams, the closing MPS of SIC is increasing from year 2058/59 to 2064/65 from Rs.146 to 306. As a whole we can see the MPS of SIC is in increasing trend.

Dividend of SIC is only provide in the year 2059/60. The amount of dividend is provided in the year 2059/60 is Rs.10.53 and it has not given dividend after that year. It is also not providing stock dividend.

Similarly EPS shows fluctuating in the different year. It has greatest EPS in the year 2061/62 i.e. Rs. 30.21 and lowest EPS in the year 2060/61 i.e. Rs. 7.90. But P/E is found fluctuating character among the available data of observed period. It is highest at 16.58 in the year 2060/61 and lowest at 5.23 in the year 2061/62.

Table4.10
Realized return, expected return, S.D. and C.V. of common stock of SIC

Fiscal year	MPS	Dividend	$R = \frac{D_1 + (P_t - P_{t-1})}{P_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$	Remark
2058/59	146	0	-	-	-	Base year
2059/60	150	10.53	0.099	-0.057	0.0032	
2060/61	131	0	-0.127	-0.283	0.0801	
2061/62	158	0	0.206	0.050	0.0025	
2062/63	210	0	0.329	0.173	0.0299	
2063/64	227	0	0.081	-0.075	0.0056	
2064/65	306	0	0.348	0.192	0.0384	
Total			$\sum R = 0.936$		$\sum (R - \overline{R})^2 = 0.1597$	

$$\text{Expected return } \overline{R} = \frac{\sum R}{n} = \frac{0.936}{6} = 0.156$$

$$\text{Standard deviation } \sigma = \frac{\sqrt{\sum (R - \overline{R})^2}}{n-1} = \frac{\sqrt{0.1597}}{6-1} = \sqrt{0.0319} = 0.1786$$

$$\text{Coefficient of variation c.v} = \frac{\sigma}{R} = \frac{0.1786}{0.156} = 1.14$$

The above table shows realized return, expected return, standard deviation and coefficient of variation of SIC. The realized return and expected return of SIC is 0.936 and 15.60%.Where as it standard deviation and C.V. is 17.86% and 1.14 respectively. This means that for earning one extra unit of return from the share of SIC investors have to bear 1.14 unit of risk.

Figure 4.15

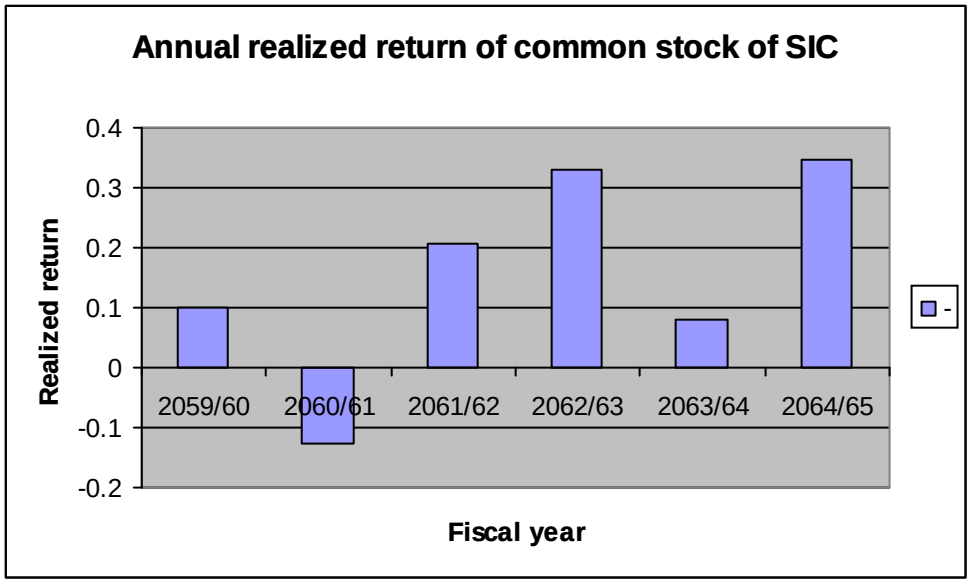
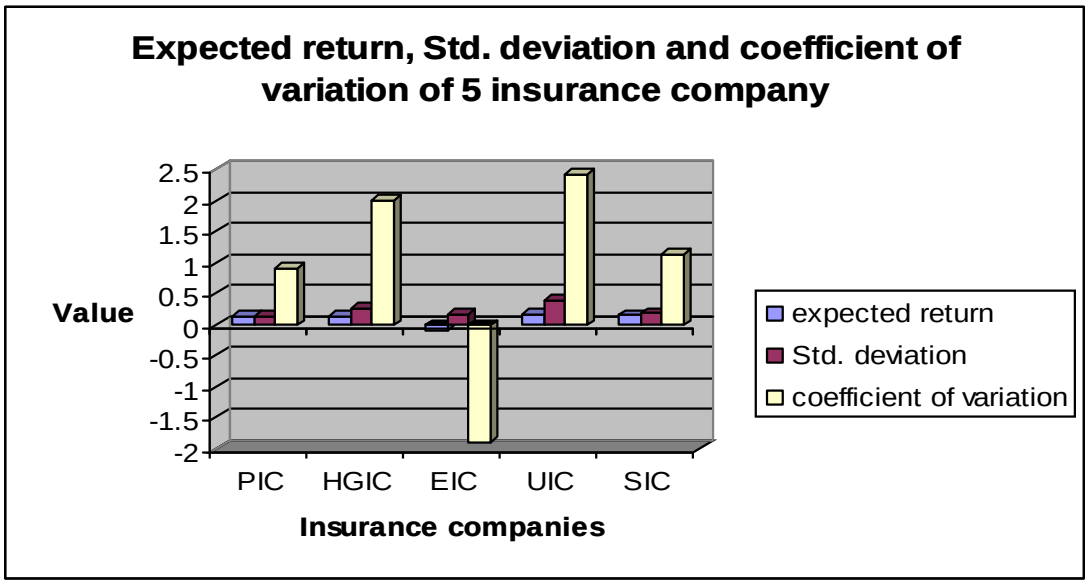


Table 4.11
Expected return(R), S.D. (σ) and coefficient of variance (C.V.) of 5 insurance companies

S.N.	Companies	Expected Return	S.D.	C.V.
1.	PIC	0.144	0.1311	0.91
2.	HGIC	0.136	0.2735	2.01
3.	EIC	-0.089	0.1682	-1.89
4.	UIC	0.166	0.4012	2.42
5.	SIC	0.156	0.1786	1.14

(Refer from table 4.1 to 4.10)

Figure 4.16



The above table and multiple bar-diagrams show the expected return, standard deviation and coefficient of variation of all the company of this study.

From the table, we can conclude that the both risk and return of UIC is high with compared to other insurance companies. Similarly EIC has negative return, PIC and SIC has less difference between risk and return. So comparatively we can say PIC and SIC can be considered best for investment purpose.

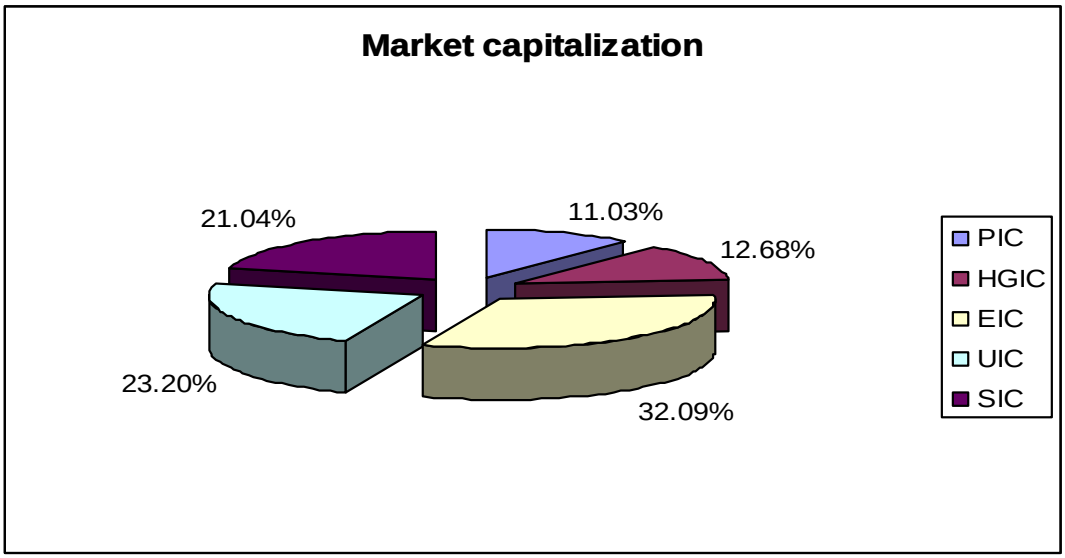
4.2. Analysis of Inter Company Comparison

Table 4.12
Market capitalization of 5 insurance companies at F/Y 2064/65

Name of company	Market capitalization	Percentage
PIC	90000000	11.03%
HGIC	103500000	12.68%
EIC	261900000	32.09%
UIC	189000000	23.20%
SIC	171670000	21.04%
Total	816070000	100.00%

Sources: NEPSE

Figure 4.17



On the basic of market capitalization of selected company, we can say that EIC Company is the biggest insurance company and PIC is the smallest insurance company. EIC covers 32.09% of total market where as PIC covers only 11.03% of total market.

4.3. Analysis of Industry wise Comparison

Industry wise Compression

Here, the entire sectors which are listed in NEPSE are compared in order to make our study simple. The market capitalization of different sector with six fiscal year data are presented and shown in the given table and comparative percentage has shown in diagram 4.12 with the help of pie chart.

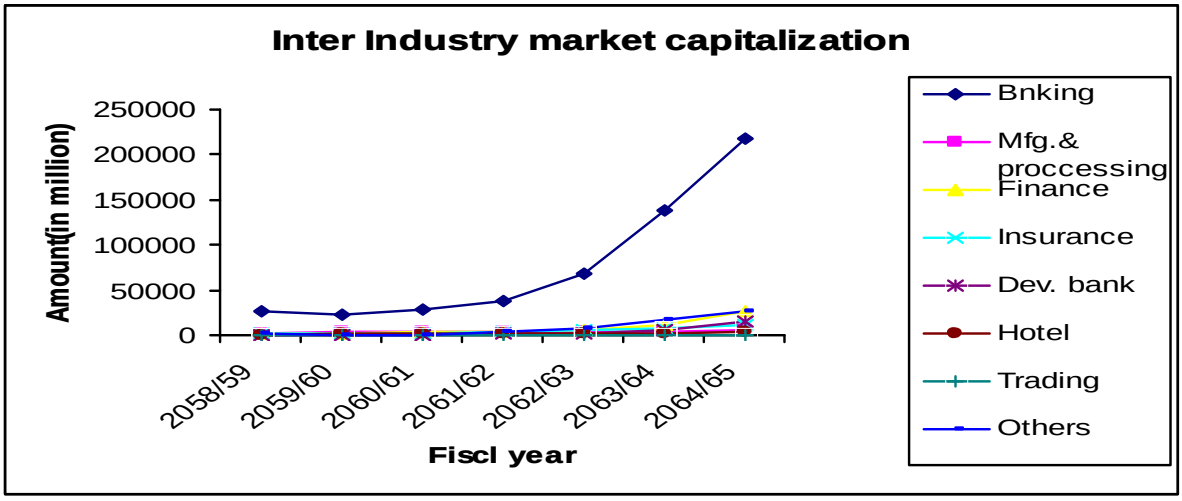
Table 4.13
Inter Industry movement of market capitalization

(Rs. In 000,000)

Year	Banking	Mfg. and Processing	Finance	Insurance	Dev. Bank	Hotel	Trading	Others
2058/59	25861.89	2807.74	2123.24	2205.21	692.12	107.12	527.48	1071.09
2059/60	22453.49	4731.30	2722.34	2227.36	763.65	2550.61	488.02	67.26
2060/61	27958.88	4472.75	2942.27	2549.30	796.85	1065.86	603.53	65.35
2061/62	38547.10	4585.66	3471.50	3659.86	1049.07	1016.45	802.04	4187.73
2062/63	68841.24	4619.61	4930.63	4852.19	1227.49	2393.60	737.39	8012.20
2063/64	138086.43	3760.28	11491.40	7959.78	5980.80	1935.59	787.40	16503.02
2064/65	218264.19	6576.18	27113.59	10897.16	15619.36	3484.13	686.73	25863.26

Source: NEPSE

Figure 4.18



4.4 Analysis of Inter Industry Comparison on the Basic of End Price

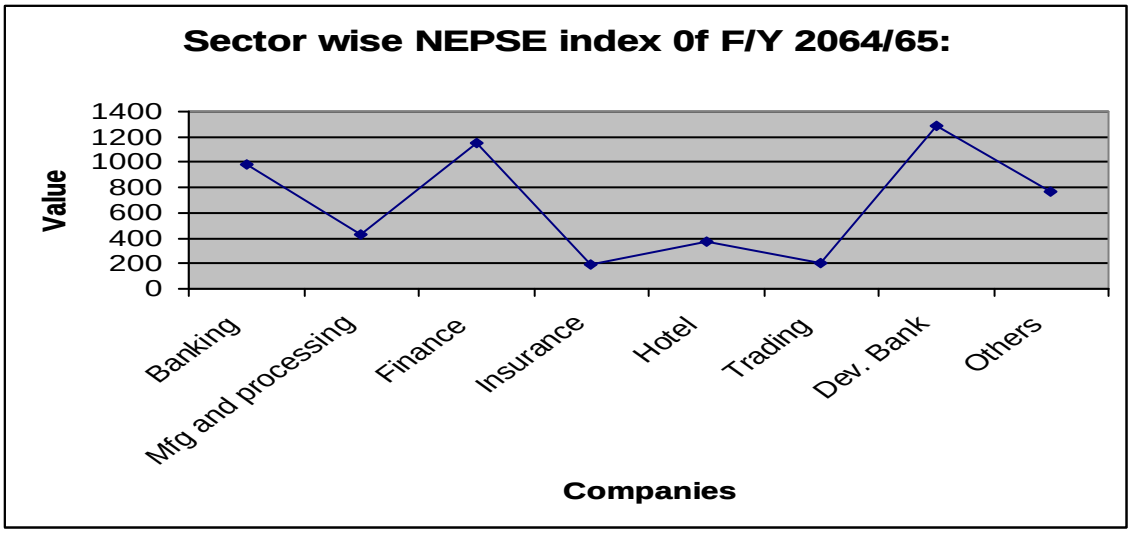
Table 4.14

Sector wise NEPSE Index (in the closing date of F/Y)

Year	Banking	Mfg. and Processing	Finance	Insurance	Hotel	Trading	Dev. Bank	Others
2059/60	219.35	273.67	262.29	315.22	216.51	102.20	262.94	77.34
2060/61	232.87	255.58	196.32	237.39	184.98	95.01	190.03	142.65
2061/62	304.64	276.56	228.39	320.24	178.00	123.20	237.86	347.65
2062/63	437.49	301.11	261.37	381.25	180.77	148.11	294.40	410.00
2063/64	789.21	348.63	471.82	612.46	251.47	155.33	339.66	818.12
2064/65	985.65	423.66	1152.74	187.25	370.88	204.08	1285.89	768.26

Source: NEPSE

Figure 4.19



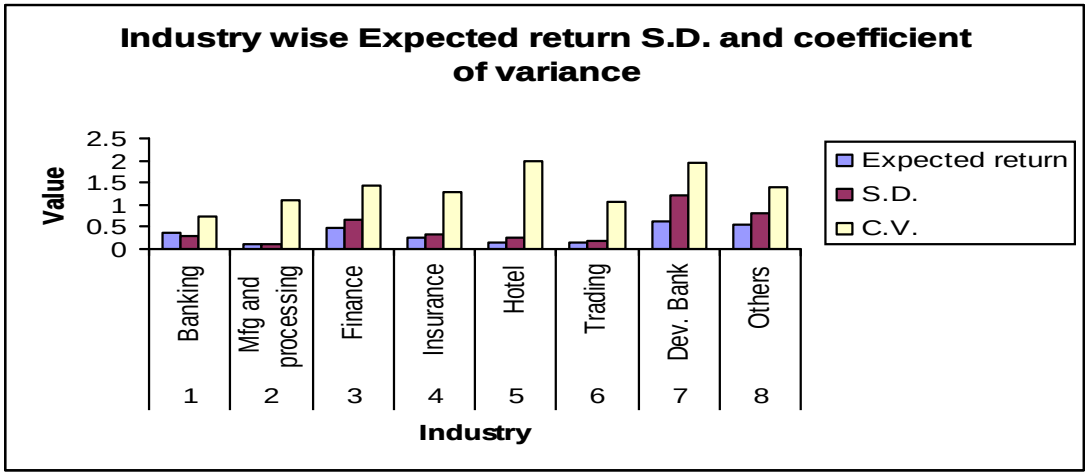
The main focus of our study is risk and return. The detail calculation of realized return, expected return, S.D. and coefficient of variance of sector wise is shown in appendices Table 1.1 (a-h):

Table 4.15
Industry wise Expected return S.D. and coefficient of variance

S.N.	Industry	Expected return	S.D.	C.V.	Remark
1.	Banking	0.372	0.2766	0.74	
2.	Mfg and processing	0.096	0.1054	1.10	
3.	Finance	0.461	0.6672	1.45	
4.	Insurance	0.247	0.3138	1.27	
5.	Hotel	0.140	0.2757	1.97	
6.	Trading	0.158	0.1655	1.05	
7.	Dev. Bank	0.630	1.2228	1.94	
8.	Others	0.569	0.7985	1.40	

Appendices Table 4.1 (a-h)

Figure 4.20



From the above conclusion, we can clearly say that the highest return is development bank sector and lowest return is Mfg and processing. The highest risk is development bank sector and lowest risk is Mfg and processing sector. The insurance company's risk and return has not more interval. In compared of others sectors it can suggest that the insurance companies are also can be considered best for investment propose. According to above table we can say the most suitable sector for the investment as its C.V. is banking sector. It has C.V. 0.74 which is minimum as compared with other sector.

4.5 Comparison with Market

Market Risk and Return

We know that there is only one stock market of Nepal is Nepal Stock Exchange (NEPSE), overall market is represented by a single a place NEPSE. NEPSE index represents the overall market movement. Realized return, Standard deviation and coefficient of variance of market index are shown in the following table 4.16 and NEPSE index movement and market is shown in figure 4.16.

Table 4.16
Market returns its S.D. and C.V.

Year	NEPSE Index (NI)	$R = \frac{NI_1 - NI_{t-1}}{NI_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$	Remark
2058/59	227.52	-	-	-	
2059/60	204.86	-0.100	-0.434	0.1884	
2060/61	222.04	0.084	-0.250	0.0625	
2061/62	286.67	0.291	-0.043	0.0018	
2062/63	386.83	0.349	0.015	0.0001	
2063/64	683.95	0.768	0.434	0.1884	
2064/65	963.36	0.409	0.075	0.0056	
Total ($\sum$)		$\sum R = 1.801$		0.4468	

$$\text{Expected return } \overline{R} = \frac{\sum R}{n} = \frac{1.801}{6} = 0.334$$

$$\text{Standard deviation } \sigma = \frac{\sqrt{\sum (R - \overline{R})^2}}{n-1} = \frac{\sqrt{0.4468}}{6-1} = \sqrt{0.0894} = 0.2990$$

$$\text{Coefficient of variation c.v} = \frac{\sigma}{\overline{R}} = \frac{0.2990}{0.334} = 0.8952$$

From the above calculation we can find the market return as 33.40%, risk is 29.90% and C.V. is 0.8952.

Figure 4.21(a)

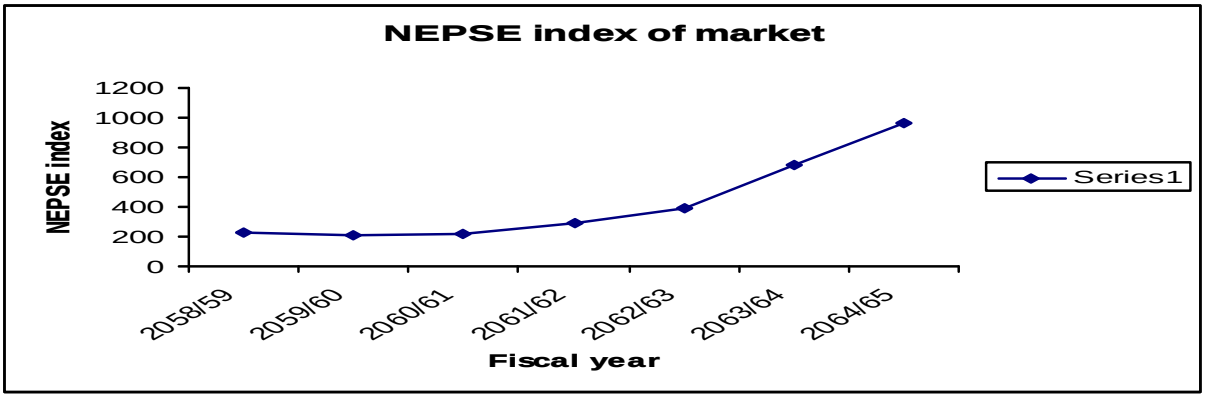
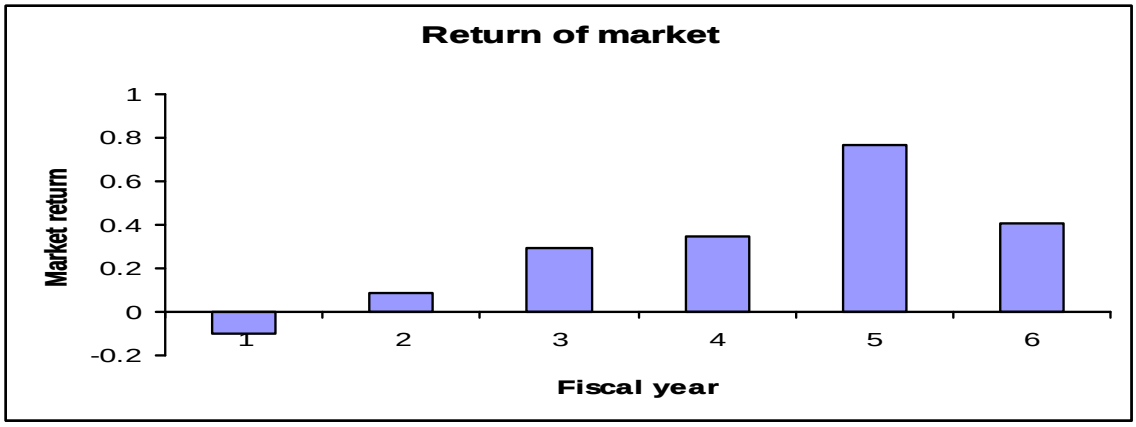


Figure 4.21(b)



4.6 Test of hypothesis-I

This Hypothesis I is based on the test of significance between two sample independent sample means (t- test)

Null hypothesis (H_o): $\mu_1 = \mu_2$ i.e. there is no significant between the portfolio return of common stock of insurance companies and overall return of the market portfolio. In other words, average return on the shares of insurance company is equal to the market portfolio return.

Under the Ho test statistics, (t) is

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{s^2\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \sim t_{n1+\, n2-2\, =}\ 8$$

Where,

X_1 = Average return of portfolio of insurance company (R_i) = 24.70
(Re: table 4.15)
X_2 = Average return of portfolio of market (R_m) = 33.40
(Re: table 4.16)
$n_1 = n_2$ = Number of observation = 6

S^2 = Estimated std. deviation of population

$$S^2 = \frac{n_1 s_1 + n_2 s_2}{n_1 + n_2 - 2}$$

$$= \frac{6\times0.3138 + 6\times0.2990}{6 + 6 - 2}$$

$$= \frac{1.8828 + 1.7940}{10}$$

$$= \frac{3.0823}{10}$$

$$= o.3082$$

S_1 = std. deviation of insurance companies = 0.3138
(Re: table 4.15)

S_2 = std. deviation of market = 0.2990
(Re: table 4.16)

Hence,

$$t = \frac{\overline{x_1} - \overline{x_2}}{\sqrt{s^2\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \sim t_{n1+\, n2-2\, =}\ 10$$

$$= \frac{0.2470 - 0.3340}{\sqrt{0.3082\left(\frac{1}{6} + \frac{1}{6}\right)}}$$

$$= \frac{-0.087}{0.1027}$$

$$= - 0.8471$$

The tabulated value of t for 10 degree of freedom (d.f.) at 10%, 5%, 2% and 1% level of significance are 1.812, 2.228, 2.764 and 3.169 respectively.

Decision

Since the calculated value of 't' is less than the tabulated value the null hypothesis may be accepted. I.e. average return of common stock of insurance companies and average return of market portfolio are equal.

4.6.1 Analysis of Market Sensitivity

Market sensitivity of stock is the systematic risk that is measured by its beta coefficient. Systematic risk is the risk that can not be reduced by diversification. Higher beta represents greater sensitivity and higher reaction to the market movement and lower beta represents lower sensitivity and lower reaction to the market movement. Greater beta means higher risk and return. It measures the responsiveness of a security movement in the market portfolio.

Depending upon the volatile of the stock return relative to market return for an individual stock, bet could be less than more than or equal to 1.

$$B_j = \frac{COV\ (R_j R_m)}{\sigma_m^2}$$

Where,

R_jR_m = correlation between market return and stock (say stock j) return.

Hence,

$$B_j = \frac{COV\ (R_j R_m)}{\sigma_m^2}$$

$$COV(R_jR_m) = \frac{\sum (R_j - \overline{R_j})(R_m - \overline{R_m})}{n-1}$$

Hence, Beta (B) coefficient of market is always equal to 1.
The calculation of beta coefficient in the common stock of selected insurance companies has shown in below:

Table 4.17
Calculation of beta coefficient of the common stock of PIC

Fiscal year	R_j	$(R_j - \overline{R_j})$	R_m	$(R_m - \overline{R_m})$	$(R_j - \overline{R_j})(R_m - \overline{R_m})$
2058/59	-	-	-	-	
2059/60	0.188	0.044	-0.100	-0.434	-0.0191
2060/61	0.139	-0.005	0.084	-0.250	0.0013
2061/62	0.037	-0.107	0.291	-0.043	0.0046
2062/63	-0.014	-0.158	0.349	0.015	-0.0024
2063/64	0.362	0.218	0.768	0.434	0.0946
2064/65	0.154	0.010	0.409	0.075	0.0008
Total					0.0798

Where,

R_j = Realized return of PIC (Refer table: 4.2)

$\overline{R_j}$ = Expected return of PIC

R_m = Realized return of market

$\overline{R_m}$ = Expected return of market (Refer table: 4.16)

Now,

$$COV(R_jR_m) = \frac{\sum (R_j - \overline{R_j})(R_m - \overline{R_m})}{n-1}$$

$$= \frac{0.0798}{6-1} = 0.0160$$

Again,

$$B_j = \frac{COV(R_j R_m)}{\sigma_m^2}$$

$$= \frac{0.0160}{0.0894}$$

= 0.18 (Refer table: 4.16 for σ_m^2)

Table 4.18
Calculation of beta coefficient of the common stock of HGIC

Fiscal year	R_j	$(R_j - \overline{R_j})$	R_m	$(R_m - \overline{R_m})$	$(R_j - \overline{R_j})(R_m - \overline{R_m})$
2058/59	-	-	-	-	-
2059/60	-0.156	-0.292	-0.100	-0.434	0.1267
2060/61	-0.061	-0.197	0.084	-0.250	0.0493
2061/62	0.171	0.035	0.291	-0.043	-0.0015
2062/63	-0.078	-0.058	0.349	0.015	-0.0009
2063/64	0.631	0.495	0.768	0.434	0.2148
2064/65	0.150	0.014	0.409	0.075	0.0011
Total					0.3895

Where,

R_j = Realized return of HGIC (Refer table: 4.4)

$\overline{R_j}$ = Expected return of HGIC

R_m = Realized return of market

$\overline{R_m}$ = Expected return of market (Refer table: 4.16)

Now,

$$COV(R_jR_m) = \frac{\sum (R_j - \overline{R_j})(R_m - \overline{R_m})}{n-1}$$

$$= \frac{0.3895}{6-1} = 0.0779$$

Again,

$$B_j = \frac{COV (R_j R_m)}{\sigma_m^2}$$

$$= \frac{0.0779}{0.0894}$$

= 0.87 (Refer table: 4.16 for σ_m^2)

Table 4.19
Calculation of beta coefficient of the common stock of EIC

Fiscal year	R_j	$(R_j - \overline{R_j})$	R_m	$(R_m - \overline{R_m})$	$(R_j - \overline{R_j})(R_m - \overline{R_m})$
2058/59	-	-	-	-	-
2059/60	0.016	0.105	-0.100	-0.434	-0.0456
2060/61	-0.426	-0.337	0.084	-0.250	0.0843
2061/62	-0.047	0.042	0.291	-0.043	-0.0018
2062/63	-0.068	0.021	0.349	0.015	0.0003
2063/64	-0.011	0.078	0.768	0.434	0.0339
2064/65	0.003	0.092	0.409	0.075	0.0069
Total					0.0780

Where,

R_j = Realized return of EIC (Refer table: 4.2)

$\overline{R_j}$ = Expected return of EIC

R_m = Realized return of market

$\overline{R_m}$ = Expected return of market (Refer table: 4.16)

Now,

$$COV(R_jR_m) = \frac{\sum (R_j - \overline{R_j})(R_m - \overline{R_m})}{n-1}$$

$$= \frac{0.0780}{6-1} = 0.0156$$

Again,

$$B_j = \frac{COV (R_j R_m)}{\sigma_m^2}$$

$$= \frac{0.0156}{0.0894}$$

= 0.17 (Refer table: 4.16 for σ_m^2)

Table 4.20
Calculation of beta coefficient of the common stock of UIC:

Fiscal year	R_j	$(R_j - \overline{R_j})$	R_m	$(R_m - \overline{R_m})$	$(R_j - \overline{R_j})(R_m - \overline{R_m})$
2058/59	-	-	-	-	
2059/60	-0.274	0.440	-0.100	-0.434	-0.1910
2060/61	-0.196	0.362	0.084	-0.250	-0.0905
2061/62	0.205	0.084	0.291	-0.043	-0.0036
2062/63	0.001	0.165	0.349	0.015	0.0025
2063/64	0.776	0.610	0.768	0.434	0.2647
2064/65	0.438	0.272	0.409	0.075	0.0204
Total					0.0024

Where,

R_j = Realized return of UIC (Refer table: 4.2)

$\overline{R_j}$ = Expected return of UIC

R_m = Realized return of market

$\overline{R_m}$ = Expected return of market (Refer table: 4.16)

Now,

$$COV(R_jR_m) = \frac{\sum (R_j - \overline{R_j})(R_m - \overline{R_m})}{n-1}$$

$$= \frac{0.0024}{6-1} = 0.0005$$

Again,

$$B_j = \frac{COV (R_j R_m)}{\sigma_m^2}$$

$$= \frac{0.0005}{0.0894}$$

= 0.006 (Refer table: 4.16 for σ_m^2)

Table 4.21
Calculation of beta coefficient of the common stock of SIC

Fiscal year	R_j	$(R_j - \overline{R_j})$	R_m	$(R_m - \overline{R_m})$	$(R_j - \overline{R_j})(R_m - \overline{R_m})$
2058/59	-	-	-	-	-
2059/60	0.099	-0.057	-0.100	-0.434	0.0247
2060/61	-0.127	-0.283	0.084	-0.250	0.0706
2061/62	0.206	0.050	0.291	-0.043	-0.0022
2062/63	0.329	0.173	0.349	0.015	0.0026
2063/64	0.081	-0.075	0.768	0.434	-0.0326
2064/65	0.348	0.192	0.409	0.075	0.0144
Total					0.0775

Where,

R_j = Realized return of SIC (Refer table: 4.2)

$\overline{R_j}$ = Expected return of SIC

R_m = Realized return of market

$\overline{R_m}$ = Expected return of market (Refer table: 4.16)

Now,

$$COV(R_jR_m) = \frac{\sum (R_j - \overline{R_j})(R_m - \overline{R_m})}{n-1}$$

$$= \frac{0.0775}{6-1} = 0.0155$$

Again,

$$B_j = \frac{COV (R_j R_m)}{\sigma_m^2}$$

$$= \frac{0.0155}{0.0894}$$

= 0.17 (Refer table: 4.16 for σ_m^2)

According to above calculation of beta (B), it is found that beta coefficient of selected insurance companies are less than 1. So, all the selected insurance companies' common stocks are less sensitive. For 1% increase in market return there will be less than 1% risk in the stock return of all the selected insurance companies.

Table 4.22
Beta coefficient of selected five insurance companies

S.N.	Companies	Beta coefficient
1.	PIC	0.18
2.	HGIC	0.87
3.	EIC	0.17
4.	UIC	0.006
5.	SIC	0.17

In the above table the highest beta coefficient has HGIC and lowest beta coefficient has UIC.

Table 4.23
Required rate of return, expected return and price evaluation of 5 selected insurance companies

S.N.	Companies	Beta(B_j)	Risk free return(R_f)	Required rate of return	Exp. return	Price situation
1.	PIC	0.18	0.0599	0.1092	0.144	Under priced
2.	HGIC	0.87	0.0599	0.2984	0.136	Over priced
3.	EIC	0.17	0.0599	0.1065	-0.089	Over priced
4.	UIC	0.006	0.0599	0.0615	0.166	Under priced
5.	SIC	0.17	0.0599	0.1065	0.156	Under priced

Where,

Required rate of return = $\sum R_j = R_f + (R_m - R_f) B_j$

Risk free return = 0.0599 (Source: NRB, Treasury bill)

Expected market return = 0.334 (Refer table: 4.16)

Now, calculation of required rate of return of five insurance companies:

1. **Required rate of return of PIC:**

$$\overline{R_j} = R_f + (R_m - R_f) B_j$$
$$= 0.0599 + (0.334 - 0.0599) \times 0.18$$
$$= 0.1092$$

2. **Required rate of return of HGIC:**

$$\overline{R_j} = R_f + (R_m - R_f) B$$
$$= 0.0599 + (0.334 - 0.0599) \times 0.87$$
$$= 0.2984$$

3. Required rate of return of EIC:

$$\overline{R_j} = R_f + (R_m - R_f) B_j$$
$$= 0.0599 + (0.334 - 0.0599) \times 0.17$$
$$= 0.1065$$

4. Required rate of return of UIC:

$$\overline{R_j} = R_f + (R_m - R_f) B_j$$
$$= 0.0599 + (0.334 - 0.0599) \times 0.006$$
$$= 0.0615$$

5. Required rate of return of SIC:

$$\overline{R_j} = R_f + (R_m - R_f) B_j$$
$$= 0.0599 + (0.334 - 0.0599) \times 0.17$$
$$= 0.1065$$

The above table is show that the expected return and required rate of return of five selected sample insurance companies. It describes the price situation of the common stock of these companies where they are under priced or over priced by using capital assets pricing model (CAPM). If required rate of return (RRR) is greater than expected rate of return (ERR), stock is said to be over priced and vice-versa. In over priced the investors follow selling strategy and in under priced the investors follow buying strategy. From the above table we can say that common stock of PIC, UIC and SIC under priced and HGIC and EIC over priced.

Table 4.24

Calculation of weighted beta of insurance companies

Companies	Beta(B_j)	Market capitalization	Weight (W_j)	W_jB_j
PIC	0.18	90000000	0.1103	0.0199
HGIC	0.87	103500000	0.1268	0.1103
EIC	0.17	261900000	0.3209	0.0546
UIC	0.006	189000000	0.2316	0.0014
SIC	0.17	171670000	0.2104	0.0358
Total		**816070000**		**0.2220**

Hence the weighted average beta of the shares (B_j) is 0.2220 which is the beta coefficient of selected insurance companies.

Table 4.25

Calculation of estimated population S.D. of beta

Companies	Beta(B_j)	$(B_j - \overline{B_j})$	$(B_j - \overline{B_j})^2$
PIC	0.18	-0.099	0.0098
HGIC	0.87	0.591	0.3493
EIC	0.17	-0.109	0.0119
UIC	0.006	-0.273	0.0745
SIC	0.17	-0.109	0.0119
Total	**1.396**		**0.4574**

Here, $\overline{B_j} = \frac{\sum B_j}{5} = \frac{1.396}{5} = 0.279$

Variance of beta $(\sigma_B^2) = \frac{\sum(B_j - \overline{B_j})^2}{n-1} = \frac{0.4574}{5-1} = 0.1144$

Estimated variance of population $(\sigma_B^2) = \frac{5}{5-1} \times 0.1144 = 0.143$

So, S = 0.378

Test of hypothesis-II

This hypothesis is based on the test of significance for portfolio beta (t-test)

Null hypothesis (H_o): $X_b = 1$ i.e. there is no significant difference between the portfolio beta of insurance companies and the market portfolio beta. In other words, average portfolio beta of insurance company is equal to 1

Alternative hypothesis (H_1): $X_b = 1$ i.e. there is significant difference between the portfolio beta of insurance companies and the market portfolio beta. In other words, average portfolio beta of insurance company is not equal to 1

Under the Ho test statistics, (t) is

$$t = \frac{\overline{x} - u}{\frac{s}{\sqrt{n}}}$$

Where,

X = 0.2220 Weighted average of the beta of insurance companies and it is estimated that these 5 insurance companies represents the whole insurance companies

(Re: table 4.24)

μ = 1.

N = 5 no. of samples

S = Estimated std. deviation of market portfolio.

$$t = \frac{\overline{x} - u}{\frac{s}{\sqrt{n}}}$$

$$= \frac{0.2220-1}{\frac{0.378}{\sqrt{5}}}$$

$$= \frac{-0.778}{0.169} = -4.60$$

The tabulated value of t for 1 of 4 or (n-1) degree of freedom (d.f.) at 10%, 5%, 2% and 1% level of significance are 2.13, 2.77, 3.7 and 4.60 respectively.

Decision

Since the calculated value of 't' is less than the tabulated value the null hypothesis is accepted. I.e. portfolio beta of insurance companies is equal to 1.

4.6.2 Portfolio Analysis

Portfolio theory was proposed by Harry M. Markowitz which gives the concept of diversification of risk by investing total funds in more than a single assets or single stock. Markowitz diversification helps the investor attain a higher level of expected utility than with any other risk reduction technique. In a very simple way we can understand it is keeping all eggs in a single basket. By diversifying total fund in different securities the risk of individual security can be reduced without loosing considerable return. The main aim of portfolio is reduction of unsystematic risk from which investors can take more benefit by making efficient portfolio.

The expected return of a portfolio is simply a weighted average of the expected return of the securities comparing that portfolio. The weights are equal to the proportion of total funds invested in each security. "While the portfolio expected return is a straight forward weighted average returns in the individual security's standard deviation. To take weighted average of individual security standard deviation would be to ignore the relationship, or correlation between the returns of the two securities. This correlation however has no effect on the portfolio's expected return. Correlation between securities returns complicates our calculation of portfolio standard deviation by forcing us to calculate the co-variance between returns for every possible pair wise combination of securities in the portfolio. But this dark could be mathematical complication contains a silver lining correlation between securities provided for the possibilities without reducing potential returns" (Van Horne, 1997:96).

4.6.3 Analysis of Risk Diversification

The analysis is based on two assets portfolio and the tools for analysis are already presented in the research methodology. Here the portfolio of the common stock of Premier insurance company (PIC) and Himalayan insurance company (HGIC) is made.

Let us suppose the return on common stock of PIC as stock A and that of HGIC as stock B. the given below is the table showing calculations:

Correlation between insurance companies

Table 4.26
Correlation, Covariance and weight of stock A and B (PIC and HGIC)

Fiscal year	$(R_A - \overline{R_A})$	$(R_B - \overline{R_B})$	$(R_A - \overline{R_A})(R_B - \overline{R_B})$
2059/60	0.044	-0.292	-0.0128
2060/61	-0.005	-0.197	0.0010
2061/62	-0.107	0.035	-0.0037
2062/63	-0.158	-0.058	0.0092
2063/64	0.218	0.495	0.1079
2064/65	0.010	0.014	0.0001
Total			0.1017

$(R_A - \overline{R}_A)$ – From table 4.2

$(R_B - \overline{R}_B)$ – From table 4.4

$$\text{Cov}(R_A, R_B) = \frac{\sum (R_A - \overline{R}_A)(R_B - \overline{R}_B)}{n-1}$$

$$= \frac{0.1017}{6-1}$$

$$= 0.0203$$

For maximizing the risk of weight of stock A in the portfolio is given as:

$$WA = \frac{\sigma_B^2 - \text{cov}(R_A, R_B)}{\sigma_A^2 + \sigma_B^2 - 2\text{cov}(R_A, R_B)}$$

Where,

WA = optimal weight to invest on PIC

WB = optimal weight to invest in HGIC

σ_A^2 = Variance of PIC (taken from table 4.2)

σ_B^2 = Variance of HGIC (taken from table 4.4)

$$WA = \frac{\sigma_B^2 - cov(R_A, R_B)}{\sigma_A^2 + \sigma_B^2 - 2cov(R_A, R_B)}$$

$$= \frac{(0.2735)^2 - 0.0203}{(0.1311)^2 + (0.2735)^2 - 2\times 0.0203}$$

$$= -0.5550$$

$$W_B = 1 - W_A$$
$$= 1 - (-0.5550)$$
$$= 1.5550$$

As above calculation, investor should diversify their fund 55.5% for stock A

$$\rho_{AB} = \frac{COV(R_A, R_B)}{\sigma_A \sigma_B}$$

$$= \frac{0.0203}{0.1311\times 0.2735}$$

$$= 0.57$$

Here, Correlation is perfectly positive, so portfolio can not reduce to any level of risk.

Again, calculations of portfolio return:

$$\overline{R_p} = W_A \overline{R_A} + W_A \overline{R_B}$$

$$= -0.5550\times 0.144 + 1.5550\times 0.136$$

$$= -0.0799 + 0.2115$$

$$= 0.1316$$

$\overline{R}_A$ = Expected return of A (from table 4.11)

$\overline{R}_B$ Expected return of B (from table 4.11)

Portfolio return is combination of two or more securities or assets and portfolio return is simple a weighted average of the individual stock return.

Calculation of portfolio risk:

$$\sigma_P = \sqrt{W_A^2\sigma_A^2 + W_B^2.\sigma_B^2 + 2W_A.W_B.COV_{A\sqrt{}B}}$$

$$= \sqrt{(-0.5550)^2(0.1311)^2 + (1.5550)^2.(0.2735)^2 + 2(-0.5550).1.5550.0.0203}$$

$$= \sqrt{0.1405}$$
$$= 0.3749$$
$$= 37.49\ \%$$

Table 4.27

Correlation, Covariance and weight of stock A and B (PIC and EIC)

Fiscal year	$(R_A - \overline{R_A})$	$(R_B - \overline{R_B})$	$(R_A - \overline{R_A})(R_B - \overline{R_B})$
2059/60	0.044	0.105	0.0046
2060/61	-0.005	-0.337	0.0017
2061/62	-0.107	0.042	-0.0045
2062/63	-0.158	0.021	-0.0033
2063/64	0.218	0.078	0.0170
2064/65	0.010	0.092	0.0010
Total			0.0165

In the above table, Let us suppose the return on common stock of PIC as stock A and that of EIC as stock B. the given below is the table showing calculations:

$(R_A - \overline{R}_A)$ – From table 4.2

$(R_B - \overline{R}_B)$ – From table 4.6

$$\text{Cov}(R_A, R_B) = \frac{\sum (R_A - \overline{R}_A)(R_B - \overline{R}_B)}{n-1}$$
$$= \frac{0.0165}{6-1}$$
$$= 0.0033$$

For maximizing the risk of weight of stock A in the portfolio is given as:

$$WA = \frac{\sigma_B^2 - \text{cov}(R_A R_B)}{\sigma_A^2 + \sigma_B^2 - 2\text{cov}(R_A, R_B)}$$

Where,

WA = optimal weight to invest on PIC

WB = optimal weight to invest in EIC

σ_A^2 = Variance of PIC (taken from table 4.2)

σ_B^2 = Variance of EIC (taken from table 4.6)

$$WA = \frac{\sigma_B^2 - cov(R_A R_B)}{\sigma_A^2 + \sigma_B^2 - 2cov(R_A, R_B)}$$

$$= \frac{(0.1682)^2 - 0.0033}{(0.1311)^2 + (0.1682)^2 - 2\times 0.0033}$$

$$= 0.6427$$

$$W_B = 1 - 0.6427$$
$$= 0.3573$$

As above calculation, investor should diversify their fund 64.37% for stock A

$$\rho_{AB} = \frac{COV(R_A, R_B)}{\sigma_A \sigma_B}$$

$$= \frac{0.0033}{0.1311\times 0.1682}$$

$$= 0.1493$$

Here, Correlation is perfectly positive, so portfolio can not reduce to any level of risk.

Again, calculations of portfolio return:

$$\overline{R_p} = W_A \overline{R_A} + W_A \overline{R_B}$$

$$= 0.6427 \times 0.144 + 0.3573 \times (-0.089)$$

$$= 0.0607$$

$\overline{R}_A$ = Expected return of A (from table 4.11)

$\overline{R}_B$ Expected return of B (from table 4.11)

Portfolio return is combination of two or more securities or assets and portfolio return is simple a weighted average of the individual stock return.

Calculation of portfolio risk:

$$\sigma_P = \sqrt{W_A^2\sigma_A^2 + W_B^2.\sigma_B^2 + 2W_A.W_B.COV(_{A,B})}$$

$$= \sqrt{(0.6427)^2 . (0.1311)^2 + (0.3573)^2 . (0.1682)^2 + 2(0.6427)(0.3573)(0.0033)}$$

$= \sqrt{0.0122}$
$= 0.1105$
$= 11.05\ \%$

Table 4.28

Correlation, Covariance and weight of stock A and B (PIC and UIC)

Fiscal year	$(R_A - \overline{R_A})$	$(R_B - \overline{R_B})$	$(R_A - \overline{R_A})(R_B - \overline{R_B})$
2059/60	0.044	0.440	-0.0194
2060/61	-0.005	0.362	0.0018
2061/62	-0.107	0.084	-0.0090
2062/63	-0.158	0.165	0.0261
2063/64	0.218	0.610	0.1330
2064/65	0.010	0.272	0.0027
			0.1350

In the above table, Let us suppose the return on common stock of PIC as stock A and that of UIC as stock B. the given below is the table showing calculations:

$(R_A - \overline{R}_A)$ – From table 4.2

$(R_B - \overline{R}_B)$ – From table 4.8

$$\text{Cov.}(R_A, R_B) = \frac{\sum (R_A - \overline{R}_A)(R_B - \overline{R}_B)}{n-1}$$

$$= \frac{0.1350}{6-1}$$

$$= 0.0270$$

For maximizing the risk of weight of stock A in the portfolio is given as:

$$WA = \frac{\sigma_B^2 - \text{cov}(R_A R_B)}{\sigma_A^2 + \sigma_B^2 - 2\text{cov}(R_A, R_B)}$$

Where,

WA = optimal weight to invest on PIC

WB = optimal weight to invest in UIC

σ_A^2 = Variance of PIC (taken from table 4.2)

σ_B^2 = Variance of UIC (taken from table 4.8)

$$WA = \frac{\sigma_B^2 - cov(R_A R_B)}{\sigma_A^2 + \sigma_B^2 - 2cov(R_A, R_B)}$$

$$= \frac{(0.4012)^2 - 0.270}{(0.1311)^2 + (0.4012)^2 - 2\times 0.0270}$$

$$= 1.0789$$

$$W_B = 1 - W_A$$
$$= 1 - 1.0789$$
$$= -0.0789$$

As above calculation, investor should diversify their fund 7.89% for stock A

$$\rho_{AB} = \frac{COV(R_A, R_B)}{\sigma_A \sigma_B}$$

$$= \frac{0.0270}{0.1311\times 0.4012}$$

$$= 0.5133$$

Here, Correlation is perfectly positive, so portfolio can not reduce to any level of risk.

Again, calculations of portfolio return:

$$\overline{R_p} = W_A \overline{R_A} + W_A \overline{R_B}$$

$$= 1.0789 \times 0.144 + (-0.0789) \times 0.166$$

$$= 0.1423$$

$\overline{R}_A$ = Expected return of A (from table 4.11)

$\overline{R}_B$ Expected return of B (from table 4.11)

Portfolio return is combination of two or more securities or assets and portfolio return is simple a weighted average of the individual stock return.

Calculation of portfolio risk:

$$\sigma_P = \sqrt{W_A^2\sigma_A^2 + W_B^2.\sigma_B^2 + 2W_A.W_B.COV_{(A,B)}}$$

$$= \sqrt{(1.0789)^2 \cdot (0.1311)^2 + (-0.789)^2 \cdot (0.4012)^2 + 2(1.0789)\,(-0.0789)(0.0270)}$$

$$= \sqrt{0.0184}$$
$$= 0.1356$$
$$= 13.56\ \%$$

Table 4.29

Correlation, Covariance and weight of stock A and B (PIC and SIC)

Fiscal year	$(R_A - \overline{R_A})$	$(R_B - \overline{R_B})$	$(R_A - \overline{R_A})(R_B - \overline{R_B})$
2059/60	0.044	-0.057	-0.0025
2060/61	-0.005	-0.283	0.0014
2061/62	-0.107	0.050	-0.0054
2062/63	-0.158	0.173	-0.0273
2063/64	0.218	-0.075	-0.0164
2064/65	0.010	0.192	0.0019
			-0.0483

In the above table, Let us suppose the return on common stock of PIC as stock A and that of SIC as stock B. the given below is the table showing calculations:

$(R_A - \overline{R}_A)$ – From table 4.2

$(R_B - \overline{R}_B)$ – From table 4.10

$$\text{Cov}(R_A, R_B) = \frac{\sum (R_A - \overline{R}_A)(R_B - \overline{R}_B)}{n-1}$$

$$= \frac{-0.0483}{6-1}$$

$$= -0.0098$$

For maximizing the risk of weight of stock A in the portfolio is given as:

$$W_A = \frac{\sigma_B^2 - \text{cov}(R_A R_B)}{\sigma_A^2 + \sigma_B^2 - 2\text{cov}(R_A, R_B)}$$

Where,

W_A = optimal weight to invest on PIC

W_B = optimal weight to invest in SIC

σ_A^2 = Variance of PIC (taken from table 4.2)

σ_B^2 = Variance of HGIC (taken from table 4.10)

$$W_A = \frac{\sigma_B^2 - cov(R_A R_B)}{\sigma_A^2 + \sigma_B^2 - 2cov(R_A, R_B)}$$

$$= \frac{(0.1786)^2 - 0.0098}{(0.1311)^2 + (0.1786)^2 - 2\times 0.0098}$$

$$= 1.4136$$

$$W_B = 1 - W_A$$
$$= 1 - 1.4136)$$
$$= -0.4136$$

As above calculation, investor should diversify their fund 41.36% for stock A

$$\rho_{AB} = \frac{COV(R_A, R_B)}{\sigma_A \sigma_B}$$

$$= \frac{-0.0098}{0.1311\times 0.1786}$$

$$= -0.4188$$

Here, Correlation is perfectly positive, so portfolio can not reduce to any level of risk.

Again, calculations of portfolio return:

$$\overline{R_p} = W_A \overline{R_A} + W_A \overline{R_B}$$

$$= 1.4136 \times 0.144 + (-0.4136) \times 0.156$$

$$= 0.1491$$

$\overline{R}_A$ = Expected return of A (from table 4.11)

$\overline{R}_B$ Expected return of B (from table 4.11)

Portfolio return is combination of two or more securities or assets and portfolio return is simple a weighted average of the individual stock return.

Calculation of portfolio risk:

$$\sigma_P = \sqrt{W_A^2\sigma_A^2 + W_B^2.\,\sigma_B^2 + 2W_A.W_B.COV_{(A,B)}}$$

$$= \sqrt{(1.4136)^2\,.\,(0.1311)^2 + (-0.4136)^2\,.\,(0.1786)^2 + 2(1.4136)\,(-0.4136)(-0.0098)}$$

$$= \sqrt{0.0173}$$
$$= 0.1315$$
$$= 13.15\ \%$$

4.7 Major Findings

The major finding from the above data presentation, interpretation and analysis are:

1. The most risky securities among all the securities are common stock. Higher the risk, higher will be the return and most of the investors are attracted to the common stock security because of its higher expected return.
2. The return is income receive on stock investment, which is usually expressed in percentage. On the basis of market capitalization size of EIC is the biggest one and PIC is the smallest.
3. Expected return of the common stock of UIC is highest at 16.60% where as that of EIC is least at -8.90%. On the basis of sector wise comparison expected return of development bank is highest return i.e. 63% where as other's sector has lowest return i.e. 9.60%.
4. Risk is the uncertain associated with the assets can be measured by standard deviation. UIC is regarded as the most risky security as we know that higher the risk higher the return. UIC excepted return is the highest which ultimate the standard deviation (risk) to be highest. And PIC risk is the lowest one.
5. Standard deviation is not only the single measure of risk, coefficient of variation (C.V.) is also measure the risk and is known as a relation measures of risk. Minimum C.V. is best for investment in single securities. EIC can be taken as the best for investment as per minimum C.V. but it has negative expected return as well as high S.D. So as a whole PIC is the best for investment due to its expected return, S.D. and C.V.

6. When risk and return compared to different industries, banking sector is best as per highest expected return with higher degree of risk and from the view point of C.V. banking sector is the best as it has least C.V. where as manufacturing and processing sectors has minimum return and risk.
7. In case of first hypothesis testing calculated value is less than the tabulated value so the null hypothesis is accepted i.e. there is no significant difference between the portfolio return of common stock of insurance companies and market portfolio.
8. The Beta measure the systematic risk and defined by market explains the sensitivity of stock with market is used for ranking the systematic risk of various asset. The beta coefficient of selected insurance companies PIC, HGIC, EIC, UIC and SIC are 0.18, 0.87, 0.17, 0.006 and 0.17 respectively. Since the beta coefficient of all the companies is less than 1 which indicates the share is less risky or volatile than market.
9. Comparison between RRR and ERR helps us to identify whether the stock is under priced or over priced among the selected companies stock of the PIC, UIC and SIC are under priced so it is better to purchase and HGIC and EIC are over priced so it is better to sell.
10. The portfolio analysis indicates that forming portfolio can reduce the risk. We have constructed portfolio between PIC and HGIC, PIC and EIC, PIC and UIC that found their correlation coefficient is positively correlated so such portfolio is not beneficial for investment but PIC and SIC are negatively correlated so it is beneficial for investment.
11. The second hypothesis is based on the test of significance for portfolio beta in this case null hypothesis is accepted. It means that portfolio beta of insurance companies is equal to 1.

CHAPTER V

SUMMARY, CONCLUSION & RECOMMENDATIONS

5.1. Summary

Risk and return is getting considerable attention in financial management, financial ratios have been used for centuries as a rule of thumb to aid in understanding trade – off between risk and return but they only starch the surface. Development in the field of finance has led to the application of many new concepts and models to deal with various issues related to corporate financial management.

People's participation in the security investment and its dynamic trading plays a vital role in the overall economic development of a nation. The investment environment detects the availability of investment opportunities. The central focus of this study is the risk and return trade off and the relationship between risk and return is described by investor perception about risk and their demand for compensation. No investor will like to invest in risky assets unless he is assured of adequate compensation for the acceptance of risk, hence risk plays a vital role in the analysis of investment. Inventor often ask about the total risk they will be assuming in an investment and like to know if the risk premium provided is enough . Higher risk will command higher premium and the trade-off between the two assumes a linear relationship between risk and risk premium.

Capital market facilitates the risk sharing among those who demand risk avoidance and those who supply it. There is a market price of risk just as the market price of other things always investors willingly offer more capital at highest rate where as uses of capital always show their readiness to use more capital at lower rate. Common stock is a source of capital which is considered to be riskier and lifeblood of stock market because of higher expected return an investment in common stock of a corporate firm neither ensures an annual return nor ensures the return of principal. Therefore, investment in common stock is very sensitive on the ground risk. Dividend to common stock holders

are paid only if the company makes an operating profit after tax and preference dividend. The company can return the principal in case of its liquidation only to the extent of the residual assets after satisfying to all of creditors and preferential shareholder. Beside this, the investors have to sacrifice the return on their investment in common stock, which would be earned investing somewhere else. Still due to the evident of abnormal high rise in common stock price from some of the sectors common stock during 90 days common stock has attracted more investor in Nepal and rash can be seen in primary market during primary issue.

Since the main objective of the study is to analyze risk and return while analyzing the risk and return of the common stock in the Nepalese market, the study is focused on the common stock of insurance companies. Five listed companies are taken into consideration to analyze the risk and return. While analyzing the risk and return brief review of related studies has been performed sound methodology has been used to analyze data and tables graphs and diagrams are used to make the finding simple and present data in easy form. Secondary data are collected from Nepal stock exchange, NRB, SEBO/N, Beema samiti and financial records of studied companies. Finding of analysis are summarized and conclusion re drawn as follows.

5.2 Conclusion

Generally public of Nepal are least understood about the stock market and have fake conceptual thought about risk. They see stock market investment as a black art that they know little about may be due to poor education and lack of adequate information. This study enables investor to put the returns they can expect and the risks they may take into better perspective. Overall evidence from the data presentation and analysis lead to the conclusion that 'Risk and Return' of Common Stock of insurance companies is in good condition. It means there is good return according to risk of investment in common stock of insurance companies. When risk and return is compared in insurance companies, UIC is regarded as the most risky security as we know that higher the risk higher the return. UIC excepted return is the highest which ultimate the standard deviation (risk) to be highest. And PIC risk is the lowest one. And when risk and return is compared to

different industries, the banking sector is best as per highest expected return with higher degree of risk and from the view point of C.V. banking sector is the best as it has least C.V. where as manufacturing and processing sectors has minimum return and risk.

Comparison between RRR and ERR helps us to identify whether the stock is under priced or over priced among the selected companies stock of the PIC, UIC and SIC are under priced so it is better to purchase and HGIC and EIC are over priced so it is better to sell. The correlation coefficient between PIC and HGIC, PIC and EIC, PIC and UIC that found their positively correlated so such portfolio is not beneficial for investment but PIC and SIC are negatively correlated so it is beneficial for investment. In case of hypothesis testing calculated value is less than the tabulated value so the null hypothesis is accepted i.e. there is no significant difference between the portfolio risk and return of common stock of insurance companies and market portfolio.

5.3 Recommendations

This study is basically conducted to analyze the risk and return for the investor's point of view. So the recommendation presented will be beneficial to all concerned to improve their action and to search for more beneficial measures.

The following are recommended based on the basis of above findings, conclusion and analysis data.

- Generally most of the Nepalese investors think that investment on stock market is beneficial all the time. But it is not reality. There are various factors affecting the stock market which may increase or decrease the price of a share. So before investing on stock of any companies investors need to have general knowledge about economical, political, technological changes, etc.
- Before reaching to any decision or before investing on any stock market assessment of personal risk attitude and requirement will always be useful. Normally investors focus their mind on return only but before thinking about higher return the also need to think about risk associated with return.

If there is higher return then there will be definitely higher risk so it is better to invest on the moderate type of share having average risk and return.

- Before investing the fund on single stock investors need to diversify their fund to reduce risk. Proper construction of portfolio will reduce considerable potential loss which can be defined in term of risk. But portfolio construction is a dynamic job because efficient portfolio depends on market movement or socio-political change. For the portfolio construction it is better to select the stock having higher return with negatively correlated stocks.
- The companies themselves are responsible for increasing or decreasing the unsystematic risk which badly hits the business and profit. So proper and efficient management is essential for progress of any organization. The companies should also provide the data and appropriate good suggestion so that peoples' interest to invest on their fund can make proper decision.
- NEPSE should initiate to develop different programmes for private investors such as investors meeting and seminars in different subjects like trading, rules and regulations, financial information etc.
- Financial information must be published regularly so that the investors scan know about the changes take place. For this also NEPSE should enforce all listed companies to publish financial information in timely manner.
- Government also need to play an active role in the upliftment of the stock market as the economic condition of the country heavily depends in the policy of government. Government needs to make policies for facilitating the industries and increasing investing opportunities. This helps on mobilization of funds and it definitely support the economic status of society and country.
- Finally, for the overall development of stock market which is very essential in the context of Nepal for the overall economy of the country. So all the concerned persons, investors, respective companies , their staff,

government, policy makers etc. should put effort from their parts in order to lead the country towards the prosperity .

- Our study area risk and return analysis is less studied area in the context of our country so it is strongly suggested that it is better and beneficial to conduct further study on this topic with maximum number of examples.

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APPENDICES

Financial data of five listed Insurance companies.

Premier Insurance company (PIC):

Fiscal year	MPS	Cash	Stock	Total	EPS	P/E ratio
2058/59	170	10.53	0	1053	28.73	5.92
2059/60	192	10	0	10	19.88	9.65
2060/61	210	8.80	0	8.80	25.12	8.36
2061/62	210	7.80	0	7.80	46.68	4.50
2062/63	200	7.15	0	7.15	43.54	4.59
2063/64	260	12.48	0	12.48	18.43	14.10
2064/65	300	0	0	0	NA	-

Himalayan General Insurance Company (HGIC):

Fiscal year	MPS	Cash	Stock	Total	EPS	P/E ratio
2058/59	225	10	0	10	25.5	8.82
2059/60	190	0	0	0	59.04	3.22
2060/61	175	3.32	0	3.32	45.13	3.88
2061/62	205	0	0	0	36.70	5.58
2062/63	189	0	0	0	39.90	4.74
2063/64	300	8.33	0	8.33	18.53	16.19
2064/65	345	0	0	0	NA	-

Everest Insurance Company (EIC):

Fiscal year	MPS	Cash	Stock	Total	EPS	P/E ratio
2058/59	610	20	0	20	65.20	9.35
2059/60	610	10	0	10	61.74	9.88
2060/61	350	0	0	0	57.22	6.12
2061/62	325	8.52	0	8.52	33.74	9.63
2062/63	295	7.94	0	7.94	41.81	7.06
2063/64	290	1.74	0	1.74	24.54	11.82
2064/65	291	0	0	0	NA	-

United Insurance Company (UIC):

Fiscal year	MPS	Cash	Stock	Total	EPS	P/E ratio
2058/59	190	10	0	10	15.69	12.11
2059/60	138	0	0	0	31.28	4.41
2060/61	105	5.95	0	5.95	23.91	4.39
2061/62	128	3.22	0	3.22	16.86	7.59
2062/63	125	3.11	0	3.11	14.46	8.64
2063/64	219	3.05	0	3.05	9.71	22.55
2064/65	315	0	0	0	NA	-

Sagarmatha Insurance Company (SIC):

Fiscal year	MPS	Cash	Stock	Total	EPS	P/E ratio
2058/59	146	0	0	0	14.63	9.98
2059/60	150	10.53	0	10.53	11.87	12.64
2060/61	131	0	0	0	7.90	16.58
2061/62	158	0	0	0	30.21	5.23
2062/63	210	0	0	0	30.12	6.97
2063/64	227	0	0	0	14.72	15.42
2064/65	306	0	0	0	NA	-

Calculation of realized return, C.V. and C.V.:

a. Calculation of banking industry:

Table 1.1 Realized return, expected return and standard deviation of banking Sector:

Year	Banking Index (BI)	$R = \frac{BI_1 - BI_{t-1}}{BI_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$
2059/60	219.35			
2060/61	232.87	0.062	-0.310	0.0961
2061/62	304.64	0.308	-0.064	0.0041
2062/63	437.49	0.436	0.064	0.0041
2063/64	789.21	0.804	0.432	0.1866
2064/65	985.65	0.249	-0.123	0.0151
Total ($\sum$)		$\sum R$=1.859		0.3060

Expected return $\overline{R} = \frac{\sum R}{n} = \frac{1.859}{5} = 0.372$

Standard deviation $\sigma = \frac{\sqrt{\sum(R - \overline{R})^2}}{n-1} = \frac{\sqrt{0.3060}}{5-1} = \sqrt{0.0765} = 0.2766$

Coefficient of variation c.v $= \frac{\sigma}{\overline{R}} = \frac{0.2766}{0.372} = 0.74$

b. Calculation of Mfg. and Processing industry:

Table 1.2 Realized return, expected return and standard deviation of Mfg. and Processing sector:

Year	Mfg. and Processing Index (MI)	$R = \frac{MI_1 - MI_{t-1}}{MI_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$
2059/60	273.67	-	-	-
2060/61	255.58	-0.066	-0.162	0.0262
2061/62	276.56	0.082	-0.014	0.0002
2062/63	301.11	0.089	-0.007	0.0001
2063/64	348.63	0.158	0.062	0.0038
2064/65	423.66	0.215	0.119	0.0142
Total ($\sum$)		$\sum R = 0.478$		0.0445

$$\text{Expected return } \overline{R} = \frac{\sum R}{n} = \frac{0.478}{5} = 0.096$$

$$\text{Standard deviation } \sigma = \frac{\sqrt{\sum (R - \overline{R})^2}}{n-1} = \frac{\sqrt{0.0445}}{5-1} = \sqrt{0.0111} = 0.1054$$

$$\text{Coefficient of variation c.v} = \frac{\sigma}{\overline{R}} = \frac{0.1054}{0.096} = 1.10$$

c. Calculation of Finance industry:

Table 1.3 Realized return, expected return and standard deviation of finance sector:

Year	Finance Index (FI)	$R = \frac{FI_1 - FI_{t-1}}{FI_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$
2058/59		-	-	-
2059/60	262.29			
2060/61	196.32	-0.252	-0.713	0.5084
2061/62	228.39	0.163	-0.298	0.0888
2062/63	261.37	0.144	-0.317	0.1005
2063/64	471.82	0.805	0.344	0.1183
2064/65	1152.74	1.443	0.982	0.9643
Total ($\sum$)		$\sum R = 2.303$		1.7803

Expected return $\overline{R} = \frac{\sum R}{n} = \frac{2.303}{5} = 0.4606$

Standard deviation $\sigma = \frac{\sqrt{\sum(R - \overline{R})^2}}{n-1} = \frac{\sqrt{1.7803}}{5-1} = \sqrt{0.4451} = 0.6671$

Coefficient of variation c.v $= \frac{\sigma}{\overline{R}} = \frac{0.6671}{0.4606} = 1.4483$

d. <u>Calculation of Insurance industry:</u>

Table 1.4 Realized return, expected return and standard deviation of Insurance Sector:

Year	Insurance Index (II)	$R = \frac{II_1 - II_{t-1}}{II_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$
2059/60	315.22	-	-	-
2060/61	237.39	-0.247	0.494	0.2440
2061/62	320.24	0.349	0.102	0.0104
2062/63	381.25	0.191	-0.056	0.0031
2063/64	612.46	0.606	0.359	0.1288
2064/65	187.25	0.334	0.087	0.0076
Total ($\sum$)		$\sum R = 1.233$		0.3939

Expected return $\overline{R} = \frac{\sum R}{n} = \frac{1.233}{5} = 0.2466$

Standard deviation $\sigma = \frac{\sqrt{\sum(R - \overline{R})^2}}{n-1} = \frac{\sqrt{0.3939}}{5-1} = \sqrt{0.0985} = 0.3138$

Coefficient of variation c.v $= \frac{\sigma}{\overline{R}} = \frac{0.3138}{0.2466} = 1.2725$

e. Calculation of Hotel industry:

Table 1.5 Realized return, expected return and standard deviation of Hotel sector:

Year	Hotel Index (HI)	$R = \frac{HI_1 - HI_{t-1}}{HI_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$
2059/60	216.51	-	-	-
2060/61	184.98	-0.146	-0.286	0.0818
2061/62	178.00	-0.038	-0.178	0.0317
2062/63	180.77	0.016	-0.124	0.0154
2063/64	251.47	0.391	0.251	0.0630
2064/65	370.88	0.475	0.335	0.1122
Total ($\sum$)		$\sum R=0.698$		0.3041

$$\text{Expected return } \overline{R} = \frac{\sum R}{n} = \frac{0.698}{5} = 0.1396$$

$$\text{Standard deviation } \sigma = \frac{\sqrt{\sum(R - \overline{R})^2}}{n-1} = \frac{\sqrt{0.3041}}{5-1} = \sqrt{0.0760} = 0.2757$$

$$\text{Coefficient of variation c.v} = \frac{\sigma}{\overline{R}} = \frac{0.2757}{0.1396} = 1.9749$$

f. Calculation of trading industry:

Table 1.6 Realized return, expected return and standard deviation of trading sector:

Year	Trading Index (TI)	$R = \frac{TI_1 - TI_{t-1}}{TI_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$
2059/60	102.20	-	-	-
2060/61	95.01	-0.070	0.228	0.0520
2061/62	123.20	0.297	0.139	0.0193
2062/63	148.11	0.202	0.044	0.0019
2063/64	155.33	0.049	-0.109	0.0119
2064/65	204.08	0.314	0.156	0.0243
Total ($\sum$)		$\sum R=0.792$		0.1094

Expected return $\overline{R} = \frac{\sum R}{n} = \frac{0.792}{5} = 0.1584$

Standard deviation $\sigma = \frac{\sqrt{\sum(R - \overline{R})^2}}{n-1} = \frac{\sqrt{0.1094}}{5-1} = \sqrt{0.0274} = 0.1654$

Coefficient of variation c.v $= \frac{\sigma}{\overline{R}} = \frac{0.1654}{0.1584} = 1.442$

g. <u>Calculation of Dev. banking industry:</u>

Table 1.7 Realized return, expected return and standard deviation of Dev. banking Sector:

Year	Dev.Banking Index (DI)	$R = \frac{DI_1 - DI_{t-1}}{DI_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$
2059/60	262.94	-	-	-
2060/61	190.03	-0.277	0.907	0.8226
2061/62	237.86	0.252	-0.378	0.1429
2062/63	294.40	0.238	-0.392	0.1537
2063/64	339.66	0.154	-0.476	0.2266
2064/65	1285.89	2.783	2.153	4.6354
Total ($\sum$)		$\sum R$=3.150		5.9812

Expected return $\overline{R} = \frac{\sum R}{n} = \frac{3.150}{5} = 0.63$

Standard deviation $\sigma = \frac{\sqrt{\sum(R - \overline{R})^2}}{n-1} = \frac{\sqrt{5.9812}}{5-1} = \sqrt{1.4953} = 1.2228$

Coefficient of variation c.v $= \frac{\sigma}{\overline{R}} = \frac{1.2228}{0.63} = 1.94$

h. Calculation of Others industry:

Table 1.8 Realized return, expected return and standard deviation of others sector:

Year	Others Index (OI)	$R = \frac{OI_1 - OI_{t-1}}{OI_{t-1}}$	$(R - \overline{R})$	$(R - \overline{R})^2$
2059/60	77.34	-	-	-
2060/61	142.65	0.844	0.275	0.0756
2061/62	347.65	1.437	0.868	0.7534
2062/63	410.00	0.179	-0.390	0.1521
2063/64	818.12	0.995	0.426	0.1815
2064/65	768.26	-0.609	-1.178	1.3877
Total ($\sum$)		$\sum R$=2.846		2.5503

Expected return $\overline{R} = \frac{\sum R}{n} = \frac{2.846}{5} = 0.5692$

Standard deviation $\sigma = \frac{\sqrt{\sum(R - \overline{R})^2}}{n-1} = \frac{\sqrt{2.5503}}{5-1} = \sqrt{0.6376} = 0.7985$

Coefficient of variation $c.v = \frac{\sigma}{\overline{R}} = \frac{0.7985}{0.5692} = 1.4028$