

**RISK AND RETURN BEHAVIOUR ANALYSIS
OF COMMON STOCK OF INSURANCE
COMPANIES IN NEPAL**

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Suk Bahadur Gurung

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ABBREVIATION AND ACRONYMS

&	=	and
A.D.	=	Anne Domino
BS	=	Balance sheet
B.S.	=	Bikram Sambat
CAPM	=	Capital Assets Pricing Model
Co.	=	Company
CRR	=	Cash Reserve Requirement
Cov.	=	Co-variance
CV	=	Coefficient of Variation
DPS	=	Divident Per Share
Ed.	=	Edition
EPS	=	Earning Per Share
Forex	=	Foreign Exchange
Lbid	=	in the same place, form the same book
IBRD	=	International bank for Reconstruction and development
II	=	The same
II	=	Insurance Index
Ltd.	=	Limited
MBS	=	Masters in Business Studies
MPS	=	Market Price per share
NB	=	Nepal Band Ltd.
NEPSE	=	Nepal Stock Exchange
NGO(s)	=	Non-government organization(s)
NIC	=	Nepal Insurance Company Corporation
NIDC	=	Nepal Industrial Development Corporation
NLI	=	National Life Insurance Company Limited
NLIC	=	Nepal Life Insurance Company
No., nos	=	Number
NPA	=	Non performing Assets
NP	=	Non Performing Loan
NRB	=	Nepal Rastra Bank

P/E ratio	=	Price Earning Ratio
P&L A/C	=	Profit and Loss account
PMR	=	Premier Insurance company
p.,ps	=	Page(s)
PSR	=	Proportion of Systematic Risk
PUSR	=	Proportion of Unsystematic Risk
Pvt	=	Private
PU	=	Pokhara University
R	=	coefficient of correlation
Reqd	=	Required
Rs.	=	Rupees
SD	=	Standard Daviation
SEBON	=	Security Board of Nepal
SM	=	Sagarmatha Insurance Company
SR	=	Systematic Risk
Std.	=	Standard Deviation
TD	=	Total Dividend Per Share
T.U.	=	Tribhuvan University
TUCL	=	Tribhuvan University Central Library
USR	=	Unsystematic Risk
Viz	=	Namely
Vol	=	Volume
VAR	=	Variance
WB	=	World Bank
X	=	Mean
Yr(s)	=	Year(s)

CHAPTER I

INTRODUCTION

1.1 Background of the study

Common stockholders are its ultimate owners. Collectively they own the company and it is assumed that ultimate risk is associated with ownership. So the common stock is risky securities. It is hard to define, but you know it when you see it (Van Horne, 1986). Investor invests on common stock for higher return. But their expected return may or may not change in realities. This uncertainty is major risk to the investor to invest on common stock. The return is what you earn from an investment stated on percentage form. The single period return is one of the most important concepts in measuring return. It relates the total rupee return during the period to the original investment (Bhandari, 2010).

Generally investors are risk adverse. They always seek higher return for more risk as a premium. So, primary problem of investment is to identify the security which has low risk and high return. Although return cannot be increased substantially, risk can be reduced by diversification by eliminating the unsystematic risk which cannot be explained by general market movement. In Nepal, the institutional set up of security market was begun along with the security exchange center (Now Nepal stock exchange Ltd) in 1976.

Investment in general sense employing money to generate more money in future. It is the sacrifice of current rupee for more future rupees. The sacrifice takes place in present and is certain and reward comes later which is uncertain. Investment is either made through saving or borrowing. When we have sufficient money but we invest it as a lay man without proper analysis, it may result negative return to us. Meaning we may fall in loss. There are many options of investment.

They are:

-) Investment on share capital from which we earn capital gain and dividend gain.
-) Investment on bond from which we earn only interest.
-) Similarly investment on preference share from where we earn preference dividend.
-) Similarly we have option to invest on real assets such as gold, silver, land etc.
-) Similarly today people invest money derivative securities such as options, futures, and forwards.

Those people who have enough money but keeps it idle it may result no productivity and return to him also. So, proper investment of excess money is necessary in order to gain earning as well as proper utilization of it. But there is also the risk associates with return. So, proper analysis is necessary before investment is made. Further if the uncertainty of return from the investment is high, the investor demand high amount of return than risk free rate of return which is called risk premium.

The main objectives of risk return analysis is to maximize return of investor by minimizing risk. The minimization of risk is possible by investing more than two securities. This process is called portfolio management where two or more than two assets are taken in order to spread risk associated with the investment. The portfolio theory is concern with the selection of the optimal portfolio which yields highest level of return with the given level of risk.

Financial market facilitates the flow of funds from surplus to deficit units. The financial market that facilitates the flow of short term fund is called the money market. But that financial market which facilitates the flow of long term funds is called the capital market. Saving does nothing if it is not invested properly. Thus the financial market acts as the intermediaries for the purpose of making saving and investment for the people (Manandhar, Gautam and Lamichhane, 2066).

Most of the Nepalese people are illiterate on the concept of portfolio investment. Investment is only confined on the real estate sector. Some people are aware about the portfolio investment. But most of the investor invests on the one or two security because of not having the concept of portfolio management.

Insurance Companies in Nepal

Insurance is defined as a cooperative device to spread a loss caused by particular risk over a number of people who are exposed to it and who agrees them self against that risk (Mishra, 1998). The concept of Insurance policy was first brought in Nepal by the Rana Prime Minister Juddha Samsher in 1935. At this early period Indian Insurance Company was operating its business in Nepal. As a first insurance company, Nepal Malchalani Tatha Bima Company was established in 2004 B.S. with the initial capital of 5 lakh. Later the company converted its name Nepal Insurance and Transport Company in 2016 and again renamed as Nepal Insurance Company Ltd in 2048. The insurance company only sold non life policy and the market also was very limited. The company was not successful to provide all types of insurance facilities all over the country. Foreign large companies were doing business in Nepal through their agents. United India Insurance, Hindustan General Insurance, Starling Insurance etc had branches in Nepal to provide insurance facilities. It took sometimes for the government to realize that a large amount of money was going to British India Company in the name of insurance and in 1960 the government of Nepal took steps to introduce life and non-life insurance through a home grown company.

Due to outflow of money, Rastriya Beema Shasthan was established as a private company on 16th December, 1967 (Paush 1st, 2024) and was converted into a government owned corporation vide Rastriya Beema Sansthan Act, 1968 on 15th December, 1968 (Paush 1st, 2025). It took another year to bring Rastriya Beema Sansthan Act for launching life and non-life insurance services in the country. However, the company formally started non life insurance service from 23rd February, 1968 and life insurance commenced from 18th February, 1973. Meanwhile two Indian companies: Oriented Insurance Company and National Insurance Company had been running non-life insurance schemes through their branches in Nepal. The government of Nepal had authorized the Rastriya Beema Sansthan to operate life insurance as

monopoly banning Indian companies to operating life insurance in Nepal (Ghimire, 2012).

In 1986, government followed liberalization policy in financial sector and provided license to private sector insurance company to operate both life and non-life business. But the real expansion of the insurance industry in Nepal took place during the 1990s hence government started financial sector reform program. Foreign equity also invested in insurance sector. Before 1992, only 6 companies were in operation but after established of board number increased by 20. In 1993, 2 companies, in 1994, 1 company were established. The Insurance act was amended in 1996 in the same year, 3 companies were established. In 2001, 3 companies get license. In 2002 and 2004, only 1 company established but in 2005, 2 companies and in 2006 only 1 company came into existence. But, in 2008, 4 life insurance companies started their operation (Ghimire, 2012). Now there are 25 insurance companies operating in Nepal, consisting of 16 non life, 8 life and one both life and non life. The share of insurance company in capital market is less than 2 percent whereas bank covered 85 percent of total share (SEBON, 2009).

Insurance companies under study

For the present study the researcher has selected five insurance companies consisting of three nonlife and two life. The brief introduction of them is provided below.

a) Premier Insurance Company Ltd.

Premier Insurance Company (Nepal) Limited has emerged as a renowned general insurance company of the second generation and incorporated on 12th may 1994. The company has earned a reputation in the local and international insurance and reinsurance sectors as well for its professionalism and services. The promoters if the company has brought their experiences, entrepreneurial talent and leadership skills to add to the company's growth. Its greatest strength is its people. Staffs of the company are well trained on the latest technology and provide efficient services to their customers. The company has strong relationship with leading insurance and reinsurance companies. As part of the company's effort to serve people countrywide,

it has established four regional offices. The Birgunj office covers southern part of the country. The Narayangarth office covers the eastern region of Nepal.

The Company offers different kinds of insurance products to the customers. They are: Fire, House breaking, Motorcycle, Private Vehicle Insurance, Commercial Vehicle, Personal Accident, Marine (Cargo), Contractor's all risks, Workmen Compensation, Overseas Med Claim, Fidelity Guarantee, Cash in Transit, Comprehensive Household, Public liability, Hospitalization and Medical Insurance and Loss of Profits Insurance.

b) Sagarmatha Insurance Company

Sagarmatha Insurance Co. Ltd; incorporated in 1996 has been promoted by the prominent entrepreneurs and leading industrial Groups – Salt Trading Corporation, Golchha Organization, Jyoti Group, MC Group, National Finance Co. Ltd, Nepal construction and Engineering Corporation and other promising entrepreneurs.

Sagarmatha Insurance, first foreign joint venture of Nepal in General Insurance, with Ceylincho Insurance Co. Ltd of Sri Lanka has been awarded "CNCI Achieves Industrial Excellence – 2002" Gold Medal by The Ceylon National Chamber of industries among the best industry in the SAARC region. The company has an authorized capital of Rs. 200 million and paid up capital of Rs. 56.1 million to be revised to Rs. 102 million, thus fully authorized complying with Insurance Act, 2049 of Insurance Board of Nepal.

The products of the company are: Fire Insurance, Consequential Loss Insurance, Theft Insurance, Marine Insurance, Motor Insurance, Contractors all Risks Insurance, Machinery / plant / Equipment & Tear Insurance, Machinery Breakdown Insurance, Personal Accident / Group Personal Accident Insurance, Cash In Transit / Cash In Safe Insurance, Fidelity Guarantee Insurance, All Risks Insurance, Hospital and Surgical Expenses Insurance, Workmen's Compensation Insurance, Household Policy, Public Liability Insurance, Aviation Insurance, Trade's Combined policy, Pariwar Suraksha (House And Its Contents Including Personal Accident And Hospitalization For Family), Children Health Policy (Policy For School Covering Personal Accident

and Medical Hospitalization), Ladies Insurance Protection Scheme, Personal Accident Plus Medical Treatment and Hospitalization.

c) National Life Insurance Co Ltd.

National Life Insurance Company Limited (NLI) (formerly known as National Life & General Insurance Co. Ltd) was incorporated in 1988 A.D. under Nepal Company Act, 1964 and the Insurance Act, 1968 of Nepal with objective to meet growing insurance requirements of the country. The company has paid up capital of Rs. 260 million comprising 45 percent from Nepalese promoters, 10 percent from foreign collaborator, 10 percent from Rastriya Banijya Bank and rest of 35 percent invested by Public Shareholders. The company has established business relation with reinsurance company "Hannover Re, Germany".

It is a listed company with approximately 2,300 public shareholders and its shares of Rs. 100. Its annual premium collection stands at around Rs. 1.5 billion and fund size is around Rs. 5 billion. Its policyholders are more than 350,000.

Products offered by NLI Company are: Children Plan, Endowment Assurance Plan, Money Banks Plan, Whole Life Plans, Term Assurance Plans and Retirement Plan.

d) Nepal Insurance Company

Nepal Insurance Company Limited, a pioneer non life insurance company of Nepal was established on 1947 A.D. by Nepal Bank Limited (the first commercial Bank) and general public with 51 percent and 49 percent shares respectively.

At the beginning the name of this company was "Nepal Mal Chalani Tatha Beema Company" and had changed its name as "Nepal Insurance & Transport Company Ltd." on 1959 A.D. Now its name is "Nepal Insurance Company Ltd." since 1991 A.D. The products of the company are: Fire, Marine, Engineering, Motor, Aviation and miscellaneous.

e) **Nepal Life Insurance Company**

Nepal Life, established under the Company Act 2053 and Insurance Act 2049 as a public limited company on 2058/01/21 (04/05/2001). Nepal life is the foremost life insurance company established by private investors. The promoters of the company are a group of well known business and business house of Nepal. Within the eleven years of operation the company has set up a business record.

The company has an authorized capital of Rs. 100 core Issued Capital of Rs. 50 core and paid-up Capital of Rs. 37.5 Core. As on Poush 2067 the company has insured 3, 65,562 under conventional policies worth Rs.3707 Core and 83,559 foreign expatriate policies worth Rs. 4178 Core. Out of the total premium collected the company has invested Rs. 635 Core as per guidelines of Insurance Board. It has made special effort to spot, recruit and train new agents not only in the academic part of insurance but also in marketing and servicing of insurance. For this purpose, the training sessions are being held at door steps of agents i.e. the 'Branch' and 'Centers' to which they are attached.

The products of the company are: Surakshit Jeevan Beema Yojana, Group Insurance Plan, Keta-Keti Jeevan Bima (Shiksha and Vivah), Jeevan Laxmi – Triple Benefit scheme with Bonus, Jeevan Sahara, Jeevan Sarathi Beema Yojana, Foreign Employment Expatriate Policies, Single Premium Endowment Policy, New Term Life Insurance and Jeevan Sambridhi.

1.2 Statement of the Problems

Investor should act rationally for the common stock investment otherwise they may fall in loss. Not only rational behavior affects the investment but the investor's perception and attitude also affect the investment on the common stock. Many of the investors are exploited by the financial institutions and market intermediaries. Not only the general public, but many of the university students cannot analyze the risk and return before making investment. There are some institutions like SEBON, NRB are operated in Nepal. They provide data of the various organizations. But there is no

any separate institution to provide information about how to invest on the common stock. Similarly NRB and SEBON have been published many policy but they haven't been sufficient to invest on the stock. People are preferred to invest on the real estate rather than on stock. Unavailability of appropriate technique to know risk and return caused the investor to invest on the real estate rather than stock, which badly harm to the economy of the country also. Similarly political instability, lack of security etc also hindered to the investor to invest on this market. Similarly, the accessibility of the capital market is only to the few investors in case of Nepal. The information system of NEPSE is not also quite good. The brokerage firm is also located on the city area. Few people are only aware about the concept of risk and return.

Many of the study had been carried out on the topic of the banks and financial institutions, risks and return behaviour analysis. Many of the people preferred to invest on the share of banks and financial institutions whose share on the capital market is more than 85 percent (SEBON, 2009). So this study is carried out to address the problems that the investor are faced such as; what are the criteria for the evaluation that the stock they are holding will give them favourable return? How they know the magnitude of risk? How can get higher return even though bearing lower risk? How one can increase return by reducing risk by investing on the portfolio rather than single assets? By analyzing the above factors it may be possible to suggest the investors and stakeholders.

The specific problems of the study are as follows.

-) What is the relationship between the risk and return of the stock of the insurance company?
-) What is the systematic and unsystematic risk is of selected the insurance companies?
-) What is the beta coefficient of selected companies stock?
-) How does the creation of the minimum risk portfolio diversify the risk?

1.3 Objectives of the Study

Several researches have been conducted study on risk and return behavior analysis on common stock of commercial banks. But, there is very few research studies found in the sector of insurance. To fulfill the gap, the research has been conducted to find out the risk and return behavior of investment in common stock of insurance company.

The major objectives of the research are analyzing the risk and return of the stock of the selected insurance companies and suggest to invest on that portfolio that yield higher return with minimum risk. The specific objectives are:

-) To analyze the risk and return behavior of stock of selected insurance companies.
-) To assess the systematic and unsystematic risk of the common stock of selected insurance companies.
-) To assess the beta coefficient of selected companies' stock.
-) To construct optimum portfolio of common stock of different insurance companies.

1.4 Significance of the Study

The study basically will be focused on the risk and return relationship of insurance companies of Nepal. The research may be helpful to various investors who want to know about the risk and return behavior. This study helps the investors to know about the financial performance of various insurance companies and thus created awareness to utilize their scare resources with optimization. Similarly, it would provide knowledge to the potential investors to analyze risk and return of individual stock to increase market efficiency and consequently help in the economic development.

This study is also being helpful for various students, researchers, and academicians who desire to know about risk and return and about the portfolio theory. The study may be useful source of literature for all those who are pursuing for the knowledge in the given topic.

1.5 Limitation of the Study

-) The study is a partial fulfillment of MBS Degree which is prepared in time constraints.
-) This study is mainly based on secondary data hence accuracy depends upon the data collected and provided by the organization.
-) This study is concerned with Premier Insurance Company Ltd, Sagarmatha Insurance Company, National Life Insurance Company Ltd, Nepal Insurance Company and Nepal Life Insurance Company.
-) This study is covered the relevant data and information only five years period, (064/065 to 068/069).

1.6 Operational Definitions

This study has been done to analyze the risk and return behaviour of the common stock of selected insurance companies. This research might be helpful to the concern insurance companies, Investors as well other researcher on coming future.

Variables are anything that impacts the outcomes of this study. An operational definition describes exactly what the variables are and how they are measured within this study. Some these variables are presented as follows.

Return :

It is what you earn from investment and generally expressed on percentage term. Return may take several forms. The single period return is one of the most important concepts in measuring return. It relates the total rupee return during a period to the original investment. Every investor is return conscious. Every investor before investing on share thinks how much return s/he can expect from investment.

Risk :

It is the possible of suffering from some loss or damage. It is also the chance of unfavorable event. Risk is measured by standard deviation, coefficient of variation, range analysis, beta coefficient etc.

Portfolio :

It is the list of holding in securities owned by investor or institution. By investing two or more securities whose value does not move always on the same direction at the same time, an investor can reduce the risk of his/her collection of investment.

Optimum Portfolio :

It is the portfolio yielding given level of return with minimum risk.

1.7 Organization of the Study

This study is organized into five chapters. They are as follows:

Chapter one: Introduction

This chapter consists of an introductory part of general background of the study as well as the statement of the problems, objectives, significance of the study, limitations, operational definitions and organization of the study.

Chapter two: Review of Literature

This chapter deals with the review of literature consisting of both theoretical review and review of related studies.

Chapter three: Research Methodology

This chapter deals with the research methodology used in the study. It consists of research design, populations and sample, nature and source of data, data collection procedure and data processing & analysis.

Chapter four: Analysis and Presentation of Data

This chapter consists of presentation & analysis of data and major findings.

Chapters five: Summary, Conclusion and Recommendations

This chapter deals with the summary, conclusions and recommendations of the study. The supporting calculations have been annexed at the last of the study.

CHAPTER II

REVIEW OF LITERATURE

This chapter primarily deals with the study of various works that is done or that is undertaken regarding the risk and return analysis of common stock of various financial institutions. It is the advancement of existing work of various research and academicians; and thus is the in-depth study of the subject matter. It start with search of various work that is preformed which is related to the topic and which add certain knowledge to the existing one. The literature review is basically divided into two topics literature review and theoretical review.

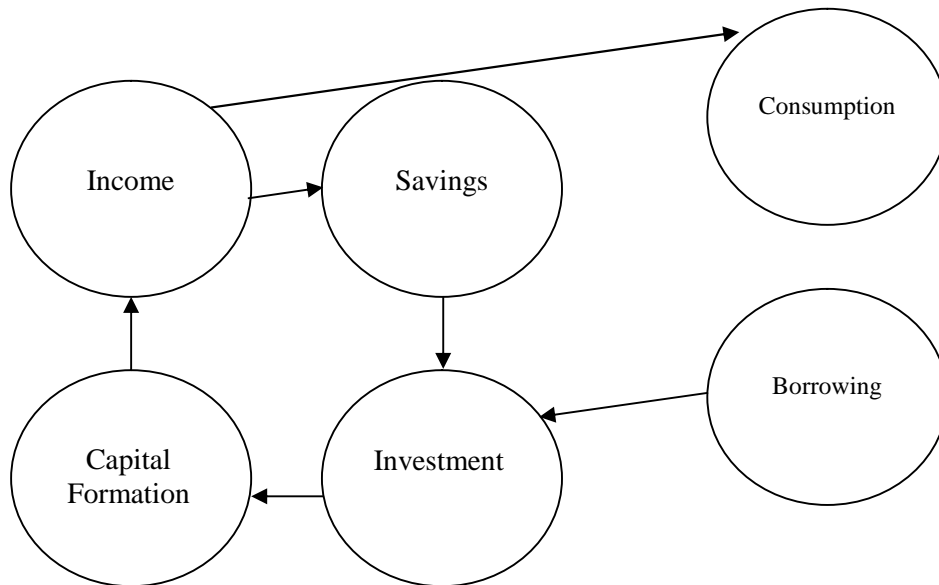
2.1 Theoretical Review

It provides the fundamental of theoretical framework and foundation on the present study.

2.1.1 Concept of Investment

When people earn money, they either consume them or save them. Saving can be either hoarded which does not provide any yield to the saver or it can be used for investment to earn some return. The investment is a commitment of fund to some assets which takes place at present in an expectation to receive some direct benefits from those assets or to increase the value of those assets which takes place in the future. Although, savings are a major source of investment, investment can also be made from borrowings.

Figure: 2.1
Investment Cycle



(Source: Frank and Reilly, 2004)

Figure 2.1 depicts that investment is made either from savings or borrowings or both and investment contributes capital formation which may result in income.

Investment is the current commitment of funds for a period of time to derive future flow of funds that will compensate the investing unit for the time funds are committed for the expected rate of inflation and also for uncertainty involved in the future flow of the funds (Frank and Reilly, 2004).

Investment is any vehicle into which funds can be placed with the expectation that with preserve or increase in value and generated positive returns (Gitman and Joeliuk, 1990). According to Sharpe, Alexander & Sharpe Bailey, "Investment in its broadest seas, means the sacrifice of current dollars for future dollars. Two different attributes are generally involved; time and risk. The sacrifice takes place in the present and is certain. The reward comes later, if at all and the magnitude is generally uncertain" According to Donald E.Fisher & Ronald J. Jordan, "An investment is a commitment of funds made in expectation of some positive rate of return. If the investment is properly undertaken, the return will be commensurate will the risk the investor assumes."

So investment is a current commitment of rupees for a period of time in order to derive future payments that will compensate for:

- a) Uncertainty of future flow of funds.
- b) The expected rate of inflation, and
- c) The time the funds are committed.

2.1.1.1 Elements of Investment

Investments include five elements which are as follows:

- a) **Return:** It is the future reward for bearing risk.
- b) **Risk:** The variability of the actual return from the expected return associated with a given investment is called the risk of investment.
- c) **Time:** It may be a few days, months, years or even infinite.
- d) **Money:** Every investment requires sacrifice of present money or resource.
- e) **Securities:** It may be short term or long term called financial assets or real assets.

2.1.1.2 Factors of Choosing the Investment Alternatives

Investors must consider among the various factors in choosing among investment alternatives which are as follows:

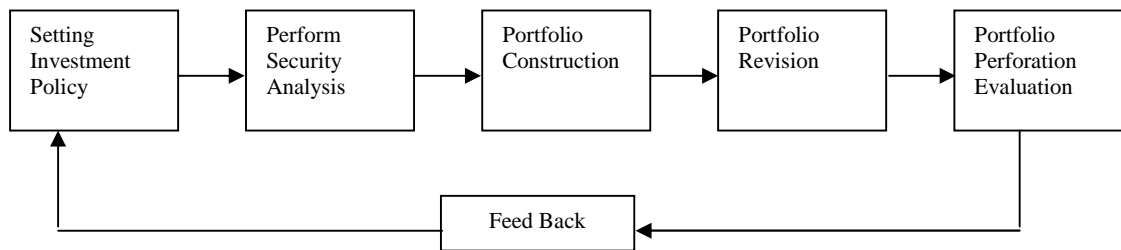
- (i) **Investment Objectives:** Investors may have specific investment objective for his/her investment. Some investors may invest fund for regular income while others may prefer capital gain.
- (ii) **Rate of Return:** While selecting investment alternatives, investor should consider return from the investment. Hence, investors always look for higher return at a given level of risk .The return may be received in the form of regular income plus capital appreciation.
- (iii) **Risk:** It can be defined as the variability of possible returns around the expected return of an investment. It also may relate to loss of capital, delay in repayment of capital, non-payment of interest etc.
- (iv) **Taxes:** The effect of tax must be considered as most of the firms have to pay taxes to the government.

- (v) **Investment Horizon:** The length of time money will be invested, or period of investment is known as investment horizon. Period for which fund is available and investment horizon must be matched.
- (vi) **Investment Strategies:** In addition to selecting appropriate investment alternatives and investor need to consider strategies dealing with selection, timing, and diversification. To make an investment strategy, the investors should collect and analyze the adequate information about the investment alternatives and market.

2.1.1.3 Investment Process

Investment process describes how an investor should go about making decision with regard what marketable securities to invest in, how extensive the investment should be, and when the investment should be made (Sharpe, Alexander & Bailey, 2009). An investor should complete the following five steps for his/her investment decisions.

Figure: 2.2
Investment Process



(Source: Sharpe, Alexander & Bailey, 2009)

2.1.2 Concept of Portfolio Management

Portfolio Management is a discipline for 'picking the winners' and ensuring they are on track. It describes the resulting risk and return of a combination of individual assets. A primary objective of the theory is to identify asset combinations that are efficient. Here, efficiency means the highest expected rate of return on an investment for a specific level of risk. The primary starting point for portfolio theory requires an assumption that investors are risk averse. This simply means that they will not consider a portfolio with ore risk unless it is accompanied by a higher expected rate of return.

Modern portfolio theory was largely defined by the work of Harry Markowitz (1927) in a series of articles published in the late 1950s. This theory was extended and refined by William Sharpe (1934), John Limber (1916- 1983), James Tobin (1918), and others in the subsequent decades. Portfolio theory integrates the process of efficient portfolio formation to the pricing of individual assets. It explains that some sources of risk associated with individual assets can be eliminated, or diversified away, by holding, a proper combination of assets.

2.1.2.1 Steps of Portfolio Management

Portfolio management primarily involves reducing risk rather than increasing return. There are six steps of portfolio management. Portfolio manager follows a set of step to arrive at a correct portfolio decision- This step of procedures is known as portfolio process. Proper adherence to the portfolio process helps an investor to decide, what to invest, how much to invest, and when to invest. The steps can be:

- a) Learn the basic principle of finance: Every portfolio manager should have solid grounding in basic principle of finance.
- b) Set portfolio objectives: The four portfolio objectives are stability of principal, income, growth of income and capital appreciation. The ultimate objective for every portfolio management is to maximize the utilities.
- c) Formulate an investment strategy: Investment strategy needs to be formulated for construction of portfolio. Since portfolio construction deals with diversification, portfolio managers need to understand the capital market theory. Diversification is good idea both mathematically and logically. Its main purpose is to reduce risk.
- d) Have a game plan for portfolio revision: This is fourth step of portfolio management. Portfolio constructed in earlier step doesn't serve for all time. It should be revised timely. Adding new securities and dropping existing securities from the existing portfolio can do it or shifting from stocks to bonds or vice versa.

- e) Evaluate the portfolio management: Portfolio management should evaluate the portfolio performance periodically in terms of return and risk. So the important dimensions of portfolio performance evaluation are rate of return and risk. In evaluating performance, there are two important tasks. First, ascertain whether the performance of portfolio is superior or inferior. Second, decide whether the performance portfolio is because of chance or talent.

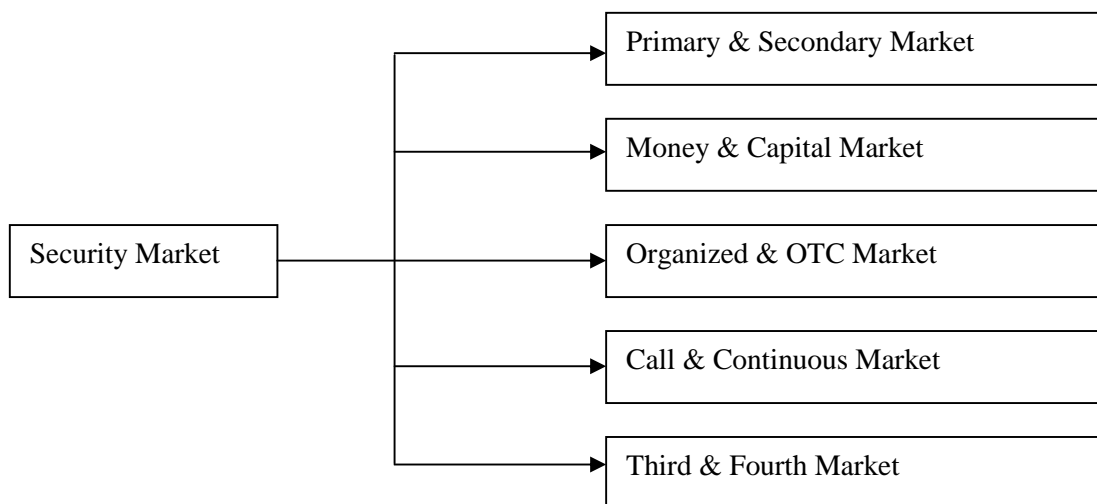
- f) Protect the portfolio when appropriate: This is the final aspect of the portfolio management process. It involves adding components to a portfolio with the intent of ensuring that value of the portfolio will not fall below a predetermined floor value (Bhandari, 2010).

2.1.3 Concept of Securities and Security Markets

Securities are pieces of papers that represent investors claim to receive prospective future benefits under certain conditions. The security market is a mechanism designed to facilitate the exchange of securities or financial assets by bringing buyers and sellers together. The major participants of the securities market are savers and borrowers (investors) of funds. They are involved in the purchasing and selling of securities and are supported by mediators and facilitators. Some important types of security market are as follows (Manandhar, Gautam & Lamichhane, 2066).

Figure: 2.3

Structure of Security Market



(Source: Manandhar, Gautam & Lamichhane, 2066)

2.1.3.1 Primary Market

It is the market where newly issued securities are traded. It is used by different companies to issue different securities at first time to raise funds for different purposes. Initial public offering, preferential issue, and rights issue are popular ways of offering new issue of securities in the primary market.

It is the market for new issue of securities. Securities are issued for the first time in the primary market to raise funds to serve the specific purpose (Shrestha & Bhandari 2008).

Securities and funds are exchanged with the help of investment banks, issue managers, underwriters in a primary market.

2.1.3.2 Secondary Market

It is the market where previously issued securities are traded. It needs to be highly liquid and transparency because it provides the liquidity to the listed securities. The Secondary markets can be the organized stock exchange market, over the counter market, third market, and fourth market.

It is the market for existing claims on the securities or outstanding securities. There is trading only on the existing securities in secondary market without involving any additional infusion of funds (Shrestha & Bhandari, 2008). Securities funds are exchanged with the help of the security broker. The security brokers play an intermediary role.

2.1.3.3 Money Market

It is the market where trading is take place of securities having maturity period less than one year. It is a market for instruments and a means of lending (or investing) and funds for relatively short periods, typically regarded as from one day to one year (Shrestha & Bhandari, 2008).

2.1.3.4 Capital Market

It is the market where trading of securities having maturity period more than one year is take place. It is the market for long term securities issued under various terms and conditions (Shrestha & Bhandari, 2008).

2.1.3.5 Organized Market

Market having physical location and trading is taking placed to the securities listed on that, market. The market provides physical location for the trading of the securities and trading of securities take place through the admitted brokers and dealers.

2.1.3.6 Over the Counter Market

The market has not any physical location, the trading takes placed with the help of broker and dealer. Brokers and dealers operate computer terminals which enable them to communicate with one another thus making the transaction of securities more quickly.

2.1.3.7 Continuous Market

In continuous market trading may occur at any time. Although only investors are needed for such a market to operate, it generally would not be very effective without intermediaries also being present. In s continuous market without intermediaries, an investor who wanted to buy or sell a security quickly might have either spend a great deal of money searching for good offer or run the risk of accepting the poor one. Because orders from the investors more or less randomly and price of such market would vary considerably, depending on the flow of orders of buy orders relative to the flow of sell orders (Sharpe, Alexander & Bailey, 2009).

2.1.3.8 Call Market

Here the orders are grouped together for simultaneous execution at same price. That is, at certain times in the trading day, a market maker holds an auction for a stock. The

an auction will determine the fixed market clearing price at a particular time of the trading day. In call market trading is allowed only at certain specified times. In such a market, when a security is called those individuals who are interested in either buying and selling it are physically brought together. At this point there may be an explicit auction in which prices are announced until the quantity demanded is as close as possible to the quantity supplied. Alternatively, orders may be left with a clerk, and periodically an official of the exchange will set a price that allows the maximum number of shares from the previously accumulated orders to be traded (Sharpe, Alexander & Bailey 2009).

2.1.3.9 Third Market

More generally, the term third market now refers to the trading of any exchange listed security in the over-the-counter market. The existence of such a market is enhanced by the fact that its trading hours are not fixed; sometimes it can continue to trade securities, when trading is halted on an exchange (Sharpe, Alexander & Bailey, 2009).

2.1.3.10 Fourth Market

Many institutions have dispensed with brokers and exchange altogether for transactions in exchange-listed stock and other securities. Traders of this type, in which the buyer and seller deal with each other, are sometimes said to take place in the fourth market. In the United States some of these transactions are facilitated by an automated computer (Sharpe, Alexander & Bailey, 2009). It refers to direct trading of securities between institutional investors and wealthy individuals on the OTC market.

2.1.4 Concept of Common Stock

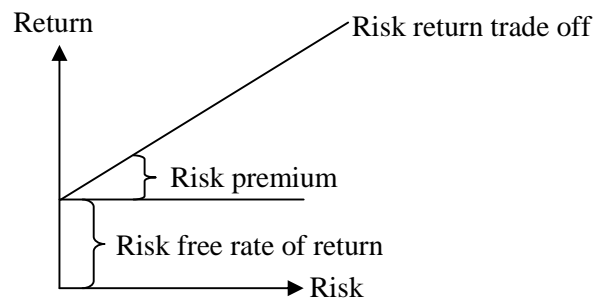
Common stock represents an ownership position in an organization. By purchasing the share of a corporation, a person can become a shareholder with some degree of ownership and control over the company (Shrestha & Bhandari, 2008). The company issues common stock to raise equity capital, which is the permanent source of capital. In general, common stock has no maturity period. They enjoy various rights like voting, preemptive, dividend, and right to bonus share and right

share and other right. Typically common stock holders receive one vote per share to elect the board of directors. In the event of liquidation, common stockholders have rights to company. Assets only after the other dept holders and preferred stock holders have been satisfied. Additional benefit from the common stock includes earning dividend and capital appreciation. When the investor buys common stock, they receive the certificate of ownership which states the number of share purchase and their value per share.

2.1.5 Relationship between Risk & Return

In general investor is risk adverse and their expected return rise with the increase in risk level. Low level of risk is associates with low expected return or vice versa. The risk associate with a given investment is positively related with the expected return. The relationship between risk and return is called the risk return tradeoffs. It shows the investors are risk adverse and they expect or require higher return for higher level of risk (Manandhar, Gautam and Lamichhane, 2066:109):

Figure : 2.4
Risk Return trade off



(Source: Manandhar, Gautam and Lamichhane, 2066)

In the above figure the risk and return trade off is shown. There is risk free rate of return up to certain level where the risk of the investment is zero. Then when the investment is made on risky assets then the investor bear risk for which he got the excess return called risk premium.

2.1.6 Concept of Return

The rate of return from capital investment is concepts that have different meaning to different investor. Dividend can be expressed by cash dividend or capital gain or loss.

It also defines as the change in value plus any cash distribution expressed as the percentage of beginning of the period of investment value. An investor can obtain two kinds of income from the investment which are as follows.

- a) Income from price appreciation or losses from price depression. (Capital gain or loss)
- b) Dividend from share or coupon interest payment.

Return shows financial positions of any organization. Investor always wants to maximize expected return subject to their tolerance of risk. If the wealth received in the future is greater than invested than investor receive positive return. But, if the wealth received is lower than invested than investor has to bear negative return. Realized return is the certain return that the investor obtained from investment at the end of holding period. It is the portion of current income received by the investor during the holding period of investment. It is also called holding period return. Expected return is the uncertain future return that an investor expects from the investment. It is also called anticipated return.

2.1.6.1 Single Holding Period Rate of Return

Holding period return is the measure of total return from an investment, from income and price changes, over a specified holding period. Therefore, it incorporate, both price changes and from beginning to the end of the period and any cash received during the period. The single holding period can be calculated with the help of the following formula.

$$\begin{aligned} \text{Holding period return} &= \text{Capital gain (loss) Yield} + \text{Dividend Yield} \\ &= (P_{t+1} - P_t + D_{t+1}) / P_t \end{aligned}$$

Where, D_{t+1} = Dividend received at the end of holding period.

P_t = Beginning price of investment.

P_{t+1} = Ending price of investment.

2.1.6.2 HPR on Two Holding Period

An investor can hold investment for two holding periods which is calculated as follows. Without reinvestment consideration:

$$\text{HPR} = (P_{t+2} - P_t + D_{t+1} + D_{t+2}) / P_t$$

D_{t+1} = Dividend received at the end of holding period 1.

D_{t+2} = Dividend received at the end of holding Period 2.

P_t = Beginning price of investment.

P_{t+2} = Ending price of investment in year 2.

2.1.6.3 Expected Rate of Return

An investment in present but investors have to face uncertain future for return so they want to know the rate of return before making any investment decision. It is based on expected cash receipt over the holding and the expected selling and ending price. The expected rate of return is probability weighted average of the rates of return in each scenario (Bodie, Kane, Marcus & Mohanty, 2009). If the probability is not given we use the arithmetic mean return of past returns.

Required rate of return is the rate of return an investor must earn on an investment to be fully compensated for its risk. Basically three components make up required rate of return from an investment. They are:

- a) The real rate of return,
- b) The anticipated inflation factor,
- c) The risk premium.

The real rate of return is that rate of return earned from riskless investment minus rate of inflation. The expected inflation represents the average rate of inflation which must be added to real rate of return to get risk free rate. Thus, risk free rate of return can be calculated as follows:

$$\text{Risk free rate of return (Rf)} = \text{Real rate of return} + \text{Expected rate of inflation.}$$

Risk premium is that expected returns which compensates the investor for the risk of an investment. It is the return necessary to purchase assets or securities. The components of required rate of return can be presented below.

2.1.6.4 Relation between Expected and Required Rate of Return

The expected rate of return is the estimated rate of return for the future period where as required rate of return is the minimum return that an investor wants to earn from the particular investment. Investor can take investment decision by comparing expected rate of return and required rate of return. If the expected rate of return is higher than required rate of return, in such situation the stock is undervalued and it is beneficial for the investor to buy the stock and hold for long time. But if the expected rate of return is lower than required rate of return then the stock is overvalued and it is beneficial for the investor to sell the stock, When expected rate of return is equal to required rate of return then the stock is in equilibrium and investor is indifferent either to buy or sell.

2.1.7 Concept of Risk

The chance that an investment's actual return will be different than expected return is known as risk. This includes the possibility of losing some or all of the original investment. It is usually measured using the historical returns of average returns for a specific investment. Higher risk means a greater opportunity for high returns and a higher potential for loss.

Risk is defined in Webster's dictionary as a 'hazard: a peril: exposure to loss or journey', thus for most, risk refers to the chance that some unfavorable event will occur .If you invest in speculative stock (or really any stock), you are taking in risk in the hope of making an appreciate return (Weston, Baseley and Brigham, 1995:182-183)

2.1.8 Types of risk

The total risk is composed of two risk systematic and unsystematic risk. The brief description of risk is as follows.

2.1.8.1 Systematic risk

It refers to the volatility of individual security caused by factor affecting the market. It is the risk that is inherent in the capital and cannot be diversified away. Systematic risk is the relevant risk for constructing portfolios. Examples of systematic risk include macroeconomic factor like GNP, Inflation etc. Different securities may respond differently to market changes and thus may have different systematic risk. Systematic risk can be calculated as follows:

$$\text{Systematic risk} = COV_{im / tm}$$

Systematic risk arises on account of the economy wide uncertainties and the tendency of individual securities to move together with change in the market. This part of risk cannot be reduced through diversification. Investors are exposed to market risk When they hold well diversified portfolios of securities. Some of the sources of systematic risk are as follows

-) Interest rate change.
-) Change in Purchasing power.
-) Change in investor's expectation about the overall performance of economy.

2.1.8.2 Unsystematic Risk

Unsystematic risk is that risk that can be diversified away. This risk is offset by the unique variability of the other assets in the portfolio. It is also called unique risk. An investor should not expect to receive additional return for assuming unsystematic risk because it can be reduced through diversification. Therefore it is often called diversifiable risk.

Unsystematic risk or diversifiable risk is the portion of the total risk which is unexplained by overall market movements. Since it happens due to internal causes, it is diversifiable by increasing the efficiencies and effectiveness for the productivity of the organization. This kind of risk is diversifiable risk or avoidable risk. Unsystematic

risk can be reduced as more and more securities are added to a portfolio. Various studies suggest that 15 to 20 securities selected randomly are sufficient to eliminate most of the unsystematic risk of a portfolio (Van Horne, 1996).

Events such as labor strikes, management errors inventions, advertising, campaigns, shifts in consumer taste and lawsuits cause unsystematic variability in the value of a market asset. Since unsystematic security price movements are statistically independent from each other, and so they may be averaged to zero when different assets are combined to form a diversified portfolio. Therefore, unsystematic risk is also called diversifiable risk (Weston and Copeland, 2003).

$$\text{Unsystematic risk} = \text{Total risk} - \text{Systematic risk}$$

$$\sigma^2_{\text{Total}} = \sigma^2_{\text{Systematic}} + \sigma^2_{\text{Unsystematic}}$$

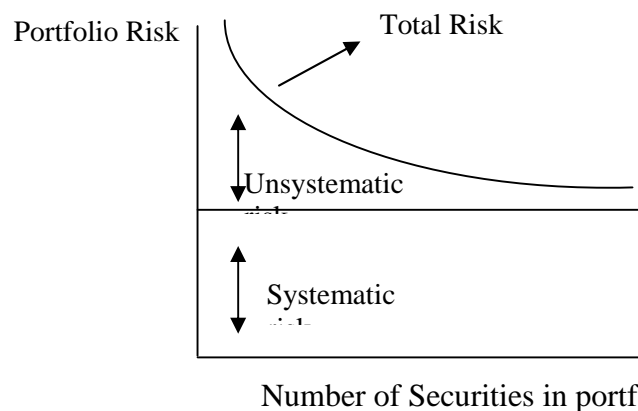
Some of the sources of unsystematic risk are as follows:

- a) Lack of capability and decision of management.
- b) Unavailability of raw materials.
- c) Strikes.

In the figure 2.5 the systematic risk and unsystematic risk as well as total is shown. The systematic risk is horizontal line means it is not diversify by increasing the number of securities in the portfolio .But unsystematic risk is diversify when we hold more securities.

Figure : 2. 5

Relationships between Systematic and Unsystematic Risk



(Source: Weston and Copeland, 2003)

2.1.9 Measurement of Risk

Risk denotes the variability of the expected returns .It is measured by stand. deviation, range analysis, coefficient of variation and variance.

2.1.9.1 Range Analysis

Range is the measure of assets risks which is found by subtracting the highest value from lowest values. It is the difference between highest return and lowest return.

2.1.9.2 Standard Deviation

It measures the average variability of the assets return from mean .Higher the standard deviation, higher will be the risk. The square of the standard deviation is variance.

2.1.9.3 Coefficient of Variance

Coefficient of variance is the relative dispersion in terms of per unit of return that useful in comparing the risks of assets with differing expected returns.

Coefficient of variance = Standard deviation/Average return

Greater is the value of coefficient of variance greater is the level of risk.

2.1.9.4 Beta Coefficient

Beta coefficient is defined as a comparative measure of an assets return to the changes in the return of the market portfolio. It tells how much systematic risk of particular asset has relatively to an average asset. The tendency of a stock move up and down with the market is reflected in its beta coefficient. Mathematically the beta coefficient of stock is stock's covariance with the market portfolio divided by the variance of the market portfolio (Bhandari, 2010).

2.1.10 Sources of risk

Risk is the deviation between actual return and expected return. The risk can be created in several ways, which is called source of risk. Some sources of risk are as follows.

2.1.10.1 Management Risk

The effect on expected return or chances of losing by the cause of management Activities is known management risk.

2.1.10.2 Interest Rate Risk:

If risk is creating return due to change (increasing and decreasing) in interest rate at market, it is called interest rate risk. Generally, if there is the rise of market interest rate, then the values and market prices of an investment will fall, and vice versa.

2.1.10.3 Political Risk:

Total variability of return on stock caused by political issue is known political risk. The political word indicates both internal politics of company as well as the nation. For example labor strike, managing director's change in company, bonus distribution and violence in country, change of government etc.

2.1.10.4 Liquidity Risk

It can be defined as the portion of total variability of return of an asset which results from price discounts given or sales commissions paid in order to sell the asset without delay. Liquidity risk is depended upon investor behavior. If investors want quickly to sale or buy the assets at certain time, then there will be the high fluctuation in the price of an assets or the selling price becomes different from marginal price. Due to this reason liquidity risk is created.

2.1.10.5 Default Risk

It is the portion of total risk of an investment that results from changes in the financial integrity of the investment. Default risk is the variability of return that investor's experience, as a result of changes in the creditworthiness of a firm in which they invested. Investor losses from default risk usually result from security prices falling as the financial integrity of a firm weakness. By the time an actual bankruptcy occurs, the market prices of the trouble firm's securities will already have declined to near zero.

2.1.10.6 Bull- Bear Risk

Market price of securities is affected by different sources. So there may be the fluctuation of increasing and decreasing in price trend of stock. If price of securities is in increasing trend from low point fairly, it is called bull risk and if price of securities is fairly decreasing from upper point then it is called bear risk.

2.1.10.7 Purchasing Power Risk

The variability in purchasing power of an investor due to inflation is called purchasing power risk. Inflation is the decreased rate of capacity of purchasing price. Inflation is calculated by consumer index. Those investments whose value is moved with inflation have less purchasing power risk.

2.1.10.8 Call Ability Risk

Some bond and preferred stock are issued on the provision of call. When the market interest rate is lower than the rate of return of bond and preferred stock, then it is beneficial to the company to callback the security. Then the investor who invests on the bond and preferred stock might face the risk of call. Thus the call ability risk means the position of a security total variability of return that derives from possibility that the issue may be called is known as call ability risk.

2.1.10.9 Convertibility Risk

Convertibility risk is that portion of the total variability of return from the convertible bond or a convertible preferred stock that reflect the possibility that the investment may be converted into issuer common stock at a time or under harmful to be investor best interest.

2.1.10.10 Industry Risk

An industry may be viewed as the group of companies that compete with each other market a homogeneous product. Industry risk is that portion of an investment total variability of return caused by events that affect flit product and firms that make of an industry. The stage of the industry is life cycle, international tariffs and quotas on the products produced by an industry, product or industry related taxes, industry wide labor union problems, environmental restriction, raw material availability and similar factors interest and effect all the firm in an industry simultaneously. As a result of these commodities, the prices of the security issued by competing firm tend to rise and fall together.

2.1.11 Portfolio Diversification

Simply diversification means scared investment in more than one asset, whose main objective is to try to minimize the risk at the same level of return. Basically, investors are choosing low level of risk at same level of return. They seek to minimize inefficient variability from expected rate of return which is possible by investing, in several assets instead of single assets, which is called diversification. So, diversification plays vital role in portfolio management.

Diversification is the important tool to control portfolio risk. Investments are made in a wide variety of assets so that the exposure of risk of any particular security is limited. By placing one's eggs in many baskets, overall portfolio risk actually may be less that the risk of any component security considered in isolation (Bodie, Kane and Marcus, 2009).

Investment risk can be reduced by including more than one alternative or categories of assets in the portfolio and by including more than one asset form each category. Hence, diversification is essential to the creation of an efficient investment because it can reduce the variability of returns around the expected return. This diversification may significantly reduce risk without a corresponding reduction in the expected rate of return on the portfolio (Weston and Copeland, 2003).

2.1.12 Method of Diversification

There are many methods used for diversification they are as follows:

i) Simple Diversification

In simple diversification, securities are selected randomly and are provided equal weight. So it is called simple diversification. In this method risk are divided into two places i.e. first non removable risk, which is called systematic risk and other is removable risk, which is called unsystematic risk. The simple diversification can reduce only unsystematic risk or avoidable risk and remain systematic risk that means this method cannot be reduce total risk into zero. It can be defined as not putting all the eggs in one basket.

ii. Diversification across Industries

It is a second technique to diversify investment across industries. Under this technique, assets in the portfolio are selected from different industries rather than one industry. Group of same firms are known as industry. For example:- commercial banks, hotel, companies, development banks etc.

iii. Superfluous Diversification

The number of assets that are included highly during the investment for diversification is called superfluous diversification. In this an investor can invest in additional assets due to which the risk will automatically be decreased. Due to large number of assets, different types of problems can exist during the portfolio management such as high research cost, high transaction cost, impossibility of good portfolio management etc. This method avoided because total cost of superfluous diversification is getting very high to manage such problems and

also performance of portfolio will not improve which may lower the net return to the investor after the portfolio's management expenses are deducted.

iv. Simple Diversification across Quality Rating Categories

Different rating agencies are rating the companies under basis of default risk and categorize the same rated company. In this method the risk is reduced by diversification across the quality rating assets or securities. The risk of portfolio of different homogeneous quality rating is attained at different level of risk. So under a simple diversification across quality rating categories, assets are randomly selected from the homogeneous quality rating. The highest quality portfolio of randomly diversified stocks will be able to achieve lower levels of risk than the simple diversified portfolio of lower quality of stocks.

v. Markowitz Diversification:

This theory developed by Harry M. Markowitz. Technically this theory is more effective to diversify as compared to other methods. So, it is called Modern Theory of Management, This theory is focused on the correlations between securities. This theory assumes that the risk can be minimized in all correlated assets without perfectly correlated assets and process of minimizing risk should be decreased as per increased negative correlation. According to this method, diversifiable risk of perfectly negative correlated assets can be minimized into zero and sometimes it succeeds to minimize non diversifiable risk into certain level. So, it can minimize risk below the undiversified level. According to Markowitz the portfolio theory establishes a relationship between a portfolio expected return and its level of risk as the criterion of or selecting the optimum portfolio.

2.1.13 Capital Assets Pricing Model

The capital assets pricing model provides a mean to which to estimate required rate of return on security. This model was developed by William F. Sharpe and John Linter in the 1960's and it has had important implications for finance ever since. And on the basis of price and dividend data, expected return can be calculated with the comparison of these two returns investors can analyze whether the stock is under priced or overpriced.

Based on the behavior of risk adverse investors, there is implied on equilibrium relationship between risk and expected return to provide a return on common stock with its unavoidable risk. This is simply the risk that cannot be avoided by diversification. The great unavoidable risk of security, the greater the return the investor will expected from the security (Van Horne, 1996).

CAPM is the model that describes the relationship between risk and expected return. In this model, the securities' expected return is the risk free rate plus premium based on systematic risk of security. This model is expressed as:

$$E(R) = R_f + (R_m - R_f) * S_J$$

Where, $E(R)$ = required rate of return for stock J,

S_J = beta coefficient of security J,

R_m = return of market,

R_f = risk free rate of return.

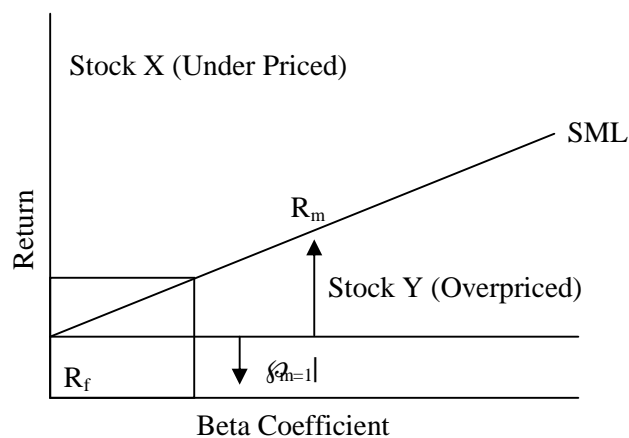
Beta measures the sensitivity of stock returns to change in the returns on the market portfolio. The beta of a portfolio is simply the weighted average of individual stock betas in the portfolio (Van Horne, 1996).

If the beta is 1 than the required rate of return is simply the average return for all situation i.e. return on market portfolio. Otherwise, the higher the beta higher the risk premium and total required return. However the relatively higher beta does not guarantee a relatively high return. The actual return depends partly on the behavior of the market.

CAPM is the predominant model used for estimating equity risk and return. Comparison between the expected rate of return and required rate of return indicates whether the stock is under priced or overpriced. And when these two returns are equal than it is said that market equilibrium i.e. all the stocks lies on the Security Market Line (SML).

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

Figure: 2.6
Security Market Line



(Source: Van Horne, 1996)

Above figure clarifies that stock X is under priced relative to the security market price while stock Y is overpriced. As a result, stock X is expected to provide rate of return greater than required based on its systematic risk. In contrast stock Y is expected to provide lower return than that required to compensate for its systematic risk. Investors seeking the opportunities for the superior return by investing in stock X.

This situation would drive the price up and expected returns come down. It will continue until the market price was seen that the expected return would row lies on the SML. In case of stock Y, investors holding this stock will start to sell it, recognizing that they could obtain a higher return for some amount of systematic risk with other stocks. The selling pressure would drive market price down and its expected return goes up until the expected return matches on the SML. When the expected return for these two stocks returns to SML, market equilibrium will again prevail (Van Horne, 1996).

Under the CAPM, each investors hold the market portfolio and is concerned with its standard deviation because this will influence the slope of the SML, and hence the magnitude of his/her investment in the market portfolio. The CAPM is sometimes used to estimate the required return for publicly traded stock.

The CAPM is based on promise that the only important risk of firms is systematic risk or the risk that returns from expose to general stock movements. The CAPM is not concerned with so called unsystematic risk, which is specific to an individual firm, because investors can avoid that type of risk by holding diversify portfolio. Investors appear to be concerned principally with risk that they cannot eliminated by diversification. If this is not so, we find the stock price increases. Whenever two companies merge to spread their risk and we should find that investment companies which invest in the share of other firms are more highly valued than the shares they hold. But we do not observe either phenomenon. Mergers undertaken just to spread risk don't increase stock prices and investment companies are no more highly valued than the stocks held. The CAPM models captures these ideas in simply way. That's way many financial managers find it is the most convenient for coming to decision with slippery motion of risk. And it is why economist often uses the CAPM to demonstrate important ideas in finance even when there are other ways to prove these ideas.

2.1.14 Concept of Efficient Frontier

A set of optimal portfolios that offers the highest expected return for a defined level of risk or the lowest risk for a given level of expected return. Portfolios that lie below the efficient frontier are sub-optimal, because they do not provide enough return for the level of risk. Portfolios that cluster to the right of the efficient frontier are also sub- optimal, because they have a higher level of risk for the defined rate of return.

Since the efficient frontier is curved, rather than linear, a key finding of the concept was the benefit of diversification. Optimal portfolios that comprise the efficient frontier tend to have a higher degree of diversification than the sub-optimal ones, which are typically less diversified.

2.2 Review of Related Studies

2.2.1 Review of Articles

Shrestha (1992) had carried out the study on "Capital Market in Nepal: Changing Dimension and Strategies." He has attempted to highlight mainly on three important aspects: conceptual rational of the capital market, achievement of the Nepalese capital market and thereby providing few possible scenario to improve the performance of capital market in Nepal. For the study, he has examined the fourteen listed companies. The study concluded that various inconsistence and hindrances do exist the way to the smooth functioning of the capital market. He has suggested few scenario like allowing the business of buying and selling securities to the private brokers with membership in the stock market. It is necessary to follow " level it to the market force" to determine the final price for fair transactions.

Shrestha (1999) in his study "Portfolio Management in Commercial Bank: Theory and Practice" revealed the portfolio management becomes very important both for individual as well as investor. Investor would like to select a best mix of investment assets subject to the following aspects.

-) Higher return which is comparable with alternative opportunities available according to the risk class of investors.
-) Good liquidly with adequate safety of investment.
-) Economical and efficient investment mix.

In view of above aspect Shrestha stated that investors try to hold a well diversified portfolio that helps to achieve those benefits. Investors want to increase their return by making investment in different sectors with certainty. However, Shrestha presented approaches to find out the risk of securities depending up on the attitude of investors towards risk, to develop alternative investment strategies for selecting a better portfolio, which will ensure a tradeoff between risk and return so as to attach the primary objective of wealth maximization at lowest risk and finally to identify securities for investment to refuse volatility of return and risk.

Elton (1999) has done study on "Expected Return, Realized Return and Assets Pricing Tests". In this paper he had pointed out the fundamental issues in finance like that what the factors are that affects expected return on assets, the sensitivity of expected returns to those factors, and the reward for bearing this sensitivity.

Poudel (2001) had carried out study in topic of "Investing in share of return and risk elements." The study was based on data collected for eight banks from mid July 2001. The main objectives of the study was to determine whether the shares in Commercial banks in Nepal are over or under priced by analyzing risk and return characteristics of the individual share.

He found that most of the shares appear to be defensive as beta coefficients were less than one and less volatile than market as a whole. Only the return of share of Bank of Kathmandu had beta coefficient greater than one, indicating that the share was more risky than the market.

Nabil Bank, Nepal Investment Bank, Himalayan Bank Ltd. Shares was overpriced and other was under priced.

Adhikari (2010) has conducted study on "Investment Behavior of Nepalese Investors." The main purpose of this study is to identify why investor invest in share market and whether their decision to invest in share market are in a way influenced by the behavioral factors and concludes that Nepalese investors invest on shares both financial and non financial reasons. He concludes that investment means more than just satisfying their financial needs. It is not only weighting risk and return of the various investment assets but their behavioral factor also affects to the investment decision making process. For them investment means something that fulfills their social needs as well.

Dangol (2010) had conducted research on "Testing random walk behaviour in Nepalese stock market." The main purpose of the study was examining the random walk behavior on daily market returns of NEPSE. The research had been done by using Augmented Dickey-Fuller test and Phillips Perron (PP) unit root test for the period July 14, 2000 to January 14, 2010. The study had found that unit root did not exist, and return series are stationary. This provides the evidence that Nepalese stock

market did not show characteristics of random walk and thus it was not efficient that weak form. It implicated that market participants had opportunity to predict future price and earn abnormal return from the stock market.

2.2.2 Review of Dissertations

Upadhaya (2001) in his study "Risk and Return Analysis on Common Stock Investment of Commercial Banks in Nepal." has concluded that most people see stock market investment as a black art that they know little about. Many people have pessimistic expectation about stock market investment or perhaps a fear of the unknown. Although stock market is emerging, but due to the lack of information and knowledge base, Nepalese investors cannot analyze the security as well as market properly.

In addition, Upadhaya added that proper analysis of individual security, industry and overall market is always needed general knowledge about economic, political and technological trend will be advantages. To win market share should be held when the market is raising and safer investment when it is falling. Though the study concluded by the Upadhaya did not focus on the relationship between closing MPS and EPS and this study does not also focus on the view point of individual investor as well as the company.

Thapa (2003) has conducted thesis work on "Analysis of risk and return of Common stock investment of Insurance Companies." The main objective of the study is to examine common stock of listed insurance companies in terms of risk and return. The study had covered five year period from 2053/054 to 2057/058 B.S. She had compared five insurance companies. They are Premier Insurance Company Ltd, Himalayan general insurance company Ltd., Everest Insurance Company Ltd., United insurance company Ltd. and Nepal insurance company Ltd. with respect to market capitalization, coefficient of variation, standard deviation and market risk.

Joshi (2008) has concluded a study entitled "Risk and Return Analysis of Common stock of Five Listed Commercial Banks." The major objectives of the study of the study are to calculate and analyze the risk and return of banking sector and to evaluate

common stock of commercial banks are correctly priced or not. From the study, he drew several conclusions which are as follows.

-) After analyzing the coefficient of variance, he suggested that the banking industry is the best one for investment. Similarly while analyzing individual securities SCBL is the best for the investment due to highest return and lowest C.V. Similarly if the investor is risk averters, they can invest NIBL or HBL because these two stocks have lower risk than the portfolio risk.
-) Portfolio analysis shows that the portfolio investment can reduce risk significantly. Thus, portfolio investment is recommended to receive high return at minimum risk.

Khand (2008) has conducted a thesis entitled "Risk and Return Analysis of Selected Insurance Company in Nepal." With the objective of identifying average rate of return, systematic risk and unsystematic risk as well as level of risk of the insurance companies. He had used five years data to calculate risk, return, CV, covariance and coefficient of correlation by taking the sample of four insurance companies named United Insurance Company, Himalayan General Insurance Company, Everest Insurance company and Premier Insurance Company. The major finding of his study is that:

-) The average rates of return of the sampled insurance companies are not satisfactory. Premier insurance company and Everest insurance company has positive expected.
-) The average rate or return of insurance market is lower than overall capital market.
-) The risk of insurance market is higher than overall market.
-) Risk of sampled insurance companies is higher that rate the return so investment on the insurance market is more risky.

After studying the overall market he recommended that:

-) The expected rate of return of the insurance companies is not good so insurance companies should consider how to improve rate of return.

-) The required rate of return and average rate of return is not good so all sample company should correctly fixed the price.
-) In general higher the risk higher will be the return but in reality return is not as the proportion. Therefore it should also be considered.
-) All the sampled insurance companies has beta less than one which means insurance companies investment is less volatile as compare the market but the return is not satisfactory. So the insurance company diversifies their investment policy.

Shakya (2009) has conducted a study entitled "Risk and Return Analysis of Commercial banks." has made conclusion that the expected return of EBL and NABIL are highest among the sampled banks i.e. 56.72 percent and 52.7 percent respectively. However, SCBL has lowest expected rate of return of bank which is 28.26 percent followed by HBL with 29.52 percent expected rate of return. Analyzing the standard deviation of sampled banks, SCBL is in the best position with standard deviation of 33 percent. All the sampled joint venture commercial banks have positive expected rate of return. However, the commercial banking sectors have positive return together with market sector.

Budhathoki (2009) in his study "Risk and Return analysis on common stock Investment." Conducted that majority of the common stock investment has been taking place without the logical financial evaluation, for most of the investor it is the blind game. Many people have unrealistic expectation about the stock market investment. This study enables investor to put the return they can expect and the risk they can take into better perspective.

Gurung (2011) has conducted a study entitled "Risk and Return Analysis of Common Stock Investment." of Fewa Finance, OM Finance, Pokhara Finance and Annapurna Finance Company Limited, with the objectives of to determine the market price of share, to measure systematic and unsystematic risk of selected company to analysis risk associated with return on common stock of finance company, to evaluate risk and return of different finance company and to determine whether the share of finance company are under priced, over priced or at equilibrium.

Karmacharya (2011) in his study "Risk and Return Analysis of Common Stock of selected Commercial Bank." with main purpose of identifying risk and return of investment of the common stock of commercial banks concluded that Bank of Kathmandu had maximum expected return and minimum expected return was of Nepal investment bank. He also concluded that Everest bank's stocks were less risky. Similarly he also concluded that stock of bank of Kathmandu was highly aggressive comparing to other banks.

Sharma (2012) has conducted study on "Risk and Return Analysis of Commercial Bank in Nepal." She has taken Everest Bank, Nepal Investment Bank, Himalayan Bank and NABIL Bank as the sample of the study. The specific objectives of the study are; to analyze the annual average rate of commercial banks, to analyze the systematic risk and unsystematic risk of commercial banks, to analyze the risk and return in the frame work of CAPM model, to analyze the risk premium of commercial banks in Nepal. She concludes that;

-) EBL has the highest average return and NIB has the lowest average return.
-) EBL has more risky common stock and NIB has low risky.
-) EBL has highest beta coefficient so, its stock has higher systematic risk.
-) The common stock returns of commercial banks are highly sensitive to the market. They are highly positively correlated to the market.
-) Under the CAPM NIB has the lowest required return and EBL has the highest required return.

Shrestha (2013) had conducted a study entitled "Risk and Return Analysis of Selected Insurance Companies in Nepal." He has taken only five insurance companies named; Everest Insurance Company, Himalayan General Insurance, Nepal Insurance, Premium Insurance and United Insurance Company. The study finds;

-) Stock of UIC is the most risky and PIC is least risky.
-) PIC, EIC, NIC have more unsystematic risk and UIC and HGIC have more systematic risk.
-) UIC has the highest beta and EIC has lowest beta coefficient.

-) UIC has highest average rate of return and EIC has lowest.
-) Under the CAPM HGIC, EIC and UIC are overpriced and PIC and NIC stocks are underpriced.

But Mr. Shrestha has not created the portfolio for the diversification of the risk.

2.3 Research Gap

Research is the process of searching again and again to get the fact over the problem of issues. The researchers done in the past were not sufficient to cover the basic and con-current issues. Any research is not final and one research always welcomes another one.

Many of the study had been carried out on the topic of the banks and financial institutions, risks and return behaviour analysis. Many of the people preferred to invest on the share of banks and financial institutions whose share on the capital market is more than 85 percent (SEBON, 2009). So this study will carried out to address the problems that the investor are faced such as; what are the criteria for the evaluation that the stock they are holding will give them favourable return? How they know the magnitude of risk? How can get higher return even though bearing lower risk? How one can increase return by reducing risk by investing on the portfolio rather than single assets? So analyzing the above factors it will be possible to suggest the investors and stakeholders.

Several researchers have been conducted study on risk and return behaviour analysis on common stock of commercial banks. But, there is very few research studies found in the sector of insurance. The other researcher has lacking behind to discuss about the creation of portfolio investment to minimize the risk. So to fulfill the gap, the research will be conducted to find out the risk and return behaviour of investment in common stock of insurance company.

CHAPTER III

RESEARCH METHODOLOGY

Research is an organized, systematic, database, critical, scientific enquiry or investigation into a specific problem, undertaken with the objective of finding answer or solution to it. The research activities are aim to be planned, cautious, systematic and reliable way of finding out or deepening understanding. The research process involves a series of well throughout activities of gathering, recording, analyzing and interpreting results with the purpose of finding answers to the problem. The entire process based on philosophies, principles and mechanism of research by which we attempt to solve problems or search the answer to question are collectively known as the research Methodology (Pant, 2009).

Research methodology depends on the various aspects of the research project. The size of the project, the objective of the project, impact, importance of the project, time frame of the project, impact of the project in various aspects of the human life etc. are the various projects that determine the research methodology of the particular project.

3.1 Research Design

Research design is planned structure and strategy of investigation conceived to obtain answer to research objective through analysis of data. The research design of an investigator touches almost all aspect of the research, from the minute details of data collection to the selection of the technique of data analysis. This research work tries to analyze the risk return behavior of the common stock of selected insurance companies. Descriptive research design has been followed for this study. The study will be based on the financial data provided by the concern insurance companies i.e. secondary data will be used for analysis purpose. Financial as well as statistical tools are used to analyze and interpret the data. The researcher tries to use Microsoft excel and word to conduct the research. Descriptive, trend and analytical research design is adopted in this study.

3.2 Population and Sample

There are 25 insurance companies in Nepal. All twenty-five companies are regarded as the population of the study. Among them 8 life and 16 are non life insurance companies and one both life and non life. For the present analysis 5 insurance companies were selected consisting of 2 life insurance companies out of 8 and 3 non life insurance companies out of 16 have been selected which represent the twenty percent of the current population. The mentioned insurance companies have been selected is a sample because data can be collected easily and conveniently.

3.3 Nature and Source of Data

The study is based on the secondary data obtained through annual reports of Insurance companies, NRB reports, annual reports of SEBON and NEPSE, Various Published subject matters, economic journals, Magazine and electronic data.

3.4 Data Collection Procedure

Secondary data has been collected from annual reports of concerned insurance companies. Data on some aspect of these insurance companies were obtained from the website *www.nepalstock.com.np* and websites of concerned company has been used to collect the data. Some data also brought from field visiting of regulatory bodies.

3.5 Data Processing and Analysis

To conduct this research secondary data were collected from the concern insurance companies. Similarly NRB reports, NEPSE reports, SEBON reports, journals, articles related to financial institutions were used as important source to conduct the research. After collecting the necessary data they had been entered into excel to get the desired result. After entering data into excel different tools were used to analyze the risk and return behavior of the selected common stock of the companies. They are presented below.

3.5.1 Financial Tools

Financial tools are as follows:

3.5.1.1. Market Price of Stock (P)

For the research the price of stock in the closing data of the fiscal year were used as the market price of the stock for particular years. These data were taken from the annual reports of respective insurance companies and annual reports of the SEBON. Price is determined by supply and demand factors. It also reflects the opinion of investor, and trader concerning the values of the stock. The market price of the stock was given on the annual reports of concern insurance companies.

3.5.1.2 Earning Per Share (EPS)

It is the amount of annual earnings available to the common stock holders, as stated on per share basis. It is a critical variable in security analysis. Forecasting EPS largely depends on the financial statements of a particular company. Current stock price is the function of earning estimates and the price earnings ratio. To compute EPS following formula is used.

$$EPS \times \frac{\text{Profit after interest and tax}}{\text{Number of shares outstanding}}$$

3.5.1.3 Dividend per Share

Dividend is the part of the earning that can be distributed to the shareholders as a part of their investment. Dividend is return to equity capital that consist price of time and price of risk taking by the investors.

The DPS is calculated as:

$$DPS \times \frac{\text{Total amount of dividend Paid}}{\text{Total number of outstanding share}}$$

If the company only paid cash dividend there is no problem to calculate exact amount of dividend paid that is relevant. But if the company declares stock dividend then it is difficult to obtain the amount gained by the shareholders. In this case, they get extra number of share as dividend and simultaneously price of stock declines as a result of increased number of stock. To obtain a real amount of dividend following model has been used throughout:

Total dividend amount = Cash dividend + stock dividend % * Next year's MPS.

3.5.1.4 Return on Common Stock Investment

Return is excess yields that the investor received in future that from his present investment. It is the total dividend yield plus capital gain yield of that particular year. The return on investment is calculated as:

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

Where, R = return on common stock investment, P_t = Price of stock at time t, P_{t-1} = Price of stock at time t-1, D_t = dividend of stock at time (t).

3.5.1.5 Expected Return on Common Stock

Expected return on common stock is the weighted averages of all possible returns multiply by respective probability of each of economy. If the probability is not given we used arithmetic mean where n is the number of years and R_j is return on each year.

$$\text{Expected return} = \frac{\sum R_j}{N}$$

3.5.1.6 Required Rate of Return

It is the minimum return that the investor must earn. This can be calculated as follows: Required Rate of Return (\bar{R}) = R_f + $\sum R_m \cdot S$

Where, R_f = Risk free rate of return.

\bar{R} = Return from market.

S = Beta coefficient.

3.5.1.7 Standard Deviation

It is a statistical measure of the variability of a distribution of return around its mean. It is the square root of the variance and measure the total risk on stock investment. It is widely used to measure risk from holding a single assets. It is also a statistical measure of the variability of a set of observations. High standard deviation represents a large dispersion of return and is a high risk and vice versa.

The standard deviation is measured by:

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

3.5.1.8 Coefficient of Variation

It is the ratio of standard deviation of returns to the mean of that distribution. It is a measure of relative risk and return. It measures the risk per unit of return. It provides a more meaningful basis for comparison when the expected returns on two alternatives are not same. The higher coefficient of variation results in higher risk.

$$\text{Coefficient of variance} = \frac{\text{Standard Deviation}}{\bar{R}}$$

3.5.1.9 Covariance of Returns

Covariance of return is an absolute measure of co-movement of the possible returns of two assets rather than independently of each other. It is the statistical measure of the relationship between two random variables. The covariance between the security return can be calculated by using the following equation:

If probability is given,

$$\text{COVAB} = \sum_{i=1}^n P_i (R_{A_i} - \bar{R}_A)(R_{B_i} - \bar{R}_B)$$

If historical data is given

$$\text{COVAB} = \frac{\sum_{i=1}^n (R_{A_i} - \bar{R}_A)(R_{B_i} - \bar{R}_B)}{n-1}$$

3.5.1.10 Correlation coefficient

It is a relative measure of co movements between securities returns that lies between -1 and +1. If two assets are positively correlated, their correlation is also positive. If

two variables are independent, their correlation is zero, and if two variables vary inversely, their correlation is negative. Further, the correlation coefficient standardizes the value of covariance in terms of the product of standard deviation of assets. Formally, the relationship between covariance and correlation is as shown in equation:

$$r_{AB} = \frac{COV_{AB}}{\sigma_A \sigma_B}$$

3.5.1.11 Beta

It is an index of systematic risk. It measures the sensitivity of a stock's return on the market portfolio. Higher the beta, higher will be the sensitivity and reaction to the market movement. Beta coefficient of a particular stock is a function related to the correlation and the covariance between the security and the market portfolio in the following way:

3.5.1.12 Portfolio Return

Portfolio return is the weighted average of the expected return of a portfolio assets or securities in the portfolio with weights being equal to the proportion of investment value in each assets or security. It can be calculated in the following way:

$$E(R_p) = \sum_{j=1}^n W_j E(R_j)$$

Where, W_j = Weight of Stock j

$E(R_p)$ = Return on Portfolio

3.5.1.13 Portfolio Risk

Portfolio risk is the total risk associated with owning a portfolio which is a sum of systematic and unsystematic risk. For calculating the risk of a portfolio of securities, the riskiness of each security within the context of the overall portfolio has to be considered. This depends on their interactive risk i.e. how the returns of a security move with the returns of other securities in the portfolio and contribute to the overall risk of the portfolio.

Portfolio standard deviation

$$\sigma_p = \sqrt{\sum_{i=1}^n \sum_{j=1}^n w_i w_j \rho_{ij} \sigma_i \sigma_j}$$

Portfolio variance

$$\sigma_j^2 = w_A^2 \sigma_A^2 + w_B^2 \sigma_B^2 + 2w_A w_B \text{COVAB}$$

Where, w_A = weight of stock A

w_B = weight of Stock B

COVAB = Covariance between the return of stocks A and return of Stock B

σ_A^2 = Variance of the return of stocks A.

σ_B^2 = Variance of the return of stocks B.

σ_j = standard deviation of stock j.

3.5.1.14 Minimum Risk Portfolio

Minimum risk portfolio refers to the proportions of investment in two different assets that give minimum (lowest) variance (risk). A risk adverse investor always prefers to minimize the portfolio risk by selecting the optimal portfolio. The minimum risk portfolio with two assets can be calculated as follows:

$$w_a = \frac{\sigma_b^2 - \text{Cov}(a,b)}{\sigma_a^2 + \sigma_b^2 - 2\text{Cov}(a,b)}$$

$$w_b = 1 - w_a$$

w_a = weight of stock A

w_b = weight of stock B

3.5. 2 Trend Analysis

The tool that is used to show grandly increase and decrease of variable in a period of time is known as trend analysis. With the help of trend analysis; the tendency of variables over the period can be seen clearly. Here, trend analysis of market price movement of sampled insurance companies as well as NEPSE index and insurance index has been conducted.

CHAPTER IV

ANALYSIS AND PRESENTATION OF DATA

4.1 Presentation of Results

4.1.1 Rate of Return

Expected Return on common Stock is the weighted average of all possible returns multiplied by their respective probabilities of each state of economy. If the probability is not given we use the arithmetic mean return of the past returns. Investor prefers higher level of return with given level of risk. The expected return of sampled insurance companies is shown on the following table.

Table: 4.1

Stock Return of Sampled Insurance Companies

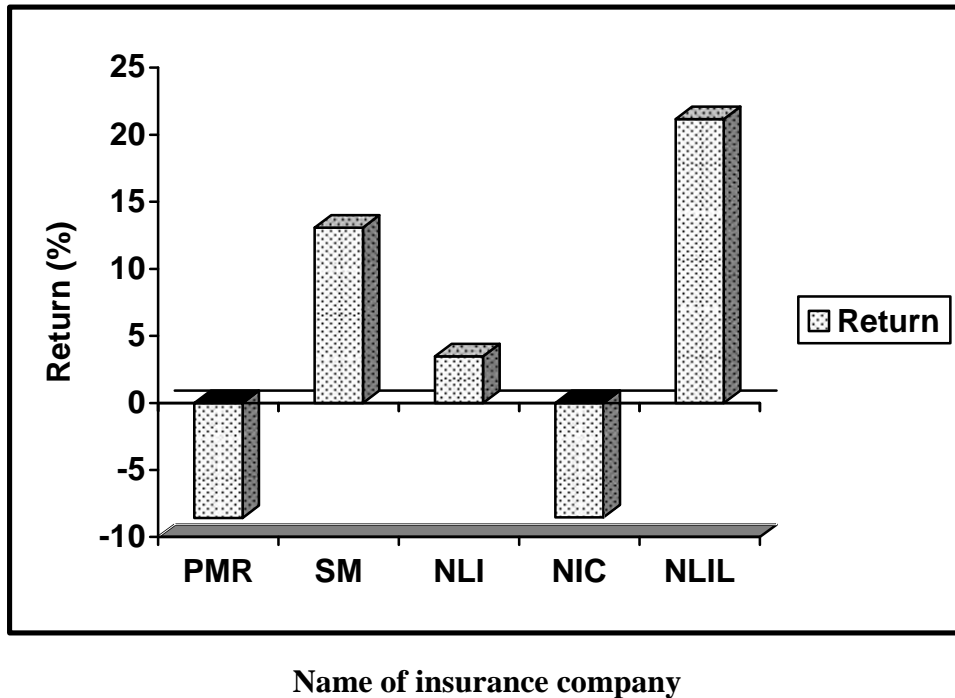
Insurance company	Returns (%)
PMR	-8.58
SM	13.07
NLI	3.48
NIC	-8.525
NLIC	21.16

(Source: Annex 3 and 4, researcher's calculation)

Table 4.1 shows the stock returns of sampled insurance companies. The rate of return for PMR, SM, NIC and NLIC was -8.58%, 13.07%, 3.48%, -8.525% and 21.16% respectively.

Figure: 4.1

Stock Return of Sampled Insurance Companies



From the above figure it was found that NLIC has the highest return and PMR has the lowest return.

4.1.2 Standard Deviation

It is a statistical measure of the variability of a distribution of return around its mean. It is the square root of the variance and measure the total risk on stock investment. Higher standard deviation shows higher level of risk on the investment. Standard deviation of the sampled insurance companies has been shown on the following table:

Table: 4.2

Standard Deviation of Stock Return of Sampled Insurance Company

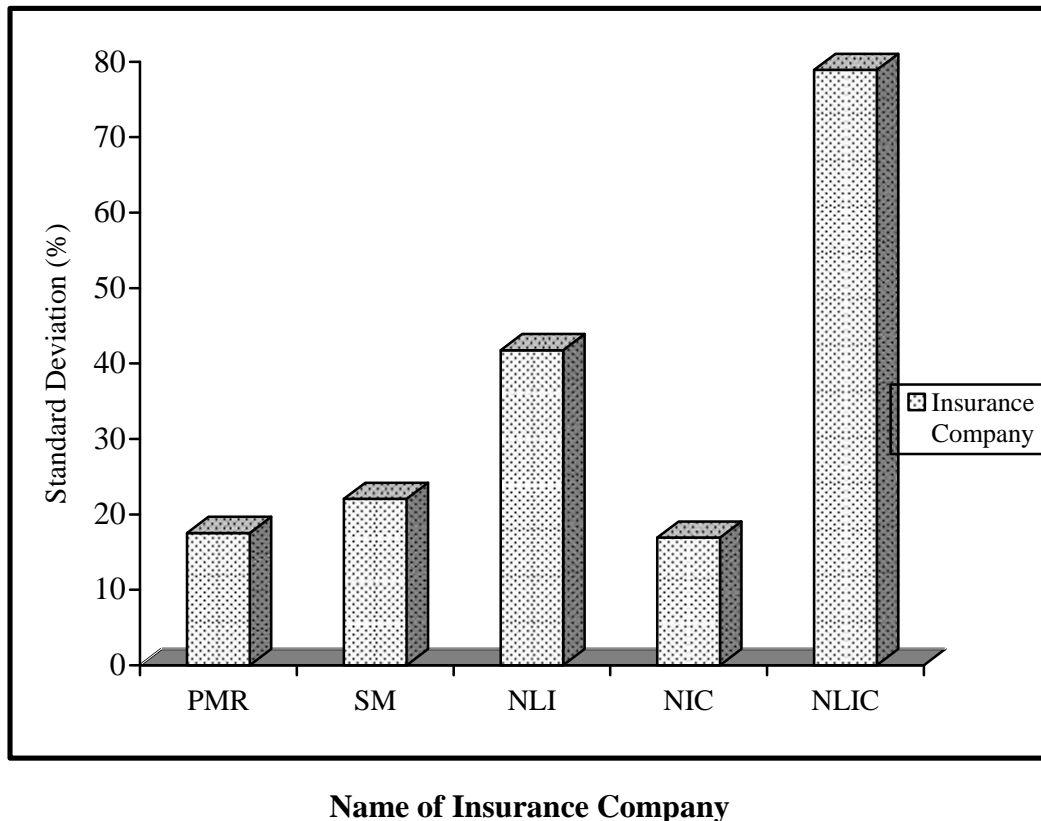
Insurance company	S.D. (%)
PMR	17.543
SM	22.06
NLI	41.75
NIC	16.92
NLIC	78.91

(source : Annex 5, 6 and 7)

Table 4.2 shows the standard deviation of stock return of sampled insurance companies. The SD for PMR, SM, NIC and NLIC was 17.543%, 22.06%, 41.75%, 16.92%, and 78.91% respectively.

Figure: 4.2

Standard Deviation of Stock Return of Sampled Insurance Company.



From the above figure it was found that NLIC has the highest S.D and NIC has the lowest S.D.

4.1.3 Coefficient of Variance

It measures the risk per unit of return. It provides a more meaningful basis for comparison when the expected returns on two alternatives are not the same. The coefficient of variance for PMR, SM, NLI, NIC and NLIC was -2.045, 1.69, 12, -2 and 3.729 respectively.

4.1.4 Correlation Coefficient

Correlation coefficient is a relative measure of co movements between securities' returns that lies between -1 and +1. If two assets are positively correlated, their correlation coefficient is also positive. If two variables are independent, their correlation coefficient is zero, and if two variables vary inversely, their correlation

coefficient is negative. The correlation coefficient of sampled insurance companies with the market (Insurance Index) has been shown on the following table:

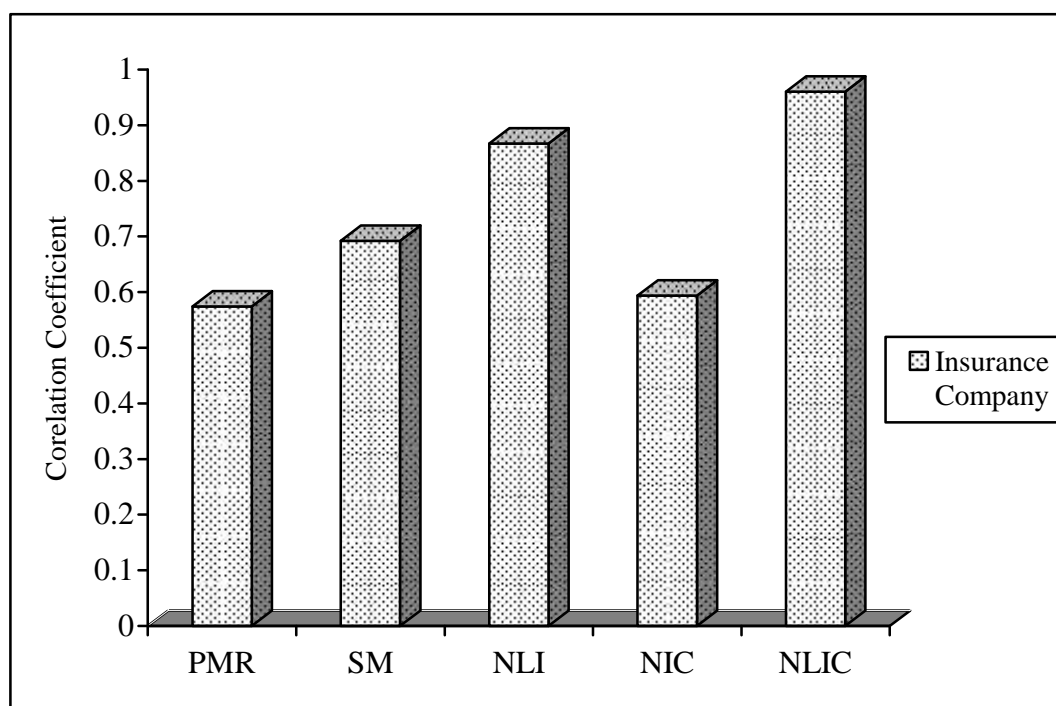
Table: 4.3
Correlation between Return of Sampled Insurance Companies with Returns of Insurance Index

Insurance company	Correlation Coefficient
PMR	0.574
SM	0.691
NLI	0.867
NIC	0.594
NLIC	0.96

(Source: 7, 8, 9 and 10)

Table 4.3 shows the correlation coefficient of sampled insurance companies with insurance index. The correlation coefficient for PMR, SM, NLI, NIC and NLIC was 0.574, 0.691, 0.867, 0.594 and 0.96 respectively.

Figure: 4.3
Correlation between Return of Sampled Insurance Companies with Returns of Insurance Index.



Name of Insurance Company

From the above figure it has been clearly seen that the correlation coefficient with Market (Insurance Market) is positive. NLIC has the highest correlation coefficient and PMR has the lowest correlation coefficient.

4.1.5 Beta Coefficient

It is an index of systematic risk. It measures the sensitivity of a stock's return on the market portfolio. Higher the beta, higher will be the sensitivity and reaction to the market movement. The beta coefficient of each insurance company has been shown on the table 4.4:

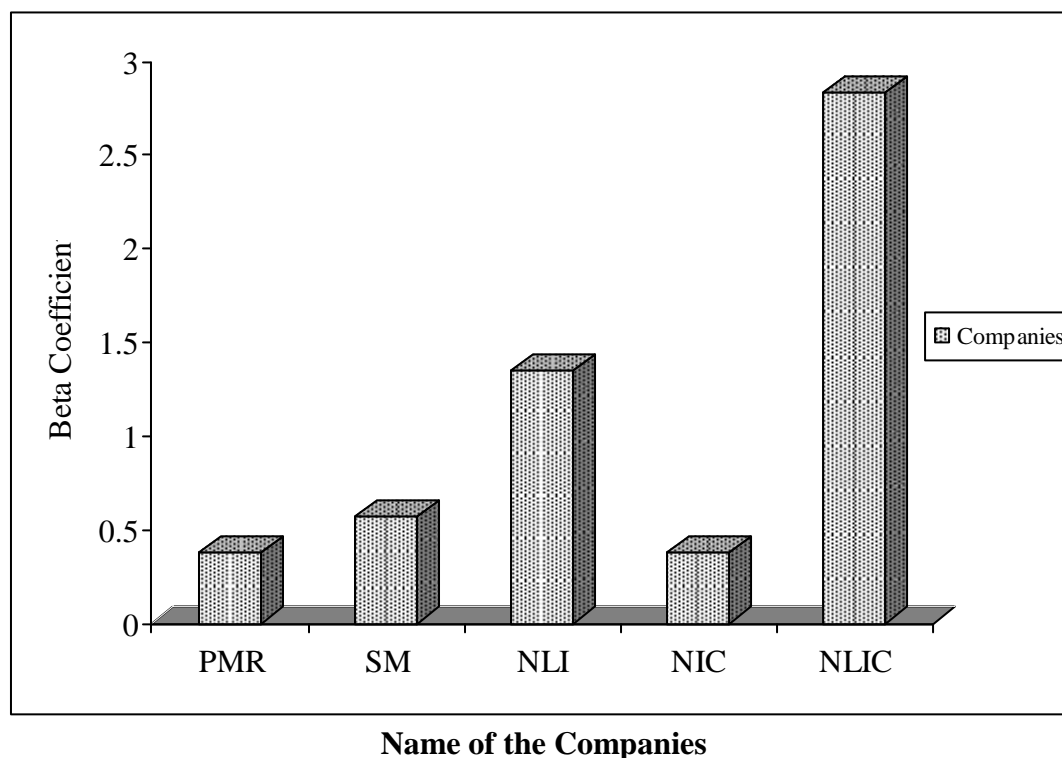
Table: 4.4
Beta Coefficient of Sampled Insurance Companies

Insurance company	Beta Coefficient
PMR	0.376
SM	0.569
NLI	1.35
NIC	0.375
NLIC	2.83

(Source: 7, 8, 9 and 10)

The table 4.4 shows the beta coefficient of sampled insurance companies. Beta Coefficient for PMR, SM, NLI, NIC and NLIC was 0.376, 0.569, 1.35, 0.375, 2.83 respectively, indicating except NLI and NLIC stocks other companies stocks had been found to be defensive means less volatile with market movement.

Figure: 4.4
Beta Coefficient of Sampled Insurance Companies.



From the above figure it was found that NLIC has the highest beta coefficient and NIC has the lowest beta coefficient.

4.1.6 Proportion of Systematic Risk

It is the ratio of variability of an individual's security caused by macro economic factors affecting the market to total risk. It is the risk that is inherent in the market that cannot be diversified away. (Note: Here systematic Risk is calculated as per standard deviation)

Table: 4.5

Proportion of Systematic Risk of Sampled Insurance Companies

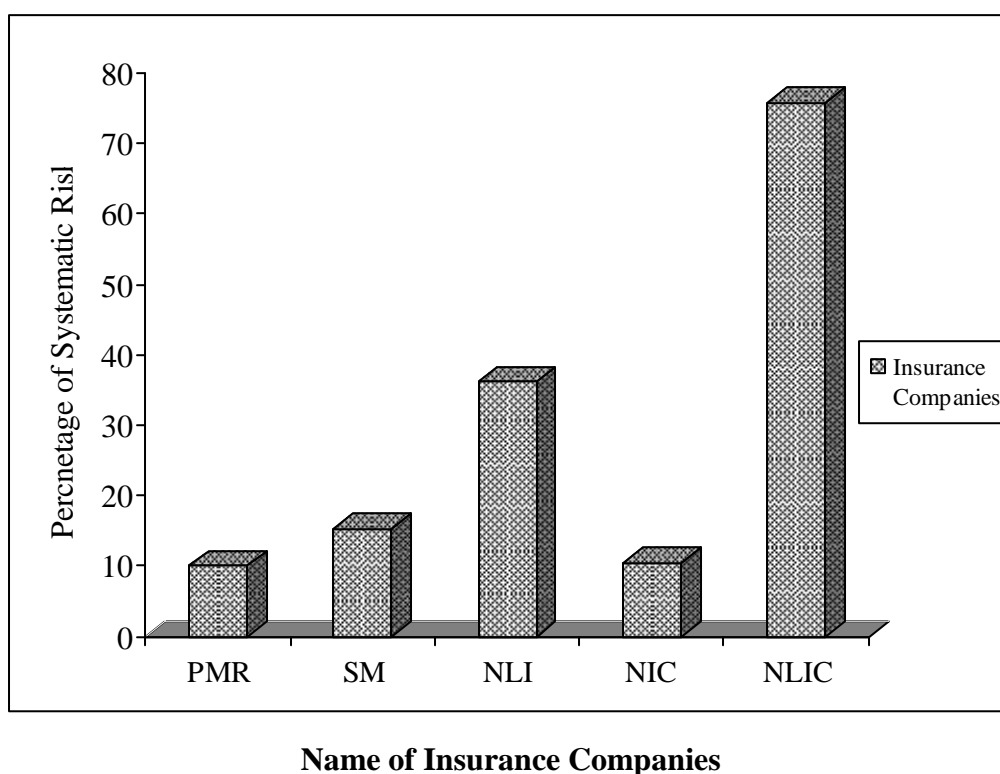
Insurance company	Systematic Risk (%)
PMR	10.07
SM	15.24
NLI	36.197
NIC	10.5
NLIC	75.75

(Source: Annex 16)

Table 4.5 shows the proportion of systematic risk of sampled companies. The proportion of systematic risk for PMR, SM, NLI, NIC and NLIC was 10.07 percent, 15.24 percent, 36.197 percent 10.5 percent and 75.75 respectively.

Figure: 4.5

Proportion of Systematic Risk of Sampled Insurance Companies.



From the above figure the highest systematic risk found in NLIC and the lowest systematic risk found in PMR.

4.1.7 Proportion of Unsystematic Risk

It is the ratio of variability of an individual security caused by micro economic factors to total risk. They are such as inefficient management, poor human resources etc.

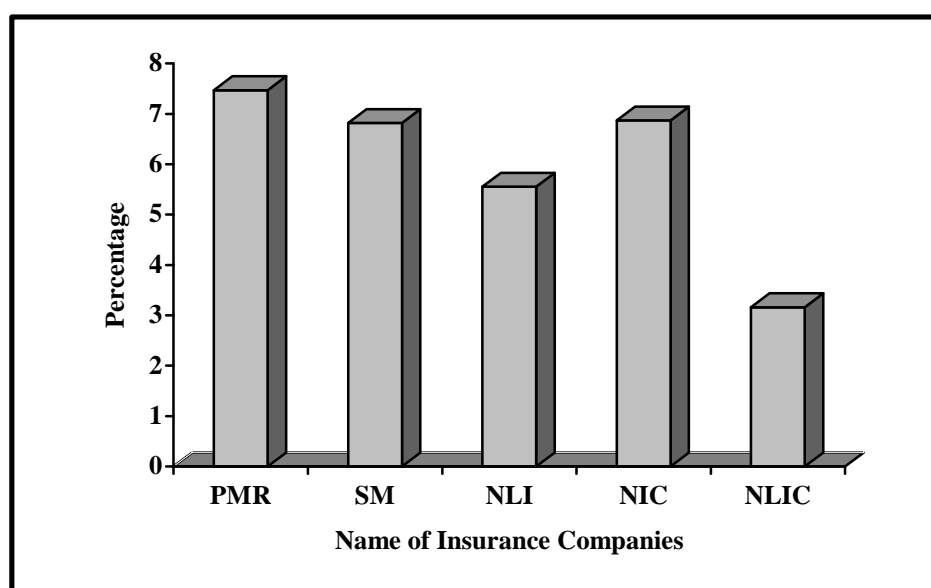
Table: 4.6
Proportion of Unsystematic Risk of Sampled Insurance Companies

Insurance company	Unsystematic Risk (%)
PMR	7.47
SM	6.82
NLI	5.553
NIC	6.87
NLIC	3.16

(source: Annex16)

Table 4.6 shows the proportion of unsystematic risk of sampled insurance companies. The proportion of unsystematic risk for PMR, SM, NLI, NIC and NLIC was 7.47%, 6.82%, 5.553%, 6.87% and 3.16% respectively.

Figure: 4.6
Proportion of Unsystematic Risk of Sampled Insurance Companies



From the above figure, the highest unsystematic risk found that of PMR and the

lowest unsystematic risk found that of NLIC. Those companies that have higher unsystematic risk proportion should identify the risk and try to remove it.

4.1.8 Types of Common Stock under CAPM

CAPM gives us a precise prediction of the relationship that we should observe between the risk of an asset and its expected return. It provides a benchmark rate of return for evaluating possible investments. The types of common stock under CAPM method for the sample period, Premier insurance company NLI and NIC are found to be overpriced and remaining others are found to be under priced.

4.1.9 Descriptive Analysis

This chapter deals about the collection, presentation and analysis of data of sampled insurance Companies. In this chapter analysis of recent insurance index i.e. NEPSE sub index have been done. This chapter deals about market movement, industry analysis, risk and return of individual insurance companies, comparative analysis, and market sensitivity, systematic and unsystematic risks. Further it deals about the price of common stock under CAPM method. Then it deals about creating the optimal portfolio and finally deals about the how the finding from the research.

4.1.9.1 Market Movement Analysis

NEPSE Index is calculated by considering all listed shares including that of promoter shares of all listed companies in NEPSE. As other secondary market indicators, NEPSE Index was in decreasing trend most of the time during the sampled period. The trend of NEPSE index can be viewed from the following.

Table : 4.7
NEPSE Index Movement

Fiscal Year	Index (Actual Value)	Estimated Index Point (Trend Value)
2064/065	963.1	895.1
2065/066	749.1	741.8
2066/067	477.73	588.5
2067/068	362.85	435.2
2068/069	389.74	281.9

(Source: Annex 21 and trading report of NEPSE)

From the above table the highest NEPSE index found in fiscal year 2064/065 i.e. 963.1 and lowest in fiscal year 2067/068 i.e. 362.85.

Figure: 4.7
Movement of NEPSE index

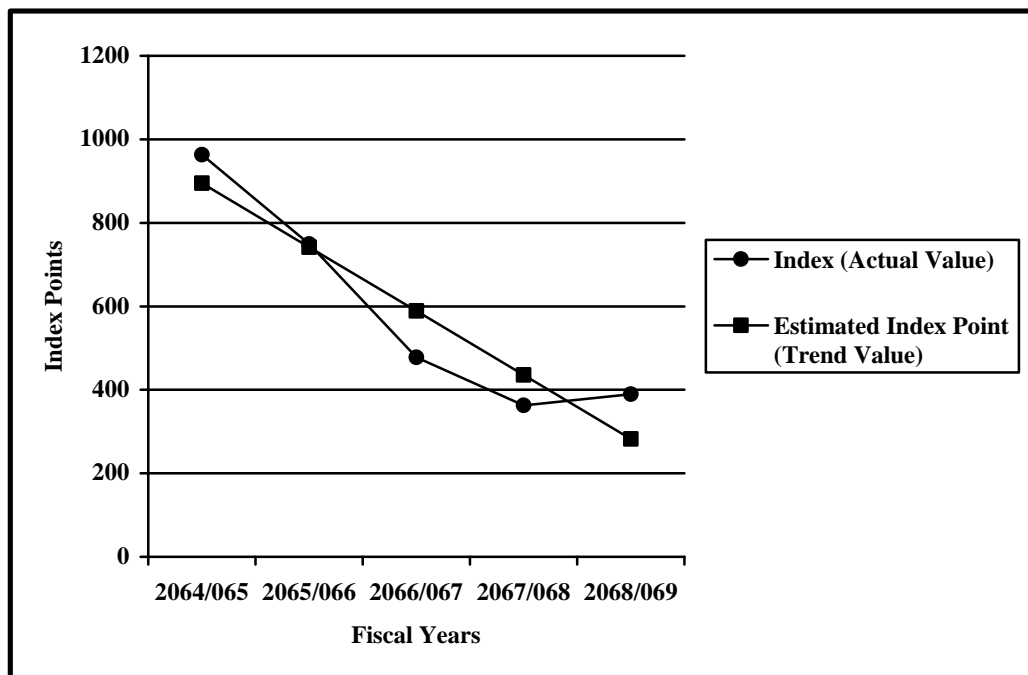


Figure 4.7 shows the NEPSE index movement from 2064/065 to 2068/069. This trend shows that there was decreasing trend in the index from 2064/065 to 2066/067. But that point onwards the index started to increase till date. This trend shows that the performance of secondary market in Nepal is becoming worse day by day. So that, the trend line has downward sloping.

4.1.9.2 Insurance Index Movement Analysis

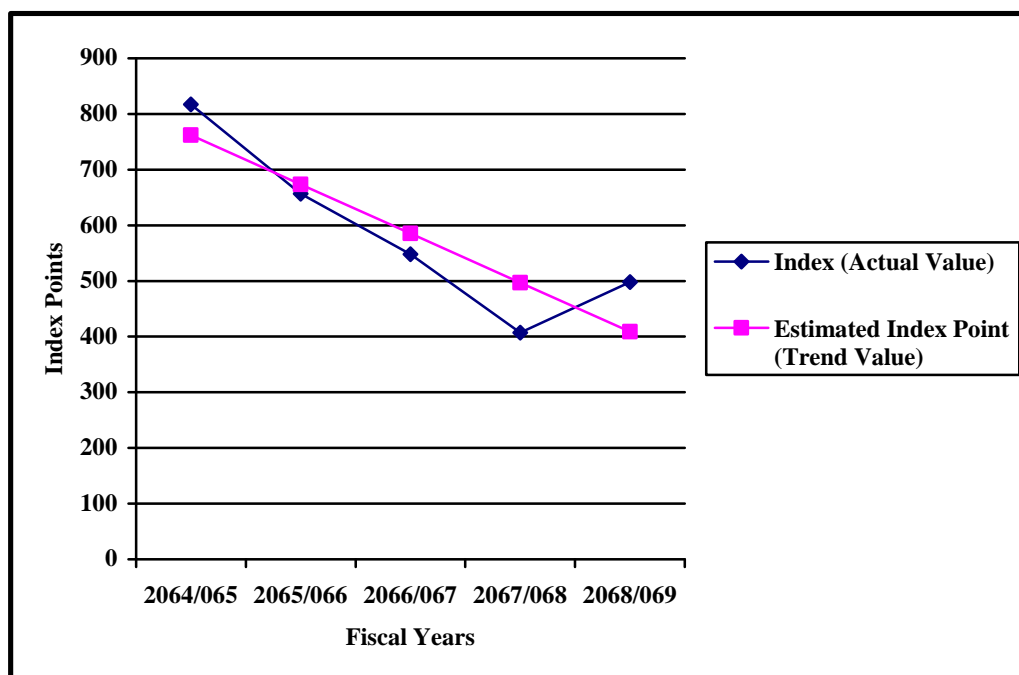
Insurance index is a sub index of NEPSE, which is calculated based on only the listed insurance companies operating in Nepal. At present there are 21 Insurance companies listed in NEPSE. This research takes 5 insurance companies as the sample of the study.

Table: 4.8
Insurance Index Movement

Fiscal Year	Index (Actual Value)	Return%	Estimated Index Point (Trend Value)
2064/065	817	32.57%	761.83
2065/066	657	-19.58	673.6
2066/067	548	-16.59	585.37
2067/068	407.01	-25.73	497.14
2068/069	497.86	22.32	408.91

(Source: Researcher's calculation and NEPSE trading report)

Figure: 4.8
Movement of Insurance Index



From the above table and figure given below it is clear that the insurance index was in decreasing trend till 2067/68 and it started to increase most of the period insurance index has decreasing trend so that the trend line has downward sloping. The highest index point is 817 in F/y 2064/065 and the lowest index point is 407.01 in F/Y 2067/068.

Figure: 4.9
Annual Returns from Insurance Sector

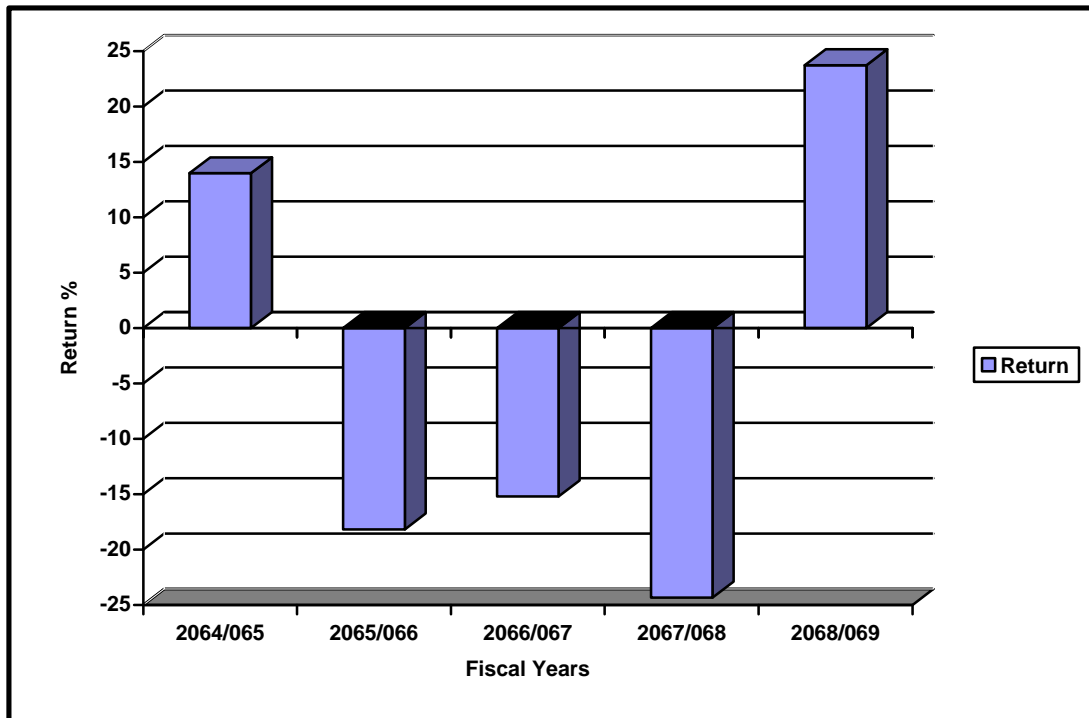


Figure 4.9 indicates the different annual return in different fiscal year of insurance sector most of the period insurance sector has negative annual return which indicates the investors were losing from their investment which can be seen in fiscal year 2065/066, 2066/067 and 2067/068 and in fiscal year 2064/065 and 2068/069 has positive annual return in this period investors were gaining from their investments.

Table: 4.9
Results from Insurance Sector

Expected Return (Er)	-1.4%
Insurance Sector standard Deviation (†)	26.79%
Coefficient of Variation	-19.14

(Source: Annex 2)

Table 4.9 indicates that the expected return from the insurance sector was -1.4% percent with the standard deviation of 26.79%. Similarly coefficient of variation of Insurance sector was found to be -19.14 which indicated that for one unit of return -19.14 risks was taken.

4.1.9.3 Risk and Return Behavior Analysis of Insurance Companies' stocks.

4.1.9.3.1 Premier insurance company

PMR has decreasing trend of MPS and negative return. It has not paying dividend regularly, which can be clearly seen in the following table:

Table: 4.10

Analysis of MPS, Total Dividend, Annual Return, EPS and P/E ratio of PMR

F/y	MPS	DPS	Return	EPS	P/E Ratio	Estimate MPS (Trend Value)
2064/065	300	-	15.39%	16.51	18.17	260.6
2065/066	190	10.53	-33.16%	13.37	14.21	224.9
2066/067	161	8	-12.05%	16.64	9.57	189.2
2067/068	157	-	-2.5%	18.5	8.49	153.5
2068/069	138	0.79	-11.6%	22.45	6.15	117.8

(Source: Annex 3, researcher's calculation and Annual report)

From the table 4.10 it is clear that premier was not paying dividend regularly to its investor during the sampled period. The MPS was highest in F/y 2064/65 i.e. 300 and similarly EPS was F/y 2068/069 i.e. 22.45 P/E ration in F/y 2064/065 i.e. 18.17. From the above analysis it was clearly seen that the performance of the company has been decreased from last four years.

Figure: 4.10
MPS Movement of premier Insurance Company

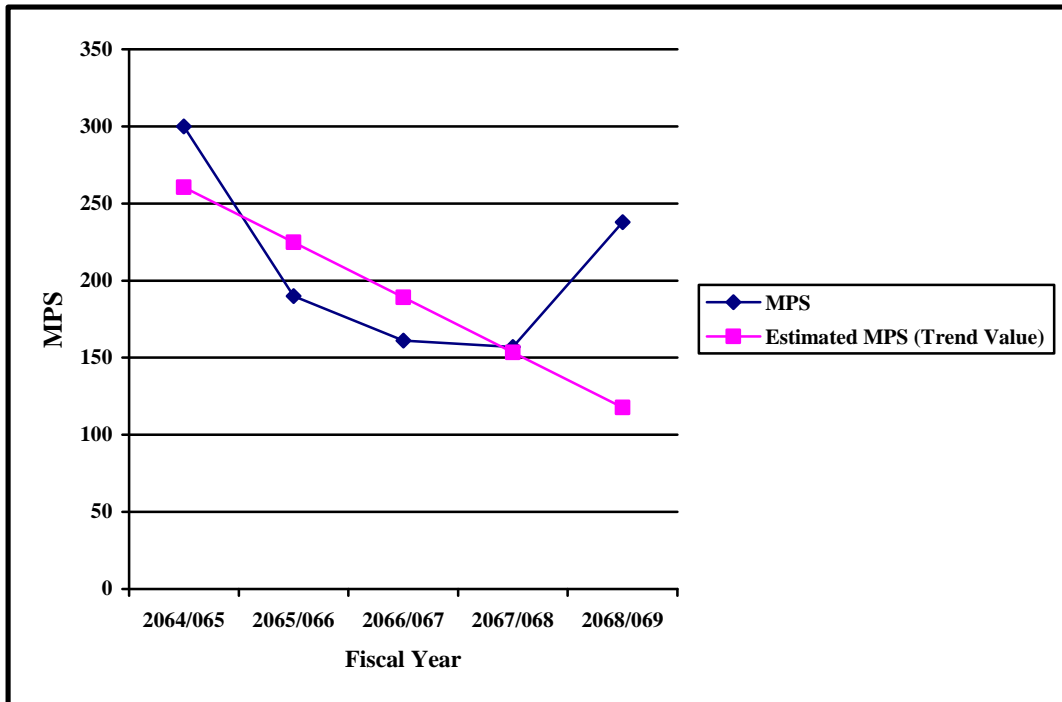


Figure 4.10 shows the movement of market price of common stock of PMR. It shows that MPS was in decreasing trend during the sampled period. It was highest if F/Y 2064/065 i.e. 300 and lowest in F/y 2068/069 i.e. 138. The trend line of PMR is downward sloping which predicts that the price of the company will be decreased on the future also.

Figure: 4.11
Annual Returns of the Premier insurance company

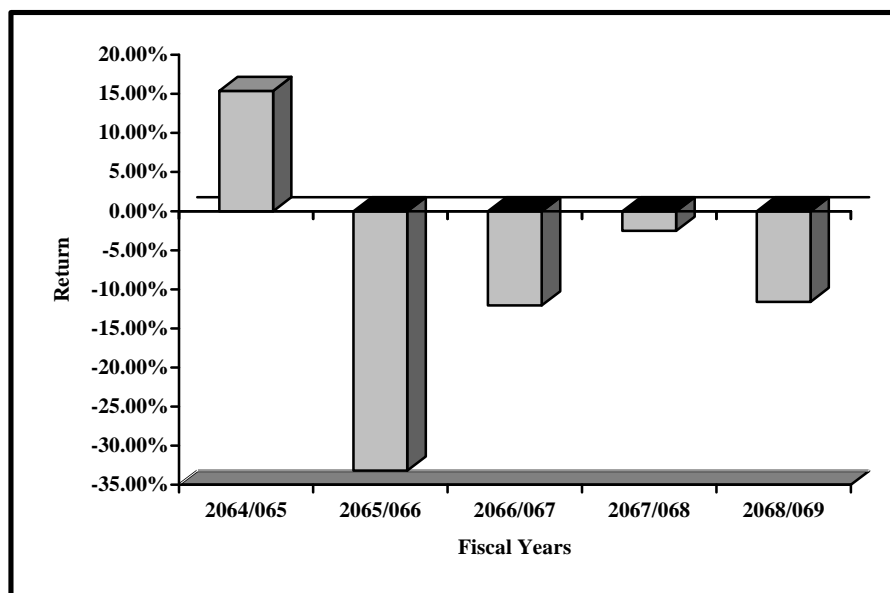


Figure 4.11 shows the return on common stock of PMR. It indicates that the return on

common stock was positive only in F/y 2064/065. This indicates that the return on common stock of PMR is becoming unsuitable for the investor as the level of risk has increased. The return of the company has been decreased each year from last four year due to decreased of market price of share.

Table: 4.11

Analysis of \bar{R} , \uparrow and C.V of PMR

Expected Return (\bar{R})	-8.58%
Standard Deviation (\uparrow)	17.543%
Coefficient of Variance (CV)	-2.045

(Source: Annex 3 and 4)

Table 4.11 show the expected return of PMR was -8.58% for the sampled period, similarly, the standard deviation was 17.543% indicating the variability around the mean. The coefficient of variation was found to be -2.45, which indicate that for per unit return, -2.045 risks must bearded.

Table: 4.12

Tabulation of Various Result of PMR

Correlation coefficient (r)	0.574
Beta Coefficient (S)	0.376
Variance	307.76
Systematic Risk (SR)	10.07%
Unsystematic Risk (USR)	7.47%
Proportion of Systematic Risk	57.4%
Proportion of Unsystematic Risk	42.6%

(Source: Annex 4, 7, 16 and 17)

From table 4.12: We found that the beta coefficient for PMR was 0.376 which is less than 1 that indicates that it is the defensive asset. This also tells that the stock of PMR is less volatile than the industry indicating low level of risk. The correlation coefficient between the industry and PMR is positive that indicates that there is high positive relationship between them. Similarly, systematic risk of PMR was 10.07 and unsystematic risk was 7.47%. Similarly about 57 percent risk was found to by systematic risk which could not be diversified and reaming 43 percent risk was unsystematic risk which could be diversified.

4.1.9.3.2 Sagarmatha Insurance Company

SM has fluctuating trend of MPS during the sampled year and it has paying dividend in fiscal year 2064/65 to 2066/67. It has mix of negative and positive return during the sampled period.

Table: 4.13

Analysis of MPS, Total Dividend, Annual Return, EPS and P/E ratio of Sagarmatha

F/y	MPS	DPS	Return	EPS	P/E Ration	Estimate MPS (Trend Value)
2064/065	306	10.68	39.51%	15.09	20.28	277.2
2065/066	252	10.53	-14.21%	41.8	6.03	290.2
2066/067	311	11.32	27.9%	49.86	6.24	303.2
2067/068	300	0	-3.54%	70.33	4.32	316.2
2068/069	347	0	15.67%	106.39	3.26	329.2

(Source: Annex 3, researcher's calculation and Annual report)

From table 4.13: it is clear that Sagarmatha was paying dividend rarely to its investors during the sampled period. The MPS was highest in F/y 2068/069 i.e. 347 and similarly EPS was also highest during the F/y 2068/069 i.e. 106.39 P/E ratio was highest in F/y 2064/065 i.e. 20.28. The MPS of the company was only decreasing in F/y 2065/066. After that it was continuously in increasing trend till the end of sampled period.

Figure: 4.12

MPS movement of Sagarmatha

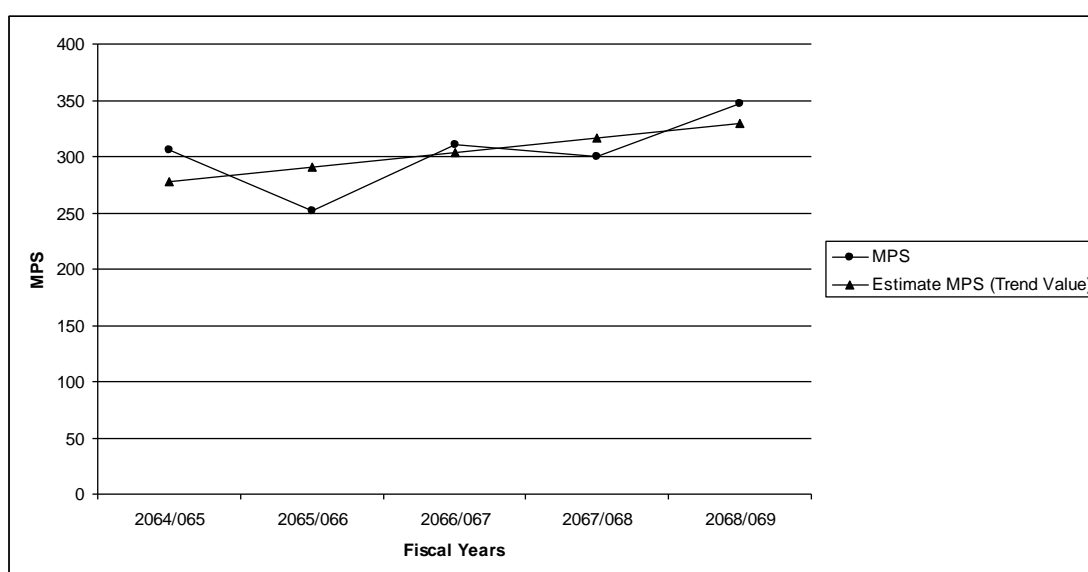


Figure 4.12 show the movement of market price of common stock of Sagarmatha. It shows that MPS was in decreasing trend from year 2064/065 to 2065/066 and after that it was continuously increasing till the end of sampled period.

Figure: 4.13

Annual Returns on Common stock of Sagarmatha.

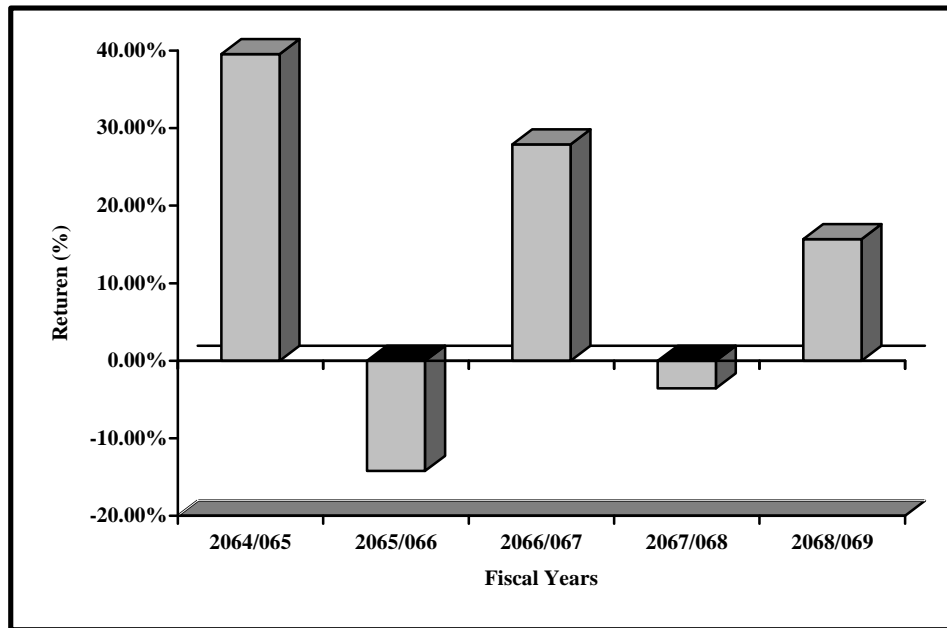


Figure 4.13 shows the return on common stock of Sagarmatha. It indicates that the return on common stock was positive in F/y 2064/065, 2066/067 and 2068/069 and negative in F/y 2065/66 and 2067/68. It indicates that the return on common stock of Sagarmatha is becoming unsuitable for the investor as the level of risk has increased.

Table: 4.14

Analysis of \bar{R} , \uparrow and C.V of Sagarmatha

Expected Return (\bar{R})	13.7%
Standard Deviation (\uparrow)	12.06%
Coefficient of Variance (CV)	1.69

(Source: Annex5)

Table 4.14, Shows that the expected return of SM was 13.07% for the sampled period. Similarly, the standard deviation was 22.06% indicating the variability around the

mean. The coefficient of variance was found to be 1.69 which indicated that for per unit return, 1.69 risks must be borne.

Table: 4.15
Tabulation of Various Result of Sagarmatha.

Correlation coefficient (r)	0.691
Beta Coefficient (β)	0.569
Variance	486.64
Systematic Risk (SR) (As per SD)	15.24%
Unsystematic Risk (USR) (As per SD)	6.82%
Proportion of Systematic Risk (As per SD)	69.08%
Proportion of Unsystematic Risk (As per SD)	30.92%

(Source: Annex 5, 16 and 17)

From table 4.15, it has been found that the beta coefficient for Sagarmatha was 0.569 which is less than 1 that indicates that it is the defensive asset. This tells that the stock of SM is less volatile than the industry indicating low level of risk. The correlation coefficient between the industry and Sagarmatha was positive that indicates that there was positive relationship between them. Similarly, systematic risk of Sagarmatha was 15.24 percent, and unsystematic risk of Sagarmatha was 6.82. Here high systematic risk indicates that the risk is caused by more from external problem than that of internal problem of the company. Similarly about 69.08% of total risk was systematic risk which could not be diversified and remaining 30.92% risk was unsystematic risk which could be diversified.

4.1.9.3.3 National Life Insurance Company (NLI)

NLI has decreasing trend of MPS and negative return during fiscal year 2065/66 to 2067/68. It has not paying dividend during the fiscal year 2064/65 and 2065/66 after that it has paying dividend regularly.

Table: 4.16

Analysis of MPS, Total Dividend, Annual Return, EPS and P/E ratio of NLI

Fiscal Year	MPS	Total Dividend Per Share	Return	EPS	P/E ratio	Estimated MPS(trend value)
2064/065	900	-	25%	33	27.27	770.6
2065/066	598	-	-33.56%	18.15	32.94	670
2066/067	486	21.05	-15.21%	10.64	45.24	569.4
2067/068	334	30	-25.1%	36.33	9.19	468.8
2068/069	529	26	66.17%	24.02	22.03	368.2

(Source: Annex 4, researcher's calculation and Annual report)

From the above table, it is clear that NLI was not paying dividend in F/y 2064/065 and F/y 2065/066 after that NLI was paying dividend regularly to its investor. The MPS was maximum in F/y 2064/065 i.e. 900 and similarly EPS was highest during the F/y 2067/068 i.e. 36.33. The P/E ratio was highest in F/y 2066/067 i.e. 45.24.

Figure: 4.14

MPS Movement of NLI

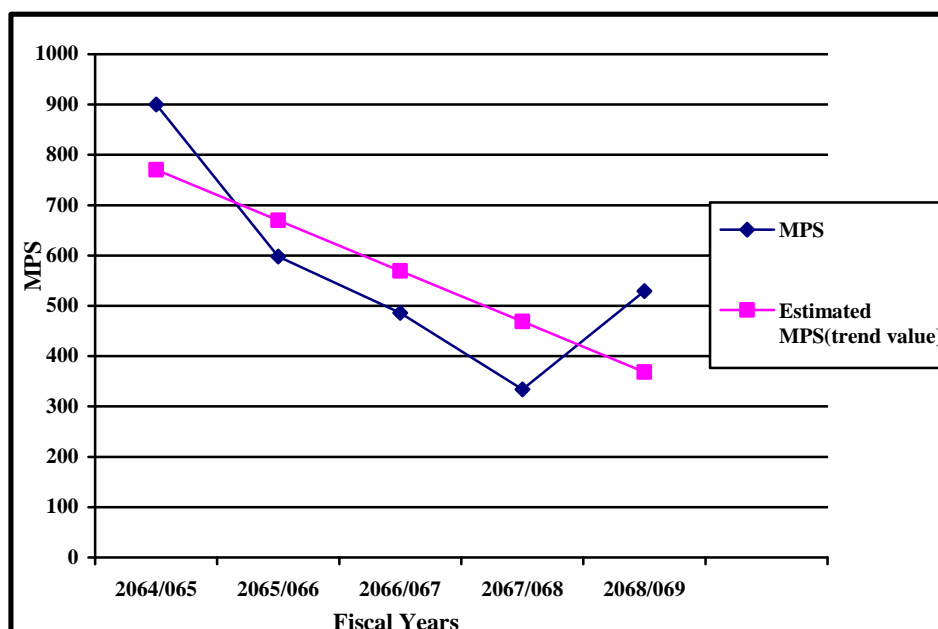


Figure 4.14 shows the movement of market price of common stock of NLI. It shows that MPS was in decreasing trend from year 2064/65 to 2067/068 after that it started to increase.

Figure: 4.15

Annual Returns on Common Stock of NLI

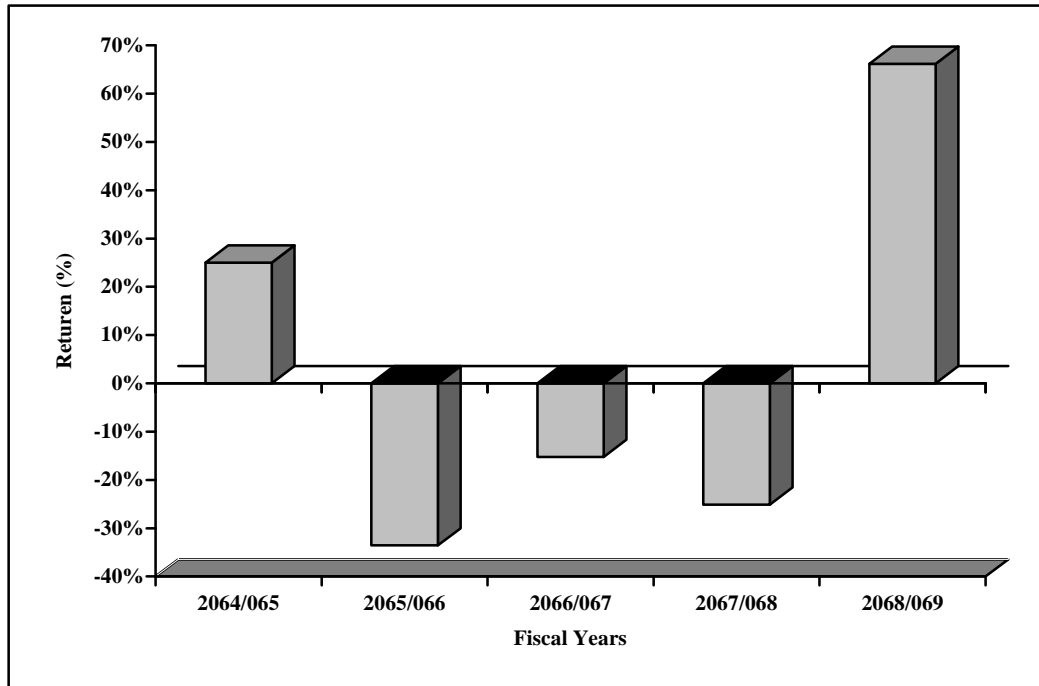


Figure 4.15 shows the return on Common stock return of NLI. It indicates that the return on common stock was positive during F/y 2064/065 and 2068/069. Butt was negative during F/y 3065/066, 2066/067 and 2067/068. This indicates that the return on common stock of NLI was becoming unsuitable for the investor as the level of risk has increased.

Table: 4.17

Analysis of \bar{R} , \dagger and C.V of NLI

Expected Return (\bar{R})	3.48%
Standard Deviation (\dagger)	41.75%
Coefficient of Variance (CV)	12.7

(Source: Annex 6)

Table 4.17, shows that the expected return of NLI was 3.48% during the sample period. Similarly, the standard deviation was 41.75% indicating the variability around the mean. The coefficient of variance was found to be 12.7 indicated that for per unit return, 12.7% risks must bear.

Table: 4.18
Tabulation of Various Result of NLI

Correlation coefficient (r)	0.867
Beta Coefficient (S)	1.35
Variance	1743.06
Systematic Risk (SR) (As per SD)	36.197%
Unsystematic Risk (USR) (As per SD)	5.553%
Proportion of Systematic Risk (As per SD)	86.7%
Proportion of Unsystematic Risk (As per SD)	13.3%

(Source: Annex 8, 16 and 17)

From table 4.18, it has been found that the beta coefficient for NLI was 1.35 which was greater than 1 that indicates it was the aggressive assets. This tells that the stock of NLI was more volatile than the industry indicating high level of risk. The correlation coefficient between the industry and NLI was positive that indicates that there was positive relationship between them.

Similarly, systematic risk of NLI was 36.197 % and unsystematic risk of NLI was 5.553%. Similarly about 13% of total risk was systematic risk which could not be diversified and remaining. 13% risk was unsystematic risk which could be diversified.

4.1.9.3.4 Nepal Insurance Company

NIC has decreasing trend of MPS during the sampled period and mostly negative return. It has paying dividend only in fiscal year 2067/68 and 2068/69.

Table: 4.19

Analysis of MPS, Total Dividend, Annual Return, EPS and P/E ratio of NIC

Fiscal Year	MPS	Total Dividend Per Share	Return	EPS	P/E ratio	Estimated MPS(trend value)
2064/065	429	-	10%	0.67	640.3	465.4
2065/066	367	-	-14.45%	46.27	7.93	388.3
2066/067	360	-	-1.907%	37.53	9.59	341.2
2067/068	346	7.34	2.047%	10.2	33.92	294.1
2068/069	204	22.52	-34.53%	39	5.23	247

(Source: Annex 4, researcher's calculation and Annual report)

From table 4.19, it is clear that NIC was paying dividend to its investor rarely than other companies during the sample period. The MPS was maximum in F/y 2064/065 429 and similarly EPS was highest during the year 2065/066 i.e. 46.27 during the sample period.

Figure: 4.16

MPS movement of NIC

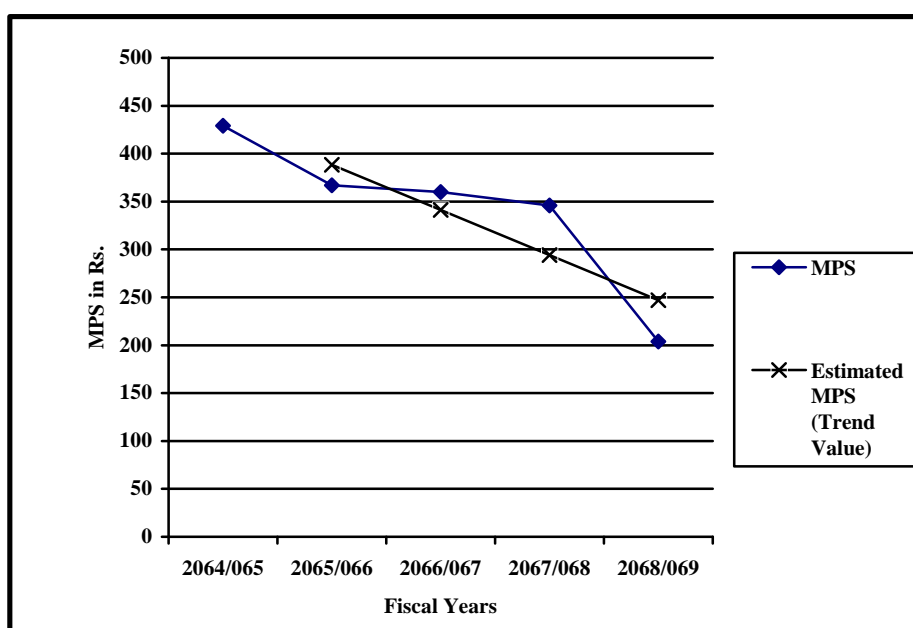


Figure 4.16 shows the movement of market price of common stock of NIC. It shows that MPS was in fluctuating trend. The company's price is decreasing on the recent years which show the dislikable interest of investor to invest on the share of NIC. The trend line was also downward sloping indicates that the estimated MPS will be decreased on the coming future also.

Figure: 4.17

Returns on Common Stock of NIC

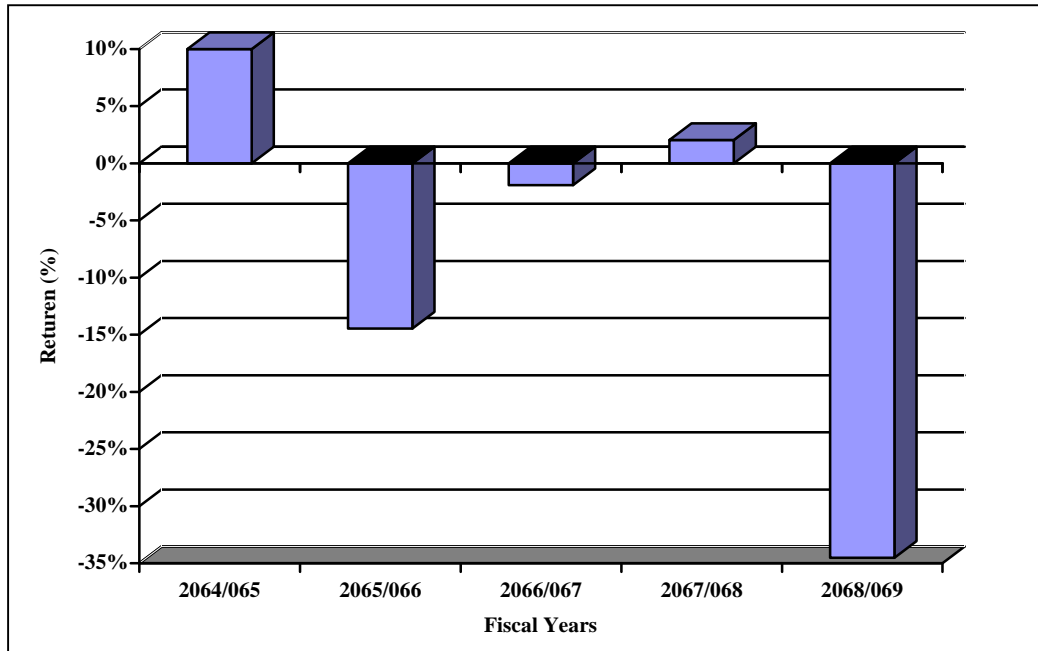


Figure 4.17 shows the return on common stock return of NIC. It indicates that the return on common stock was fluctuating trend and it was lost for most of the time. Indicate that the return on common stock of NIC is becoming unsuitable for the investor as the level of risk has increased.

Table: 4.20

Analysis of \bar{R} , \uparrow and C.V of NIC

Mean	-8.525%
Standard Dev.	16.42%
VAR	286.286
CV	-2

(Source: Annex 6)

Table 4.20, shows that expected return of NIC was -8.525 percent during the sampled period. Similarly, the standard deviation was 16.42 percent indicating the variability around the mean. The coefficient of variance was found to be -2 indicated that for per unit return, -1.61 risks must bear.

Table: 4.21
Tabulation of Various Result of NIC

Correlation coefficient (r)	0.594
Beta Coefficient (S)	0.375
Variance	286.286
Systematic Risk (SR) (As per SD)	10.5%
Unsystematic Risk (USR) (As per SD)	6.87%
Proportion of Systematic Risk (As per SD)	62.06%
Proportion of Unsystematic Risk (As per SD)	37.94%

(Source: Annex 9, 16 and 17)

From table 4.21, it has been found that the beta coefficient for NIC was 0.375, which is less than 1 that indicates that it is the defensive asset. This tells that the stock of NIC was less volatile than the industry indicating low level of risk. The correlation, coefficient between the industry and NLI was positive that indicates that there is positive relationship between them. Similarly, systematic risk of NLI was 10.5 percent unsystematic risk of NLI was 3.37 percent. Similarly about 62 percent of total risk was systematic risk which could not be diversified and remaining 38 percent risk was unsystematic risk which could be diversified.

4.1.9.3.5 Nepal Life Insurance Company

NLIC has decreasing trend of MPS during the fiscal year 2064/65 to 2067/68. It has paying dividend only in the fiscal year 2068/69.

Table: 4.22
Analysis of MPS, total dividend, annual return, and EPS and P/E ratio of NLIC

Fiscal Year	MPS	Total Dividend Per Share	Return	EPS	P/E ratio	Estimated MPS(trend value)
2064/065	1854	-	142.04%	1.68	1103.57	1552.6
2065/066	1108	-	-40.24%	2.68	414.98	1284.6
2066/067	770	-	-30.51%	1.68	458.33	1016.6
2067/068	566	-	-26.49%	1.5	377.33	784.6
2068/069	785	126.32	61.01%	166.85	4.7	480.6

(Source: Annex 4, researcher's calculation and Annual report)

From table 4.22, it is clear that NLIC was not paying dividend from F/y 2064/065 to 2067/068 to its investor. NLIC was paying dividend only in F/y 2068/069 i.e. 126.32. The MPS was maximum in F/y 2064/065 i.e. 1854 and similarly EPS was highest during the year 2068/069 i.e. 166.85. The P/E ratio was high in F/y 2064/065.

Figure: 4.18
MPS Movement of NLIC

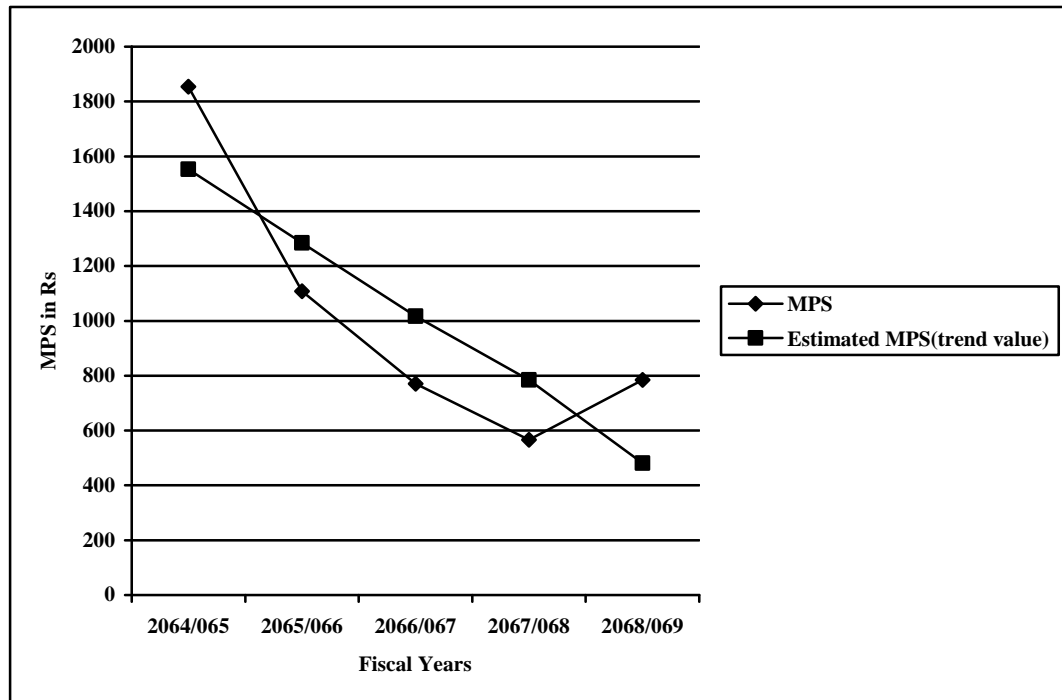


Figure 4.18, shows the movement of market price of common stock of NLIC. It shows that MPS was in decreasing trend from F/y 2064/065 to 2067/068 and it was started to increase after that. This decreasing trend shows the dislikable interest of investor to invest on the share of NLIC. The market price was higher on F/y 2064/065 i.e. 1854.

Figure: 4.19
Annual Returns on Common Stock of NLIC

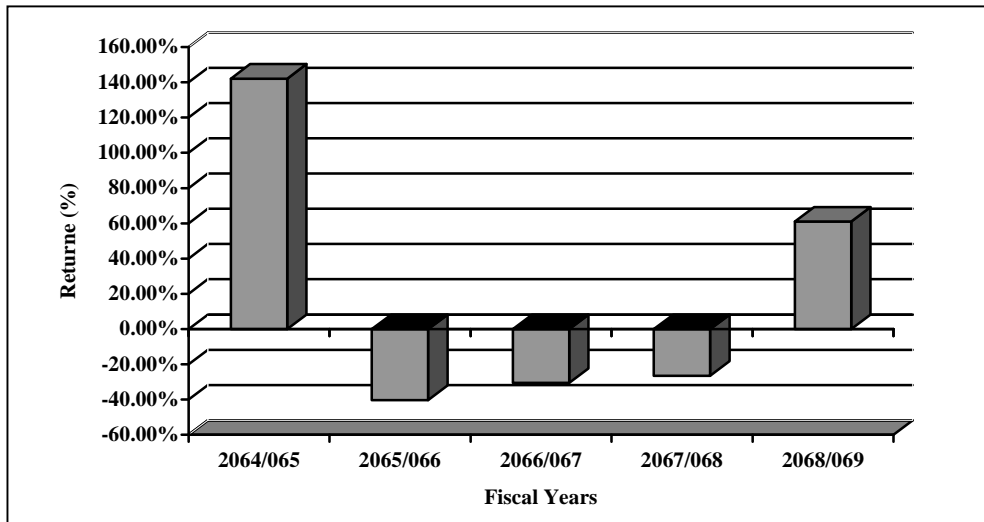


Figure 4.19 shows the return on common stock of NLIC. It indicates that the return on common stock was positive in F/y 2064/065 and F/y 2068/069 and NLIC has negative common stock return during F/y 2065/066 to 2067/068. This indicates that the return on common stock of NLIC was becoming unsuitable for the investor as the level of risk has increased.

Table: 4.23
Analysis of \bar{R} , \uparrow and C.V of NLIC

Mean	21.16%
Standard Dev.	78.91%
VAR	6226.79
CV	3.729

(Source: Annex 7)

Table 4.23, shows that the expected return of NLIC was 21.16 percent during the sampled period. Similarly, the standard deviation was 78.91 percent indicating the variability around the mean. The coefficient of variance was found to be 3.729 indicated that for per unit return, 3.729 risks must bear.

Table: 4.24

Tabulation of Various Result of NLIC

Correlation coefficient (r)	0.96
Beta Coefficient (S)	2.83
Variance	6226.79
Systematic Risk (SR) (As per SD)	75.75%
Unsystematic Risk (USR) (As per SD)	3.16%
Proportion of Systematic Risk (As per SD)	96%
Proportion of Unsystematic Risk (As per SD)	4%

(Source: Annex 9, 16 and 17)

From table 4.24, it has been found that the beta coefficient for NLIC was 2.98% which was greater than 1 that indicates that it was the aggressive asset. This tells that the stock of NLIC was less volatile than the industry indicating high level of risk. The correlation coefficient between the industry and NLIC was positive that indicates that there was positive relationship between them. Similarly, systematic risk of NLIC was 75.75% unsystematic risk of NLIC was 3.16%. Similarly about 96% of total risk was systematic risk which could not be diversified and remaining 4 % risk is unsystematic risk which could be diversified.

4.1.9.4 Comparative analysis of Sample Insurance companies

Different comparative analysis is made through Expected Return, Standard Deviation, C.V., Market Sensitivity (Beta Coefficient). This clarifies the state and nature of the selected company's stock.

4.1.9.4.1 Comparison based on expected return, standard deviation and CV

The comparison of sample insurance companies with expected return, standard deviation and coefficient of variation is provided below.

Table: 4.25

Comparison Based on Expected Return, Standard Deviation and Coefficient of Variation

Insurance companies	Expected Return	SD	C.V.	Remarks
PMR	- 8.58%	17.543	-2.045	Negative return high risk
SM	13.07%	22.06%	1.69	High return moderate risk
NLI	3.48%	40.32%	11.59	Low return high risk
NIC	-8.525%	16.92%	-2	Negative return high risk
NLIC	21.16%	78.91%	3.729	High return high risk

(Source: Annex 3, 4, 5, 6 and 7)

Table 4.25 shows that expected return of NLIC and SM was found to be higher than other sample Insurance companies and similarly the return of PMR and NIC was lowest. Similarly the risk based on the standard deviation was highest for NLIC and NLL The coefficient of variation that indicates the risk per unit return was found to be high for NLI and was low for PMR. From above table, it is also clear that there was almost positive relationship between risk and return which indicated that as risk increases, return also increases except PMR and NIC.

4.1.9.4.2 Comparison Based on Market Sensitivity

Market sensitive of common stock is explained by the beta coefficient which indicates the amount of systematic or non diversifiable risk. It indicates the responsiveness of stock in comparison to overall industry. If the beta coefficient is less than 1 then the stock is defensive whereas if it is more than 1 the stock is aggressive.

Table: 4.26

Beta Coefficient of Sampled Insurance Companies

Insurance Companies	Beta coefficient	Types of stock
PMR	0.376	Defensive
SM	0.569	Defensive
NLI	1.35	Aggressive
NIC	0.375	Defensive
NLIC	2.83	Aggressive

(Source: Annex 7, 8, and 9)

Table 4.26 compares the beta coefficient of sampled insurance companies. It shows that beta coefficient of PMR, SM and NIC was less than 1 which indicates they had defensive stock. Similarly, the beta coefficient of NLIC was greater than 1 which aggressive stocks.

4.1.9.4.3 Comparison Based on Systematic and Unsystematic Risk

The total risk associated -with individual stock is the sum of systematic and unsystematic risk Systematic risk is the variability on return caused by market factor. It is caused by macro economic factors like interest rate, inflation, GDP etc as well as natural disaster. It cannot be diversify so also known as un-diversifiable risk. Similarly unsystematic risk is the variability on return caused by factors like management error, unavailability of raw materials, labor strike; advertising campaigns etc. This type of risk can be diversified so also known as diversifiable risk.

Table: 4.27

Proportion of Systematic and Unsystematic Risk

Insurance Companies	System Risk (As per S.D)	Unsystematic Risk (As per S.D)
PMR	57.4%	42.6%
SM	69.08%	30.92%
NLI	86.7%	13.3%
NIC	62.06%	37.94%
NLIC	96%	4%

(Source: Annex 17)

From the above table the highest proportion of systematic risk found in NLIC and lowest in PMR and the highest unsystematic risk found in PMR and lowest in NLIC.

This can be presented in the following figure:

Figure: 4.20
Proportion of Systematic and Unsystematic Risk of Sampled Insurance Companies.

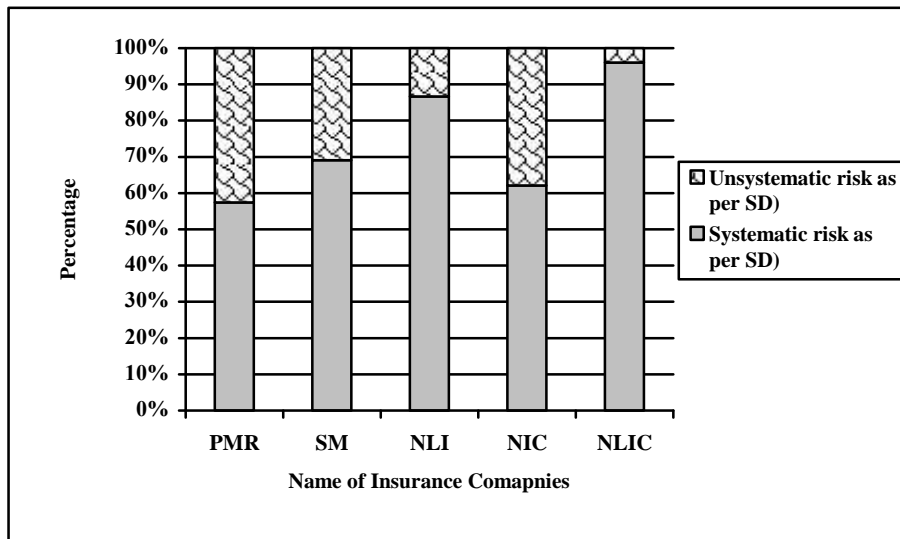


Figure 4.20 shows the proportion of systematic risk & unsystematic risk of sampled insurance companies. From the above figure it was found that all the sampled insurance had relatively higher systematic risk that indicates stock of sampled companies were more sensitive to market because their risk was not diversifiable.

4.1.9.5 Analysis of Common Stock's Price:

When we compare required rate of return with expected rate of return we know that whether the common stock price of asset is overvalued or undervalued. For this purpose we need to calculate required rate of return of common stock using the following formula.

$$\text{Required Rate of Return } \textcircled{R} = R_f + (R_m + (R_m - R_f) * S_j$$

Where, R_f = Risk free rate

R_m = Average return of Insurance sector for sampled period

S_j = Beta Coefficient of Stock j

In the above formula we have taken risk free rate of T-bills of NRB for period of 365 days. According to F/y 2068/069 the risk free rate was about 7 percent. The comparison of expected return with required rate of return is given on the following table:

Table: 4.28**Comparison of Expected Rate of Return and Required Rate of Return**

Insurance companies	Beta Coefficient	Required rate of Return	Expected rate of return	Remarks
PMR	0.376	3.842%	-8.58%	Better to sell (over priced)
SM	0.569	2.22%	13.07%	Better to Buy (under priced)
NLI	1.35	4.34%	3.48%	Better to sell (over priced)
NIC	0.375	3.85%	-8.525%	Better to sell (over priced)
NLIC	2.83	16.772%	21.16%	Better to Buy (under priced)

(Source: Annex 18)

Table 4.28 shows the analysis of common stock price of sampled Insurance Companies. Here we have used average return of insurance Sector (Rm) during the sampled period to be -1.4 percent. From the table, it is clear that the stock price of SM, and NLIC was under priced as the required rate of return is less than expected rate of return. The under priced situation of each of the sampled insurance companies show that there is great opportunity to invest on common stock of each of the insurance companies. A wise and rational investor can gain from investing in this under priced stock. But remaining Companies Stocks were Overpriced indicating that the required rate of return is higher than expected return at that situation by selling stock at current is profitable than holding it.

4.1.9.6 Analysis based on Covariance

It is a statistical measure of relationship between two variables. That it is a measure of how two variables such as return on securities i and j move together. A positive covariance indicates that the securities returns tend to move in the same direction. A negative covariance indicates a tendency for the returns to offset one another for example, a better than expected return for one security is likely to occur along with a worse than expected return for the other. A relatively small or zero covariance indicates that there is little or no relationship between the returns for two securities. The covariance of the sampled insurance companies with each other has been presence on the following Variance and Co-variance matrix.

Table: 4.29
Variance - Covariance Matrix

	PMR	SM	NLI	NIC	NLIC
PMR	307.76	289.69	277.1	132	1031.07
SM	289.69	486.64	485.124	175.11	1250.18
NLI	277.1	485.124	1743.063	409.5	2336.16
NIC	132	175.11	409.51	286.286	741.3
NLIC	1031.07	1250.18	1264.7	741.3	6226.79

(Source: Annex 15)

From the above variance co-variance matrix it is clear that every insurance company had positive covariance to another insurance company. It mans stocks of these companies was moved on the same direction.

4.1.9.7 Analysis Based on Correlation Coefficient.

Dividing the covariance by the product of the standard deviation of the variables will generate a pure number called correlation. It lies between +1 to -1.High positive co-relation indicates that variables are moved on the same direction and negative co-relation indicates they are moved on the opposite direction. Those investors who want to minimize risk want to hold the portfolio of securities having negative correlation. The correlation coefficient of sampled insurance companies with each other has been providing on the following co relation matrix.

Table: 4.30
Correlation Matrix

	PMR	SM	NLI	NIC	NLIC
PMR	1	0.75	0.378	0.445	0.74
SM	0.75	1	0.527	0.469	0.72
NLI	0.378	0.527	1	0.58	0.384
NIC	0.445	0.469	0.58	1	0.555
NLIC	0.74	0.72	0.384	0.555	1

(Source: Annex 15)

From the above matrix it has been clear that all the correlation coefficient between PMR and SM was highly positive, there was very high risk on the investment of the portfolio of PMR and SM. Likewise, the correlation of between PMR and NLI was low, it so there was low risk on the investment of the portfolio of PMR and NLI then others securities.

4.1.9.8 Minimum Risk Portfolio Analysis

A portfolio is simply a group or collection of securities. A large number of portfolios can be formed from the sampled five insurance companies. Each portfolio has its own risk-return characteristics. Since there are five companies, so possible number of combination if we choose two assets for creating the portfolio are 10. But however, this research have crated three portfolios; first using two assets of PMR and SM, and second using SM and NLIC, and third using NLI and NLIC. Similarly the research also have created 2 portfolio of three assets; first using SM, NLI, NLIC and second NIC, NLI and NLIC with assuming different levels of weight.

Table: 4.31
Portfolio Risk and Return using Different Weight of PMR and SM

Weight of PMR	Weight of SM	Portfolio Variance	Portfolio STD	Portfolio Return	CV _p
1	0	307.76	17.543%	-8.58%	-2.04
0.75	0.25	312.16	17.67%	-3.168%	-5.58
0.5	0.5	343.445	18.53%	2.245%	8.25
0.25	0.75	401.6	20.04%	7.66%	2.62
0	1	486.64	22.06%	13.07%	1.69

(Source: Annex 19)

Table 4.31 shows the different combination of weights of PMR and SM resulting in different portfolio return with portfolio standard deviation. The above table indicates that maximum portfolio return was achieved when the weight of PMR was 0 and the weight of SM was i.e.13.07%. This was also high when the weight of PMR was 0 and SM was 1.

Table: 4.32

Portfolio Risk and Return using Different Weight of NLIC & SM

Weight of SM	Weight of NLIC	Portfolio Variance	Portfolio STD	Portfolio Return	CVp
1	0	486.44	22.06%	13.07%	1.69
0.75	0.25	1131.31	33.64%	15.09%	2.23
0.5	0.5	2303.45	48%	17.12%	2.8
0.25	0.75	4001.8	63.26%	19.14%	3.31
0	1	6226.79	78.91%	21.16%	3.37

(Source: Annex 19)

Table 4.32 shows the different combination of weights of SM and NLIC resulting in different portfolio return with portfolio with standard deviation. The above table indicates that maximum portfolio return was achieved when the weight of NLIC was 1 and the weight of SM was 0, i.e. 21.16 percent with the level of maximum risk 78.91 percent and lowest when the weight of SM was 1 return is 13.07 percent with standard deviation 22.06 percent.

Table: 4.33

Portfolio, Risk and Return using Different Weight of NLIC & NLI

Weight of NLIC	Weight of NLI	Portfolio Variance	Portfolio STD	Portfolio Return	CVp
1	0	6226.79	78.91%	21.16%	3.73
0.75	0.25	4085.76	63.92%	16.74%	3.82
0.5	0.5	2624.81	51.23%	12.32%	4.16
0.25	0.75	1843.90	42.94%	7.9%	5.44
0	1	1743.06	41.75%	3.48%	12

(Source: Annex 19)

Table 4.33 shows the different combination of weights of NLI and NLIC resulting in different portfolio return with portfolio standard deviation. The above table indicates that maximum portfolio return was achieved when the weight of NLIC was 1 and the weight of NLI was 0 i.e. 21.16 percent with the level of maximum risk 78.91 percent

and was lowest when the weight of NLIC was 0 and return is 3.48 percent with standard deviation 41.75 percent.

Table: 4.34

Portfolio Risk and Return under Different Weight of SM, NLI and NLIC

Weight of SM	Weight of NLIC	Weight of NLI	Portfolio Variance	Portfolio STD	Portfolio Return	CVP
0.3	0.3	0.4	1528.08	39.09%	11.66%	3.35
0.4	0.3	0.3	1439.27	37.93%	12.62%	3.01
0.3	0.4	0.3	1887.85	43.44%	13.43%	3.23
0.25	0.25	0.5	1449.08	38.06%	10.3%	3.7
0.5	0.25	0.25	1211.68	34.81%	12.7%	2.73
0.25	0.5	0.25	2385.41	48.84%	14.72%	3.32

(Source: Annex 20)

Table 4.34 shows the different combination of weights of SM, NLI and NLIC resulting in different portfolio return with portfolio standard deviation. The above table indicates that maximum portfolio return was achieved when the weight of SM, NLIC and NLI was 0.25, 0.5 and 0.25 respectively i.e. 14.72 percent with portfolio standard deviation of 48.84 percent. The minimum return was when weight of SM, NLIC and NLI was 0.25, 0.25 and 0.5 respectively i.e. 10.3 percent and with standard deviation of 38.06 percent.

Table: 4.35

Portfolio Risk and Return under Different Weight of NIC, NLI and NLIC

Weight of NIC	Weight of NLIC	Weight of NLI	Portfolio Variance	Portfolio STD	Portfolio Return	CVP
0.3	0.3	0.4	1400.31	37.42%	5.18%	7.18
0.4	0.3	0.3	1269.93	35.59%	4.09%	8.7
0.3	0.4	0.3	1734.07	41.64%	6.95%	5.99
0.25	0.25	0.5	1354.05	36.79%	4.9%	7.51
0.5	0.25	0.25	1015.48	31.87%	1.9%	16.77
0.25	0.5	0.25	2236.12	47.29%	9.32%	8.07

(Source: Annex 20)

Table 4.35 shows the different combination of weights of NIC, NLI and NLIC resulting in different portfolio return with portfolio standard deviation. The above table indicates that maximum portfolio return was achieved when the weight of NIC, NLIC and NLI was 0.25, 0.5 and 0.25 respectively i.e. 9.32 percent with portfolio standard deviation of 47.29 percent. The minimum return was when weight of NIC, NLIC and NLI was 0.5, 0.25 and 0.5 respectively i.e. 1.9 percent and with standard deviation of 31.87 percent.

Table: 4.36

**Portfolio Risk and Return by Investment Made Equally on the each
Companies Stock**

Weight	1	0.2	0.2	.02	0.2	0.2
		PMR	SM	NLI	NIC	NLIC
0.2	PMR	12.13%	11.588%	11.084%	5.28%	41.243%
0.2	SM	11.588%	19.466%	19.405%	7.004%	50.007%
0.2	NLI	11.084%	19.405%	69.723%	16.380%	50.588%
0.2	NIC	5.28%	7.004%	16.38%	11.451%	29.652%
0.2	NLIC	41.234%	50.007%	50.588%	29.562%	249.72%
1		81.505	107.47%	167.18%	66.767%	420.562%

Portfolio variance	843.485
Portfolio SD	29.043%
Portfolio Return	4.12%

(Source: Researcher's Calculation)

Above table clearly shows that when we made equally investment on the each company's common stock i.e. 20 percent on each stock, then, we from the above bordered covariance matrix clearly see that got portfolio return 4.12 percent with portfolio standard deviation of 29.043% percent.

Table: 4.37

Efficient Frontier with the Purpose of Minimizing Risk to get target Return

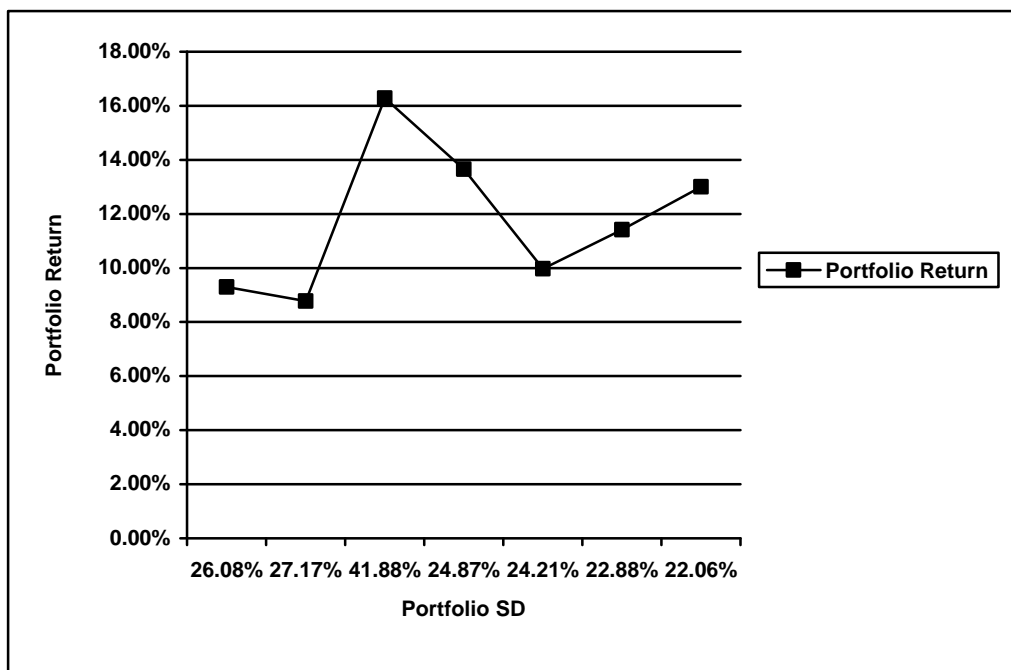
Return Port.	Target	Optimal Result				
	Risk Port.(SD)	PMR	SM	NIC	NLI	NLIC
9.3%	26.076%		60.70%		39.30%	
8.774%	27.167%		55.20%		44.80%	
16.277%	41.88%		60.36%			39.64%
13.652%	24.87%		92.80%			7.20%
9.976%	24.21%		71.75%		28.24%	
11.42%	22.88%		82.80%		17.20%	
13%	22.0606%		99.38%		0.06%	

(Source: Researcher's Calculation)

On the above table the return as well as the risk associates with return has been shown. The main objectives of our is minimize risk with the achievement of target highest return .That is by bearing minimum risk 26.076 percent risk, we got the return 9.3 percent, i.e. highest return on that risk. For that we should invest 60.70 percent on the common stock of SM and remaining 30.3 percent on the common stock of NLI and so on. This result can further clearly shown on the following efficient frontier.

Figure: 4.21

Figure of Efficient Frontier of the Portfolio Investment of the Selected Insurance Companies



In the above figure the dotted lines represents the efficient frontier. The dotted lines indicate that we get that level of highest return by bearing same level of risk. The area outside the dotted area represents the unattainable set and below is attainable set. But the highest return with given level of risk is attained on the efficient frontier.

The optimal weight portfolio (minimum risk portfolio)

$$w_a = \frac{\sigma_b^2 \text{Cov}(a,b)}{\sigma_a^2 \sigma_b^2 + \text{Cov}(a,b)^2}$$

$$w_b = 1 - w_a$$

Where, w_a = Optimal weight to invest in assets a,

w_b = Covariance between return of asset a and asset b.

Table: 4.38

Investment Proportion at Optimal Point of PMR and SM

Weight of PMR	Weight of SM	VAR	Std	Portfolio Return
0.91596	0.08404	306.24	17.5%	-6.76%

(Source: Annex 21)

Table 4.38 shows that weights of investment was 0.91596 in PMR and was 0.08404 in SM at the optimal point yielding portfolio return of -6.76% and portfolio standard deviation of 17.5% percent.

Table: 4.39

Investment Proportion at Optimal Point of SM and NLIC

Weight of SM	Weight of NLIC	Portfolio Variance	Portfolio STD	Portfolio Return
1.18123	-0.18123	348.26	18.66%	11.66%

(Source: Annex 21)

Table 4.39 shows that weights of investment was 1.18123 in SM and was -0.18123 in NLIC at the optimal point yielding portfolio return of 11.66% percent and portfolio standard deviation of 18.66 percent.

Table: 4.40
Investment Proportion at Optimal Point of NLI and NLIC

Weight of NLI	Weight of NLIC	Portfolio Variance	Portfolio SD	Portfolio Return
0.912	0.088	1701	41.243%	5.036%

(Source: Annex 21)

Table 4.40 shows that weights of investment was 0.912 in NLI and was 0.088 in NLIC at the optimal point yielding portfolio return of 5.036% percent and portfolio standard deviation of 41.243 percent.

4.2 Major Findings of the Study

-) The rate of return for PMR, SM, NLI, NIC, and NLIC was -8.58 percent, 13.07 percent, 3.48 percent, -8.525 percent and 21.16 percent respectively. It was highest of NLIC and lowest of PMR,
-) The standard deviation for PMR, SM, NLI, NIC and NLIC was 17.543 percent, 22.06 percent, 41.75 percent, 16.92 percent, and 78.91 percent respectively. It was also highest of NLIC and lowest of NIC.
-) The coefficient of variance for PMR, SM, NLI, NIC and NLIC were - 2.045, 1.69, 12, -1.985 and 3.729 respectively. The coefficient of variance was maximum of NLI and lowest of PMR.
-) The correlation coefficient with insurance market for PMR, SM, NLI, NIC, and NLIC were 0.574, 0.091, 0.867, 0.594 and 0.96 respectively. Here the stock of all was positively correlated with insurance market.
-) The Correlation coefficient between PMR and SM, PMR and NLI, PMR and NIC, PMR and NLIC, SM and NLI, SM and NIC, SM and NLIC, NLI and NIC, NLI and NLIC, NIC and NLIC were 0.75, 0.378, 0.445, 0.74, 0.527, 0.469, 0.72, 0.58, 0.384 and 0.555. The highly positive correlation was found between PMR & SM and low between PMR and NLI.
-) The proportion of systematic risk for PMR, SM, NLI, NIC and NLIC was 57.4 percent, 69.08 percent, and 86.7 percent, 62.06 percent and 96 percent respectively. It was highest for NLIC and lowest of PMR.

- J The higher proportion of unsystematic risk for PMR, SM, NLI, NIC and NLIC was 42.6 percent, 30.92 percent, 13.3percent, 37.94 percent and 4 percent respectively. It was highest of PMR and lowest for NLIC.
- J The beta coefficient for PMR, SM, NLI, NIC and NLIC was 0.376, 0.569, 1.35, 0.375 and 2.86, indicating except NLI and NLIC stocks others companies stocks were defensive means less volatile with market movement.
- J The types of stock for SM and NLIC under the CAPM method were underpriced and stock of PMR, NLI and NIC were overpriced.
- J In the portfolio of PMR and SM the maximum portfolio return was achieved when the weight of PMR was 0 and the weight of SM was 1. i.e. 13.07% and at that investment level Risk was also high i.e. 22.06% . Risk and Return both were lowest at the investment level 1 in PMR and 0 in SM i.e. return -8.58% and S.D 17.543%.
- J In the portfolio of NLIC and SM maximum portfolio return was achieved when the weight of NLIC was 1 and the weight of SM was 0 i.e. 21.16 percent with the maximum risk 78.91 percent and was lowest when the weight of SM was 1 and NLIC was 0 i.e. return was 13.07 percent with standard deviation 22.06 percent.
- J In the portfolio of NLIC and NLI maximum portfolio return was achieved when the weight of NLIC was 1 and NLI was 0 i.e. 21.16 percent with the level of maximum risk 78.91 percent and was lowest when the weight of NLIC is 0 and NLI was 1 i.e. return was 3.48 percent with standard deviation 41.75 percent.
- J In the portfolio of SM, NLIC and NLI maximum portfolio return was achieved when the weight of SM, NLIC and NLI was 0.25, 0.5 and 0.25 respectively i.e. 14.72 percent with standard deviation of 48.84 percent and at the investment level 0.5 in SM, 0.25 in NLIC and 0.25 in NLI risk was minimum i.e. 34.81 percent at which C.V was lowest with return 12.7%.
- J In the portfolio of NIC, NLIC and NLI maximum portfolio return was achieved when the weight of NIC, NLIC and NLI was 0.25, 0.5 and 0.25 respectively i.e. 9.32 percent with portfolio standard deviation of 47.79 percent. The return was minimum when the weight of NIC, NLIC and NLI was 0.5, 0.25 and 0.25 respectively i.e. 1.9 percent and with standard deviation of 47.29 percent.
- J In the portfolio of equally weighted assets of all insurance companies, the expected return was found to be 4.121 percent with standard deviation of 29.043 percent.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

The relationship between risk and return is described by investor's perceptions about risk and their demand for compensation. No investor would like to invest in risky assets unless s/he assured of adequate compensation for the acceptance of risk. Hence risk plays a central role in the analysis of investment taking decision. For proper investment decision process, analysis of securities, identification of overpriced and under priced of securities, making appropriate investment strategies and making efficient portfolio is necessary.

Risk, return and time are the elements of investment. It is the investor required risk premium that established a link between risk and return. In the efficient market dominated by rational market, higher risk is command by rational premium and trade off between two assumes a linear relationship between risk and risk premium.

Common stock is the most risky security and life blood of stock market .The common stock holders are the ultimate owners of the corporation and have residual claim on the company's assets at the time of the liquidation and get profit after paid to interest to the creditors, paid tax to the government and paid preference dividend to the preferred stock holders. At present common stock has attracted more investor in Nepal. Rush in a primary market during primary issue is one of the examples. Private investor plays a vital role in economic development of the nation by mobilizing the disposed capital from the society.

The main objectives of the study are to explore the risk return behaviour, to find out systematic and unsystematic risk, beta coefficient and to construct optimum portfolio of the selected insurance company.

The review of literature, which deals with both theoretical as well as practical review. The proportion of theoretical review covers the concept of investment, Portfolio Management, Securities and Security Market, Common Stock, Risk, Return, Portfolio

Diversification, Capital Assets Pricing Model and Efficient Frontier, the previous studies related to the present study all in global, regional and Nepalese context have been reviewed.

Descriptive and Analytical research design is followed in this study. This study is comparative in nature based on secondary data of the fiscal year 2064/065 to 2068/69. Out of the 25 insurance companies only 5 insurance companies have been taken as the sample of the study.

For the purpose of the study, financial statement and other relevant data of the respective insurance companies are used as major sources of data. A both financial and statistical tool has been used to analyze the data.

The central focus of this study is the trade-off between risk and return. Investors would want their investment to yield favorable return. Investors sacrifice their current cash in securities in anticipation of higher future benefits. An investor seeking common stock investment usually pays the price for the stock based on his estimation about future dividends and growth in stock price. The main objectives of the study are to analyze the risk and return of common stock of listed insurance companies of Nepal and to give an idea about creating an optimal portfolio. While analyzing the risk return, brief review of related study has been done. Scientific methods have been used for the data analysis. Tables, diagram and graphs have been used to make data analysis more clear.

From the study it was found that NLIC has maximum expected return and minimum was of PMR, similarly in term of standard deviation it was found that maximum of NLIC and minimum of NIC. In term of coefficient of variation it was found maximum of NLI. The beta coefficient of all sampled insurance companies except NLIC and NLI other found to be less than one, indicating that they show less variability in risk compare with insurance market. The correlation coefficient of the sample companies' movement with market is positive. In comparison of correlation coefficients of sample companies it was found that high positive correlation was achieved between PMR and SM.

Similarly, the study finds that maximum systematic risk was of NLIC and maximum

unsystematic risk was found to be of PMR. Similarly it evaluates the common stock price on CAPM method and it was found that stock of SM and NLIC are under priced but stocks of PMR, NLI and NIC to be overpriced.

5.2 Conclusions

From the above summary of findings, conclusions for this study can be drawn as follows:

-) The maximum expected return among the five sampled insurance companies was that of NLIC and minimum return was that of PMR.
-) The riskier common stock among all the sampled insurance companies was that of NLIC.
-) Due to the CV, NLI was found to be more risky.
-) The stock of all sampled companies was positively correlated to the insurance market.
-) Correlation coefficient between all the sampled companies to each other found to be positive.
-) The highly positive correlation was found between PMR and SM and Low between PMR and NLI.
-) The higher proportion of systematic risk was found in the stock of NLIC and unsystematic risk was found in the stock of PMR.
-) Due to the beta coefficient of the stock NLI and NLIC found aggressive. Other insurance companies were defensive indicating less level of risk in comparison to industry average.
-) Under the CAPM method common stock of SM, NLI and NLIC was found to be underpriced and PMR & NIC was found to be overpriced.
-) Two and three assets portfolio were created for the diversification of the risk using different weights. In two assets portfolio, portfolio of SM and NLIC was producing higher return, higher risk with less CV in different weights level.
-) In three assets portfolio, portfolio of SM, NLI and NLIC was producing higher return, higher risk with less CV in different weights level.

Recommendations:

On the basis of the conclusions of the study the following recommendations are forwarded.

-) The stock of NLIC producing high risk, high return then risk seeker investors are suggested to invest in the stocks of the NLIC and SM stocks are also the good option for the investment because its stocks are producing high return, moderate risk with less CV.
-) PMR and NIC have decreasing trend of MPS and producing negative return, high risk so, they should try to pay regular dividend and try to manage their internal problem to increase their MPS and returns.
-) The correlation coefficient between PMR and NLI is lower than others. So, there is low risk on the investment of the portfolio of PMR and NLI.
-) All the sampled insurance company has higher level of systematic risk so, the stocks of sampled companies are more sensitive to the market because their risk was not diversifiable. But there is some proportion of risk which can be diversified by managing the internal problem of the company.
-) Although PMR has the lower beta coefficient its stock producing negative return, PMR should try to manage internal problem (Management policy, Dividend payment) to increase its MPS and Returns.
-) The stock of SM and NLIC under the CAPM method were under priced so, it is suggested to the investors to invest in the stocks of SM & NLIC and PMR , NLI and NIC stocks are overpriced so, it is suggested to the investors of PMR, NLI and NIC to sell or hold their stocks.
-) If any investor wants to invest in different insurance companies' stock for the diversification of risk then portfolio of SM & NLIC and portfolio of SM, NLIC and NLI could be the good option because these portfolios are producing higher return with less C.V in different level of weights.

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Appendix

Annex: 1

Calculation of Annual Return of NEPSE Index

Fiscal Year	Index	Return $(P_{t+1} - S_t) / S_t$
2063/64	683.05	-
2064/65	963.1	41.0%
2065/66	749.1	-22.22
2066/67	477.7	-36.23
2067/68	362.85	-24.04
2068/69	389.74	7.41
Total		-34.08%
Expected return = R/N		11.66%

Calculation of Standard deviation of NEPSE Index

Fiscal Year	R	$\sum R \bar{R}^A$	$\sum R^2 \bar{R}^A$
2064/65	41%	47.82%	2286.75
2065/66	-22.22	-15.40	237.16
2066/67	-36.23	-29.41	864.95
2067/68	-24.04	-17.22	296.53
2068/69	7.41	14.23	202.49
Total			3887.88
$\text{S.D.} = \sqrt{\frac{\sum R_i^2 \bar{R}_i^A}{n}}$			31.18%
Variance $\sum R^2 \bar{R}^A$			972.1924
C.V. = $\frac{\text{S.D.}}{R}$			-4.57

Annual Return of Insurance Index

Fiscal Year	Index	Return $(P_{t+1} - S_t) / S_t$
2063/64	616.26	-
2064/65	817	32.57%
2065/66	657	-19.58
2066/67	548	-16.59
2067/68	407.01	25.73
2068/69	497.86	22.32
Total		-7.01
Expected return = R/N		-1.4%

Calculation of Standard deviation of Insurance Index

Fiscal Year	R	$\sum R \bar{R}^A$	$\sum R \bar{R}^A$
2064/65	32.57%	33.97%	1153.96
2065/66	-19.58	-18.18	330.51
2066/67	-16.59	-15.19	230.74
2067/68	-25.73	-24.33	591.95
2068/69	22.32	23.72	562.64
Total			2869.80
$\text{St. D.} = \sqrt{\frac{\sum R_i \bar{R}_i^A}{n \cdot Z1}}$			26.79%
Variance $\sum R^2$			717.45
C.V. = $\frac{\text{St. D.}}{R}$			-19.14

Calculation of Return of Sampled Insurance Companies

$$\text{Return of Common Stock} = \frac{\sum_{t=1}^n \frac{P_{t+1} Z P_t \Gamma D_{t+1}}{P_t}}{P_1}$$

Premier Insurance Company

Fiscal Year	MPS	DPS	Return (R)
2063/64	260	5.79	-
2064/65	300		15.39%
2065/66	190	10.53	-33.16
2066/67	161	8	-11.05
2067/68	157		-2.5
2068/69	138	0.79	-11.6
Total			-42.92
Expected return = R/N			8.58%

Sagarmatha Insurance Company

Fiscal Year	MPS	DPS	Return (R)
2063/64	227	0	-
2064/65	306	10.68	39.51%
2065/66	252	10.53	-14.21
2066/67	311	11.32	27.9
2067/68	300	0	-3.54
2068/69	347	0	15.67
Total			65.33
Expected return = R/N			13.07%

National Life Insurance Company

Fiscal Year	MPS	DPS	Return (R)
2063/64	720	105.26	-
2064/65	900	0	25%
2065/66	598	0	-33.56
2066/67	486	21.05	-15.21
2067/68	334	30	-25.1
2068/69	529	26	66.17
Total			17.4%
Expected return = R/N			41.75%

Nepal Insurance Company

Fiscal Year	MPS	DPS	Return (R)
2063/64	390	-	-
2064/65	429	-	10%
2065/66	367	-	-14.45
2066/67	360	-	-1.90
2067/68	346	7.37	-1.74
2068/69	204	22.52	-34.53
Total			-42.63
Expected return = R/N			-8.525%

Nepal Life Insurance

Fiscal Year	MPS	DPS	Return (R)
2063/64	766	-	-
2064/65	1854	-	142.04%
2065/66	1108	-	-40.24
2066/67	770	-	-30.51
2067/68	568	-	-26.49
2068/69	785	126.32	61.01
Total			105.81
Expected return = R/N			21.16%

Calculation of Standard Deviation of Sampled Insurance Companies

Premier Insurance

Fiscal Year	R	$fR Z \bar{R}^A$	$fR Z \bar{R}^A$
2064/65	15.39%	23.97%	574.56
2065/66	-33.16	-24.58	604.18
2066/67	-11.05	-2.47	6.1
2067/68	-2.5	6.08	37
2068/69	-11.6	-3.02	9.12
Total			1230.96
$f \text{ S.D. } X \sqrt{\frac{fR_i Z \bar{R}_i^A}{n Z 1}}$			17.543%
Variance $f \bar{t}^2 \bar{t}^A$			307.76
C.V. = $\frac{\bar{t}}{R}$			-2.045

Sagarmatha Insurance Company

Fiscal Year	R	$fR Z \bar{R}^A$	$fR Z \bar{R}^A$
2064/65	39.51%	26.44%	699.07
2065/66	-14.21	-27.28	744.2
2066/67	27.9	14.83	219.93
2067/68	-3.54	-16.6	275.89
2068/69	15.67	2.6	6.67
Total			1945.76
$f \text{ S.D. } X \sqrt{\frac{fR_i Z \bar{R}_i^A}{n Z 1}}$			22.06%
Variance $f \bar{t}^2 \bar{t}^A$			486.6436
C.V. = $\frac{\bar{t}}{R}$			1.69

National Life Insurance Company

Fiscal Year	R	$f_R Z \bar{R}^A$	$f_R Z \bar{R}^A$
2064/65	25%	21.52%	463.11
2065/66	-33.56	-37.04	1372
2066/67	-15.21	-18.69	349.32
2067/68	-25.1	-28.58	816.82
2068/69	66.17	63	3969
Total			6970.25
$f \text{ S.D. } X \sqrt{\frac{f_{R_i} Z \bar{R}_i^A}{n Z 1}}$			41.75%
Variance $f \text{ }^2 \text{ }^A$			1743.063
C.V. = $\frac{f}{R}$			12

Nepal Insurance Company

Fiscal Year	R	$f_R Z \bar{R}^A$	$f_R Z \bar{R}^A$
2064/65	10%	18.525%	343.176
2065/66	-14.45	-5.625	31.64
2066/67	-1.907	6.92	47.886
2067/68	-1.74	6.8	46.24
2068/69	-34.53	2.6	676
Total			1144.942
$f \text{ S.D. } X \sqrt{\frac{f_{R_i} Z \bar{R}_i^A}{n Z 1}}$			16.92%
Variance $f \text{ }^2 \text{ }^A$			286.2864
C.V. = $\frac{f}{R}$			-2

Nepal Life Insurance Company

Fiscal Year	R	$\sum R \bar{R}^A$	$\sum R^2 \bar{R}^A$
2064/65	142.04%	120.88	14611.97
2065/66	-40.24	-61.4	3769.96
2066/67	-30.51	51.67	2669.79
2067/68	-26.49	-47.65	2270.52
2068/69	61.01	39.85	1588.02
Total			24910
$\text{S.D.} = \sqrt{\frac{\sum R_i^2 \bar{R}_i^A}{n} - \bar{R}^2}$			78.91%
Variance $\sum R^2 \bar{R}^A$			6129.32
C.V. = $\frac{\text{S.D.}}{\bar{R}}$			3.729

**Calculation of Covariance of Sample Insurance Company with Insurance Index
PMR and II**

Fiscal Year	$R_p \bar{R}_p$	$R_{II} \bar{R}_{II}$	$\sum R_p \bar{R}_p \mid \sum R_{II} \bar{R}_{II}^A$
2064/65	23.97%	33.97%	814.261
2065/66	-24.58	-18.18	446.864
2066/67	-2.47	-15.19	37.519
2067/68	6.08	-24.33	-147.926
2068/69	-3.02	23.72	-71.634
Total			1079.384
$\text{COVPMR and II} = \frac{\sum R_p \bar{R}_p \mid \sum R_{II} \bar{R}_{II}^A}{N \bar{R}_p \bar{R}_{II}}$			269.846
$\text{Correlation Coefficient (r)} = \frac{\text{COV and II}}{\text{S.D.}_P \mid \text{S.D.}_{II}}$			0.574
$\frac{\text{COV and II}}{\text{S.D.}_{II}^2} \text{ Beta Coefficient} =$			0.376

Between SM and II

Fiscal Year	$R_{sm} \overline{ZR}_{sm}$	$R_{II} \overline{ZR}_{II}$	$\int R_{sm} \overline{ZR}_{sm} \Delta \int R_{II} \overline{ZR}_{II} \Delta$
2064/65	26.44%	33.97%	898.17
2065/66	-27.28	-18.18	495.95
2066/67	14.83	-15.19	-225.27
2067/68	-16.6	-24.33	403.88
2068/69	2.6	23.72	61.67
Total			1634.4
COVSM and II = $\frac{\int R_{sm} \overline{ZR}_{sm} \Delta \int R_{II} \overline{ZR}_{II} \Delta}{N Z1}$			408.6
Correlation Coefficient (r) = $\frac{COV \text{ and } II}{\dagger sm \mid \dagger II}$			0.691
$\frac{COV \text{ sm and } II}{\dagger^2 II}$ Beta Coefficient =			0.569

Between NLI & II

Fiscal Year	$R_{NLI} \overline{ZR}_{NLI}$	$R_{II} \overline{ZR}_{II}$	$\int R_{NLI} \overline{ZR}_{NLI} \Delta \int R_{II} \overline{ZR}_{II} \Delta$
2064/65	21.52%	33.97%	731.03
2065/66	-37.04	-18.18	673.38
2066/67	-18.69	-15.19	283.9
2067/68	-28.58	-24.33	695.35
2068/69	63	23.72	1494.36
Total			3878.02
COVNLI and II = $\frac{\int R_{NLI} \overline{ZR}_{NLI} \Delta \int R_{II} \overline{ZR}_{II} \Delta}{N Z1}$			969.5
Correlation Coefficient (r) = $\frac{COVNLI \text{ and } II}{\dagger NLI \mid \dagger II}$			0.867
$\frac{COV \text{ and } II}{\dagger^2 II}$ Beta Coefficient =			1.35

Between Nepal Insurance and Insurance Index

Fiscal Year	$R_{NIC} \overline{ZR}_{NIC}$	$R_{II} \overline{ZR}_{II}$	$\overline{fR}_{NIC} \overline{ZR}_{NIC} \overline{A} \overline{fR}_{II} \overline{ZR}_{II} \overline{A}$
2064/65	18.525%	33.97%	629.29
2065/66	-5.625	-18.18	102.26
2066/67	6.92	-15.19	-105.115
2067/68	6.8	-24.33	-165.44
2068/69	26	23.72	616.72
Total			1077.715
COVPMR and II = $\frac{\overline{fR}_{NIC} \overline{ZR}_{NIC} \overline{A} \overline{fR}_{II} \overline{ZR}_{II} \overline{A}}{N Z1}$			269.43
Correlation Coefficient (r) = $\frac{COVNIC \text{ and } II}{\dagger NIC \mid \dagger II}$			0.594
$\frac{COVNIC \text{ and } II}{\dagger^2 II}$ Beta Coefficient =			0.375

Between Nepal Life Insurance and Insurance Index

Fiscal Year	$R_{NLIC} \overline{ZR}_{NLIC}$	$R_{II} \overline{ZR}_{II}$	$\overline{fR}_{NLIC} \overline{ZR}_{NLIC} \overline{A} \overline{fR}_{II} \overline{ZR}_{II} \overline{A}$
2064/65	120.88%	33.97%	4106.29
2065/66	-61.4	-18.18	1116.25
2066/67	-51.67	-15.19	784.87
2067/68	-47.65	-24.33	1159.32
2068/69	39.85	23.72	945.24
Total			8112
COVNLIC and II = $\frac{\overline{fR}_{NLIC} \overline{ZR}_{NLIC} \overline{A} \overline{fR}_{II} \overline{ZR}_{II} \overline{A}}{N Z1}$			2028
Correlation Coefficient (r) = $\frac{COVNLIC \text{ and } II}{\dagger NLIC \mid \dagger II}$			0.96
$\frac{COVNLIC \text{ and } II}{\dagger^2 II}$ Beta Coefficient =			2.83

Covariance Between Sampled Insurance Companies

Covariance Between PMR and SM

Fiscal Year	$R_{PMR} \overline{ZR_{PMR}}$	$R_{SM} \overline{ZR_{SM}}$	$fR_{PMR} \overline{ZR_{PMR}} \Delta fR_{SM} \overline{ZR_{SM}} \Delta$
2064/65	23.97%	26.44%	633.77
2065/66	-24.58	-27.28	670.54
2066/67	-2.47	14.89	-36.78
2067/68	6.08	-16.6	-100.93
2068/69	-3.02	2.6	-7.85
Total			1158.75
COVPMR and II = $\frac{fR_{PMR} \overline{ZR_{PMR}} \Delta fR_{SM} \overline{ZR_{SM}} \Delta}{N Z1}$			289.69
Correlation Coefficient (r) = $\frac{COVPMR \text{ and } SM}{\dagger PMR \mid \dagger SM}$			0.75

Covariance Between PMR and NLI

Fiscal Year	$R_{PMR} \overline{ZR_{PMR}}$	$R_{NLI} \overline{ZR_{NLI}}$	$fR_{PMR} \overline{ZR_{PMR}} \Delta fR_{NLI} \overline{ZR_{NLI}} \Delta$
2064/65	23.97%	21.52%	515.53
2065/66	-24.58	-37.04	910.44
2066/67	-2.47	-18.69	46.16
2067/68	6.08	-28.58	-173.77
2068/69	-3.02	63	-190.26
Total			1108.4
COVPMR and II = $\frac{fR_{PMR} \overline{ZR_{PMR}} \Delta fR_{NLI} \overline{ZR_{NLI}} \Delta}{N Z1}$			277.1
Correlation Coefficient (r) = $\frac{COVPMR \text{ and } NLI}{\dagger PMR \mid \dagger NLI}$			0.378

Covariance Between PMR and NIC

Fiscal Year	$R_{PMR} \overline{ZR_{PMR}}$	$R_{NIC} \overline{ZR_{NIC}}$	$\sum R_{PMR} \overline{ZR_{PMR}} \sum R_{NIC} \overline{ZR_{NIC}}$
2064/65	23.97%	18.525%	444.04
2065/66	-24.58	-5.625	138.26
2066/67	-2.47	6.92	-17.09
2067/68	6.08	6.8	41.344
2068/69	-3.02	26	-78.52
Total			528.034
COVPMR and II = $\frac{\sum R_{PMR} \overline{ZR_{PMR}} \sum R_{NIC} \overline{ZR_{NIC}}}{N Z1}$			132
Correlation Coefficient (r) = $\frac{COVPMR \text{ and } NIC}{\sqrt{\dagger PMR} \sqrt{\dagger NIC}}$			0.445

Covariance Between PMR and NLIC

Fiscal Year	$R_{PMR} \overline{ZR_{PMR}}$	$R_{NLIC} \overline{ZR_{NLIC}}$	$\sum R_{PMR} \overline{ZR_{PMR}} \sum R_{NLIC} \overline{ZR_{NLIC}}$
2064/65	23.97%	120.88%	2897.49
2065/66	-24.58	-61.4	1509.21
2066/67	-2.47	-51.67	127.62
2067/68	8.08	-47.65	-289.71
2068/69	-3.02	39.85	-120.35
Total			4124.26
COVPMR and II = $\frac{\sum R_{PMR} \overline{ZR_{PMR}} \sum R_{NLIC} \overline{ZR_{NLIC}}}{N Z1}$			1031.07
Correlation Coefficient (r) = $\frac{COVPMR \text{ and } NLIC}{\sqrt{\dagger PMR} \sqrt{\dagger NLIC}}$			0.74

Covariance Between SM and NLI

Fiscal Year	$R_{SM} \overline{ZR_{SM}}$	$R_{NLI} \overline{ZR_{NLI}}$	$\sum R_{SM} \overline{ZR_{SM}} \sum R_{NLI} \overline{ZR_{NLI}}$
2064/65	26.44%	21.52%	568.99
2065/66	-27.28	-37.04	1010.45
2066/67	14.83	-18.69	-277.173
2067/68	-16.6	-28.58	474.43
2068/69	2.6	63s	163.8
Total			1940.5
COVPMR and II = $\frac{\sum R_{SM} \overline{ZR_{SM}} \sum R_{NLI} \overline{ZR_{NLI}}}{N Z1}$			485.124
Correlation Coefficient (r) = $\frac{COVSM \text{ and } NLI}{\uparrow SM \mid \uparrow NLI}$			0.527

Covariance Between SM and NIC

Fiscal Year	$R_{SM} \overline{ZR_{SM}}$	$R_{NIC} \overline{ZR_{NIC}}$	$\sum R_{SM} \overline{ZR_{SM}} \sum R_{NIC} \overline{ZR_{NIC}}$
2064/65	26.44%	18.525%	489.80
2065/66	-27.28	-5.625	153.45
2066/67	14.83	6.92	102.485
2067/68	-16.6	6.8	-112.88
2068/69	2.6	26	67.60
Total			700.455
COVPMR and II = $\frac{\sum R_{SM} \overline{ZR_{SM}} \sum R_{NIC} \overline{ZR_{NIC}}}{N Z1}$			175.11
Correlation Coefficient (r) = $\frac{COVSM \text{ and } NIC}{\uparrow SM \mid \uparrow NIC}$			0.469

Covariance Between NLI and NIC

Fiscal Year	$R_{NLI} \overline{ZR_{NLI}}$	$R_{NIC} \overline{ZR_{NIC}}$	$\sum R_{NLI} \overline{ZR_{NLI}} \mid \sum R_{NIC} \overline{ZR_{NIC}}$
2064/65	21.52%	18.525%	398.66
2065/66	37.04	-5.625	-174.825
2066/67	-18.69	6.92	-129.335
2067/68	-28.58	6.8	-194.344
2068/69	63	26	1638
Total			1538.156
COVPMR and II = $\frac{\sum R_{NLI} \overline{ZR_{NLI}} \mid \sum R_{NIC} \overline{ZR_{NIC}}}{N \sum Z1}$			409.5
Correlation Coefficient (r) = $\frac{COV_{NLI \text{ and } NIC}}{\sqrt{\sum NLI \mid \sum NIC}}$			0.58

Covariance Between NIC and NLIC

Fiscal Year	$R_{NIC} \overline{ZR_{NIC}}$	$R_{NLIC} \overline{ZR_{NLIC}}$	$\sum R_{NIC} \overline{ZR_{NIC}} \mid \sum R_{NLIC} \overline{ZR_{NLIC}}$
2064/65	18.525%	120.88%	2239.302
2065/66	-5.625	-61.4	345.375
2066/67	6.92	-51.67	-357.556
2067/68	6.8	-47.65	-324.02
2068/69	26	39.85	106.21
Total			2965.2
COVPMR and II = $\frac{\sum R_{NIC} \overline{ZR_{NIC}} \mid \sum R_{NLIC} \overline{ZR_{NLIC}}}{N \sum Z1}$			741.3
Correlation Coefficient (r) = $\frac{COV_{NIC \text{ and } NLIC}}{\sqrt{\sum NIC \mid \sum NLIC}}$			0.555

Covariance Between SM and NLIC

Fiscal Year	$R_{SM} \overline{ZR_{SM}}$	$R_{NLIC} \overline{ZR_{NLIC}}$	$\sum R_{SM} \overline{ZR_{SM}} \sum R_{NLIC} \overline{ZR_{NLIC}}$
2064/65	26.44%	120.88%	3196.07
2065/66	-27.28	-61.4	1674.99
2066/67	14.81	-51.67	-765.23
2067/68	-16.6	-47.65	790.99
2068/69	2.6	39.85	103.91
Total			5000.73
COVPMR and II = $\frac{\sum R_{SM} \overline{ZR_{SM}} \sum R_{NLIC} \overline{ZR_{NLIC}}}{N Z I}$			1250.18
Correlation Coefficient (r) = $\frac{COVSM \text{ and } NLIC}{\sqrt{\dagger SM} \sqrt{\dagger NLIC}}$			0.72

Covariance Between NLIC and NLI

Fiscal Year	$R_{NLIC} \overline{ZR_{NLIC}}$	$R_{NLI} \overline{ZR_{NLI}}$	$\sum R_{NLIC} \overline{ZR_{NLIC}} \sum R_{NLI} \overline{ZR_{NLI}}$
2064/65	120.88%	21.52%	26.01.34
2065/66	-61.4	-37.04	2274.456
2066/67	51.67	-18.69	-965.71
2067/68	47.65	-28.58	-1361.84
2068/69	39.85	63	2510.55
Total			5058.8
COVPMR and II = $\frac{\sum R_{NLIC} \overline{ZR_{NLIC}} \sum R_{NLI} \overline{ZR_{NLI}}}{N Z I}$			1264.7
Correlation Coefficient (r) = $\frac{COVNLIC \text{ and } NLI}{\sqrt{\dagger NLIC} \sqrt{\dagger NLI}}$			0.384

Variance and Covariance Matrix

	PMR	SM	NLI	NIC	NLIC
PMR	307.76	289.69	277.1	132	1031.07
SM	289.69	486.64	485.124	175.11	1250.18
NLI	277.1	485.124	1743.063	409.5	2336.16
NIC	132	175.11	409.51	286.286	741.3
NLIC	1031.07	1250.18	1264.7	741.3	6226.79

Correlation Matrix

	PMR	SM	NLI	NIC	NLIC
PMR	1	0.75	0.378	0.445	0.74
SM	0.75	1	0.527	0.469	0.72
NLI	0.378	0.527	1	0.58	0.384
NIC	0.445	0.469	0.58	1	0.555
NLIC	0.74	0.72	0.384	0.555	1

Calculation of Systematic and unsystematic Risk

Premier Insurance Company:

As per S.D.

$$\begin{aligned}\text{Systematic Risk (SR)} &= X_{\text{PMR.II}} \times S_{\text{PMR}} \\ &= 0.574 \times 17.543 = 10.07\%\end{aligned}$$

$$\begin{aligned}\text{Unsystematic Risk (UR)} &= \text{Total Risk} - \text{SR} \\ &17.543 - 10.07 = 7.47\%\end{aligned}$$

Sagarmatha Insurance Company:

$$\begin{aligned}\text{Systematic Risk (SR)} &= X_{\text{SM.II}} \times S_{\text{SM}} \\ &= 0.691 \times 22.06 = 15.24\%\end{aligned}$$

$$\begin{aligned}\text{Unsystematic Risk (UR)} &= \text{Total Risk} - \text{SR} \\ &22.06 - 15.24 = 6.82\%\end{aligned}$$

National Insurance Company:

$$\begin{aligned}\text{Systematic Risk (SR)} &= X_{\text{NLI.II}} \times S_{\text{NLI}} \\ &= 0.867 \times 41.75 = 36.197\%\end{aligned}$$

$$\text{Unsystematic Risk (UR)} = 41.75 - 36.197 = 5.553\%$$

Nepal Insurance Company:

$$\begin{aligned}\text{Systematic Risk (SR)} &= X_{\text{NIC.II}} \times S_{\text{NIC}} \\ &= 0.594 \times 16.92 = 10.5\%\end{aligned}$$

$$\begin{aligned}\text{Unsystematic Risk (UR)} &= \text{Total Risk} - \text{SR} \\ &16.92 - 10.5 = 6.87\%\end{aligned}$$

Nepal Life Insurance Company:

$$\begin{aligned}\text{Systematic Risk (SR)} &= X_{\text{NLIC.II}} \times S_{\text{NLIC}} \\ &= 0.96 \times 78.91 = 75.75\%\end{aligned}$$

$$\begin{aligned}\text{Unsystematic Risk (UR)} &= \text{Total Risk} - \text{SR} \\ &78.91 - 75.75 = 3.16\%\end{aligned}$$

Proportion of the systematic and unsystematic risk**Premier Insurance Company (As per SD)**

$$\text{Proportion of Systematic Risk (SR)} = \frac{\text{Sy.Risk}}{\text{Total Risk}} = \frac{10.07}{17.543} = 57.4\%$$

$$\begin{aligned} \text{Proportion of unsystematic Risk (UR)} &= 100 - 57.4 \\ &= 42.6\% \end{aligned}$$

Sagarmatha Insurance Company

$$\begin{aligned} \text{Proportion of Systematic Risk (SR)} &= \frac{15.24}{22.06} \\ &= 69.08\% \end{aligned}$$

$$\begin{aligned} \text{Proportion of unsystematic Risk (UR)} &= 100 - 69.08 \\ &= 30.92\% \end{aligned}$$

National life Insurance

$$\begin{aligned} \text{Proportion of Systematic Risk (SR)} &= \frac{36.197}{41.75} \\ &= 86.7\% \end{aligned}$$

$$\begin{aligned} \text{Proportion of unsystematic Risk (UR)} &= 100 - 86.7 \\ &= 13.3\% \end{aligned}$$

Nepal Insurance Company

$$\begin{aligned} \text{Proportion of Systematic Risk (SR)} &= \frac{10.05}{16.92} \\ &= 62.06\% \end{aligned}$$

$$\begin{aligned} \text{Proportion of unsystematic Risk (UR)} &= 100 - 62.06 \\ &= 37.94\% \end{aligned}$$

Nepal Life Insurance Company

$$\begin{aligned} \text{Proportion of Systematic Risk (SR)} &= \frac{75.75}{78.91} \\ &= 96\% \end{aligned}$$

$$\begin{aligned} \text{Proportion of unsystematic Risk (UR)} &= 100 - 96 \\ &= 4\% \end{aligned}$$

Analysis of common stock price under CAPM Method:

To calculate the required rate of return under CAPM method following formula is used

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

Where,

R_f = Risk free rate of return

\overline{RM} = Market Return

β_j = Beta coefficient of stock j

For risk free rate of return, the risk free rate of T-bills of NRB for the period of 365 days for fiscal year 2068/69 had been taken i.e. 7%

The stock is categorized as following way under CAPM method

Insurance Company	Beta Coeff.	Req ^d rate of return	Expected Rate of Return	Decision
PMR	0.376	3.842%	-8.58%	Sell (over priced)
SM	0.569	2.22%	13.07%	Buy (under priced)
NLI	1.53	4.34%	3.48%	Sell (over priced)
NIC	0.375	3.85%	-8.525%	Sell (over priced)
NLIC	2.83	-16.772%	21.16%	Buy (under priced)

Portfolio and Optimal portfolio Analysis:

$$E(RP) = W_A.E(RA) + W_B.E(RB)$$

$$\sigma_P = \sqrt{W_A^2 \sigma_A^2 + W_B^2 \sigma_B^2 + 2W_A W_B \text{COVAB}}$$

Portfolio of PMR and SM

Weight of PMR	Weight of SM	VAR (σ^2)	S.D. (σ)	Portfolio Return
1	0	307.76	17.543%	-8.58%
0.75	0.25	312.16	17.67%	-3.168%
0.5	0.5	343.445	18.53%	2.245%
0.25	0.75	401.6	20.04%	7.66%
0	1	486.64	22.06%	13.07%

Portfolio of SM and NLIC

Weight of SM	Weight of NLIC	(σ^2)	S.D. (σ)	Portfolio Return
1	0.0	486.64	22.06%	13.07%
0.75	0.25	1131.71	33.64%	15.09%
0.5	0.5	2303.45	48%	17.12%
0.25	0.75	4001.8	63.26%	19.14%
0	1	6226.79	78.91%	21.16%

Portfolio of NLIC and NLI

Weight of NLIC	Weight of NLI	(σ^2)	S.D. (σ)	Portfolio Return
1	0.0	6226.79	78.91%	21.16%
0.75	0.25	4085.76	63.92%	16.74%
0.5	0.5	2624.81	51.23%	12.32%
0.25	0.75	1843.90	42.92%	7.9%
0	1	1743.06	41.75%	3.48%

Portfolio of NIC, NLIC and NLI

$$\dagger P X \sqrt{WA^2 \dagger A^2 \Gamma WB^2 \dagger B^2 \Gamma WC^2 \dagger C^2 \Gamma 2COVABWA WB \Gamma 2COVACWAWC \Gamma 2COVBCWBWC}$$

Weight of NIC	Weight of NLIC	Weight of NLI	$\dagger P^2$	$\dagger P$	E(R _P)
0.3	0.3	0.4	1400.31	37.42%	5.18%
0.4	0.3	0.3	1269.93	35.597%	4.09%
0.3	0.4	0.3	1734.078	41.64%	6.95%
0.25	0.25	0.5	1354.05	36.79%	4.9%
0.5	0.25	0.25	1015.48	31.87%	1.9%
0.25	0.5	0.25	2236.22	47.29%	9.32%

Portfolio of SM, NLIC and NLI

Weight of SM	Weight of NLIC	Weight of NLI	$\dagger P^2$	$\dagger P$	E(R _P)
0.3	0.3	0.4	1528.08	39.09%	11.66%
0.4	0.3	0.3	1439.27	37.93%	12.62%
0.3	0.4	0.3	1887.85	43.44%	13.34%
0.25	0.25	0.5	1449.08	38.06%	10.3%
0.5	0.25	0.25	1211.68	34.81%	12.7%
0.25	0.5	0.25	2385.41	48.84%	14.72%

Portfolio at Optimal Point

Investment proportion,

$$W_a X \frac{\dagger b^2 ZCOVab}{\dagger a^2 \Gamma \dagger b^2 Z2COVab}$$

$$W_b = 1 - W_a$$

Investment proportion at optimal point between PMR and SM

Weight of PMR	Weight of SM	† P ²	S.D. († P)	E(RP)
0.91596	0.08404	306.24	17.5%	-6.76%

Between SM and NLIC

Weight of SM	Weight of NLIC	† P ²	S.D. († P)	E(RP)
1.18123	-0.18123	348.26	18.66%	110.6%

Between NLI and NLIC

Weight of NLI	Weight of NLIC	† P ²	S.D. († P)	E(RP)
0.912	0.088	1701	41.234%	5.036%

Calculation of Index Point(Trend Value)**NEPSE Index**

Year(x)	Index(y)	t=x- 2066/67	t ²	t.y	ye(trend value)
2064/65	963.1	-2	4	-1926.2	895.1
2065/66	749.1	-1	1	-749.1	741.8
2066/67	477.73	0	0	0	588.5
2067/68	362.85	1	1	362.85	435.2
2068/69	389.74	2	4	779.48	281.9
	y=2942.52	t=0	t ² =10	ty= -1532.97	

$$ye = b_0 + b_1t$$

$$b_0 = \frac{y}{n} = \frac{2942.52}{5} = 588.5$$

$$b_1 = \frac{ty}{t^2} = \frac{-1532.97}{10} = -153.3$$

$$y_1 = 588.5 + (-153.3)x(-2) = 895.1$$

And so on.....