RISK AND RETURNS ANALYSIS OF NEPALESE LIFE INSURANCE COMPANIES

A Dissertation submitted to the Office of the Dean, Faculty of Management in partial fulfillment of requirements for Master's Degree

By

Anju Maharjan
Roll No: 1088/17
T.U Reg. No.: 7-2-263-82-2011
Central Department of Management

March, 2021

CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have not researched and submitted the final draft of dissertation **"Risk and Returns analysis of Nepalese Life Insurance Companies."** the work of the dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirements for other academic purposes.

The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

Anju Maharjan

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March, 2021

Report of Research Committee

MS Anju Maharjan has defended research proposal entitled **"Risk and Returns analysis of Nepalese Life Insurance Companies."** successfully the research committee has registered the dissertation for further progress.it is recommended to carry out the work as per suggestions and guidance of supervisor Asst. Prof. Dr. Bal Ram Duwal and submit the thesis for evaluation and viva voce examination.

Dr. Bal Ram Duwal   Dissertation Proposal Defended Date:

Asst. Professor   2076 / 08 / 03

……………………

Dr. Bal Ram Duwal   Dissertation Submitted Date:

Asst. Professor   2077 / 10 / 04

……………………

Head of Research Committee   Dissertation Viva Voce Date:

Prof. Dr. Sanjay Kumar Shrestha   2077 / 10 / 06

…………………………….

APPROVAL SHEET

We have examined the dissertation entitled **"Risk and Returns analysis of Nepalese Life Insurance Companies."** presented by **Anju Maharjan** for degree of Master of Business Studies (MBS Semester). We hereby certify that the dissertation is acceptable for the award of degree.

………………………………….
Asst. Prof. Dr. Bal Ram Duwal
Dissertation Supervisor

………………………………….
Asst. Prof. Nirajan Basnet
Internal Examiner

………………………………….
Asso. Prof. Gyan Mani Adhikari
External Examiner

………………………………….
Prof. Dr. Sanjay Kumar Shrestha
Chairperson, Research Committee

………………………………….
Prof. Dr. Ramji Gautam
Head of Department

March, 2021

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Anju Maharjan

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ABBREVIATIONS

ALICL	Asian Life Insurance Company Limited
C.V	Coefficient of Variation
CAPM	Capital Assets Pricing Model
DPS	Dividend per Share
ERR	Expected Rate of Return
FY	Fiscal Year
HPR	Holding Period Return
i.e.	That is
IFC	International Finance Corporation
Ltd	Limited
MBS	Master of Business Studies
MPS	Market Price of Stock
NEPSE	Nepal Stock Exchange
NLIC	Nepal Life Insurance Company
RRR	Required Rate of Return
S.D	Standard Deviation
SEBON	Securities Board of Nepal
SIC	Sagarmatha Insurance Company
SML	Security Market Line
UIC	United Insurance Company

Chapter I

Introduction

1.1 Background of the study

Life insurance is a great invention of human civilization. Huebner established the concept of human life value which is regarded as the economic and philosophical framework of the life insurance. Conceptually, human life value involve several importance one. Actually, insurance of human life means the insurance of the productive capacity of a person which ensures continuity of income in case of unemployment, disability or death of insured and protect to the family members from the financial paucity.

In Nepal, Rastriya Beema Sansthan started life insurance business from 1973. In private sector, first life insurance Company was established in 1988. During 32 years period (1988-2019) the number of private sector life insurance companies reached to 19 there has been considerable interest of researchers in banking and capital market sectors but they have paid less attention in insurance sector. Life insurance performance is increasing interest of policyholders and investors towards the life insurance sector, growing share of life insurance to financial sector and globally rising the financial vulnerability in life insurance industry. The study has examined the performance of life insurance companies from different perspectives like: product offered and policies enforced, geographical outreached, efficiency and performance, and contribution to economic development based on the activities accomplished during the 32 years period (1988-2019).

Product is one of the most importance criteria to be considered while appraising the performance of the life insurance company. According to Black and Skipper (2000), Product should be affordable to potential customers and available easily. The performance of the company largely depends on performance of employees and Agents. Financially sound life insurance companies can contributes to economic development by mobilizing the higher amount of resources, providing sufficient investment in development projects, creating more employment opportunities and contributing more amount to government treasury.

In Nepalese context, insurance have comparatively good performance among the public limited companies. In Nepal foreign joints venture perform better than Nepalese ones because of their management efficiency and capacity of proper risk management. Specially, Nepalese have a high degree of internal (firm-specific) risk. Development of insurance business in Nepal still is in infant stage (Pandey, 2007). There is no written evidence of ancient history of insurance in Nepal. But a practice to cooperate among the people in the community is as old as human civilization. 'Guthi' was such kind of form where all the members generate certain fund and help to the member of the association who will be suffering from natural hazards, death and social function (Pandey, 2007).

Major Historical Events of Insurance Industry in Nepal

1947: First non-life insurance company "Nepal Insurance Company" (then Nepal Transportation and Insurance Company) was established.

1967: First composite insurance company "Rastriya Beema Sansthan" was established as a private company under Company Act. First foreign company The Oriental Insurance Company was established

1968: Insurance Act, 1968 and Rastriya Beema Sansthan Act, 1968 were enacted on Oct 25, 1968.

1973: Rastriya Beema Sansthan started life insurance business.

1974: LIC of India handed over the life insurance policy of Nepalese citizens to RBS and took away its branch office from Nepal.

1988: First joint venture composite insurance company "National Life and General Insurance Company" was established.

1992: Insurance Act, 1992 was enacted. Insurance Board was established as an apex regulatory body of insurance sector.

1993: Insurance Regulation, 1993 was enacted.

2001: First time in Nepal, 100 percent domestic private sector life insurance company "Nepal Life Insurance Company", first joint venture company "Life Insurance Corporation (Nepal), and first branch of foreign life insurance company "MetLife Alico" were established. "Fire Tariff Directive" was issued.

2003: "Insurance Pool" was established with joint efforts of Government and non-life insurers to offer limited reinsurance services for non-life business sector.

2005: "Investment Directive for Life and Non-life Insurers"was issued.

2008: "Life and Non-life Insurers' Reinsurance Directive" and "Life and Non-life Insurers' Liability Valuation Directive", "Marine Tariff Directive" were issued. New licenses for four life insurers were issued.

2009: Nine directives, First Mortality Table, 2009, and Code of Ethics to Surveyor were issued. "Third Party Insurance Policy for Vehicle" became mandatory.

2012: "Foreign Employment Term Insurance" became mandatory. "Merger Directive" and "Corporate Good Governance Directive" were introduced.

2013: "Crops and Livestock Insurance Directives, 2012" was introduced jointly by Insurance Board and Ministry of Agricultural Development. "National Health Insurance Policy, 2013" was released by Ministry of Health and Population.

2014: Micro insurance Directives, was issued by Insurance Board and directed insurers (life and nonlife) to sell micro insurance products and require to collect at least five percent premium out of total premium.

2017: During, the year Nepal felt with earthquake and about 10 life insurance companies were established at this year.

2018: Mahalaxmilife Insurance Company Limited which is the youngest life insurance company was established at this year and become the 19th life insurance company of Nepal. Many other non-life insurance companies were established.

1.1.1 Risk and Return

Risk is defined as the possibility of meeting danger or suffering harm of loss. Risk in terms of investment means unexpected and unwanted outcome, which are harmful for the business. Investment risk is related to the probability of earning a return less than the expected return. Uncertainty is a major risk to investors in stock market investment Common stock is known as a risky security. Common stock holders of a company are its ultimate owners. Investors invest in common stock expecting higher return. But their expected return may not change into realities. This uncertainty is a major risk to investors in stock market investment. There are different risks involved in business that arises from internal and external factors such as business risks and financial risks.

Return is the main objectives of investment and a certain degree of risk is also associated with it. Finance mostly deals on monetary risk and return, which is the most affecting subject matter for an individual to large corporations. Return is the

income received in investment. People invest their belonging with an expectation of getting some recovered for leaving its liquidity. The only invest in those opportunities where they can get higher return. Hence; investor wants favorable return from their investment and goes for those, which yield more. Insurance is the dynamic part of economy, which collects unused funds and mobilizes it in needs sectors. It is also a part of trade, commerce, and industry.

1.2 Statement of the Problem

This study is trying to analyze the problem faced by individual investor due to lack of knowledge and information and at the same time discuss the weakness of concerned people is not being able to develop the stock market properly. Numbers of the public limited companies are increasing rapidly but the investment opportunities have not increased in that ratio. The rapid expansion in the amount of fund raised, number of investor in the primary market and increasing number of listed securities has speedily raised the market capitalization, which is the indication of bright future of capital market in Nepal.

At the same time there are no any separate institutions, which provide information required to rational decision that can accelerate the stock investment and market efficiency. Government policy is less encouraging in promoting common stock investment. Government policies are also unable to create favorable and proper investment environment to encourage investors to invest in this field. Government has not taken any serious steps to regulate one and only stock market of the country. Government policies also seem to favor the companies and not the individual investors.

The study focuses on following major issues:

    i. How much returns does insurance companies provides to their investors?

    ii. What are the risk structures (components of total risk) of common stock of insurance companies in Nepal?

    iii. What is the optimal portfolio to minimize the risk and maximize the return?

1.3 Objective of the Study

The major objective is to examine the risk and return of common stock investment of insurance companies. The specific objectives are as follows:

i. To measure the risk and return associated with the stocks of NEPSE listed insurance companies.

ii. To segregate the total risk of individual stock into systematic and unsystematic risk and scrutinize its relation with return on stock and to find their consistencies.

iii. To make suggestion to investors to create optimal portfolio of stocks of insurance companies.

1.4 Rationale of the Study

The analysis of the risk and return is significant in investment decision as well as managerial decision; it influences risk and return of the shareholders. Consequently the risk and return analysis influences the market price of the stock. So before making an investment decision, a person must analyze the risk and return from particular stock as well as they can make a good risk-minimizing portfolio between their investments in the stock. In the context of Nepal, there lacks wider investment opportunities, which provides good rate of return. So there have been huge amount of unutilized saving funds with general public. In the security market, market price per share of insurance company is higher than other so it attracts the investor. Therefore they are investing their saving funds in common stock of public companies with the good expectation of higher capital gain in future but, there seems very least consciousness about the real financial conditions of the companies and degree of risk involved in their investment. This study gives information about Nepalese capital market by analyzing risk and return definitely contribute to increase the analytical power of the investors in capital market. The study provides benefit for all the persons who are directly or indirectly related to the Nepalese capital market. This research has attempted to analyze the market share of samples companies with references to their financial indicators and risk in common stock investment, which may probably provide real pictures of samples companies, to both the outstanding and potential investors in order to take proper investment decision. Similarly, this piece of task may work as guide for future research and concerned persons.

Further this research will attempt to clarify concrete picture of different aspects of risk and return which will be beneficial to the investor for taking right investment decision. The study will be maximum significant for exploring and increasing stock investment. It will also provide little contribution to Nepalese stock market development.

This study is not only to fulfill MBS level course of Tribhuwan University, but also to provide some knowledge about the Nepalese stock market along with providing ideas to minimize the risk on stock investment. This study matters for academicians, students, researchers, teachers or persons, practicing in the field of finance.

1.5 Limitations of the Study

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

i. Only risk and return of ALICL, GLICL and SLICL are analyzed.

ii. This study is based on secondary data. The study has been carried annual reports of Life insurance, Beema Samiti journal, article and website.

iii. The five years (2013/14 to 2017/18) is used for drawing conclusion. So, the study does not related with the long term phenomena of the stock market.

iv. The study is limited in three life insurance companies due to same established year.

v. The study focused only on the investment of the companies and statistical and financial tools are used to calculate.

1.6 Chapter Plan

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

Chapter-I: Introduction

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

Chapter-II: Literature Review

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

Chapter-III: Research Methodology

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

Chapter-IV: Results and Discussion

It is the main body of the research. It includes data presentation, interpretation and analysis by using various methods of statistical and financial tools, tables, pie charts etc. In this chapter the risk and return of each selected companies is analyzed. This chapter is for summary of main findings

Chapter-V: Summary and Conclusion

This chapter is associated conclusion the study. It contains summary, conclusion, and implications. References and appendix are also included at the end of the chapter.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

This chapter deals with the theoretical aspect of the topic on risk and return on common stock investment in more details and descriptive manner. Main purpose of reviewing the literature is to develop some expertise in ones area to see what new contribution can be made and to receive some idea for developing a research design. Thus, the precious studies cannot be ignored because they provide the foundation and ideas to the present study.

This chapter focuses on the review of literature, research studies and other pertinent propositions in the related field study, text books and reference books relevant to the risk, return and investment of life insurance companies in Nepal particularly different journals, article, annual reports and some researcher paper related with this topic. Research is a continuous process it never ends. The procedures and the findings may change but research continues. This chapter is arranged in following manner:

- Theoretical Review
- Empirical Review
    - Review of Journals and Articles
    - Review of Thesis

2.2 Theoretical Review

Theoretical Review provides the fundamental theoretical frame work and foundation on which the entire proposal is based. This study explores the theoretical aspects of risk and return on investment from various popular related books. Analyzing the risk and return gives knowledge about the relationship between risk and associated return on any kind of investment.

2.2.1 Investment

Investment, risk and return are the financial terms, which are heavily associated with each other. Investment simply means sacrificing current rupees considering future cash inflows. Future cash inflows are the returns. Present Investment is certain, fixed and now. But future returns are uncertain and there is no fixed time bound. However

investment is utilization of saving for something that is expected to produce profit or benefits. Investment is employment of funds to achieve added income or growth in value. It involves commitment of resources put off from current consumption with hope of capitalizing some benefits in future. It includes both real asset and financial asset. An investment on real asset is known as real investment and on financial assets is known as financial investment. Real asset investment denotes the tangible assets like building, land, machinery, factory and the like. On the other hand, financial asset investment indicates paper representing an indirect claim to real asset held by someone else like shares, debentures, warrants, convertibles etc.

Investment may be defined on the purchase by an individual or institutional investor of financial or real assets that produces a return proportional to the risk assumed over some future investment period. It is a commitment of funds made in the expectation of some rate of return. If the investment is properly undertaken the return will be commensurate with the risk the investor assumes (Weston & Thomas, 2003)

Investment is the current commitment of funds for a period of time to derive a 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 & Keith, 2004).

Investment Portfolio

A portfolio is usually defined as a combination of assets. It is the collection of securities. Portfolio means the list of holding in securities owned by an investor or institution. A portfolio simply represents the practice among the investors of having their funds in more than one asset. The combination of investment assets is called a portfolio (Weston & Brigham, 2014)

Investment Alternatives

There are various investment alternatives for investors.

Table No.2.1: Investment Alternatives

1. Equity securities	• Common Stock • Preferred Stock
2. Short term debt securities	• Negotiable certificates of deposit • Commercial paper • Banker's acceptances • Treasury bills

3. Intermediate and long term debt securities	• Government securities - Treasury notes
	                               - Treasury bonds
	                               - Saving bonds
	• Agency securities
	• Municipal Securities - Revenue bonds
	                               - General Obligation bonds
	• Corporate bonds

4. Hybrid securities	• Convertible preferred stock • Convertible bonds
5. Derivative securities	• Options • Community futures • Financial futures • Options in futures • Rights • Warrants
6. Real assets	• Precious metals • Real state • Collectibles
7. International investment	• Multinationals corporations • Foreign stocks traded on all local exchange • American depository receipts
8. Other investment alternatives	• Pension funds • Mutual funds • Closed end companies

Source: Weston & Brigham (2014)
Investment of Securities

A security is a legal document that shows an ownership interest. It is the legal representation of the right to receive prospective future benefits under stated conditions and to acquire or sell ownership interests. Securities are normally the shares, debentures, common stocks, preferred stocks, warrant, convertibles or any other financial certificates issued by the companies to general public. Certificate of securities are issued at certain price called par value are transferable from one person to another. In simple way securities can be understand as the promissory paper that the company gives to the investors after receiving certain rupees as loan or share.

There are many more varieties of securities available for investment. Some of them are common stock, preferred stock, bond, warrants, convertibles, treasury-bills etc. Off the all forms of securities, common stocks (equity shares) appear to be the most romantic, while fixed income investment revenue may be more important to most of the investors, equity shares seem to capture their interest most. The potential rewards and penalties associated with equity shares make them an interesting even exciting proposition, no wonder equity investment is a favorite topic for conversation in parties and get-together (Chandra 1996).

2.2.2 Common Stock

The study is focused on the common stock investment that's why it is necessary to throw light on it. It is sources of long term financing and an ownership security. Common stock certificates are legal documents that evidence ownership or equality in a company that is organized as a corporation, and they are also marketable financial instruments. Common stock is the recipient of the residual income of the corporation. An element of high risk is involved with common stock investment due to its low priority of claims at liquidation. When investors buy common stock they receive certificate of ownership as a proof to their being part of the company. The certificate states the number of shares purchased and their value per shares.

Common stock seems to the capture their interest the most. The potential reward and penalties associated with common stock make them on interesting even exciting proposition, no wonder, and common stock investment is a favorite's topic for conversation in parties and gets together (Fisher, & Jordan, 2000).

Common stockholders of a corporation are its residual owners, their claim to income and assets comes after creditors and preferred stock holders have been paid in full. As a result, stockholders return on investment is less certain than the return to lender or to a preferred stockholder. On the other hand, the shares of a common stock can be authorized either with or without par value. The par value of a stock is merely a stated figure in the corporate charter and is of little economic significance (Horne, 2002).

A company should not issue stock at a price less than par value because stockholders who bought stock for less than par value would be liable to creditors for the difference between the below par price they paid and the par value. Common stock holders are entitled certain right, which are as follows (Horne, 2002).

- Control through voting right
- Preemptive right
- Limited liability
- Right to income and distribution of additional shares
- Residual right

Common Stock Values

Common stock values are either denoted by par value, book value or market value. These three terms are different and their rupee amount differs.

a. **Par Value**

The face value of one stock established at the time the stock is initially issued is known as par value. It is generally Rs.10 or Rs.100 or other value. In Nepal, Security Board of Nepal (SEBON) 2063 has specified that par value of a share must be set at Rs.100. A company should not issue common stock at a price less than the par value, because any discount from the par value is considered to be a contingent liability of the owner to the creditors of the company. In the event of liquidation, the shareholders would be legally liable to the creditors for any discount from the par value. But in Nepal, a company cannot issue shares at a discount.

b. Book Value

Corporations must pay interest to the creditors and dividends to the stockholders. After distributing the interest and dividend, any remainder is added to the amount shown as cumulative retained earnings on the corporation's books. The sum of the cumulative retained earnings, common stock par value and capital contribution in excess of par value under stock holders' equity is the book value of the equity.

c. Market Value

The value of share in secondary market traded between investors and traders is the market value. Market value is the consequence of demand and supply.

Security Market

A security market is a mechanism designed to facilitate the exchange of financial assets or securities by bringing buyers and sellers of securities together. Money market and capital market, primary and secondary market, financial intermediaries are kinds of security market. Capital market is the place where securities are traded which is guided by demand and supply. Capital market is the place, which bring both the financial demanders and suppliers directly or indirectly in touch. Commercial banks, financial institutions, investment companies and individual investors are the suppliers and business houses, agricultural sectors and industrial sectors are the demanders. This demand and supply is carried out in capital markets. Capital markets are the market where longer-term financial instruments like equities and bonds are raised and traded. Capital markets are one of the major components of security market. Security markets are the mechanism that allows suppliers and demanders of fund to make transactions. The market plays a key role in purchase and sales activities of investors. On the basis of the economic function, capital markets can be categorized into primary and secondary markets.

Primary Market

The market through which the funds are transferred from savers to investors is called primary market. Hence, the transaction of securities issued for the first time takes place in the primary market. Primary market facilitates direct transfer of finds. The participants of primary market are issuing company, investment bankers and investors. The institutions that perform the role of an expert in issuing new securities

are called investment bankers (issue managers). These bankers make available advice to the business firms regarding the nature of security, maturity, interest rate and underwrite the issue of securities. Sometimes a business firm can make direct sale of the securities to the buyers without underwriting them. Such direct sale is called direct placement of securities.

The issuer receives cash that may be then invest in the production assets or the net proceeds from the sale may be used for other business purpose. The public receives the newly issued securities for the cash invested. In primary market, stocks are traded at par value (commonly @ Rs.100 per share)

Secondary market

The market where the existing and pre-developed securities are bought and sold is called secondary market. A secondary market provides liquidity to the purchases of the securities. High liquidity of the secondary market encourages the investors to invest in the primary market as well by providing a ready market for trading in securities. The volume and the magnitude of the transactions taking place in the secondary market influence the activities in the primary market. The secondary market can be regarded as the center to convert stocks, bonds, and other securities into cash immediately. The secondary market comprises the organized security exchanges and a specialist facilitates the transaction. The major of all capital market transactions occur in the secondary market. In Nepalese financial market, Nepal Stock Exchange (NEPSE) Ltd. is an authorized secondary market, which is non-profit organization, operating under the securities exchange act, 1983. The basic objective of NEPSE is to impart free marketability and liquidity to the government bonds, corporate bonds and corporate securities by facilitating transaction in the trading floor through market intermediaries such as brokers and market makers. Member of NEPSE are permitted to act as intermediaries in buying and selling of government bonds and listed corporate securities.

2.2.3 Risk on Common Stock

Risk can be defined as the chances of loss. Assets having greater chances of loss are viewed as more risky than those with lesser chances of loss. More formally, the term is used interchangeably with uncertainty to refer to the variability of expected returns associated with a given asset. For example, a government bond that guarantees its

holder RS 100 interest after 30 days has no risk, since there is no variability associated with return. In equivalent investment in a firm's common stock that may earn over the same period anywhere from RS 0 to RS 100 is very risky due to high variability of return. The more certain returns from an asset, the less variability and therefore the less risk. Thus, Risk is the variability of possible returns around the expected returns of an investment. Each investor has his/her own attitudes towards risks and how much he/she can tolerate. Since, investment have risks associated with them, the investors must determine combination of alternatives matches that tradeoff the risk and compensation for percent risk.

Risk is defined in Webster's dictionary as a hazard a peril, exposure to loss or injury. Thus, risk refers to the chance that some unfavorable event will occur. For an investment in financial assets or in new projects, the unfavorable event is ending up with lower return than you expected. (Eharhardt and Brigham, 2014).

Risk defined most generally, is the probability of the occurrence of unfavorable outcomes. But risk has different meanings in different context. In our context two measures developed from the probability distribution have been used an initial measures of return and risk. There are the mean and the standard deviation of the probability distribution (Eharhardt and Brigham, 2014).

Sources of Investment Risk

Every investment involves uncertainties that make future investment return risky. The risk associated with investment alternative may result from a combination of a variety of possible sources. A prudent investor considers following major sources of risk that contribute to investment risk.

a. Interest Rate Risk

Interest rate risk is potential variability of return caused by changed in the market interest rate. If market interest rates rise, then investment's values and market price will fall and vice versa. The variability of return that results is interest rate risk. This interest rate risk affects the price of bond and stock etc.

b. Purchasing Power Risk

Purchasing power risk indicates the variability of return, an investor suffers because of inflation. When inflation takes place, financial assets (such as cash, stocks, and

bonds) may lose their ability to command the same amount of real goods and services they did in the past. To put another way, the real rate of return on financial assets may not adequately compensate the holder of financial assets for inflation.

c. Bull- Bear Risk

Bull bear risk arise from the variability in market return resulting from alternating bull and bear market forces. When a security index arises fairly consistently from a low point, called a though, for a period of time, this upward trend is called a bull market. The bull market ends when the market Index reached a peak and starts a downward trend. The period during which the market declines to the next trough is called a bear market.

d. Default Risk

It is the portion of total investment that results from changes in the financial integrity of the investment. The variability if return that investors experience as a result of changes in the credit worthiness of a firm in which they invested is their default risk. Investor's losses from default as the financial integrity of a firm weakens the losses are anticipatory losses.

e. Liquidity Risk

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

f. Callable Risk

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

g. Convertibility Risk

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

may be converted into the issuer's common stock at a time harmful to the investor's best interests.

h. Political Risk

Political risk arises from the exploitation of a politically weak group for the benefit of a politically strong group, with the efforts of various group to improve their relative positions increasing the variability of return from the affected assets.

i. Industry Risk

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

Types of Risk

The total variance of the rate of return is the sum total of various risks which are primarily classified into two types.

a. Systematic Risk

b. Unsystematic Risk

Hence,

Total Risk = Systematic Risk + Unsystematic Risk

a. Systematic Risk

It refers to that portion of the variability of an individual security's return caused by factors affecting the market as a whole as such it can be thought of being non diversifiable. It is because of this that it is also called market risk or relevant risk. The systematic risk is market related. In other words, it arises from the change in the economy and market condition... The systematic risk is rewarded in the form of risk premium, sometimes; systematic risk is called market risk. Systematic risk affects almost all assets in the economy, at least to some degree, whereas systematic risk affects at a small number of assets. The principle of diversification has an important implication to a diversified investor, only systematic risk matters. Some of the sources of systematic risk include.

- Interest rate changes.
- Changes in purchasing power.

- Changes in investor's expectation about the overall performance of the economy.
- Because diversification cannot eliminate systematic risk, this type of risk is the predominant determinant of the individual security risk premium. This risk is also called beta risk, (Weston & Copland, 2014).

Systematic risk proportion $(\rho^2) = \dfrac{\beta_j^2 \sigma_m^2}{\sigma_j^2}$

Where,

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

$\beta_j^2 =$ Square beta of stock j.

$\sigma_m^2 =$ variance of market return.

b. Unsystematic Risk

It is also called diversifiable risk or company specific risk or unavoidable risk. It is such a risk which is unique to the firm. The unsystematic risk is non market factors related. In other word, it arises from the project specific factors. This portion of risk is possible to reduce or eliminate through diversification of their investments. It is inherent individual companies or projects. It is the variability in the security's return caused by such factors as.

- Management capability and decisions.
- The availability of the raw materials.
- Strikes.
- The unique effects of government regulations such as pollution control.
- The effect of foreign competition.
- The particular levels of financial and operating leverage of the firm's employees.

Unsystematic risk proportion = Total variance – Systematic risk

Figure No. 2.1
Total Risk, Systematic Risk and Unsystematic Risk
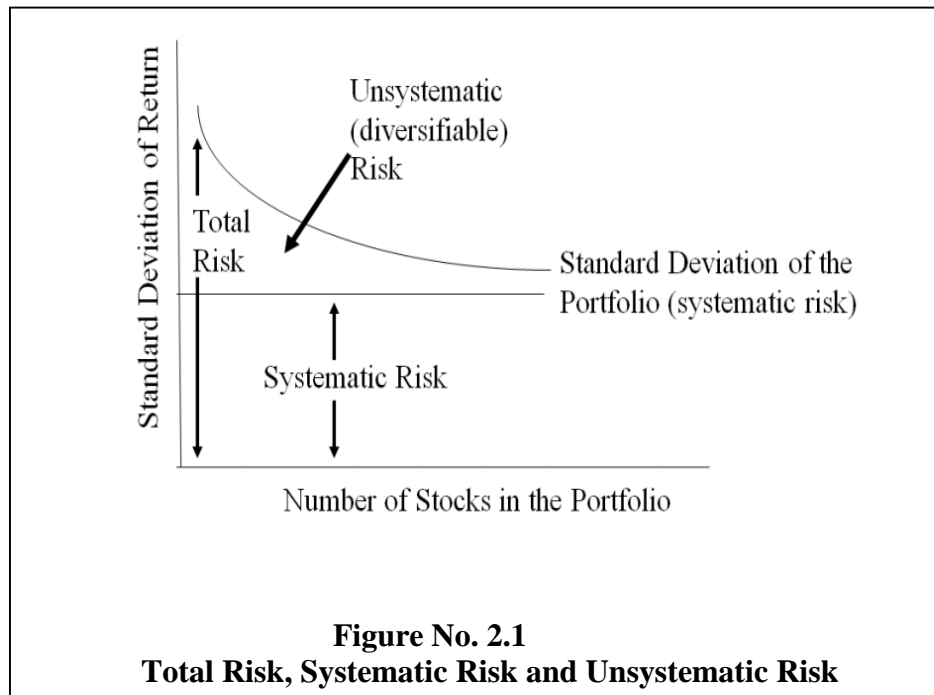
Measure of risk

Risk is the variability of the expected return. If there is more variation in the expected return, there will be more variation means more risk. If the variation is less, there will be less risk. Risk of the particular asset is measured to make investment decision. Risk can be measured by using statistical methods: standard deviation, coefficient of variation and Beta coefficient.

Standard Deviation (SD)

Standard deviation measures the risk as variability of return. Standard deviation is a statistical measure of the variability of a set of observations. It is the measure of total risk. Smaller the variance, lower the risk of the stock and vice- versa. The risk or standard deviation is denoted by the symbol sigma (σ). The square root of the variance of the rate of return is called the standard deviation (σ) of the rate of return.

$$\sigma_j = \sqrt{\frac{\Sigma[R_j - E(R_j)]^2}{n-1}}$$

Where,

σ_j = Standard Deviation on of return sock j during the time period n.

R_j= Single period rate of return on stock j.

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

n = Number of years that the returns are taken.

Coefficient of Variation (CV)

Standard deviation is obsolete measure of risk whereas coefficient of variation is relative measure of return. Risk is measured by standard deviation. And risk per unit of expected return is measured by coefficient of variation is denoted by CV. Greater the CV the greater relative risk of the investment. Coefficient of variation is calculated to compare the variability in returns of two alternative investments. Hence, it is useful to compare the investments having different expected return and different level of risk.

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

Where,

$C.V.$ = Coefficient of variation of stock j.

σ_j = Standard deviation of return on stock j.

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

Beta coefficient

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

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

Where,

β_j = Beta coefficient of stock j .

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

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

$\sigma^2_{m} =$ Variance of market return.

2.2.4 Return on Common Stock

Return is reward to the investors for bearing certain risk. It is the main target of investment. It can be defined as the after tax increase in the value of the investment. The rate of return from capital investment is a concept that has different meaning to different investors. Some competitive seek near term cash inflow and give less value to more distant returns. Return can be expressed by cash dividend or capital gain or loss. Some investors measure return using financial ratios. Single holding period return may be defined as all possible future cash flows that can be earned holding securities up to holding period. It can be also defined as the changes in the value plus any cash distribution expressed as a percentage of the beginning of the period of investment value. An investor can obtain two kind of income from the investment is a share or bonds. They are as follows;

- Income from price appreciation or losses from price depreciation. It is called capital losses and gain.
- Cash flows income from cash dividend or coupon interest payment.

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

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

Total Return = Capital Gain + Regular Gain (Ordinary Gain)

Capital Gain = Ending Price - Beginning Price

Regular Gain = Dividend or Income

Holding Period Return

If an investor purchases a stock of any companies and holds it for certain period, the return will be received on two ways, one is increase in the value of that stock as compared to initial one. Another is direct cash payment. The increase in the value is called capital gain and direct cash payment is called dividend gain.

The return from holding an investment over some period is simply a cash payment received due to ownership, plus the change in market price, derived by the beginning price. For common stock we can define one period return as;

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

Where R is the actual return when it refer to a particular times period in the past (future). D_t is the cash dividend at the end of time period t. P_t is the stock price at the time period t and P_{t-1} is the stock price at the time period of $t-1$. Notice that this formula can be used to determine both actual one period returns when based on expected dividend and prices.

The relationship between the expected future state of the economy and the performance of individual firms enables a relationship to be set forth between the state of the economy and the returns from investments in firms. The relationship between different levels of returns and their relative frequency is called probability distribution.

Required Rate of Return

Required rate of return is the minimum return that an investor expects at least not to suffer from loss. If an investor gets below the required rate he definitely suffer from loss. While suffering from loss of return an investor must consider the real rate of return, expected inflation and risk because consumption is forgone today. The investor is entitled to a rate of return that compensates for this deferred consumption.

Since the investor expects to receive an increase in that real goods purchased later and assuming for the moment zero expected inflation and risk, the required rate could equal to the real rate of return, in which case it would present the pure time value of money. The real return paid to compensate the investors deferred consumption.

The required rate of return is the function of real rate of return and risk. It is the minimum rate of return an investor will accept. The required rate of return for an assets or portfolio of assets can be estimated using the equation for the Security market line (SML) suggested by the Capital assets price model (CAPM) model.

Expected Rate of Return

The return that an investor expects from his investment in the forth-coming future is called expected rate of return. An investor normally estimates his expected rate of return by analysis the trend of return of previous period (years).

If an investment is to be made, the expected rate of return or the expected holding period return should be equal or greater than the required rate of return for that investment. The expected rate of return is based upon the expected cash receipts (e.g. Dividend or interest over the holding period and the expected ending or selling price. The expected rate of return is an ex-ante or unknown future returns. Unless the real rate of return is guaranteed, most investor recognizes this possible rate of return into a single number called the expected rate of return.

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

2.2.5 Relationship between Risk and Return

In the financial theory, risk and return have linear relationship that is low risk is ssociated with low return and high risk consequently brings high return. According to the capital assets price model CAP models, firms have their position on the security

market line (SML) and try to generate returns commensurate with their risk. The expected return from any investment proposal has been linked in fundamental relationship to the degree of risk in the proposal. In order to be acceptable a higher risk proposal must offer a higher forecast return than lower risk proposal the observe difference in both the levels and variability of the rate of return across securities are indicative of the underlying risk and relation in the market.

Generally, there is a positive relationship between rate of return and risk means an investor can usually attain more return by selecting dominant assets that involve more risk. While it is not always true that a riskier asset will pay a higher average rate of return, it is usually. The reason is that investors are risk averse. As a result, high-risk assets must offer investors' high return to induce them to make the riskier investment normally; investors are likely to prefer more return and less risk. It means investors will not choose an investment that guarantee less return when investments promising higher returns in the same level of risk class are readily available.

Risk and Return relationship can be shown by following figure.
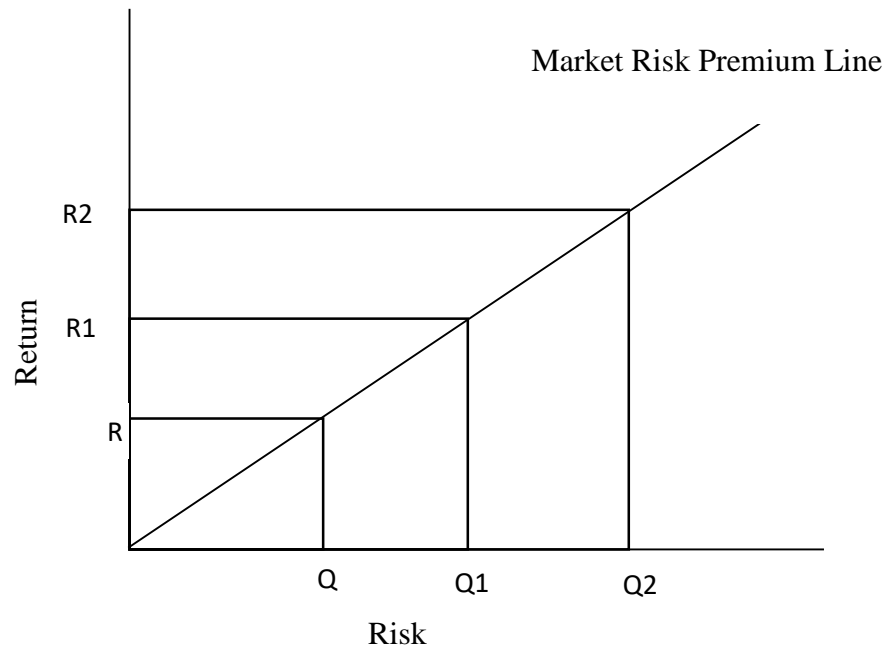
Fig No. 2.2

Relationship between Risk and Return

2.3 Empirical Review

Firm Review

In the study three companies are selected according to their established year 2008, they are Asian life insurance Company, Gurans Life insurance company and Surya Life insurance company.

Asian Life insurance Company has got operating license as per Insurance Act 2049 from Beema Samiti on 27th February, 2008 and started functioning on 3rd April, 2008. The Authorized Capital of the Company is Rs. 5 billion. Out of which Rs. 2.01 billion is currently paid up. (70% by the promoter and the remaining 30% by the general public.) Company has 93 promoters with 91 individual promoters. Mahalaxmi Development Bank Limited, Kathmandu Guheshwori Merchant Banking & Finance Ltd., Lalitpur are the major institutional promoters. Asian Life is serving the nation through its more than 140 branch network across the nation. It offers bonus rate from Rs. 42 to Rs. 87 per year per thousand (as per declared bonus rate of FY 018/19).

Gurans Life Insurance Co. Ltd. has been established and registered under Company Act 2063 B.S and Insurance Act 2049 as a public limited company and was issued a license to operate Life Insurance Business on 2064/12/18. Gurans Life Insurance Co. Ltd. is promoted by Dugar Group, Sunrise Bank Ltd. along with group of diverse and renowned Businessmen, Industrialist and Legal professionals. Company have total authorized capital of 200 crore. Out of which issued and paid up capital is also Rs 93.852 crores. 30% of the issued capital has been allotted to the public through IPO and 70% has been subscribed by the promoters. Total shareholders of the company are approx. more than 26000. The company is in the process of increasing paid up capital to 200 crores. The Company has made reinsurance arrangement with SCOR GLOBAL LIFE SE, SINGAPORE and Nepal RE.

Surya Life Insurance Company Ltd. has been established and registered under Company Act 2063 B.S.(Regd. No. 1006/063-64) and Insurance Act 2049 as a Public Limited Company and was issued a license to operate Life Insurance Business on 2064/12/06(19th March'08). The authorized capital of the company is NRs 300 crore and Paid up Capital of the company is NRs 215.51 crores. The contribution ratio of

promoter and public is 70% and 30% respectively. The Company has made reinsurance arrangement with Nepal Re-Insurance Co. Ltd.

2.3.1 Review of Journal articles

Ghimire, (2020) had study the situation of insurance service in Nepal. Nepalese insurance industry experienced slow growth over the long period. After 2001, it got momentum. There is the domination of commercial insurers in insurance industry but the domain of social insurance and social security programs also growing immensely. The regulatory issues in insurance sector is crucial as the industry has been faced poor corporate governance practices, poor quality of services, rising of fraudulent activities, low insurance coverage and penetration, under insurance, misspelling and force selling, lack of qualified insurance personnel etc. Concluding the paper, the scope of commercial insurance is broader and social insurance is essential, government should be serious to frame the comprehensive insurance and social security policy of the country and need to be regulated under the integrated framework. Insurance Board also need to pay proper attention on production of the qualified human resource, research based regulations, and promotion activities with close collaboration to academic institutions. Insurance is a pillar of the financial system, permanent sources of fund to banking sector and capital market. For the financial stability and sustainable economic growth, there should be sound coordination among the regulatory authorities and market players. The ultimate goal of these organizations should be to ensure the protection of rights of the customers.

Gurung, (2010) found that the growth of insurance policies for both life and non-life insurance study period. The study shows that the insurance policies for both life and non-life insurance are progressively increasing over the study period in Nepal. Similarly, the premium collection and its contribution in GDP are also increasing year after year. Likewise, the investment of life and non-life insurance companies is also increasing positively as the relationship between life and non-life insurance is significant during the study period. The growth trend of total premium collection and total investment are increasing and they have significant relationship with each other. These all facts reveal that the performance of Nepalese insurance companies is satisfactory. More specifically, the performance of both life and non-life insurance companies in terms of premium collection and investment is satisfactory in Nepal.

Ishtiaq and Siddiqui, (2019) this study has covered some of the important ratios used in insurance sector to find leverage and liquidity of the insurance company's insurance leverage and capital surplus ratio. The inflation factor which is significant and positively related to profitability is also used in this study to find the profitability. The inflation has different implications on the profitability of the firm. The benefit of the benefit of inflation on firm, the nominal revenue will become negative which will help a company to its debt. The debt real value will be decreased which reduce the value to debt to pay off and will affect profitability. But it may also cause negative impact and will raise demand but as life insurance companies are service providing company it will also be in their benefit. The study which was previously conducted haven't covered whole life insurance sector but in this study all life insurance companies till date are included in this study.

Kandel, (2018) found that is taken into the account and study found that there is a positive relationship between risk and return. Most of the investors are risk averter. It suggest to construct appropriate portfolio instead of investment in a single security which would be able to reduce unsystematic or diversifiable risk. Both quantitative and qualitative analysis has been analyzed by using scientific methods. After the analysis of risk and return of sample bank, it is concluded that all the commercial banks are very much risky with fluctuated rate of return. From the findings of beta coefficient of each sample bank, the C.S. of NABIL is seems very much volatile than NIBL stock. It was also found that both selected bank have a high proportion of unsystematic risk.

Purani, (2017) writes that life insurance is an agreement between policy holder and insurance company, which gives assurance to the rest of the family members to survive best. Dreams come fulfill in the absence of policy holder when policy holders have taken sufficient insurance of their human life value. There are number of plans with life insurance companies like endowment plan, term plan, pension plan, health plan, retirement plan, child education plan etc. Plan may be taken by an individual based on age criteria and their future planning.

Venkatesh and Reddy, (2018) concluded that in order to get the money which, the investor has invested in the market, he should make use of this study. The investor should have the capability to analyses the various investment options available to him

and thus minimize the risk and maximize the returns. Beta is useful in comparing the systematic risk of different stocks & for investors to judge a stock's riskiness. Based on these calculations we can conclude that investor should get updated with the market fluctuations so that he can select the best companies to invest their funds.

2.3.2 Review of thesis

Different theses are reviewed in this context.

Basaula, (2015) study was based on primary information. Descriptive studies are the researcher collected the quantitative data, using statistical tools. The information generated through quantitative data was studied qualitatively to generate findings regarding life insurance pattern and influence of claim settlement strategies in Nepal. Objectives of the study were, to explore the claim settlement practices of life insurance companies (LICs) in Nepal. To analyze the maturity claim, survival benefits and the death claim settlement of LICs to explain portion of systematic risk and unsystematic risk from the total risk.

He recommends, understanding the claim settlement of management and leading to a refinement of the good practices and the design. It would be valuable to be able to make a claim about acceptance and efficiency of the findings of the research if further researches produce evidence of the value of the design framework in similar situations. There needs to be more research conducted in the field of claim settlement and the policy holders' understanding of life insurance policy use and claim settlement improvement in Nepal.

Maharjan, (2018) compared three commercial bank NIBL, NABIL and HBL to analyze Risk and Return on Common Stock Investment. She used quantitate, descriptive method with secondary data in the study. The objectives of the study, to identify whether stocks of selected companies are over-priced, underpriced and equilibrium prices. To identify the proportion of systematic and unsystematic risk of a common stock. Findings of the study were, Standard deviation of HBL is high. The common stock of all listed commercial bank which are analyzed are underpriced. The average expected return of common stock of three sample commercial banks is 44.34 percent and the risk associated with this return is 43.15 percent. On the basis of Portfolio analysis, three assets portfolio is constructed and the portfolio return is and

the portfolio risk associated with this return is approximately equal to average risk and expected return. The proportion of unsystematic risk from the total risk was high in NABIL. So she suggest to invest in NABIL.

Ojha, (2015) studied on Investment Policy of Everest Bank Limited (EBL) and Himalayan Bank Limited (HBL). The study was conducted based on secondary data. Out of 28 Commercial Banks only 2 Commercial Banks are selected as sample. The researcher has used some statistical tools like trend analysis, mean, CV and financial tools like activity ratios, risk ratio, profitability ratio to analyses the study. objectives of his study were to find out the relationship between total investments, deposits, loans and advances, net profit and assets and compare them, evaluate the liquidity, assets management, efficiency, profitability and risk portion of EBL and HBL, analyze the deposit utilization trend and its projection for five years of HBL and EBL, provide package of a workable suggestions and possible guidelines to improve investment policy. The findings of the studies, the liquidity position of EBL was comparatively better than HBL.EBL had the highest cash and bank balance to total deposit ratio, cash and bank balance to current assets ratio than that of HBL. Both EBL and HBL had almost same pattern of investment on government securities, but fluctuating ratios showed the unstable policy of investment. The asset management ratios of both banks are satisfactory.

Oli, (2013) analyzed risk and return of investment in common stock of Insurance companies. To determine relation of each Insurance company with the industry index. To evaluate common stock's price under CAPM method. The study summarize, Expected rate of return of insurance sector is percent with the Standard deviation of percent and coefficient of variation of insurance index is. The common stock of Surya Insurance Company (SIC), National Life Insurance Company Ltd (NLIC) & United Insurance Company (UIC) are underpriced and the common stock of NLICL and SICL are overpriced. From the analysis of optimal portfolio creation between SIC and UIC it is find that, the optimum portfolio is made if investment is made into 50 percent and 50 percent of SICL & UIC common stock. The proportion unsystematic risk on total risk of NLICL has high value. Hence, he suggests investing in UIC to get the maximum return due to less risk and had high returns from them.

Shahi, (2012) compared two insurance company on the basis of risk and returns in which he discovered Everest Insurance Company Ltd (EIC) gives maximum returns than Surya Insurance Company Ltd (SIC).Risk is measured in terms of SD where, EIC is bears more risk than SIC.EIC had have high beta coefficient so, EIC is the aggressive type of common stock. There is a lot of gap between this two insurance company due to portfolio risk and returns where EIC have high portfolio returns. Since both have positive and low correlation it is favorable for the investor.

Shrestha, (2009) studied under annual report of sample insurance companies for 6 consecutive years starting from 2003 to 2009. In this study quantitative, analytical and descriptive research design are used. It covers quantitative method in a greater extent and analyze risk and return of five insurance companies in Nepal with about 30 percent of population sample. This study also tries to analyze portfolio construction separate systematic and unsystematic risk, to find out proportion of diversified and undiversified risk.

Tools used for the research are financial tools and statistical tools Objectives of the research were to measure the risk and return associated with the stocks of listed insurance companies. To segregate the total risk of individual stock into systematic and unsystematic risk and scrutinize its relation with return on stock and to find their consistencies.

Majors finding of the study, Everest Insurance Company Ltd (EIC) has highest expected rate of return on common stock and National Life General Insurance Company Ltd (NLGIC) has lowest expected rate of return on common stock Similarly, the common stock of EIC is most risky asset, which has highest standard deviation and NLGIC's stock is less risky due to lowest standard deviation EIC has the maximum market capitalization and the market capitalization of HGIC is low.
Miss Shrestha recommends to aggressive investor to invest in EIC stock due to high risk and returns, risk adverse investor can invest in NLGIC due to low risk and returns, among all sample stocks EIC and NLGIC have higher unsystematic risk.

2.4 Research Gap
Although some previous research has conducted their thesis in the similar topic, there is fundamental difference between those and this present one. The previous

researchers focused only on the risk and return aspect of selected life insurance companies from investors perspectives. This research has tried to identify the correlation among returns of the life insurance companies under study which plays a significant role in risk reduction by portfolio construction and systematic and unsystematic risk has been identified for each company which is rarely found. Some researchers had drawn their findings and determined the risk-returns of assets or securities based on very limited statistical tools and techniques. Variables like market price of the stock (MPS), Dividend per share (DPS) and Holding period returns (HPR) are used. Moreover, some researchers have done the comparative study on the both life and nonlife insurance company, this study is purely related to life insurance companies.

This research has taken three life insurance companies among 19 life insurance Company, which are listed in Nepal Stock Exchange. Here, in this research current six year's data from 2013/14 to 2018/19 has been taken for analysis which is not included by past researcher. It is also based on financial as well as statistical tool and techniques to provide meaningful analysis and interpretation. For which descriptive and analytical method are used in this research. The fact to carry out this thesis is to provide investors more reliable, accurate and updated information for clear conclusion than past researcher.

CHAPTER III
RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is the systematic way of solving research problems and which ultimately refer to the overall research process. It includes all the procedures from theoretical framework to the collection and analysis of the data. As most of the data are quantitative, the research is based on the specific models

In this study all the data are secondary and the observed data is analyzed with using appropriate financial and statistical tools. This chapter includes research design, sources of data, analytical tools and procedures of collection and analysis of data.

3.2 Research Design

It deals with the common stock of three listed life insurance company i.e. Asian life Insurance Company Ltd, Gurans life Insurance Company Ltd & Surya Insurance Company Ltd on the basis of available information. For the portfolio analysis, the common stocks of the selected life insurances are taken into account. This study is more analytical and descriptive. Financial analysis with various statistical and financial tools has also been used for analysis aspect.

3.3 Population, Sample and Sampling Design

This study is based on the comparative study of risk and return on the basis of common stock investment of three life insurance listed in Nepal Stock Exchange covering the data from fiscal year 2013/14 to 2017/18. Population is all the listed companies in NEPSE. Concentration of this study is listed life insurance only. For this three life insurance (Asian life Insurance Company Ltd (ALICL), Gurans life Insurance Company Ltd (GLICL), and Surya life Insurance Company Ltd (SLICL),) are selected as sample.

These insurance are selected for sample as the establishment of ALICL, GLICL and SLICL are on the same year (2064 BS).

Table No.3.1: List of Life Insurance Companies

SN	Company Name	Date Of Establishment (in B.S)
1	Rastriya Beema Sansthan	Poush 1,2025
2	National Life Insurance Company Limited	Poush 23, 2044
3	Nepal Life Insurance Company Limited	Baishak 4, 2058
4	Life Insurance Corporation (Nepal) Limited	Sharawan 18, 2058
5	American Life Insurance Company(Metlife)	Sharawan 23, 2058
6	Asian Life Insurance Company Limited	Chaitra 6, 2064
7	Gurans Life Insurance Company Limited	Chaitra 18, 2064
8	Surya Life Insurance Company Limited	Chaitra 21, 2064
9	Prime Life Insurance Company Limited	Jestha 22, 2065
10	I.M.E. Life Insurance Company	Ashad 20, 2074
11	Jyoti Life Insurance Company	Ashad 20, 2074
12	Union Life Insurance Company	Ashad 20, 2074
13	Sun Nepal Life Insurance Company	Sharawan 18,2074
14	Reliance Life Insurance Company	Sharawan 18,2074
15	Reliable Nepal Life Insurance Company	Sharawan 18,2074
16	Citizen Life Insurance Company	Bhadra 7, 2074
17	Sanima Life Insurance Company	Bhadra 7, 2074
18	Prabhu Life Insurance Company	Bhadra 7, 2074
19	Mahalaxmi Life Insurance Company	Magh 21, 2075

Source: Insurance Board Nepal, 2019

3.4 Nature and Source of Data

The data required for the research is collected from the secondary sources. Data related to the market prices of stocks, market capitalization, movement of NEPSE index etc. are taken from the trading report published by NEPSE and website of Nepal Stock Exchange. Annual report of Life insurance and their financial statement are also collected from website of the respective sample insurance. NEPSE periodicals, articles and precious research report etc. has also been considered.

3.5 Data Collection Procedure and Instrument

A host of analytical tools can be applied to perform risk and return analysis of a firm. To achieve the objectives of research, this study has used various financial and statistical tools that the necessary to find out results. The data presented in the study shall be analyzed by the following tools:

Market Price of the Stock (MPS)

Market price of stock is one of the major data of this study. There are three types of prices high, low and closing price of each year. For the analysis, single one is needed, so average price (that of high and low) or closing price approaches can be used. Due to the variance in price within a year, it is difficult to predict the market price. So, in this study the closing price is taken as the market price of the stock which has specific time span of one year and the study has focused in annual basis.

Dividend per Share (DPS)

Dividend is the part of earning that is 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 total amount of dividend out of earning available to the shareholder if distributed, the common stock's portion is said Dividend per share (DPS). Symbolically, DPS can be expressed as follows:

$$DPS = \frac{The\ total\ amount\ of\ dividend\ paid}{No.\ of\ shares\ outstanding}$$

To get a real amount of dividend following model has been used throughout.

Net dividend amount = Cash dividend + Stock Dividend% * Next Year's MPS.

Holding Period Return (HPR)

The holding period is the period of time over which one wishes to measure the return on an investment alternative. The holding period return is the total return earned from the holding an investment for a specified period of time (the holding period). It indicates the summation of price appreciation and dividend gain. Here price appreciation means gain on capital investment. The holding period return is easy to use in making investment decisions because it considers both current income and capital gains relative to the beginning investment value, it tends to overcome any problems that might be associated with comparing investments of different size. The alternative having higher HPR is accepted for investment.

Symbolically,

HPR or Simple

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

Where,

R=Annual rate of return

P_t=Ending price of the stock at time 't'

D_t=Dividend receive at time 't'

P_{t-1}=Beginning price of stock at time 't'

Expected Rate of Return $E(R_j)$

Expected rate of return $E(R_j)$ is the arithmetic mean of the past years returns. It can be calculated using the following formula,

$$E(R_j) = \Sigma P_j \times R_j$$

Where,

$E(R_j)$ =Expected rate of Return of stock j

P_j= Probability distribution of stock j

R_j= Return on stock j

In another way, when historical data (time series data) are given, it can be calculated as

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

Where,

$E(R_j)$= Expected rate of Return of Stock j

R_j= Return on stock j

n = Number of observation

3.4.1 Standard Deviation (σ)

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

If data given as time series,

$$\sigma_j = \sqrt{\frac{\Sigma[R_j - E(R_j)]^2}{n-1}}$$

If data is probability distribution

$$\sigma_j = \sqrt{\sum_{t=1}^{n}[R_j - E(R_j)]^2 P_j}$$

Where,

σ_j= Standard Deviation on return of stock j during the time period n.

P_j = Probability distribution of the observation.

R_j = Single period rate of return on stock j.

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

n = Number of years that the returns are taken.

3.4.2 Coefficient of Variation (C.V.)

It is the relative measurement of risk with return. It measures the risk per unit of return. It provides a more meaningful basis for comparison when the expected returns on two alternatives are not the same. The C.V. is a measure of relative dispersion that is useful in comparing the risk of assets with differing expected return. Higher the coefficient of variation, greater the risk, which is expressed as follows:

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

Where,

$C.V.$ = Coefficient of variation of stock j.

σ_j = Standard deviation of return on stock j.

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

3.4.3 Beta Coefficient (β)

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

Beta coefficient shows the market sensitivity of stock. Higher the beta, greater the sensitivity and reaction to the market movement. Beta coefficient of a particular stock will be less than, equal or more than 1, but the beta for market will be always 1, but the beta of market beta serves as a benchmark or measuring scale for the evaluation of risk of individual stock. Beta coefficient can be expressed as follows.

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

Where,

β_j = Beta coefficient of stock j .

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

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

$\sigma^2{}_{m =}$ Variance of market return.

3.4.4 Correlation Coefficient (P_{ij})

Correlation coefficient defines the degree of relationship between two assets whether they are going in same direction or opposite direction. Two variables are correlated

when they are related that the change in the value of one variable is accompanied by change in the value of other. Correlation may be positive or negative. If return on two securities are negatively correlated which combined in portfolio reduces the risk. If securities are positively correlated risk cannot be reduced. Correlation coefficient is negative or positive which ranges from +1 to -1. It can be calculated as.

$$P_{ij} = \frac{Cov_{ij}}{\sigma_i \sigma_j}$$

where,

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

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

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

3.4.5 Covariance

The covariance is the statistical measure of relationship between two random variables. It is the measure of how the returns of two assets move together. If the returns of the two securities move in the same direction consistently the covariance would be positive. If the return of the two securities moves in the opposite direction consistently the covariance would be negative. If the movement of returns were independent of each other, covariance would be close to zero. Hence, covariance defines the combined risk or accumulated risk between two assets. Covariance and correlation are closely related, covariance between two assets can be calculated by using following formula.

Covariance between securities i and j.

$$(Cov_{ij}) = \frac{\Sigma[R_i - E(R_i)][R_j - E(R_j)]}{n - 1}$$

Where,

R_i = Rate of return of security 'i'

$E(R_i)$= Expected Return of security 'i'

R_j = Rate of return of security 'j'

$E(R_j)$ = Expected Return of security 'j'

3.4.6 Return on Market

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

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

Where,

R_m = Return on Market

NI_t = NEPSE index at time t

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

3.4.7 Expected Return on market, E (R$_m$)

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

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

Where,

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

ΣR_m = Summation of market return.

n = Number of samples period.

3.4.8 Partitioning of Total Risk

Systematic risk proportion $(\rho^2) = \frac{\beta_j^2 \sigma_m^2}{\sigma_j^2}$

Unsystematic risk proportion $(1 - P^2) = \frac{Var(e)}{\sigma_j^2}$

Where,

σ_j^2 = Variance of stock j.

β_j^2 = Square beta of stock j.

σ_m^2 = variance of market return.

$Var(e)$= residual variance.

CHAPTER IV
RESULTS AND DISCUSSION

4.1 Results

This chapter including analysis of data collected and their presentation. In this chapter the effort has been made to analyze "Risk and return analysis of Nepalese Life Insurance Companies;." Detailed data of MPS and dividend of each sector, NEPSE index of each sector and market is presented and their interpretation and analysis is done. With reference to the various readings and literature review in the previous chapter, effort is made to diagnose and analyze the recent Nepalese stock market movement with taking a special reference to listed Insurance Company. Different tables and figures are drawn to make the result more simple and understandable.

The use of secondary data is much extensive which are collected through the records of annual report. The data have been collected from the published and unpublished official records of samples three Life Insurance companies, previous studies, financial statement and annual report of the selected companies.

In this study the analysis is based on the secondary data that is presented in following way:

- Expected return
- Standard deviation
- Coefficient of variation
- Analysis of Market sensitivity
- Analysis of portfolio

4.1.1 Data Presentation and Analysis

As the study has been taken special reference to listed Life insurance companies, common stock of listed Life insurance companies is analyzed individually. There are Nineteen Life Insurance Company and all are in operation till to date. Among them only three Life Insurance are taken as sample of study. Each company is introduced and their common stock risk and return are analyzed and interpreted here. Name of the selected three Life insurance companies are as follows.

Asian Life Insurance Company Limited (ALICL)

Table 4.1: MPS and DPS of Common Stock of ALICL

Fiscal Year	Closing Price Year End	Cash Dividend	Stock Dividend (%)	Total Dividend	$R = \dfrac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$R - E(R_j)$	$(R - E(R_j))^2$
2013/14	1250	1.5	28.5	30	4.1613	3.5672	12.7247
2014/15	1013	0	0	0	-0.1896	-0.7837	0.6142
2015/16	1710	1.05	20	21.05	0.7088	0.1147	0.0131
2016/17	1458	0.21	4	4.21	-0.1449	-0.7390	0.5462
2017/18	683	0	0	0	-0.5315	-1.1256	1.2671
2018/19	383	0	0	0	-0.4392	-1.0333	1.0678
					ΣR =3.5648		$\Sigma(R - E(R_j))^2$ =16.2332

Source: Mero Share .cdsc.com.np

Expected Return, E (R_j) = 0.5941

Standard Deviation (σ) = 1.8018

Coefficient of Variation (C.V) = 3.0328

Table 4.1 shows high, low and closing market price per share of ALICL from FY 2013/14 to FY 2018/19. The market price of ALICL is in increase in FY 2013/14 and declined in FY 2014/15 and again increased in FY 2015/16 and again decreased 2016/17 and reached to 1458. The total dividend includes cash as well as stock dividend. ALICL gave stock dividend every year. The maximum MPS was in the year 2015/16 and minimum MPS was in the year 2018/19. The highest dividend is 21.05 paid in the year 2015/16 whereas minimum dividend paid was in the year 2013/14 i.e. 30.

Realized return, expected return, standard deviation and coefficient of variation of ALICL. The realized return and expected return of ALICL were 3.5648 and 0.5941 whereas its standard deviation and C.V. is 1.8018 and 3.0328 respectively. This means that for earning one extra unit of return from the share of ALICL investors have to bear 3.0328 unit of risk.

Gurans Life Insurance Company Limited (GLICL).

Table 4.2: MPS and DPS of Common Stocks of GLICL

Fiscal Year	Closing Price Year End	Cash Dividend	Stock Dividend (%)	Total Dividend	$R = \dfrac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$R - E(R_j)$	$(R - E(R_j))^2$
2013/14	650	0	0	0	3.2763	2.6132	6.8290
2014/15	582	0.52	10	10.52	-0.0884	-0.7515	0.5648
2015/16	950	0.421	8	8.421	0.6468	-0.0163	0.0003
2016/17	1020	0.421	8	8.421	0.0825	-0.5805	0.3370
2017/18	885	0	5.25	5.25	-0.1272	-0.7903	0.6246
2018/19	465	0	0	0	-0.4746	-1.1377	1.2943
					ΣR =3.3154		$\Sigma(R - E(R_j))^2$ =9.6499

Source: Mero Share .cdsc.com.np

Expected Return, $E(R_j)$ =0.5526

Standard Deviation (σ) = 1.3892

Coefficient of Variation (C.V) =2.5139

Table 4.2 shows high, low and closing market price per share of GLICL. The market price of GLICL has increased from FY 2014/15 to 2016/17and started declining in FY 2018/19 and reached to 465. Closing market price was maximum in the year 2016/17 i.e. 1020 and minimum in the year 2018/19 i.e. 465. In FY 2014/15 GLICL has distributed the highest dividend i.e. 10.52 and during FY 2013/14 and 2018/19 GLICL distributed no dividend.

The table shows that the realized return, expected return, standard deviation and coefficient of variation of GLICL. The realized return and expected return of GLICL were 3.3154 and 0.5526 whereas its standard deviation and C.V. was 1.3892 and 2.5139 respectively. This means that for earning one extra unit of return from the share of GLICL, investors have to bear 2.5139 unit of risk.

Surya Life Insurance Company Limited (SLICL)

Table 4.3: MPS and DPS of Common Stocks of SLICL

Fiscal Year	Closing Price Year End	Cash Dividend	Stock Dividend (%)	Total Dividend	$R = \dfrac{P_t - P_{t-1} + D_t}{P_{t-1}}$	$R - E(R_j)$	$(R - E(R_j))^2$
2013/14	750	0	0	0	3.5181	2.8363	8.0445
2014/15	709	0	5	5	-0..480	-0.7298	0.5326
2015/16	940	0	10	10	0.3399	-0.3419	0.1169
2016/17	1070	0.63	12	12.63	0.1517	-0.5301	0.2810
2017/18	600	0	12	12	-0.4280	-1.1098	1.2317
2018/19	456	5.526	5	10.526	-0.1247	-0.8065	0.6505
					ΣR =3.4089		$\Sigma(R - E(R_j))^2$ =10.8571

Source: Mero Share .cdsc.com.np

Expected Return, E (R$_j$) = 0.5682

Standard Deviation (σ) = 1.6475

Coefficient of Variation (C.V) = 2.8995

Table 4.3 shows high, low and closing market price per share of SLICL. SLICL has least MPS during FY 2018/19 i.e. 456 and highest during FY 2016/17 i.e. 1070. It also shows that SLICL has distributed highest dividend to its shareholders during FY 2015/16 i.e.10 and distributed least dividend during FY 2014/15 i.e. 5. No dividend in 2013/14.

The table shows that the realized return, expected return, standard deviation and coefficient of variation of SLICL. The realized return and expected return of SLICL were 3.4089 and 0.5682 whereas its standard deviation and C.V. was 1.6475 and 2.8995 respectively. This means that for earning one extra unit of return from the share of SLICL, investors have to bear 2.8995 unit of risk.

Comparative Analysis of Risk and Return

The result from previous section (4.2) is presented here in a tabular and graphic form from the year 2013/14 to 2018/19.

Table 4.4: Expected Return, S.D. and Coefficient of Variation of each Insurance

Insurance	Expected Return $E(R_j)$	Standard Deviation (σ)	Coefficient of variation $(C.V)$	Remarks		
				$E(R_j)$	(σ)	$(C.V)$
ALICL	0.5941	1.8018	3.0328	Highest	Highest	Highest
GLICL	0.5526	1.3892	2.5139	Lowest	Lowest	Lowest
SLICL	0.5682	1.6475	2.8995	Average	Average	Average

Source: Mero Share .cdsc.com.np

Table 4.7 shows that investors can get the highest return from investment in common stock of ALICL and lowest return from investment in common stock GLICL. Therefore on the basis of expected return, ALICL Limited is desirable for investment because it has higher expected rate of return than return on stock of GLICL. Since standard deviation provides a quantitative tool for assessing and comparing investment risk, ALICL has the highest whereas GLICL has the lowest standard deviation. It indicates that ALICL is more risky investment. Hence GLICL is preferable for investment as it has lower standard deviation. But coefficient of variation is best way to make investment decision in common stock when two or more investment has different return and different risk. Coefficient of variation measures the risk per unit. By comparing the coefficient of variation of the investment, ALICL has highest and GLICL has lowest C.V. which indicates that it is better to make investment in common stock of GLICL. Since, SLICL has average in all expected return, standard deviation and CV. Hence, coefficient of variation to compare investment risk is effective because it also considers average return of each investment. The comparison can easily be understandable from the figure 4.4 presented below.

	Expected Return E(Rj)	Standard Deviation(σ)	Coefficent of variation(C.V)	
ALICL	0.5941	1.8018	3.0328	
GLICL	0.5526	1.3892	2.5139	
SLICL	0.5682	1.6475	2.8995	
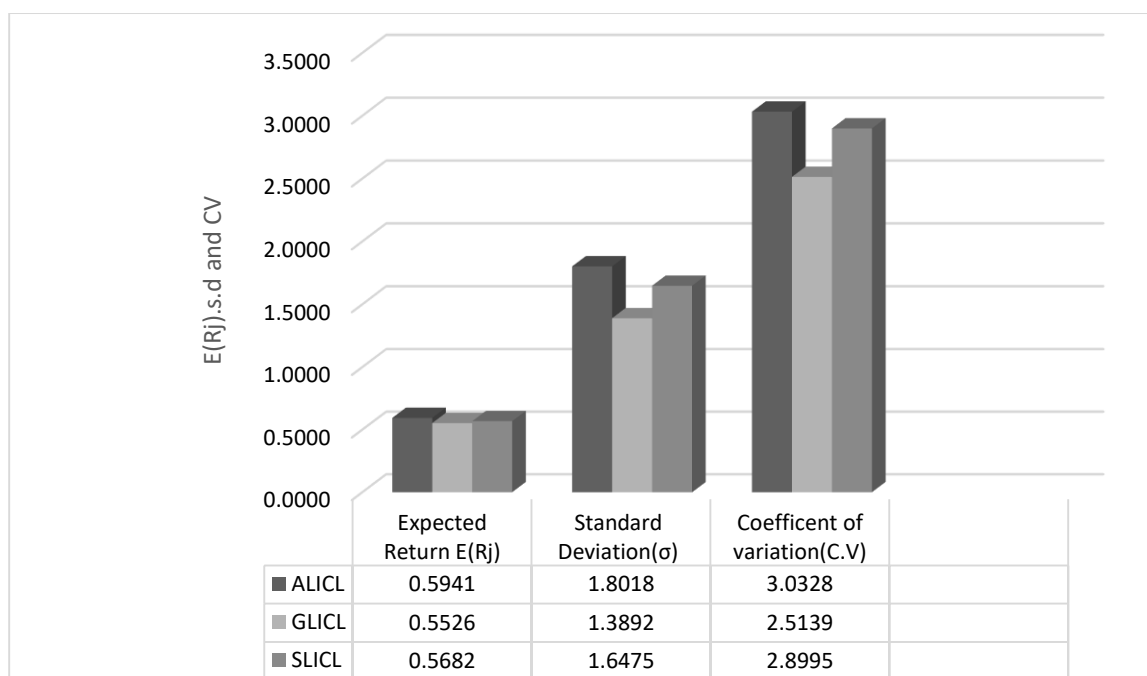
Figure 4.4 Risk and Return of selected Life insurance companies

Comparison of Selected Life Insurance Companies on the Basis of Market Capitalization

Market Capitalization is the total value at specific period of time. The market capitalization of listed securities of the three Life insurance companies at the end of the fiscal year 2017/18 is presented below.

Table 4.5: Market Capitalization of Selected Life Insurance Companies

(Rs. In Millions)

S. No.	Life Insurance Companies	Market Capitalization	Percentage (%)
1	ALICL	11662.41	37.65
2	GLICL	9272.57	29.93
3	SLICL	10042.94	32.42

Source: Annual trading report 2018/19, NEPSE

Table 4.5 shows the market capitalization of selected life insurance companies at the end of the fiscal year 2018/19. The market capitalization of ALICL is highest by 37.65 percent and the market capitalization of GLICL is low by 29.93 percent. The market capitalization of selected life insurance companies are presented in the figure

below.
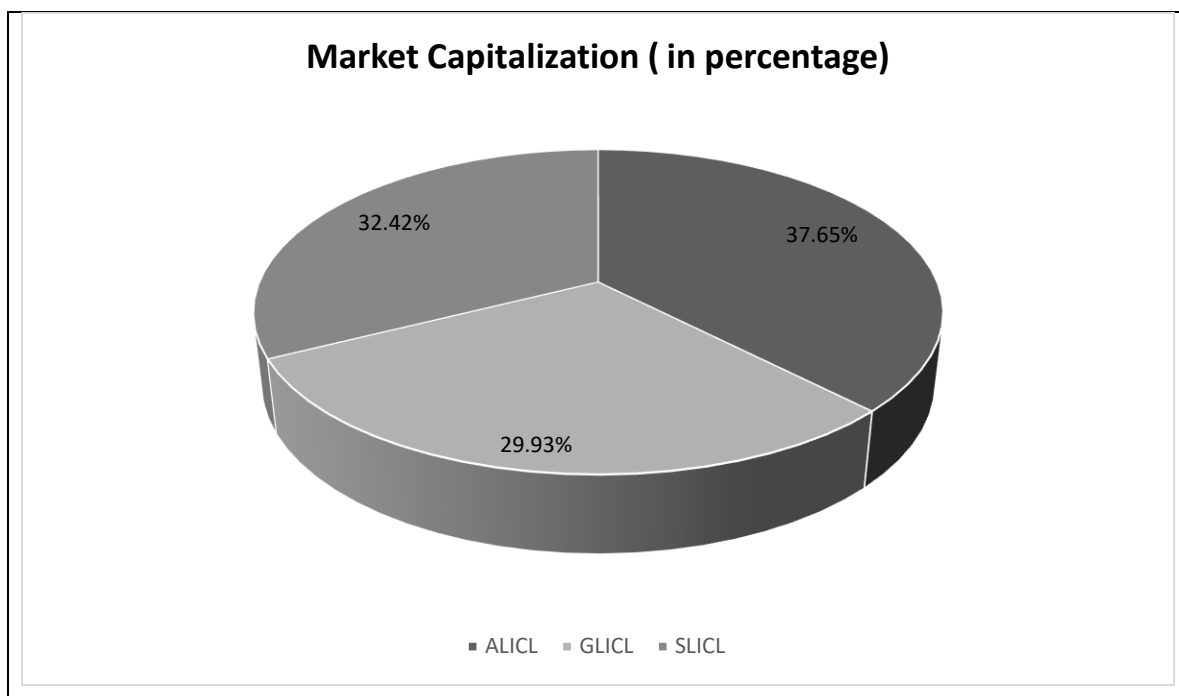
Figure 4.5 Market Capitalization of Selected Life insurance companies

Analysis of Market Risk and Return

A market index is a method of measuring the value of a section of the stock market. It is computer from the prices of selected stocks. It is a tool used by investors and financial managers to describe the market, and to compare the return on specific investments. Nepal Stock Exchange Limited (NEPSE) is only one stock market of Nepal. It is an organized secondary market for listed securities. NEPSE calculates the index, which is known as NEPSE index. NEPSE is a market value index or it is based on total market capitalization. Hence, NEPSE index represents the overall market movement. Market Risk and Return is determined on the basis of year-end NEPSE index.

Realized return, expected return, standard deviation and coefficient of the variation of Market Index are summarized below.

Table 4.6: Realized Return, Expected Return, Standard Deviation and Coefficient of Variation of Market Index

YEAR	Year-end Index	$R_m = \dfrac{NI_t - NI_{t-1}}{NI_{t-1}}$	$R_m - E(R_M)$	$[R_m - E(R_M)]^2$
2013/14	1036.11	1.0002	0.7601	0.5777
2014/15	961.23	-0.0723	-0.3125	0.0976
2015/16	1718.15	0.7874	0.5473	0.2995
2016/17	1582.67	-0.0789	-0.3191	0.1018
2017/18	1212.46	-0.2339	-0.4741	0.2247
2018/19	1259.017	0.0384	-0.2018	0.0407
	Total	$E(R_m) =$1.4409		$\Sigma[R_m - E(R_M)]^2 =$1.3420

Source: Annual trading report 2018/19, NEPSE

Expected Return E (R_m) = 0.2402

Standard Deviation (σ_m) = 0.5181

Coefficient of Variation (C.V) = 2.1570

Table 4.6 shows the risk and expected rate of return on overall market by the end of the FY 2018/19 is 14.40 percent & 24.02 percent respectively. According to year end index, NEPSE index declines in 2014/15 i.e. 961.23. The NEPSE index is highest in the fiscal year 2015/16 and lowest in the fiscal year 2014/15. After 2013/14, due to decrease in share transaction NEPSE index decline to 961.23 from 1036.11.

Comparison of Sample Life Insurance Companies with Market

Asian Life Insurance Company Limited (ALICL)

Table 4.7: Summary of Risk and Return for ALICL and Market

Statistics	ALICL	Market
Expected Return, $E(R_j)$	0.5941	0.2402
Variance (σ^2)	3.2466	0.2684
Standard Deviation(σ)	1.8018	0.5181
Coefficient of Variation (C.V)	3.0328	2.1570
Systematic risk ($\beta^2\sigma_m^2$)	2.2627	-
Unsystematic risk (e^2)	0.9838	-
Beta (β)= Index of Systematic risk	2.9035	1
Alpha (α)=Intercept	-0.1034	-
Correlation with market (ρ)	0.8348	-
Proportion of Systematic risk (ρ^2)	0.6970	-
Proportion of Unsystematic risk($1- \rho^2$)	0.3030	-

Note: Appendix I

The table 4.10 shows expected return of ALICL is higher than the market return which means common stock of ALICL expected return is (0.5941/0.2402)=2.4743 times higher than the market return. Standard deviation of ALICL is greater than the standard deviation of market, which means total risk on the ALICL return of common stock is (1.8018/0.5181)=3.4777 times riskier than return of market.

Coefficient of variation is better measure of risk because it measures per unit risk. Coefficient of Variation of market is less than coefficient of variation of market (i.e. 2.1570<3.0328) which means common stock of market has less risk per unit than the ALICL.

Beta coefficient of NABIL is 2.9035 based on the yearly returns during FY 2013/14 to 2018/19. A beta of 2.9035 ($\beta>1$) means that ALICL's return is more volatile than the market return.

The intercept(α) is -0.1034. It shows the return of ALICL when market return is zero. Expected return of ALICL is 0.2422 times when the market earns nothing.

The correlation of ALICL with market is 0.8348. The positive correlation indicates that if the market (NEPSE) return goes up, return of ALICL also goes up or vice versa. The coefficient of determination or proportion of systematic risk is 0.6970. It indicates the percentage of the variance of ALICL's return explained by the change in the market return. So it is called the systematic (market) risk and therefore, it is un-diversifiable.

The 0.3030 (1- ρ^2) residual variance is specific risk of these firms. It is called unsystematic risk and it is diversifiable.

Gurans Life Insurance Company Limited (GLICL)

Table 4.8: Summary of Risk and Return for GLICL and Market

Statistics	GLICL	Market
Expected Return, $E(R_j)$	0.5526	0.2402
Variance (σ^2)	1.9300	0.2684
Standard Deviation(σ)	1.3892	0.5181
Coefficient of Variation (C.V)	2.5139	2.1570
Systematic risk ($\beta^2\sigma_m^2$)	1.3426	-
Unsystematic risk (e^2)	0.5873	-
Beta (β)= Index of Systematic risk	2.2366	1
Alpha (α)=Intercept	0.0153	-
Correlation with market (ρ)	0.8341	-
Proportion of Systematic risk (ρ^2)	0.6957	-
Proportion of Unsystematic risk(1- ρ^2)	0.1659	-

Note: Appendix II

Table 4.8 shows the expected return on common stock of GLICL is higher than the market return which means GLICL's expected return is (0.5526/0.2402)=2.3006 times higher than the market return. Standard deviation of GLICL is higher than the standard deviation of market (i.e. 1.3892<0.5181), which means total risk on return of GLICL's stock is riskier than that of market return.

Coefficient of variation is better measure of risk because it measures per unit risk. Coefficient of Variation of GLICL is high than coefficient of variation of market (i.e. 2.5139>2.1570) which means common stock of GLICL has high risk per unit than the market price.

Beta coefficient of GLICL is 2.2366 based on the yearly returns during FY 2013/14 to 2018/19. A beta of 2.2366 (β>1) means that GLICL's return is more volatile than the market return.

The intercept (α) is 0.0153. It shows the return of GLICL when market return is zero. Expected return of GLICL is 0.0153 times when the market earns nothing.

The correlation of GLICL with market is 0.8341. The positive correlation indicates that if the market (NEPSE) return goes up, return of GLICL also goes up or vice versa. The coefficient of determination or proportion of systematic risk is 0.6957. It indicates the percentage of the variance of GLICL's return explained by the change in the market return. So it is called the systematic (market) risk and therefore, it is un-diversifiable.

The 0.1659 (1- ρ^2) residual variance is specific risk of these firms. It is called unsystematic risk and it is diversifiable.

Surya Life Insurance Company Limited. (SLICL)

Table 4.9: Summary of Risk and Return for SLICL and Market

Statistics	SLICL	Market
Expected Return, $E(R_j)$	0.5682	0.2402
Variance (σ^2)	2.1714	0.2684
Standard Deviation(σ)	1.6475	0.5181
Coefficient of Variation (C.V)	2.8995	2.1570
Systematic risk ($\beta^2\sigma_m^2$)	1.3905	-
Unsystematic risk (e^2)	1.3238	-
Beta (β)= Index of Systematic risk	2.2761	1
Alpha (α)=Intercept	0.0215	-
Correlation with market (ρ)	0.7158	-
Proportion of Systematic risk (ρ^2)	0.5123	-
Proportion of Unsystematic risk($1-\rho^2$)	0.2842	-

Note: Appendix III

Expected return on common stock of SLICL is higher than the market return which means SLICL expected return is (0.5682/0.2402)=2.3665 times higher than the market return. Standard deviation of SLICL is more than the standard deviation of market, which means total risk of return on common stock of SLICL is more risky than that of market return.

Coefficient of variation is better measure of risk because it measures per unit risk. Coefficient of Variation of SLICL is more than coefficient of variation of market (i.e. 2.1570<2.8995) which means common stock of market has less risk per unit than the SLICL price.

Beta coefficient of SLICL is 2.2761 based on the yearly returns during FY 2013/14 to 2018/19. A beta of 2.2761 (β>1) means that SLICL's return is MORE volatile than the market return. The intercept (α) is 0.0215. It shows the return of SLICL when market

return is zero. Expected return of SLICL is 0.0215 times when the market earns nothing.

The correlation of SLICL with market is 0.7158. The positive correlation indicates that if the market (NEPSE) return goes up, return of SLICL also goes up or vice versa. The coefficient of determination or proportion of systematic risk is 0.5123. It indicates the percentage of the variance of SLICL's return explained by the change in the market return. So it is called the systematic (market) risk and therefore, it is un-diversifiable. The 0.2842 (1- ρ^2) residual variance is specific risk of these firms. It is called unsystematic risk and it is diversifiable.

Table 4.10: Summary of Risk and Return for Sample

Statistic	ALICL	GLICL	SLICL
Expected Return, $E(R_j)$	0.5941	0.5526	0.5682
Variance (σ^2)	3.2466	1.9300	2.1714
Standard Deviation(σ)	1.8018	1.3892	1.6475
Coefficient of Variation (C.V)	3.0328	2.5139	2.8995
Systematic risk ($\beta^2\sigma_m^2$)	2.2627	1.3426	1.3905
Unsystematic risk (e^2)	0.9838	0.5873	1.3238
Beta (β)= Index of Systematic risk	2.9035	2.2366	2.2761
Alpha (α)=Intercept	-0.1034	0.0153	0.0215
Correlation with market (ρ)	0.8348	0.8341	0.7158
Proportion of Systematic risk (ρ^2)	0.6970	0.6957	0.5123
Proportion of Unsystematic risk(1-ρ^2)	0.3030	0.1659	0.2842

Note: Table 4.7 to Table 4.9

Price Evaluation of Selected Life Insurance Company

CAPM is model that assumes stock's required rate of return is equal to the risk free rate plus its risk premium where risk is measured by the beta coefficient. Beta

coefficient play vital role in CAPM approach. If the required rate of return is less than expected rate of return, the stock is said to be underpriced and if the required rate of return is more than the expected rate of return the stock is said to be overpriced. For this analysis the risk free rate of return is needed, which is taken from the interest rate of Treasury bill issued by Nepal Rastra Bank. NRB issued Treasury bill, 91 days and 364 days' time duration. Table 4.14 shows the required rate of return, expected rate of return and price evaluation. 91 days duration Treasury bill rate is taken as risk free rate which is approximately 0.10 percent in June 2020. (NRB, 2020)

Table 4.11: Calculation of Required Rate of Return (RRR), Expected Rate of Return (ERR) and Price Evaluation of each Stock by CAPM Model

Insurance	Beta	$(RRR) = R_f + [E(R_m)-R_f]\beta$	$E(R_i)$	Price Situation
ALICL	2.9035	0.5720	0.5940	Under Priced
GLICL	2.2366	0.4966	0.5526	Under Priced
SLICL	2.2761	0.4916	0.5682	Under Priced

Note: Table 4.1, 4.2 & 4.3

$E(R_i)$ = Expected Rate of Return (from table 4.10)

R_f = Risk free rate of return (0.10)

R_m = Market rate of return (0.2402)

β = Beta of individual sample (from table 4.10)

Table 4.11 it is observed that the stocks of ALICL, GLICL and SLICL are underpriced as their required rate of return is less than the expected rate of return. The chances of increase in value of underpriced stock in future are high so investors should buy these stocks so that they can gain higher return in future.

Analysis of Average Return of three Sample Life Insurance Companies
An investor may hold his/her investment for the number of periods and may be interested to know the average return of his/her investment. In this condition, the investor can calculate the average return over single period returns. Average return is the sum of returns in each period divided by the number of periods.

Table 4.12: Average Return of Three Life Insurance Companies

Insurances	Fiscal Year/Return						Total
	2013/14	**2014/15**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	
ALICL	4.1613	-0.1896	0.7088	-0.1449	-0.5315	-0.4392	**3.5649**
GLICL	3.2763	-0.0884	0.6468	0.0825	-0.1272	-0.4746	**3.3154**
SLICL	3.5181	-0.0480	0.3399	0.1517	-0.4280	-0.1247	**3.409**
Total	**10.9557**	**-0.326**	**1.6955**	**0.0893**	**-1.0867**	**-1.0385**	**10.2893**
Average	**3.6519**	**-0.1087**	**0.5652**	**0.0298**	**0.3622**	**0.3462**	**3.4298**

Note: Table 4.1, 4.2 and 4.3

Table 4.12 shows the average return of three life insurance Companies from the FY 2013/14 to FY 2018/19 is 3.4298. The average return of three life insurance companies is highest during the FY 2013/14 i.e. 10.9557 and lowest during the FY 2017/18 i.e. -1.0867.

Table 4.13: Statistical Analysis of Common Stock of Three Life Insurance Companies

Investment	Expected Return (%)	Standard Deviation (%)	Coefficient of Variation
Average of three life insurance companies	24.02%	51.81%	2.1570

 Note: Table 4.12

Table 4.16 shows that the expected return is 24.02 percent, Standard Deviation is 51.81 percent and coefficient of Variation is 2.1570 of three Life Insurance Companies.

Portfolio analysis among three selected Life Insurance Companies

On the basis of collective financial investment like stock, bonds, commodities, cash and cash equivalents as well as their fund are analyzed. Therefore, three life insurance companies are selected as sample for comparing portfolio of stock for which financial tools like, expected returns, SD, variance and CV are calculated.

For the three assets portfolio, let us consider A, B & C be the common stock of the ALICL, GLICL and SLICL. To calculate the three assets portfolio risk, we have to calculate covariance of three life insurance companies. Thus, table 4.17 shows the calculation of portfolio return & risk.

Table 4.14: Calculation of Portfolio Return and Risk

Investment	Expected Return (%)	Standard Deviation (%)
Portfolio of three life insurance companies	57.15%	15.46%

Note: Appendix VI

Table 4.17 shows that portfolio return of three life insurance companies is 57.15 percent and the risk association with it is 15.46 percent.

Comparison of Risk and Return of Portfolio Analysis of Three Assets and Average of Three Sample Life Insurance Companies

Table 4.15 shows the comparison study of expected portfolio return and expected portfolio risk of investments.

Table 4.15: Return and Risk of Investments

Investment	Expected Return	Risk
Average of three life insurance companies	0.2402	0.5181
Portfolio of three Assets	0.5715	0.1546

Note: Appendix VI

The table 4.18 clearly states that the average expected return of three life insurance Company is 24.02 percent and risk associated with this return is 51.81 percent. Whereas the expected return of portfolio is 57.15 percent and the portfolio risk associated with this return is 15.46 percent which is approximately equal with average expected return.

4.1.2 Major Findings

In this research, data have been basically obtained by the due secondary sources. The analysis is performed with the help of financial and statistical tools. In the financial tools, percentage, market price of stock, dividend, expected return on common stock and return of common stock investment analysis has been used to analysis the financial activities of selected commercial banks and in statistical tools standard deviation, coefficient of variation, portfolio return, portfolio risk, correlation co-efficient and required rate of return analysis has been used. This chapter focuses on the major findings, which are derived from the analysis of selected life insurance companies with applying six -year data from the 2013/14 to 2018/19.

Major findings of the above calculation are presented as follows.

i. Among 19, all life insurance companies are listed in NEPSE. Among the listed life insurance companies, only three life insurance companies i.e. ALICL, GLICL & SLICL are taken into consideration. The Expected return of three life insurance companies is 59.41 percent, 55.26 percent & 56.82 percent respectively.

ii. Standard deviation of ALICL, GLICL & SLICL is 1.8018, 1.3892 & 1.6475. The coefficient of variation of ALICL, GLICL & SLICL is 3.0328, 2.5139 & 2.8995. It is clear that investment in common stock of ALICL is highly risky whereas investment in stock of GLICL is less risky.

iii. Considering market capitalization of three life insurance companies the market capitalization of ALICL, GLICL & SLICL is 37.65 percent, 29.93 percent and 32.42 percent respectively at the end of fiscal year 2018/19. The market capitalization of ALICL is maximum by 37.65 percent and the market capitalization of GLICL is minimum by 29.93 percent.

iv. The beta coefficient of ALICL, GLICL & SLICL is 2.9035, 2.2761 and 2.2366 respectively. It proves that the common stock of SLICL is most aggressive and the common stock of ALICL is least aggressive so it is better to invest in common stock of ALICL because the beta coefficient indicates systematic risk of the assets.

v.   The proportion of systematic risk and unsystematic risk from the total risk is 69.70 percent & 30.3 percent of ALICL, 69.57 percent & 16.59 percent of GLICL and 51.23 percent & 28.42 percent of SLICL. Systematic risk cannot be diversified through creation of portfolio. It is occurred due to market factor.

vi.   Unsystematic risk can be diversified through creation of portfolio. It is occurred due to internal management factor. This study shows that ALICL has high proportion of unsystematic risk which can be minimized from internal management. Whereas, ALICL has high proportion of systematic risk this cannot be minimized from internal management.

vii.   On the basis of required rate of return and expected rate of return the study shows RRR of ALICL, GLICL & SLICL is 0.5720, 0.4966 and 0.4190 respectively. Analysis of RRR and ERR shows that all three life insurance companies have underpriced. In this situation, the investor can gain from purchase of underpriced stock.

viii.   The average expected return of common stock of three sample life insurance companies is 57.15 percent and the risk associated with this return is 15.46 percent. On the basis of Portfolio analysis, three assets portfolio is constructed and the portfolio return is 57.15 percent and the portfolio risk associated with this return is 15.46 percent which is approximately equal to average risk and expected return.

4.2 Discussion

Mostly the result of the research has been discussed under relevant table of analysis or with each data of life insurance companies. This research was entirely focused on the risk and return of common stock of life insurance companies of Nepal. The data for the research was taken from journal, financial reports of NEPSE and respective life insurance companies. A review of risk and return of life insurance companies of Nepal is very few. There is lack of study on the life insurance companies where as commercial banks and insurance companies have been many research entitled.

(Gurung, Insurance and Its Business in Nepal, 2010) Described the insurance policies for the both life and non- life insurance are progressively increasing over the study

period in Nepal. He identified that both life and non-life insurance companies in terms of premium collection and investment is satisfactory in Nepal.

(Eharhardt and Brigham, Financial Management Theory and Practice, 2014) had explored that the risk to the chance that some unfavorable event will occur, for the investment in financial assets or in new projects, the unfavorable event is ending up with lower return than you expected.

According to (Ishtiaq and Siddiqui, Factors Affecting Financial Performance of Life Insurance Sector, 2019) is to explore and analyze how organizations in Pakistan could approach improvement by adopting the performance of life insurance. By using a modification model from the American Society of Training and Development (ASTD), this paper utilizes the improvement model in its role as a management tool to institute change. It specifically examines the implications of adopting the model within the organization system in Pakistan. With increasing global demand among organizations to become more competitive, Pakistan's organizations must utilize a performance of life insurance. The benefit of inflation on firm, the nominal revenue will become negative which will help company to its debt.

This study is divided into five chapters. First chapter is introduction chapter, and this chapter include background of the study, focus of the study, statement of the problem, objectives of the study, significance of the study, limitation of the   is research methodology. This chapter includes research design, sources of data, population and sample, data analysis tools. Fourth chapter is data analysis and presentation. This chapter shows related data, table, and figure and describes of the study. Fifth and last chapter is discussion, conclusion and implications. References and annex is presented at the end of the study.

CHAPTER V

SUMMARY AND CONCLUSIONS

In the previous chapter, the data analysis was done according to the objectives of the study. This chapter presents conclusion of the research. This chapter gives a brief overview of findings of the study. It also draws inferences and conclusion forms the finding which will lead to make generalizations. Contribution of the study was discussed in this chapter. Based on the study, some recommendations have also been made.

5.1 Summary

In Nepal, there are 19 life insurance companies and 20 non - life insurance companies are listed in NEPSE. The study is about life insurance companies of Nepal. Among 19 life insurance companies only three companies are selected i.e. Asian Life Insurance Company, Gurans Life Insurance Company and Surya Life Insurance Company. The objective of the study is to measure the risk and return of the selected life insurance companies. To find the systematic and unsystematic risk related with return.to provide suggestion to investor for investing. Data of the last six years from FY 2013/14 to 2018/19 are used for the study. Market price per share, dividend per share, market index and portfolio analysis are used to analyze the risk and returns of the insurance company together with the NEPSE index.

Among, the selected life insurance companies ALICL, GLICL and SLICL we found that ALICL is the most best company for investing to the investors. The company has high return and low risk. According to the study GLICL have average risk and returns and SLICL have the lowest return among the selected life insurance companies. According to the study standard deviation and coefficient of variation is high in ALICL.ALICL has maximum market capitalization than that of GLICL and SLICL. Beta coefficient calculated that SLICL is the aggressive and ALICL is least aggressive. ALICL has high proportion of systematic risk which cannot be minimized from internal management. All three life insurance have underpriced. The investor can invest in all three insurance companies but ALICL is the less risky than that of three.

This study is limited in on three life insurance companies by their establishment year. Data, journal and other information are carried out from the annual report of the companies, NEPSE and SEBON. Due to the secondary data analysis the review of journal and previous thesis are also been included. The study is focused in quantative and analytical method. This research is completely consistent with the above research.

5.2 Conclusions

The study concluded that the expected return of ALICL is higher than GLICL and SLICL. So, investor can think to invest in the ALICL for the best returns. Standard deviation of ALICL is highest whereas SLICL is average and GLICL has lowest. Similarly, coefficient of variation of GLICL is low and ALICL have high. For which ALICL if highly risky for which the investor can think to invest in GLICL. The market risk is also the most important for the investor for investing so the market capitalization of ALICL, GLICL and SLICL should be well known. In the study it is also found that the market capitalization of ALICL is maximum and GLICL has minimum.

SLICL is the most aggressive company, which have lowest beta and ALICL is least aggressive due to highest beta value so, it is better to invest in the ALICL for the avoiding risk. ALICL has high proportion of systematic risk which cannot be minimized from internal management. SLICL has low proportion of systematic risk which can be minimized from internal management. GLICL has lowest unsystematic risk, whereas ALICL has high proportion of unsystematic risk which can be control from internal management. The analysis of RRR and ERR shows that all three life insurance companies have underpriced in this situation investor can gain from purchase of underpriced stock. On the basis of portfolio analysis is approximately equal to average risk and expected return. This study enables investors to put the returns they can expect and the risk they may take into better perspective because most of the people considered stock market investment as a black art that they have unrealistically optimistic or pessimistic expectations about stock market investments or perhaps a far of the unknown. Nepalese stock market is in emerging stage and its development is accelerating since the political change in 2046 B.S. which is the effect of open economy and liberalization in national economy.

5.3 Implications

The focus of the study is to assess risk associated with return on common stock considering individual and private investors. The results of the study indicate that ALICL is effective in for both risk and returns for the investors. The suggestions for further researcher who want to conduct study in this topic are summarized.

The study concluded that ALICL is least aggressive and SLICL is most aggressive, ALICL need to continue the trading with the market where as SLICL must collect the investor and increase trading, to become less aggressive as ALICL. As we got that SLICL has low systematic risk, GLICL has low unsystematic risk and ALICL has high systematic risk which can be control by internal management, it is better to improve the from inside for the control of companies GLICL and SLICL should also have high systematic risk. The analysis of RRR and ERR is underpriced of all three companies from which the investor can gain from the purchase. The standard deviation also showed that ALICL is highly risky for control of that ALICL need to give investor the high return. The market capitalization of GLICL is low for the improvement in market capitalization company should announce the more share as compared to other companies. The study enable investors to put the return they can expect and the risk they may take into better perspective because of the people considered stock market investment on unrealistically optimistic or pessimistic expectations.

Further research could be conducted in other various service sectors and also in manufacturing sectors. Organized bodies SEBON & NEPSE should conduct meeting and gathering about common stock investment in Nepalese financial as well as other markets. This study is all about life insurance companies, researcher can research in the non-life insurance companies too.

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Calculation of Beta Coefficient (β) and other value of ALICL

Fiscal Year	$R - E(R_j)$	$R_m - E(R_m)$	$[R - E(R_j)][R_m - E(R_m)]$
2013/14	3.5672	0.7601	2.7112
2014/15	-0.7837	-0.3125	0.2449
2015/16	0.1147	0.5473	0.0628
2016/17	-0.7390	-0.3191	0.2358
2017/18	-1.1256	-0.4741	0.5336
2018/19	-1.0333	-0.2018	0.2085
Total			$\Sigma[R - E(R_j)][R_m - E(R_m)]$ $= 3.9967$

We have,

$$Cov\,(R_j, R_m) = \frac{\Sigma[R - E(R_j)][R_m - E(R_m)]}{n - 1} = \frac{3.9967}{6 - 1} = 0.7993$$

Beta Coefficient of ALICL $(\beta) = \frac{Cov\,(R_j, R_m)}{\sigma_m{}^2} = \frac{0.7793}{0.5181^2} = 2.9035$

Calculation of alpha (α) intercept

We have,

Expected return of ALICL, $E(R_j) = 0.5940$

Expected return of market, $E(R_m) = 0.2402$

Now,

$\alpha = E(R_j) - \beta E(R_m)$

  $= 0.5940 - 2.9035 \times 0.2402$

  $= -0.1034$

Calculation of systematic risk and unsystematic risk

We have,

Variance or Total risk of ALICL $(\sigma^2) = (1.8018)^2 = 3.2465$

Variance of market $(\sigma_m{}^2) = (0.5181)^2 = 0.2684$

Total risk = Systematic risk + unsystematic risk

$\sigma^2 = \beta^2 \sigma_m{}^2 + e^2$

Systematic Risk $= (2.9035)^2 * 0.2684$

$$= 2.2627$$

Unsystematic risk = Total Risk – Systematic Risk

$$= 3.2465 – 2.2627$$

$$= 0.9838$$

Coefficient of determination or proportion of systematic risk (ρ^2) and proportion of unsystematic risk (1- ρ^2)

We have,

Proportion of systematic risk (ρ^2) = $\dfrac{Systematic\ risk}{Total\ risk}$

$$= \frac{2.2627}{3.2465} = 0.6970$$

Correlation with market (ρ) = $\sqrt{0.6970} = 0.8348$

Proportion of unsystematic risk (1- ρ^2) = 1 – 0.6970 = 0.303 = 30.3%

Appendix II

Calculation of Beta Coefficient (β) and other value of SLICL

Fiscal Year	$R - E(R_j)$	$R_m - E(R_m)$	$[R - E(R_j)]\,[R_m - E(R_m)]$
2013/14	2.8363	0.7601	2.1557
2014/15	-0.7298	-0.3125	0.2280
2015/16	-0.3419	0.5473	-0.1871
2016/17	-0.5301	-0.3191	0.1691
2017/18	-1.1098	-0.4741	0.5261
2018/19	-0.8065	-0.2018	0.1627
Total			$\Sigma[R - E(R_j)][R_m - E(R_m)]$ $= 3.0546$

We have,

$$Cov\,(R_j, R_m) = \frac{\Sigma[R - E(R_j)][R_m - E(R_m)]}{n - 1} = \frac{3.0546}{6 - 1} = 0.6109$$

Beta Coefficient of SLICL $(\beta) = \dfrac{Cov\,(R_j, R_m)}{\sigma_m{}^2} = \dfrac{0.6109}{0.5181^2} = 2.2761$

Calculation of alpha (α) intercept

We have,

Expected return of SLICL, $E(R_j) = 0.5682$

Expected return of market, $E(R_m) = 0.2402$

Now,

$\alpha = E(R_j) - \beta E(R_m)$

$\quad = 0.5940 - 2.2761 \times 0.2402$

$\quad = 0.0215$

Calculation of systematic risk and unsystematic risk

We have,

Variance or Total risk of SLICL $(\sigma^2) = (1.6475)^2 = 2.7143$

Variance of market $(\sigma_m{}^2) = (0.5181)^2 = 0.2684$

Total risk = Systematic risk + unsystematic risk

$\sigma^2 = \beta^2 \sigma_m{}^2 + e^2$

Systematic Risk = $(2.2761)^2 * 0.2684$

$\qquad$ = 1.3905

Unsystematic risk = Total Risk – Systematic Risk

$\qquad$ = 2.7143 – 1.3905

$\qquad$ = 1.3238

Coefficient of determination or proportion of systematic risk (ρ^2) and proportion of unsystematic risk (1- ρ^2)

We have,

Proportion of systematic risk (ρ^2) = $\dfrac{Systematic\ risk}{Total\ risk}$

$\qquad = \frac{1.3905}{2.7143} = 0.5123 = 51.23\%$

Correlation with market (ρ) = $\sqrt{0.5123} = 0.7158$

Proportion of unsystematic risk (1- ρ^2) = 1 – 0.7158 = 0.2842 = 28.42%

Appendix III

Calculation of Beta Coefficient (β) and other value of GLICL

Fiscal Year	$R - E(R_j)$	$R_m - E(R_m)$	$[R - E(R_j)] [R_m - E(R_m)]$
2013/14	2.6132	0.7601	1.9862
2014/15	-0.7515	-0.3125	0.2348
2015/16	-0.0163	0.5473	-0.0089
2016/17	-0.5805	-0.3191	0.1852
2017/18	-0.7903	-0.4741	0.3746
2018/19	-1.1377	-0.2018	0.2295
Total			$\Sigma[R - E(R_j)][R_m - E(R_m)]$ $= 3.0015$

We have,

$$Cov\ (R_j, R_m) = \frac{\Sigma[R - E(R_j)][R_m - E(R_m)]}{n - 1} = \frac{3.0015}{6 - 1} = 0.6003$$

Beta Coefficient of GLICL $(\beta) = \frac{Cov\ (R_j, R_m)}{\sigma_m{}^2} = \frac{0.6003}{0.5181^2} = 2.2366$

Calculation of alpha (α) intercept

We have,

Expected return of GLICL, $E(R_j) = 0.5526$

Expected return of market, $E(R_m) = 0.2402$

Now,

$\alpha = E(R_j) - \beta E(R_m)$

  $= 0.5940 - 2.2761 \times 0.2402$

  $= 0.0215$

Calculation of systematic risk and unsystematic risk

We have,

Variance or Total risk of GLICL $(\sigma^2) = (1.3892)^2 = 1.9299$

Variance of market $(\sigma_m{}^2) = (0.5181)^2 = 0.2684$

Total risk = Systematic risk + unsystematic risk

$\sigma^2 = \beta^2 \sigma_m{}^2 + e^2$

Systematic Risk $= (2.2366)^2 * 0.2684$

$$= 1.3426$$

Unsystematic risk = Total Risk – Systematic Risk

$$= 1.9299 - 1.3426$$

$$= 0.5873$$

Coefficient of determination or proportion of systematic risk (ρ^2) and proportion of unsystematic risk ($1 - \rho^2$)

We have,

Proportion of systematic risk (ρ^2) = $\dfrac{Systematic\ risk}{Total\ risk}$

$$= \frac{1.3426}{1.9299} = 0.6957 = 69.57\%$$

Correlation with market (ρ) = $\sqrt{0.6957} = 0.8341$

Proportion of unsystematic risk ($1 - \rho^2$) = $1 - 0.8341 = 0.1659 = 16.59\%$

Appendix IV

Calculation of Required Rate of Return (RRR), Expected Rate of Return (ERR) and Price Evaluation of each stock by CAPM Model

Banks	Beta	$(RRR) = R_f + [E(R_m) - R_f]\beta$	$E(R_i)$	Price Situation
ALICL	2.9035	0.5720	0.5940	Under Priced
GLICL	2.2366	0.4966	0.5526	Under Priced
SLICL	2.2761	0.4916	0.5682	Under Priced

Where,

$E(R_i)$ = Expected Rate of Return (from table 4.13)

R_f = Risk free rate of return (0.10)

R_m = Market rate of return (0.2402)

β = Beta of individual sample banks (from table 4.13)

Calculation of Required Rate of Return

Required Rate of Return $(RRR) = R_f + [E(R_m) - R_f]\beta$

RRR of ALICL = $0.10 + (0.2402 - 0.10) \times 2.9035$

    = 0.5070

RRR of GLICL = $0.10 + (0.2402 - 0.10) \times 2.2366$

    = 0.4136

RRR of SLICL = $0.10 + (0.2402 - 0.10) \times 2.2761$

    = 0.4191

Appendix V

Calculation of Covariance of Asset of ALICL(A) and GLICL (B)

Fiscal Year	$R_A - E(R_A)$	$R_B - E(R_B)$	$[R_A - E(R_A)][R_B - E(R_B)]$
2013/14	3.5672	2.6132	9.3218
2014/15	-0.7837	-0.7515	0.5890
2015/16	0.1147	-0.0163	-0.0019
2016/17	-0.7390	-0.5805	0.4290
2017/18	-1.1256	-0.7903	0.8896
2018/19	-1.0333	-1.1377	1.1756
TOTAL			$\Sigma[R_A - E(R_A)][R_A - E(R_A)]$ $= \mathbf{12.4030}$

Now,

$$Cov\,(R_A, R_B) = \frac{\Sigma[R_A - E(R_A)][R_A - E(R_A)]}{n-1} = \frac{12.4030}{6-1} = 2.4806$$

a) **Calculation of Covariance of Asset of GLICL (B) and SLICL (C)**

Fiscal Year	$R_B - E(R_B)$	$R_C - E(R_C)$	$[R_B - E(R_B)][R_C - E(R_C)]$
2013/14	2.6132	2.8363	7.4118
2014/15	-0.7515	-0.7298	0.5484
2015/16	-0.0163	-0.3419	0.0056
2016/17	-0.5805	-0.5301	0.3077
2017/18	-0.7903	-1.1098	0.8771
2018/19	-1.1377	-0.8065	0.9176
TOTAL			$\Sigma[R_B - E(R_B)][R_C - E(R_C)] = \mathbf{10.0682}$

Now,

$$Cov\,(R_B, R_C) = \frac{\Sigma[R_B - E(R_B)][R_C - E(R_C)]}{n-1} = \frac{10.0682}{6-1} = 2.0136$$

b) Calculation of Covariance of Asset of NABIL(A) and NIBL (C)

Fiscal Year	$R_A - E(R_A)$	$R_C - E(R_C)$	$[R_A - E(R_A)]\,[R_C - E(R_C)]$
2013/14	3.5672	2.8363	10.1176
2014/15	-0.7837	-0.7298	0.5719
2015/16	0.1147	-0.3419	0.0392
2016/17	-0.7390	-0.5301	0.3917
2017/18	-1.1256	-1.1098	1.2492
2018/19	-1.0333	-0.8065	0.8334
		TOTAL	$\Sigma[R_A - E(R_A)]\,[R_C - E(R_C)] = \mathbf{13.1247}$

Now,

$$Cov\,(R_A, R_C) = \frac{\Sigma[R_A - E(R_A)][R_C - E(R_C)]}{n-1} = \frac{13.1247}{6-1} = 2.6249$$

Calculation of Covariance of three Assets

Assets	COVARIANCE
ALICL and GLICL (A & B)	2.4806
GLICL and SLICL (B & C)	2.0136
ALICL and SLICL (A & C)	2.6249

As assuming before, proportion investment in each three assets is equal to 33.3333 of capital to minimize the risk.

Therefore,

$W_A = W_B = W_C = 33.3333\% = 0.3333$

And the portfolio return will be,

$E(R_P) = W_A E(R_A) + W_B E(R_B) + W_C E(R_C)$

$\qquad = 0.3333 \times 0.3504 + 0.3333 \times 0.3946 + 0.3333 \times 0.5852$

$\qquad = 0.4434$

Where the Portfolio Risk is,

$$\sigma_p = \sqrt{w_A^2 \sigma_A^2 + w_B^2 \sigma_B^2 + w_C^2 \sigma_C^2 + 2w_A w_B cov(R_A, R_B) + 2w_B w_C cov(R_B, R_C) + 2w_A w_C cov(R_A, R_C)}$$

$$= \sqrt{\begin{array}{c} 0.3333^2 \times 0.4365^2 + 0.3333^2 \times 0.5448^2 + 0.3333^2 \times 0.5318^2 + 2 \times 0.3333 \times 0.3333 \times 0.1044 \\ + 2 \times 0.3333 \times 0.3333 \times 0.1339 + 2 \times 0.3333 \times 0.3333 \times 0.2145 \end{array}}$$

$= 0.4314$

Appendix VI

Calculation of Portfolio Analysis in Each Two Assets among the Selected Assets.

a) **Assets A & B i.e. ALICL & GLICL**

$W_A = W_B = 50\%$

And the portfolio return will be,

$E(R_P) = W_A E(R_A) + W_B E(R_B)$

$\quad = 0.50 * 0.3504 + 0.50 * 0.3946$

$\quad = 0.3725$

Portfolio Risk is,

$$\sigma_P = \sqrt{w_A^2 \sigma_A^2 + w_B^2 \sigma_B^2 + 2 w_A w_B \operatorname{cov}(R_A, R_B)}$$

$$= \sqrt{0.5^2 \times 0.4365^2 + 0.5^2 \times 0.5448^2 + 2 \times 0.5 \times 0.5 \times 0.1044}$$

$$= 0.4172$$

b) **Assets B & C i.e. GLICL & SLICL**

$W_B = W_C = 50\%$

And the portfolio return will be,

$E(R_P) = W_B E(R_B) + W_C E(R_C)$

$\quad = 0.50 * 0.3946 + 0.50 * 0.5852$

$\quad = 0.4899$

Portfolio Risk is,

$$\sigma_P = \sqrt{w_B^2 \sigma_B^2 + w_C^2 \sigma_C^2 + 2 w_B w_C \operatorname{cov}(R_B, R_C)}$$

$$= \sqrt{0.5^2 \times 0.5448^2 + 0.5^2 \times 0.5318^2 + 2 \times 0.5 \times 0.5 \times 0.1339}$$

$$= 0.4603$$

c) **Assets A & C i.e. ALICL & SLICL**

$W_A = W_C = 50\%$

And the portfolio return will be,

$E(R_P) = W_A E(R_A) + W_C E(R_C)$

$\quad = 0.50 * 0.3504 + 0.50 * 0.5852$

$\quad = 0.4678$

Portfolio Risk is,

$$\sigma_P = \sqrt{w_A^2 \sigma_A^2 + w_C^2 \sigma_C^2 + 2 w_A w_C \operatorname{cov}(R_A, R_C)}$$

$$= 0.5^2 \times 0.4365^2 + 0.5^2 \times 0.5318^2 + 2 \times 0.5 \times 0.5 \times 0.2145$$

$$= 0.4750$$