IMPACT OF PREMIUM AND INVESTMENT ON PROFITABILITY OF LIFE INSURANCE COMPANIES IN NEPAL

(With reference to ALIC, PLIC and NLIC)

A Thesis

By

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In partial fulfillment of the requirement for the degree of

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DECLARATION

I hereby declare that this thesis work entitled "Impact of Premium and Investment on Profitability of Life Insurance Companies in Nepal *(with reference to ALIC, PLIC and NLIC)*" submitted to Office of the Dean, Faculty Management, Tribhuvan University, is my original work done in the form in partial fulfillment of the requirement for the degree of Master of Business Studies which is prepared under the supervision of respected supervisor **Mr. Rajendra Raya,** Lecturer of People's Campus. Paknajol, Kathmandu.

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VIVA-VOCE SHEET

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And found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for the degree of

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ABBREVIATIONS

AD : Anno Domini

ALIC: Asian Life Insurance Company

ALM : Asset Liability Management

BOD : Board of Directors

BS : Bikram Sambat

e.g. : Example

F/Y : Fiscal Year

IB : Investment on Bonds to Total Investment Ratio

IFD : Investment on Fixed Deposit to Total Investment Ratio

IS : Investment on Shares to Total Investment Ratio

Ltd : Limited

MBS : Master in Business Studies

NLIC: Nepal Life Insurance Company

PLIC : Prime Life Insurance Company

ROA : Return on Total Assets

ROI : Return on Investment

ROP : Return on Premium

TU : Tribhuvan University

CHAPTER-I
INTRODUCTION

1.1 Background of the Study

Life insurance is universally acknowledged to be an institution, which eliminates 'risk', substituting certainty for uncertainty and comes to the timely aid of the family in the unfortunate event of death of breadwinner. Life insurance is civilization's partial solution to the problems that caused by death. In short, life insurance is concerned with two hazards that stand across the life-path of every person: 1. That of dying prematurely is leaving a dependent family to fend for itself. 2. That of living till old age without visible means of support. Investment may be said as keeping a sum of money aside from the present savings with the view of earning returns on it. It is done on the cost of sacrifice of present consumption of that part of money (Sadhak, 2009).

Making investment in an efficient manner and getting expected return along with minimum risk is a challenging task to individual as well as institutional investors. Analyzing financial markets in a systematic way is essential to individual or institutional investors for making wise investment. Nepalese life insurance companies protect the life of the policyholders by collecting premium from them. The premium collected from the policy holders are invested in different securities as per the guidelines of beema samiti.

Investment management is a backbreaking area of operation in any insurance company, which has to put aside certain sum for claim that might arise over a period of time keeping in view the changing nature of risk, regulations and variety of investment objectives implicit in mind of policy holders and shareholders. Investment earnings made by insurance firms constitute a significant proportion of their operating results; thereby improving their competitiveness. Investment results are increasingly key determinants of both adequacy and volatility of insurance companies' financial wellbeing and considered in calculation of premium rate and for declaration of bonus by insurer (Palande, 2003).

The investment policy of the insurance fund is basically directed by twin goals: solvency and profitability. This means they must guarantee commitments but generate financial income as well. Regulations that promote only one of these

objectives would not be effective. In this regard, investment regulation must be concerned with the risks inherent both in the investments themselves and in the commitments that those investments are intended to cover. It must, in particular, take into consideration the provisions which regulate these commitments and be adapted accordingly.

According to the Insurance Regulatory and Development Authority (Investment) (Amendment) Regulations, 2001, life insurers should invest at least 50 percent fund in Government approved Securities including the 25 percent in government securities, at least 15% fund in infrastructure and social sector, rest of the 35 percent in others sector which to be governed by Exposure norms as specified in regulation 5.Out of 35 percent, not exceeding by the 15 percent fund can invest in the other than not approved sector. The regulation strictly regulated the insurance fund (at least 85 percent) in approved sector.

Insurance investment activities diversify firm's capital base and enhance its ability to settle claims when they occur. Insurance capital and reserves are paramount hotspot of money finances of the economy. Insurance industry particularly in emerging markets like Nepal is playing an important role in the advancement of capital markets, providing finance to companies and governments and bringing forward the mechanisms for corporate control and risk management. Insurance companies additionally decrease dependence on the banking system and acting as stun absorber now and again for budgetary trouble. Toward the same time, the consistent streams of premium considerably in period of business sector downturn empowers insurers to be a hotspot of liquidity and to purchase all the holdings that are undervalued throughout the downturn when a significant number of market players sell (Kakuba, 2007).

1.2 Statement of problems

Nepalese insurance companies are the successful enterprises of Nepal, which are still running the insurance business without suffering any losses from the date of establishment until now. So not only national insurance companies, nowadays, more international insurance companies are also opened in our country to transact insurance business. Many investors and business person involved in insurance business, so there are 40 insurance companies established and operate their service and activities. Most of the companies are earning profit each year. However, it is not significant and

satisfactory against the volume of transaction if we give an overlook in the balance sheet and profit and loss account. The volumes of transaction are increasing tremendously year by year but the growth of net earning is not in the same ratio. It is because of private waiting under raining and cut-throat competition in the market.

The problem was to maintain the desired composition of investment portfolios that suits best according to the line of primary business i.e. insurance business. The problem was to attain significant return from the composition of investment portfolios that would be more contributing with respect to the revenue generated from the basic line of business. i.e., insurance business. The historical pattern of investment among portfolios had indicated that they were heavily concentrated on few investment portfolios, which was approved as "Compulsory Sectors", by the regulatory provision. In Nepalese context, the insurers were unable to satisfy these two problems. Lack of sufficient number of industries, limited market of opportunities, low per capita income, lack of knowledge of insurance, lack of profitable investment opportunities had caused a serious threat to the insurance business in Nepal. In this context there is the dearth of the study of the steady of the financial operation of the insurance business in Nepal (Risal, 2016). The big problem of such institutions was to collect premium and mobilize in suitable sector.

To overcome the above difficulties, the researcher forwarded the study to provide the appropriate suggestion for the major difficulties on which the study will be conducted. Mainly the following questions was raised:

- What is the current situation of premium collection and investment of sample insurance companies in Nepal?
- What is the relationship between premium and investment in different sectors and profitability of sample insurance companies in Nepal?
- How premium and different sectors investment impact on profitability of sample insurance companies?

1.3 Objectives of the Study

The main objective of this study is to analysis the current situation of premium collection and investment position of insurance companies in Nepal. The other objectives of this study were spelled out as:

- To examine the present situation of premium collection and investment pattern of sample insurance companies.

- To examine the relationship between premium, different sectors investment and profitability of sample insurance companies.
- To analyze the impact of premium and different sectors investment on profitability of insurance companies.

1.4 Significance of the study

Insurance is one of the most flourishing services even in the developing country like Nepal. There are 40 insurance companies existing in Nepal. (www.bsib.org.np till now) Among which 20 are general insurance, 19 are life insurance and 1 underwrites composite business. Insurance companies are focusing only in urban and main city of the country; they are capturing each other's market. They do not try to issue new policy and create potential market. They are satisfied with the existing position and do not get suitable and steady sectors to visit their fund for more return. Now, they are investing their fund in traditional sectors only. So, a new study is required on the topic of premium collection and investment.

The study is needed to frame out the premium collection and investment position of Nepalese insurance industry. Insurance companies need soundly mobilized its collected fund. Thus, it would be better to evaluate the condition of Nepalese insurance companies. It is also needed to disclose the utility of insurance in Nepalese prospects. The study focuses the insurance market and probability of future expansion in Nepal and is concerned to trace the weak area to suggest fund, policy of insurance and scenario of premium collection and investment too. It is the study on collected premium under various policies and suggests what the weaknesses are and how to improve them. The study is important itself because it is the researcher's study of the heart of insurance system.

Now a day, insurance is overcoming commonly as almost business but the concept of insurance is not old in Nepal. Liberal economic policy breaks the monopoly system and brings competition in insurance business; private insurance companies have been started competitive and aggressive competition in this business. Because of such type of competition, management has to make efficient; on the other hand, premium rate has been reduced. Reduction in rate brings the strong possibility of reduction in profit volume, but at the same time it can make people motivate in insurance company and can know about the current situation of insurances companies in Nepal. It also helps

the researcher to research in new way and field of collecting premium and investment of fund, and series of the studies on other insurance companies in Nepal. Thus, this study is important to management, owner, customers, further researcher and students in various ways.

1.5 Limitations of the study

Every study defines some boundaries. They have to study within this framework. So, there were some limitations due to lack of data time and information. They were as follows:

- Among the 19 life insurance companies in Nepal (Out of 40 Insurance Companies) this study has limited to only three life insurance companies of Nepal, namely; Asian life Insurance company limited, Prime life insurance Company limited and Nepal Life Insurance Company Limited.
- This study was based on secondary data taken from annual financial reports of the sample companies.
- The whole study was limited to the past ten years from 2011/12 to 2020/21 period.
- Only limited financial tools and statistical tools were used for analysis.

1.6 Organization of the study

The whole study is divided into five main chapters. They are as follows:

Chapter - I: Introduction

It includes general background of the study, introduction of the organization, statement of the problems, objectives of the study, significance of the study, limitations of the study and organization of the study.

Chapter - II: Review of Literature

This chapter presents conceptual framework, review of related literature like books, dissertation, articles, brochure, booklets, journals, report and magazines etc. At last research gap is also mentioned in this chapter.

Chapter - III: Research Methodology

This chapter deals with research methodology to be adopted for the study to satisfy the objectives of the study. It consists of research design, sample and population, sources of data, data collection procedure, methods and tools of data analysis.

Chapter - IV: Presentation and Analysis of Data

This chapter is most important and plays vital role in this study. This chapter deals with presentation, analysis and interpretation of data. These collected data have been analyzed and interpreted by the help of various statistical and accounting tools and techniques. It also includes major findings of the study.

Chapter - V: Summary, Conclusions and Recommendations

This chapter presents of the brief summary of whole research report and conclusions. It also provides some useful suggestion and recommendations to concerned parties. At the beginning of the study table of contents, recommendation sheet, viva voce sheet, acknowledgement, list of table and figure and abbreviation are presented at first and at the end bibliography, appendices and research proposal are also presented.

CHAPTER-II

REVIEW OF LITERATURE

Review of literature is an essential part of all studies. It is a way to discover what other research in the area of our problem has uncovered. A critical review of the literature helps the researcher to develop a thorough understanding and insight into previous research works that relates to the present study. It is also a way to avoid investigating problems that have already been definitely answered. The review covers the area of research work and theoretical concepts developed by various scholars.

2.1 Conceptual Review

Conceptual reviews are a type of intermediate theory that has the potential to connect to all aspects of inquiry. Conceptual reviews act like maps that give coherence to empirical inquiry. The review covers the area of research work and theoretical concepts developed by various scholars. This heading is also categorized under different headings, which are discussed as follows:

2.1.1 Concept of Insurance

Insurance is a legal contract that protect people from the risk related with life and non-life activity. Insurance protects people from the monetary costs that result from loss of life, loss of property and loss of business etc. It provides a means for personal and organizations to deal with some of the risks faced in everyday life. In other words, it is a process which provides financial security for unemployment and tenderness. There are two parties involved in the insurance contract. They are insured and insurer. Insurer is that party who provides insurance coverage, typically through a contract of insurance, insurer is the insurance company. Insured is that party who is insured. In life insurance a person is insured (Gulati, 2011).

The general legal requirement of insurance as, the rights and obligation of the parties to an insurance agreement are determined largely by reference to the general laws, which govern contracts. The agreement by which insurance is affected is contract in which the insurer in consideration of the payment of a specified sum by the insured agrees to make good the losses suffered through the happening of the designated unfavorable contingency. The insurance contract need not be in writing, but as a matter of business practice, such agreements are ordinarily written. Even social insurance,

such as worker's compensation are written through the terms appear in a state law rather than in private agreement. In its most basic form, the insurance mechanism is simply a process in a group agree to share the losses that may occur to various members of the group in advance and the fund so created, augments by interest, and is used for the purposed of paying losses and expenses. Further, the conditions surrounding the transfer of risks from individuals to the group are carefully set forth in detail, in a formal contractual agreement. The organization that brings the group together and manages its affair is called an insurer, and it is typically a stock or mutual corporation. (Bicklhaupt; 2010).

Insurance is useful device for solving complex social problems. Compensating victims of industrial accidents is handled by compulsory workers, compensation insurance; and indemnifying innocent automobile accidents victims is handled to some extent by financial responsibility laws with most people comply by furnishing evidence of ownership of automobile liability insurance. Some insurance is used to help, solve the financial problems of unemployment; old age, disability, death and medical care for the aged (Maher, 2010) Insurance is affected with the public interest and is consequently subject to government regulation, mostly by the states.

Developing modern society plays various roles in a society. They bear a major character, the inevitable uncertainty surroundings. Due to the uncertainty and competition factor, the concept of insurance and its evolution was enforced and these days it is for more strengthening due to very competitive business environment and many dropped down situations. Thus, the insurance seems as an auxiliary for the modern society and organized business company as well as individuals. Before familiarizing to the concept of insurance, it is essential to know about risk and risk management.

2.1.2 Life Insurance

Insurance provide protection against a wide variety of risks. However, life insurance provides sum of amount against the various risks relating to the human being body through issuing different policies. Life insurance is financial instrument for providing post death resources to support survivors or pay obligations of the state of the deceased. Generally, life insurance, as a type of insurance plan conducted by the insurers, is directly related with providing assurance agonists the economic part of human life. Life insurance contract may be defined as the contract, where by the insurer, in consideration

of a premium undertakes, to pay a certain sum of money either on the death of the insured or on the expiry of the fixed period. Life insurance is particularly, concerned with that aspect of human life. Since the insurance of assurance of a person's life is impossible because of the certainty of death of a person once born, life insurance only provide assurance against the economic aspect of human life, not the assurance against the life, itself. Life insurance provides future benefits against unseen future accident and it helps to live comfort in retirement life. Life insurance never fulfill losses of human life, it measures in amount of various risks and provide sum of amount in accordance to policy. Life insurance plays a vital role in the society. Therefore, it is also known as the social insurance too. Life insurance can be defined as "a contract by which the insurer, for a certain sum of money or premium proportionate to the age, health and other circumstances of the person. Whose life is insured if such person shall die within the period limited in the policy, will pay the sum specified to the persons in whose favor such policy is guaranteed. The life insurance companies have proved to be a highly efficient means for channeling capital funds into those areas of the national economy, and into those uses, in which market demands have been strongest. They have responded quick and imaginatively to the changing capital requirements of the American economy incorporation.

The fundamental function of the insurance business is to furnish protection against the financial demands occasioned by disability, old age and death. It has sometimes been termed "Income Replacement Insurance" because it provides such necessities as food, shelter and clothing if illness, injure, or death cuts off the income of the breadwinner. It is all of this and, as will presently be noticed, much more (Magee, 2012).

Nepalese Insurance Act, 2048 (section 2-1) has defined life insurance as the contract of insurance, effected on human life on the basis of age to pay a fixed sum to the assured or his nominee, on death or on the happening of any contingency, dependent on human life in consideration of payment of a fixed installment premium by the insured. Insurance company provides various policies in accordance insured interest and desire. We can see following policy in life insurance commonly: Endowment policy, whole life policy annuity, term insurance and survivorship policy. The scope of life insurance business is seen to be bringing because of its nature and popularity. Therefore, the various investors are interested to invest in life insurance business, although having restriction of Government and challenges of other affecting factors.

2.1.3 Premium Collection

Premium is the certain amount of payment, which is paid by the insured to the insurer for bearing uncertain risk, peril or hazards. Usually, premium calculated under different method as considering different affected factor. "Premium can be ascertained either by numerical rating system, evaluates each and every item and marks are assigned to them according to their merits and degrees influencing risk". (Robinson, 2010). Insurer charges the premium differently accordance to nature of risk. Thus, the judgment and personal evaluation play vital role in rating/ fixing premium. Therefore, the various factors to influence the risk. The management and ownership are very important factor while risks are evaluated for rate fixing.

Generally, the insurer charges higher premium for higher riskier insurance and lower premium for lower riskier insurance policy. The premium is always directly affected by the nature of risk expenditure of office, other expense and written period. But, "A strong case exists for reviewing the rates of premium and simultaneously to exercise greater control over expenditure to generate a reasonable surplus in their insurance business". (Insurance News & Views, 2013). Generally, only premium is one of the main sources of raising funds for insurer. So, insurer should obtain sound management for calculating premium amount and collection process. Different insurance companies or insurer may charge different premium to insured under their objectives and goal with accordance to the policies, risk and uncertainty.

2.1.4 Types of Premium and Calculating Process

We can find various premiums to paying insurer according to the policy. But the premium is fundamentally of two types. Net premium is calculated considering mortality and interest rate. Therefore, the rate of death of person and interest directly effect on the premium amount to calculating under net premium method. Similarly, the assumed interest rates the expenses of organization and the mortality rate directly affected calculation of premium under gross premium method. "The net premium is based on the mortality rate, the assumed interest rate, the expenses and the bonus loading". (Mishra, 2011) To make easier calculation of the premium amount, the two premiums are further subdivided into two parts.

2.1.4.1 Single Premium

According to single premium system, the amount of premium is not divided into installment. The insured oblige to pay all premium amounts in humus basis. It makes

difficult to insured because of paying heavy/ large amount in one time. We can further define single premium as 'it makes to a system to paying all amounts in only one investment'. Net single premium is that premium is received by the insurer in a lump sum and is exactly adequate, along with other return earned thereon, to pay the amount of claim wherever it arises whether at death or at maturity or even at surrender. It does not provide for expenses of management and for contingencies.

2.1.4.2 Level Premium

Life insurance is usually, issued on a level premium basis, which means that the same premium is charged throughout the life of the contract. So, the level premium is paid periodically in installment. The level premium system was once a starting yearly, quarterly and monthly. The level premium system was once a starting innovation because it was reasoned that due to the rising probability of death with age, it would be impossible to charge a flat premium that would compensate for the rising mortality costs. The first insurance policies were issued of one year only and were renewable at the end of this year at a higher rate, if the insured was still in good health. These contracts are still available and are known as yearly renewable policies. Usually, the level premium is suitable for the life insurance policies and for the purpose of limited income able person. Therefore, the level premium ideas are considered one of the most basis advances ever made in the development of the life insurance. With this concept, it becomes possible to issue policies for longer and longer period until finally whole life contracts were made a regular part of the business. Actuaries using refined mortality statistics could calculate exactly how much had to be charged during the yearly years to the contract in order to make up for the rising mortality cost of the later years.

Level premium is easily converted by the net single premium. Hence, the single premium of a given policy can be easily converted into level premium by establishing ratio between net level premium and net single premium. Because the net single premium is the present value of all net level premiums is also equal to the total of present value of all claims. It means present value of all net level premium is equal to the net level premium is equal to the net single premium.

2.1.5 Insurance Companies Investment

Insurance companies generally function on two dimensional landscapes which include (a) underwriting activity which is mainly centered on collecting premiums and honoring claim, and (b) investment activity which is meant to dispense assets into

various investments to earn additional revenues in the form of interests, dividends and realized capital gains. Under underwriting activity, insurance companies collect premiums from people and form an insurance fund. The insurance fund should not be held ticking over until claims being lodged (Kakuba, 2007). It should be invested through creating a float.

Insurance investment activities diversify firm's capital base and enhance its ability to settle claims when they occur. Insurance capital and reserves are paramount hotspot of money finances of the economy. Insurance industry particularly in emerging markets like Nepal is playing an important role in the advancement of capital markets, providing finance to companies and governments and bringing forward the mechanisms for corporate control and risk management. Insurance companies additionally decrease dependence on the banking system and acting as stun absorber now and again for budgetary trouble (OECD, 2011). Toward the same time, the consistent streams of premium considerably in period of business sector downturn empowers insurers to be a hotspot of liquidity and to purchase all the holdings that are undervalued throughout the downturn when a significant number of market players sell. Therefore, insurers have a counter-cyclical and settling impact on the economy. On account of large-scale protection arrangements and predictable long-haul liabilities, insurers could put resources into long haul and illiquid assets (Insurance Europe, 2013). Insurers should have sound, systematic and objective process of determining investment pattern (Swiss reinsurance company ltd, 2010) to maximize the value of shareholder as well preserve the value of policyholders (Plantinga & Huijgen, 2000).

Fund management is now a challenge for insurance sector and calls for high degree of sophistication in market prediction, asset allocation and strategy formulation. Insurers require multifarious skills for assessing liabilities, aspiration of policyholders and other factors which can influence the investment policy. Insurers should be dexterous in identifying appropriate assets, devising relevant asset allocation strategies and putting strong organization in place for efficient management of funds (Babu, 2012). Insurance companies' investment operations are influence by up and down in internal as well as external factors. The changing market and regulatory environment stimulate insurance companies to invest not only in the government securities and money market instruments but also in stocks which make them vulnerable to the high risks emanates elsewhere and sweeps in the stock market (Wokiyi, 2012). Therefore, insurers should

have robust risk and investment management framework to deliver superior risk adjusted returns to customers.

Life insurance companies can invest their fund in short term and long-term financial instruments viz. instruments of money market and capital market. The investment portfolio is generally dominated by long-term assets, but one part of funds is invested in short-term assets for securitization of liquidity. The procedure of designing a portfolio must be in accordance with obligations of life insurance companies, expected profit and price policy. Every portfolio should be rebalanced from time to time i.e. its composition should be re-assessed in order to minimize the risk and earn the highest possible rate of return for a predetermined level of risk. Insurers should determine investment portfolio by using a robust optimization framework and diversifying investment portfolio into higher income generating strategies with insurance specific constraints to increase overall efficiency and risk generating return.

Investment portfolio of insurance companies encompasses an extensive range of securities. These are government and municipal securities, debenture, preference and ordinary shares of companies operating in various industries, freehold and leasehold properties, and mortgages and loans. Investment instruments are accessible for varying duration ranging from money at call to perpetual securities. The terms upon which these investments can be secured i.e. their market prices are dictated in the long run by the laws of supply and demand as between borrowers and lenders. Insurers need assets that match the maturity of their liabilities, which requires introduction of some new products and development from a few existing ones, such as credit enhancement and credit derivatives. They can also fund businesses through securitizations, direct lending to small and medium enterprises investments in infrastructure, mortgages, real estate, private equity, derivatives, mutual funds and venture capital. While investment in these alternative asset classes currently makes up a small proportion of insurers' portfolios.

Life insurance companies' investment are categorized as linked investments, non-linked investments and shareholders' investments. The unit linked policies are issued with a condition to repurchase such unit at net asset values as on the date of repurchase. As the liability under these contracts is to be settled at fair market value, the investments representing such liability are valued on mark-to-market basis as per regulation. Conventional policies imply commitments to pay the sum assured including bonus, if any, to the policyholder after occurrence of the event or upon expiry of period

of the contract. The assets/investments representing discharge of this obligation should equal to the liability by end of period of the contract. Hence, the regulations prescribe a combination of measuring investment at market value and amortized cost (Babu, 2012).

2.1.6 Investment Approaches in Insurance Companies

Optimization of investment portfolio problem has been highlighted by many academicians. Literature demonstrates the existence of different methods to solve the optimal portfolio problem for an insurer. Lim and Wong (2010) used benchmarking approach where the objective is an increasing function of the relative performance of the investment portfolio related to a benchmark. Yang and Zhang (2005) studied optimal investment policies of an insurance company with jump-diffusion risk process.

However, the more widely accepted approaches for optimization of insurance company portfolios imply abiding by the principles of the Modern portfolio theory (MPT) and Asset-Liability Management (ALM) which consider a relatively large number of constraints compared with other types of investor (Kocovic et al., 2011).

2.1.7 Principles of Investment

Investment management assumes great importance in the case of insurance companies where huge funds are collected by means of premium. Since these funds are not immediately required to meet the liabilities, insurance companies are able to invest a major portion of fund in investible assets and earn optimum rate of return from these investments. Investment operation of insurance companies can reduce the cost of insurance and increase the profitability of business. While making investment, insurance companies are guided by certain fundamental cannons i.e. safety, profitability, liquidity, diversification and increasing of life business. The standard approach to the investment of life insurance funds was established by British actuary A. H. Bailey. In 1862, Bailey delivered an address to the Institute of Actuaries in London which laid down a set of five principles which should be followed by insurance offices while investing funds. The first principle stated that the prime consideration in any decision should invariably be the security of the capital invested. Within this context the second consideration should be the highest practicable rate of interest. The third and fourth principles advocated that a small proportion of the total funds should be held in readily convertible assets for the payment of current claims and the bulk of funds were to be invested in nonconvertible securities. The last principle reiterated that

as far as practicable, the capital should be employed to aid the life insurance business (Keneley, 2006).

2.1.8 Modern Portfolio Theory

Modern portfolio theory propounded in 1950s by Nobel Laureates Harry Markowitz and William Shape has in recent decade become best practice among asset managers (Swiss reinsurance company ltd, 2010). The main objective of investment is to obtain an optimal risk and return level by allocation of the portfolio to properly diversified composition of assets and in some cases, liabilities i.e. leveraging the portfolio by borrowing. The precondition for such an optimal risk and returns level is ability to attain the frontier of efficient portfolios, where there is no likelihood of increasing return without increasing risk or of reducing risk without reducing return.

A central insight of modern portfolio theory is the concept of an efficient portfolio which yields the highest return for the level of risk accepted or alternatively, the smallest portfolio risk for a specified level of expected return (Bhalla, 2011). Markowitz portfolio analysis considers the risk and expected return of each investment as well as the correlation between these investments and analyses them simultaneously to determine a series of plausible investment portfolios. The solutions explain which investment candidates are selected and rejected in creating a list of optimal portfolios that can achieve some expected rate of return. Each Markowitz portfolio analysis solution also gives exact portfolio weightings for the investment candidates in that solution. The collection of all the efficient portfolios comprises a curve in risk-return space called the efficient frontier (Francis & Kim, 2013).

Markowitz portfolio selection model recognized the function of portfolio as one of composition and not individual security selection. To build efficient portfolio an expected return level is determined and securities are substituted until the portfolio combination with smallest variance at the return level is found. As this process is repeated for expected returns, set of efficient portfolios is generated (Bhalla, 2011). An optimal asset mix might afterward be derived selecting those portfolios that are efficient in terms of risk and return. Determination of a portfolio is subjected to individual preference and its fancied risk and return profile. A portfolio that is efficient to particular case might not be efficient with an alternate case.

Insurance companies make investment in wide range of risky and risk-free instrument. Some of the more important classes of investment are: government securities, money market instrument, mortgages, real estate and ordinary stock. Government securities and money market instrument are low return but safest; while stock, mortgage and real estate earn the highest expected return but are riskiest. Markowitz portfolio choice model provides base for insurers in building optimal portfolio by diversifying ideally over asset classes which furnish higher expected return with the same level of risk.

2.1.9 Asset Liability Management Theory

Since insurers have to pay claims as a part of their underwriting operations, the asset allocation strategies for insurance companies are different from that considered by Markowitz and others. Insurance companies are in business of collecting money in the form of insurance premiums and investing that money to earn a higher return than they will pay to their lenders. Investment portfolio of insurance companies mainly consists of investment in government securities, stock, loans, real estate and bonds. Liabilities of insurance companies include all the money they owe to policy holders. In order to honor their liabilities, insurance companies must properly manage their investment portfolio. Therefore, asset/liability relationship is essential for the formulation and evaluation of investment policies which strive to ensure that investment risks to solvency become at the helm of insurers.

ALM is not recently developed concept in finance literature. The concept has been used to address interest rate risk in U.S., which became a major concern in the 1970s, when rates increased sharply and became more volatile than they were earlier (Parekh, 2008). For the life insurance industry, the momentous idea of ALM was proposed by Redington in 1952 (Shimpi, 2003). ALM helps to avoid a situation where asset values fall short of the liabilities arising out of the insurance contracts which can in extreme cases lead to bankruptcy or insolvency of the insurer (Parekh, 2008). Asset-liability management is also termed as liability driven investments and stochastic dynamic financial analysis. The liability-driven investments are the assets that intended to replicate the return and risk characteristics of the liabilities. The key to ALM lies in segmentation of the liability side according to the differing investment requirements. Here, the insurance company has to attain two goals simultaneously. From one viewpoint, the accessible fund should be invested as profitably as possible (asset management), then again, claims should be honored (liability management) (Holtz,

Goschnick, and Haep, (2008). Insurers should examine all risks which require coordination of their assets and liabilities. These may include following risks:

2.1.9.1 Market Risk

Market risk is primarily concerned with the adverse movement in the value of an insurer's assets and liabilities, both on-balance sheet and off-balance sheet, whose value may be affected by market movement. Market risk includes (a) interest rate risk including fluctuation in market credit spreads, (b) equity, real estate and other asset risks, (c) currency risk, and (d) related credit risk. The insurer should lay down proper metrics to estimate exposure to market risk factors.

2.1.9.2 Underwriting Risk and Policyholder Options

Insurance contracts may provide policyholders' choices such as settlement options, policy loan options, over depositing options and surrender or renewal privileges. These embedded options provide policyholders added flexibility. However, if not managed appropriately they could bring about additional costs to the insurer over the life of the policy and possibly a liquidity cost. The insurer must review the types of embedded options and their possible impact on ALM. The insurer must handle its assets and liabilities in a way that would diminish the risks.

2.1.9.3 Liquidity Risk

Liquidity risk relates to the likelihood that an insurer will be unable to realize assets to honor its obligations as and when they fall due. It is fundamental for insurers to determine whether their cash flow is sufficient to meet their commitments to policyholders and other creditors (International Association of Insurance Supervisors, 2003).

2.1.10 Legal Provision

Various experts, authorities and master's degree's students have conducted a number of researches relating to the insurance business. Among them, only few are related with the investment aspect of the insurer and insurer business. Although there were many researchers conducted in insurance fired we can find only little work in aspect of premium collection. Therefore, this may be the suitable and worthy attempt on this subject matter.

Insurance Act, 2049 (1992)

(Act No. 42 of 2049 B.S.) Date of the Royal seal and the publication: 2049.9.2 B.S. (16 December 1992). First amendment; 2052.9.20 (January 1996), second amendment: 2058.10.10 B.S. (29 Jan, 2002). Only related terms and conditions are reviewed form insurance act 2049 as:

Preamble:

Whereas, it is expedient to establish an Insurance Board to systemize, regularize, develop and regulate the insurance business, in the twenty first year of the regime of King Birendra Bir Bikram Shah Dev, the parliament has made this act.

Short Title and Commencement

- This act may be called the "Insurance Act 2049" (1992).
  - It shall come into force on such dates as Nepal Government, by notification published in the Nepal Gazette, may appoint.

Definition

Unless the subject or context otherwise requires, in this Act,

- Member means the member of the board and the word includes the chairman.
- Insurer means a corporate body registered pursuant to section 10 and the word includes the re-insure.
- Insurance business means life insurance business or non-life insurance business and the word includes the re-insurance.
- Life insurance business means the business relating to a contract regarding to the life of any person under which he or his heir in the event of his death, will be paid a particular amount in case a specified amount is paid in installment on the basis of his age.
  - Non-life insurance business means other insurance business other than life insurance business.

Insurance Premium to be paid before holding the risk

No insurer shall hold the insurance risk of any category of insurance business until it receives the premium of the insurance to be obtained by it. It shall be deemed that the insurer has undertaken the insurance business only after receiving the insurance premium by it for holding the risk.

Provided that, if any practical difficulty arises due to any reason for paying the amount in a lump sum, this section shall not be deemed to be prohibited to issue an insurance policy on the guarantee of a bank or the Nepal Government relating to the payment of the outstanding amount within a specified period.

Repeal and Saving

- The Insurance Act, 2025 is hereby repealed.
- All the actions taken, and functions performed before the commencement of this Act shall be considered to have been taken or performed pursuant to this Act.

2.2 Empirical Review

Ghimire (2013) published an article entitled *Investment portfolio of Insurance Companies: Empirical study of Nepal.* The main objectives of the study are to explore the real status of investments portfolio structure of both life and non-life insurance companies of Nepal. Insurance Board of Nepal has issued modified directives for the safe and secure investments of Insurance Fund The paper examines the current investment practices adopted by the insurance companies and compare with the norms of directives. In this study descriptive and judgmental sampling method was used to complete the study and only secondary data were analyzed with the help of different statistical tools. In findings, most of the companies have invested more than required fund in secured sector giving priority to solvency over profitability. Among the 234 cases, 37 cases are non-compliances whereas 197 cases are compliances. Out of 37 noncompliance cases, 28 cases are more sensitive. Life insurers fail to comply the statutory provision in 5 cases and non-life in 23 cases. However, in voluntary category, 1 and 8 cases are not complied by the life and non-life insurers respectively. Overall scenario of the investment's portfolio is satisfactory ignoring few cases.

Ghimire (2014) published an article entitled *Impact of income structure to Profitability: Empirical evidence Insurance industry in Nepal.* The main objectives of the study were to explore the structure of different types of insurance income, their share, and their trends of growth in Nepalese life insurance industry. The research methods used in this study were descriptive and explanatory with the secondary data. In the findings, major sources of income are Net Premium and Investment, Loan and Others income. More than 87 percent of the total income was contributed by net premium during 2006/07 which was gradually decreased to 73 percent in 2012/13. But investment income was 10.60 percent in 2006/07 has gradually increased to19.29

percent in 2012/13. Rest of the five income were gradually increased their share from 2 percent to 8 percent over the six years. This fact reveals that insurance companies have been capable to explore other income sources which is an ample opportunity to increase their wealth. This changing pattern indicates the vital role of investment income profitability of the firm in long run. So that firms are required to aware on portfolio management while investing the large amount of life fund in the secure and more profitable sectors. But the share of reinsurance commission still less than 1 percent however the ratio between Reinsurance income to net premium income also gradually increased from 0.11 percent (2006/07) to 1.36 percent (2012/13). Another interesting fact explored by the study that profitability related measures ROI, ROE and ROI of old and new firms have no significant differences except NPM.

Bhattrai (2015) published an article entitled *Insurance News and Views.* The main objectives of this article were to present the current situation of insurance market and position of Nepalese insurance companies. The findings and the conclusion of this article explore that the sound external economic environment is a must for the development of the insurance sector. Insurance in Nepal is still a native business. Its market is not matured. A regulation mechanism calls for important. Insurance regulation and supervision were fundamental requirements for the sound development of insurance activities. And those insurance activities, properly supervised, played an outstanding role in the process of the economic growth of every country. Supervision helps to check an outflow of foreign exchange, which could result from excessive resources to foreign insurance and re-insurance facilities. A sound national insurance and re-insurance market is an essential characteristic of economic growth. The average insurance depth (premium income as a percentage of the GDP) of the developed countries is about 4% to 6%. In Nepal, the insurance depth is only 1.40%.

Kumari, (2015) conducted a study entitled *Determinants of Insurance investment: A case study of life insurance corporation in India* with the main aim to endeavored to link insurance investment decisions with underwriting activities of insurance companies. Although, underwriting and investment are two important and related business activities of insurance companies, impact of underwriting activities on investment for life insurers has not been rigorously examined in the literature. Using a sample of public life insurer, this article conducts an empirical investigation of how underwriting impact investment in the period of 2001–2014. The result of study

suggests that premium and claim is significantly influenced the investment of insurance sector. In the aftermath of expanding liberalization in the insurance industry together with the worldwide financial crisis has posed a great deal of challenges for insurance regulatory authorities in monitoring investment of insurance companies. Researcher believes the current paper provides some helpful bits of knowledge in this vein.

Risal (2016) conducted a study on *A Comparative study on Premium Collection, Investment Position and Investment Return of Life Insurance Companies: Evidence from Nepal Life Insurance industry* with the purpose to examine comparatively the premium collection, investment position and investment return of life insurance companies operating in Nepal. The casual comparative and descriptive research design were adopted in this study. The findings of the study shows that there is no significant difference in the total investment made in different periods (fiscal years) by life insurance companies. The significant differences in total investment made by different life insurance companies have been found. The study revealed the significant differences in total premium collection made by different life insurance companies in different period. The study had also concluded the significant difference in the total premium collection made in different periods (fiscal years).

Shrestha (2016) published an article entitled *Role of Development officer for the development of insurance companies.* The purpose of this article was to complete study of potentials of insurance in Nepal and problems facing by the insurance companies of Nepal. The findings and conclusion of this study reveals that there is keen competition in general insurance business. There are 13 general insurance companies in the small country like Nepal. So, they have competition with each other to capture others market without creating their own market and going to other sectors of insurance behind the traditional functioning. But the 99% of life insurance market remains untouched. The life insurance companies are far from each to the majority public. There is future potential in the life insurance in Nepal.

Pant and KC (2017) conducted a study on *Contribution of insurance in economic growth of Nepal* with the main aim to examine the contribution of insurance in economic growth of Nepal using determinants of insurance like total insurance premium, Life insurance premium, Non-life insurance premium, employment and investment using data from 2004 to 2015 based on theoretical and empirical evidence. The evidence

suggests that insurance may contribute to economic growth by creating investment climate and managing risk in more efficient way. Theoretically, the studies show insurance has a positive contribution to different levels of development and further suggests examining the relationship between insurance and economic growth using appropriate model.

Sharesansar (2018) published an article entitled *Life insurance companies were able to bring 59 lakh insurance policies; Nepal life insurance company make it to lead* which describe the present scenario of life insurance companies in Nepal. The article reviews that the paid-up capital of insurance companies is in the same range, number of insurance policies identify the company's ability to market its schemes and products. Prime Life Insurance Company (PLIC) has been maintaining a lead position with 16.40 lakhs insurance policies followed by Nepal Life Insurance Company Limited (NLIC) with 11.81 lakhs policies and Metlife American Life Insurance Company (ALICO) with 8 lakhs policies as of first quarter of FY 2075/76. As of first quarter of this fiscal year, among the infant insurance companies, Union Life Insurance Company (ULICL) has the highest net premium of Rs 39.15 crores. It is followed by Reliable Nepal Life Insurance Company (RENLICL) with net premium of Rs 22.22 crores. Among the previously registered companies, NLIC has the highest net premium amounting to Rs 5.43 arba. It is followed by Life Insurance Corporation (LICN) and National Life Insurance Company (NLICL) with a net premium of Rs 2.89 arba and Rs 1.37 arba. Among the life insurance companies, the first quarter report shows that Nepal Life Insurance Company (NLIC) has earned the highest net profit of Rs 20.42 crores. It is further followed by National Life Insurance Company Limited (NLICL) with net profit of Rs 8.50 crores. Finally, Prime Life Insurance Company (PLIC) has a net profit of Rs 6.80 crores.

Vijayalaxmi and Satishkumar (2018) conducted a study entitled *Investment pattern of life insurance Corporation in India* with the main aim to evaluate the investment pattern adopted by the Life Insurance Corporation. The study is exploratory in nature and based on secondary data. The findings of the study shows that Life insurance companies make investment in the assets to hedge their risks. Efficient investment decision helps the insurance companies to safeguard their investments and can reduce the risk by diversifying the investment in different securities. The Life Insurance Corporation of India manages the investments effectively subject to the directions given by the IRDA.

Thapa (2018) conducted a research on *A comparative study on premium collection and investment pattern* to examine how far the different insurance premium are collected and invested them properly and to examine the relationship between premium, investment and net profit of insurance companies. Major findings of the study show that the premium collection rate of Nepalese insurance industry has been fluctuating trend. The insurance industry has not consisted in the investment proportion of various investment sector and investment portfolio too. Among the insurance policy, the ratio of premium collection is higher in fire insurance and lower in engineering policy. The coefficient of correlation between premium and investment of Nepalese insurance industry has high degree of positive correlation with significant relationship.

Maharjan and Jha (2020) conducted a study on *Contribution of insurance in economic growth of Nepal* with the main aim to identify the insurance impact on GDP and capital market. The study was based on secondary data and descriptive and analytical research approach was followed. Correlation and regression analysis was performed to analyze the data. Findings of the study show that Microfinances assist to bring the most vulnerable and deprived large population under the insurance coverage causing dual benefits like increasing the market coverage, capitalization of small savings and increasing opportunities, moral support for encouraging involvement in productive economic activities by the deprived group. Domestic reinsurance, on the other hand assists economic growth by limiting the massive outflow of domestic currency in the form of reinsurance premium. Reinsurance also helps to mobilize the domestic funds for internal investment and development activities.

Chapagain (2021) has conducted a research on *Premium structure and its impact on profitability: A comparative study between Nepal life insurance company and life insurance corporation (Nepal)* to analyze the premium structure of selected companies and its impact on the profitability. This research focused the secondary data. Generally, research focuses on quantitative data. Research is based on comparison of Gross Premium, Net Premium, Renewal Premium, First Premium, Term Premium, Renewal Premium to Gross Premium Ratio, First Premium to Gross Premium Ratio and Term Premium to Gross Premium Ratio. To examine the impact of premium on profitability correlation coefficient was calculated. The research find that Nepal life insurance was

able to collect higher Gross Premium, Net premium, Renewal premium, Term premium and First premium than Life insurance Corporation Nepal. The papers also concluded that in Nepal Life Insurance Company; there was significant influence of Term premium and Renewal premium on Net income. But premium was insignificant in Life Insurance Corporation. Similarly, research concluded that out of total premium most of the premium was collected from renewal premium.

2.3 Framework of the Study

Dependent variables are the conditions about which the experimenter makes a prediction that appear or disappear or change as the experimental introduces, removes or changes independent variables. Dependent variable is also called "response variables." In the study investment pattern of insurance companies in Nepal in relation between quantitative variables dividing into dependent and independent. The framework for the study is shown in Figure 2.1:

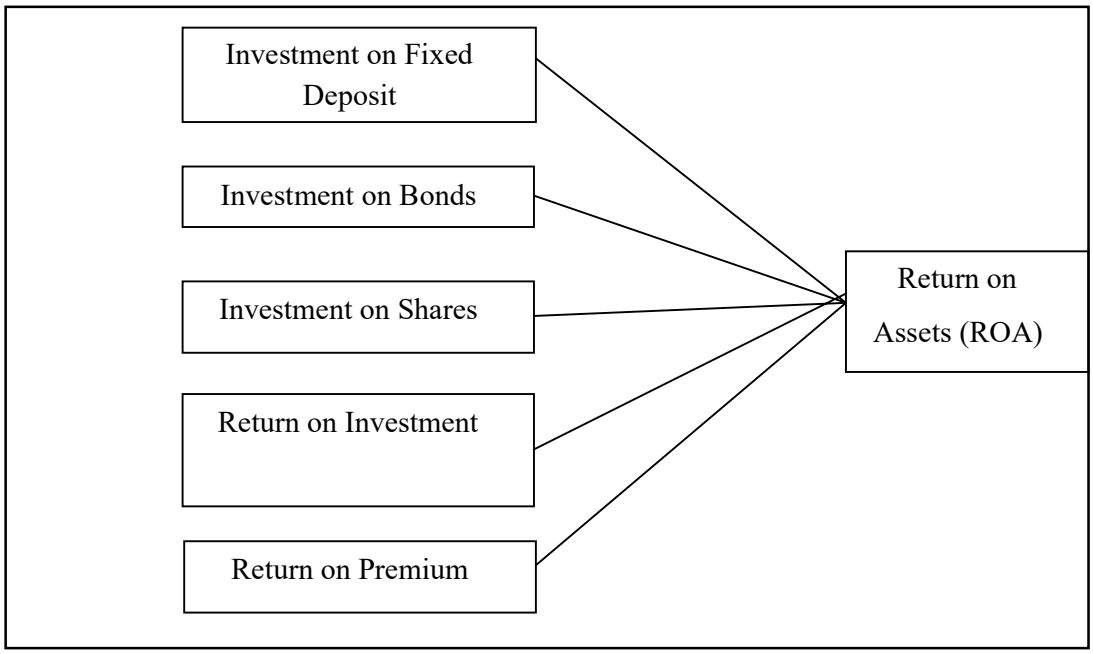

Figure 2.1 Framework for the Study

2.4 Research Gap

The review of above relevant literature has contributed to enhance the fundamental understanding and knowledge, which is required to make this study meaningful and purposeful. There is various researchers conduct on investment policy evaluation of different insurance companies as well as various commercial banks. In order to perform

those analysis researchers have used various ratio analysis. In the past research topic on premium and investment and its impact on profitability the researcher has focused on the limit ratios which are incapable of solving the problems. In this research various ratio are systematically analyzed and generalized. This research is basically based on practical study and gives more emphasis to realistic approach. The facts and figures of all three ALIC, PLIC and NLIC have changed since the last thesis was prepared. This thesis focuses on comparative study of ALIC, PLIC and NLIC on the basis of premium and investment and its effect on profitability. Keeping this in mind, this thesis is prepared with the help of up-to-date data and information.

CHAPTER-III

RESEARCH METHODOLOGY

3.1 Research Design

Research design is the specification of method and procedures for acquiring the information needed. To achieve the specific objective of the study, descriptive and analytical research has been carried out using purposive sampling method.

3.2 Population and Sample

At present, there are 40 Insurance companies (19 life insurance companies) are operating in Nepal. They constitute the population sample. Among of them, only three insurance companies were selected namely; Asian life insurance company limited, Prime life insurance company limited and Nepal Life insurance company and will be selected for the study. Ten years' data was taken to conduct the study from 2011/12 to 2020/21.

3.3 Sources and Types of Data

In order to achieve the objectives of the definite series of analysis can be introduced. The research was based on the description of the secondary data for the historical performance assessment and the future prediction of planning and upcoming policy and implementation among the insurers. Hence, in the study secondary data were used to collect necessary data and information. The data relating to premium collection and investment and its effect on profitability of insurance companies were collected different insurance companies and Beema Samiti, Nepal Stock Exchange, Government agencies and bodies, published and unpublished books, journals, newspapers, reports, thesis articles etc. are used the sources of the secondary data.

3.4 Data Procedure

Secondary data were collected through annual reports, different books and publications, websites, periodicals, newspaper etc. The information or data obtained from the different sources were in raw form. From that information, direct presentation was not be possible. Therefore, it is necessary to process data and converts it into required form. After then only, the data are presented for the study. This process is called data processing. For this study, only required data were taken from the secondary source and presented in the study. For presentation different tables are used. Similarly, in some

case graphical presentation is also is made. As far as the computation is concerned, it has been done with the help of scientific calculator and computer software program SPSS 25.0.

3.5 Data Analysis Tools

In order to get the concrete results from this research the various collected data from primary sources and secondary sources have been coded and tabulated in required form. Tabulated data has been processed and analyzed in descriptive way by using mathematical tools, statistical tools and financial tools wherever necessary. Graphs and charts have also been presented to interpret the finding of the study. As per topic requirements, emphasis is given on statistical tools rather than financial tools. So, for this study like ratio analysis, percentage indices, standard deviation, coefficient of variation, coefficient of determination and regression analysis are going to use. The following tools were used to fulfill the objective of the study.

3.5.1 Financial Tools

Generally, the financial analysis tools were used for the purpose of the assessment of the financial position of a particular organization. For the purpose of this study, ratio analysis is performed in the study. Certainly, ratio analysis showed the position of premium collection, investment return and their contribution on overall performance.

Ratio Analysis

The term ratio refers an arithmetical relationship between the components or variables. Ratio can be expressed as percentage, fraction and stated comparison between numbers. In simple words ratio analysis or financial ratio express, the relation between the accounting figures mathematically. It is an indicator for evaluating the financial position and performance of a firm. As for this study, ratio analysis is used to present the position of the investment and its performance as compared with the overall position and performance of the insurer.

As for this study, ratio analysis is used to present the position of the investment and its performance as compared with the overall position and performance of the insurer. In order to analyze the investment pattern and performance of premium collection followings ratios are used.

$$\text{Return on Premium} = \frac{\text{Net Profit}}{\text{Total Premium}}$$

$$\text{Return on Investment} = \frac{\text{Net Profit}}{\text{Total Investment}}$$

$$\text{Govt. Saving Bond to Total Investment} = \frac{\text{Govt. Saving Bond}}{\text{Total Investment}}$$

$$\text{Fixed Deposit to Total Investment} = \frac{\text{Fixed Deposit}}{\text{Total Investment}}$$

$$\text{Investment on Share to Total Investment} = \frac{\text{Investment on Share}}{\text{Total Investment}}$$

3.5.2 Statistical Tools

In this research study some statistical tools will be use for the analysis of the data more accurately. Descriptive statistics, correlation and regression analysis will be performed to analyze the data.

Mean ($\bar{X}$)

The arithmetic mean or average is the sum of total values to the number of observations in the sample. Arithmetic Mean: Arithmetic mean is the average return over periods. It is calculated by,

$$\text{Mean } (\bar{X}) = \frac{x_1 + x_2 + x_3 + x_4 \ldots\ldots\ldots\ldots + x_n}{n}$$

$$\text{Or, } \bar{X} = \frac{\Sigma x}{n}$$

Where,

$\bar{X}$ = Arithmetic Mean return

$x_1, x_2, x_3, x_4 \ldots\ldots\ldots\ldots x_n$ = Set of Observation

Σx = Sum of given Observation

n = Total number of Observations

Standard Deviation

The standard deviation is the absolute measure of dispersion in which the drawback presents in other measure of dispersion as it satisfied most of the requisites of a good measure of dispersion. It is calculating as:

Standard Deviation (S.D.) = $\sqrt{\frac{\Sigma(X - \bar{X})^2}{n}}$

Coefficient of Variation (CV)

Standard deviation is the absolute measure of dispersion. The relative measure of dispersing based on the standard deviation is known as the measurement of coefficient of standard deviation. It is calculated as under:

Coefficient of Variation (C.V.) = $\frac{\text{S. D.}}{\bar{X}} \times 100$

Coefficient Correlation Analysis

Out of several mathematical method of measuring correlation the Karl Pearson popularity known as Pearson's coefficient of correlation widely used in practice to measure the degree of relationship between two variables. Two variables are said to have correlation when the value of one variable is accompanied by the change in the value of the other. Therefore, it is measured by following formula using two variables. It is denoted by small 'r'.

Correlation Coefficient (r) = $\frac{n\Sigma xy - \Sigma x\Sigma y}{\sqrt{n\Sigma x^2 - (\Sigma x)^2}\sqrt{n\Sigma y^2 - (\Sigma y)^2}}$

Where,

r = coefficient of correlation

ΣXY = Sum of product of two series.

ΣX^2 = Sum of squared in X series

ΣY^2 = Sum of squared in Y series

n = number of years

3.6 Regression Model

An empirical finding from Risal (2016) found that insurance companies had given more priority to invest in fixed deposits in commercial and development banks. The investment in government securities was in increasing trend but analysis had shown the decrease in investment in the during the study period. The total investment was found fluctuating during the study period. It was also cleared that investment in all sectors as compare to other fiscal years were gradually decreasing during the study period. Similarly study from Vijayalaxmi & Satishkumar (2018) shows that Life insurance companies make investment in the assets to protect the interest of the

shareholders and to settle the amount to the claimants in the right time. Efficient investment decision might safeguard the investments and fetch expected return to the investors. Similarly, Ghimire (2013), the study has found that the investment amount in statutory category of life insurers is 16 percent more than minimum requirement. In the same way non-life insurer has more than 21 percent investment in statutory category. The regressions model for the study will be form as follows on the base of previous literature:

$Y=a + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5$

Where,

Y= Return on Assets

x_1= Investment on Fixed Deposit

x_2= Investment on Bonds

x_3= Investment on Shares

x_4= Return on Investment

x_5= Return on Premium

CHAPTER-IV

DATA PRESENTATION AND ANALYSIS

Presentation and analysis of data is very important stage of research study. Presentation is the process of organizing the data in tabular form and placing the available data in reasonable form. Analysis is done to portrait the financial figures in tabular or in graphical form so that recommendation can be given for the remedial measure. Present chapter will discuss the various aspects of impact of premium and investment on profitability and their composition so that recommendation can be given for remedial purposes.

4.1 Financial Analysis

It is an indicator for evaluating the financial position and performance of a firm. As for this study, ratio analysis is used to present the position of the investment and its performance as compared with the overall position and performance of the insurer.

4.1.1 Trend of Premium Collection

Premium collection is a major cost because an infrastructure is required for financial and data transfers. In this section the premium collection of sample life insurance companies during the ten years of the study period is presented.

Table: 4.1

Trend of Premium Collection

(Rs. In Million)

Fiscal Year	ALIC	PLIC	NLIC
2011/12	939.17	670.82	2,320.70
2012/13	1,037.61	940.17	3,201.20
2013/14	1,152.39	1,126.25	3,900
2014/15	1,381.68	1,224.79	5,675.49
2015/16	1,651.31	1,372.06	8,093.29
2016/17	2,003.36	1,725.26	10,256.21
2017/18	2,293.95	2,049.28	12,219.80
2018/19	3,019.11	2,379.33	16,170.08
2019/20	4,220.17	2,956.68	23,111.02
2020/21	4,591.19	3,300.15	27,622.24
Average	**2228.99**	**1774.48**	**11257**

Note. From Annual Report of Respective Companies

Table 4.1 is also presented in Figure 4.1 to show the trend line of premium collection of sample insurance companies.

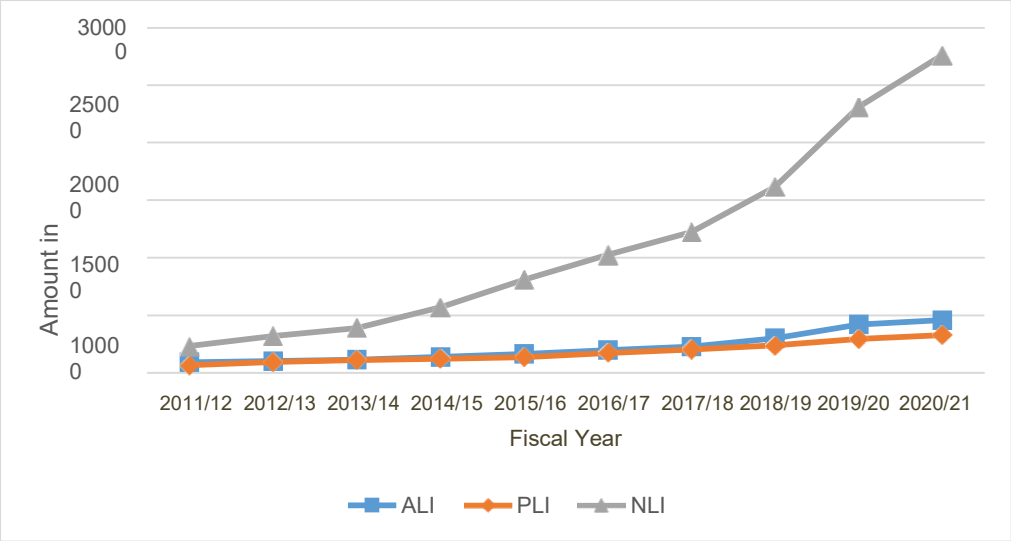

Figure 4.1. Trend of Premium collection

Table 4.1 and Figure 4.1 present the total premium collection of sample companies in Nepal during the ten years of the study period. The premium collection for all three sample companies were in increasing trend during the study period. The premium collection for ALIC was 939.17 million in fiscal year 2011/12 and increased to 4,591.19 million in fiscal year 2019/20. The premium collection for PLIC was 670.82 million in fiscal year 2011/12 and increased to 3,300.15 million in fiscal year 2020/21. The premium collection of NLIC was 2,320.70 million in fiscal year 2011/12 and increased to 27,622.24 million in fiscal year 2020/21. From the average it can be concluded that the premium collection of NLIC was far better than ALIC and PLIC.

4.1.2 Trend of Total Investment

Investment is the current commitment of the savings that compensates for the time involved, the expected rate of inflation and uncertainty involved. To stare in both words, an investment is a vehicle into which funds can be placed with the expectation that they will generate positive return or their value will be preserved or increased. In this section the investment trend of sample life insurance companies during the ten years of the study period is presented.

Table 4.2

Trend of Total Investment

(Rs. In Million)

Fiscal Year	ALIC	PLIC	NLIC
2011/12	3,425.65	768.62	5,490.32
2012/13	3,654.80	779.65	8,831.00
2013/14	3,897.32	889.97	11,231.65
2014/15	4,253.65	808.74	14,400.25
2015/16	4,523.73	2,582.01	18,343.27
2016/17	5,617.67	3,496.41	21,970.64
2017/18	7,023.51	4,544.10	34,687.55
2018/19	9,038.54	5,819.19	48,217.50
2019/20	13,518.51	8,681.85	58,951.06
2020/21	18,240.21	8,965.90	71,350.49
Average	**7319.36**	**3733.64**	**29347.4**

Note. From Annual Report of Respective Companies

Table 4.2 is also presented in Figure 4.2 to show the trend of total investment of sample insurance companies during the ten years of the study period.

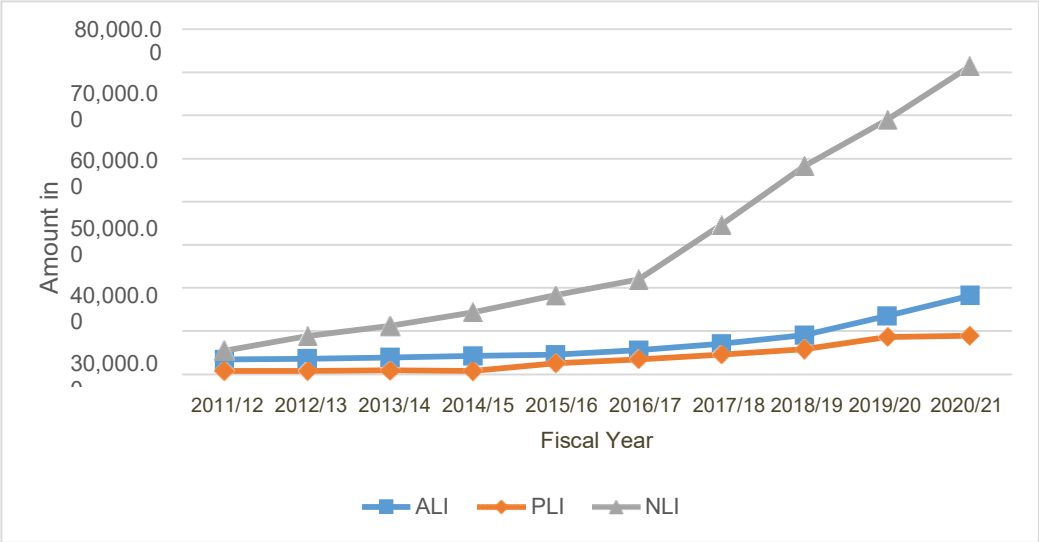

Figure: 4.2. Trend of Total Investment

Table 4.2 and Figure 4.2 present the total investment trend of sample companies in Nepal during the ten years of the study period. The investment for all three sample companies were in increasing trend during the study period. The total investment for ALIC was 3,425.65 million in fiscal year 2011/12 and increased to 18,240.21 million in fiscal year 2020/21. The investment of PLIC was 768.62 million in fiscal year 2011/12 and increased to 8,965.90 million in fiscal year 2020/21. Similarly, the

investment for NLIC was 5,490.32 million in fiscal year 2011/12 and increased to 71,350.49 million in fiscal year 2020/21. The average total investment of NLIC during the ten years of the study period was 29,347.4 million which is far better than ALIC i.e., 7,319.36 million and PLIC 3,733.64 million.

4.1.3 Return on Total Assets

This ratio is related to net profit after tax (NPAT) and total assets. How efficiently are the assets of a firm able to generate more profit are measured by this ratio is calculated by dividing NPAT by Total Assets. This ratio provides the foundation necessary for a company to deliver a good return on equity. Return on total assets ratio of ALIC, PLIC and NLIC for the period of 2011/12 to 2020/21 is presented.

Table 4.3

Return on Total Assets

(In %)

Fiscal Year	ALIC	PLIC	NLIC
2011/12	2.48	2.38	-0.70
2012/13	4.11	3.95	5.49
2013/14	3.22	3.74	5.57
2014/15	1.35	4.26	3.25
2015/16	0.81	1.79	1.95
2016/17	1.04	3.00	2.50
2017/18	0.46	3.77	1.98
2018/19	-0.21	2.51	1.78
2019/20	1.09	2.61	1.52
2020/21	0.75	2.02	0.55
Mean	**1.51**	**3.00**	**2.39**
SD	**1.27**	**0.83**	**1.87**
CV	**84.23%**	**27.52%**	**78.20%**

Note. From Appendix i, vii, viii and ix

Table 4.3 is also presented in Figure 4.3 to show the trend of return on total assets for ALIC, PLIC and NLIC during the ten years of the study period.

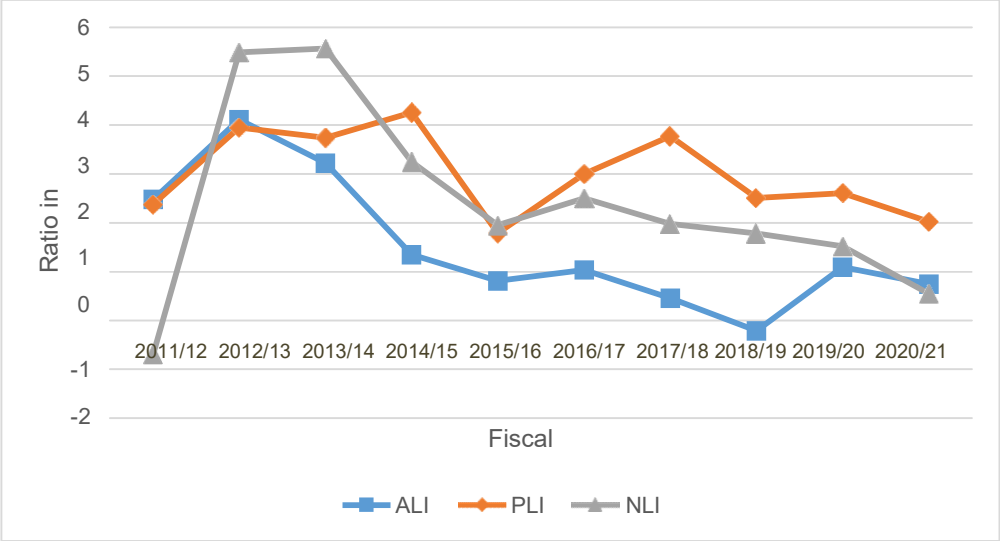

Figure 4.3. Return on Total Assets

Table and Figure 4.2 depict that the return on total assets ratio of ALIC, PLIC and NLIC all over the study period. The average ratio for return on assets is 1.51 percent, 3 percent and 2.39 percent for ALIC, PLIC and NLIC respectively. This indicates that the return on assets for the insurance companies is satisfactory. From the ten years' analysis i.e., fiscal year 2011/12 to 2020/21 return on assets is greater for PLIC which is 3 percent than of ALIC which is 1.51 percent and NLIC which is 2.39 percent among the three sample insurance companies. Coefficient of variation shows PLIC is more consistent with lower CV i.e., 27.52 percent than ALIC with CV of 84.23 percent and NLIC with CV of 78.20 percent.

4.1.4 Return on Premium

Return of premium is a perhaps intentional renaming/misnaming of the Internal Revenue Code provision for non-taxation of return of principal, as returns of principal are not taxed, because these were your principal in the first place. It is the rate of average premium income. This ratio shows the portion of income or return on total premium collection. Return shows the performance and the earning capacity of an insurer in comparison to the premium collection.

Table 4.4

Return on Premium

(In %)

Fiscal Year	ALIC	PLIC	NLIC
2011/12	4.78	3.96	-2.86
2012/13	10.98	5.99	19.55
2013/14	10.88	6.83	19.86
2014/15	5.15	9.81	10.82
2015/16	3.29	4.84	6.52
2016/17	4.55	8.46	8.84
2017/18	2.21	11.60	8.22
2018/19	-1.02	10.88	6.88
2019/20	5.20	11.50	5.11
2020/21	3.96	9.05	1.92
Mean	**5.00**	**8.29**	**8.49**
SD	**3.44**	**2.63**	**6.69**
CV	**68.93%**	**31.67%**	**78.80%**

Note. From Appendix ii, vii, viii and ix

Table 4.4 is also presented in Figure 4.4 to show the trend line of return on premium of sample insurance companies during the ten years of the study period.

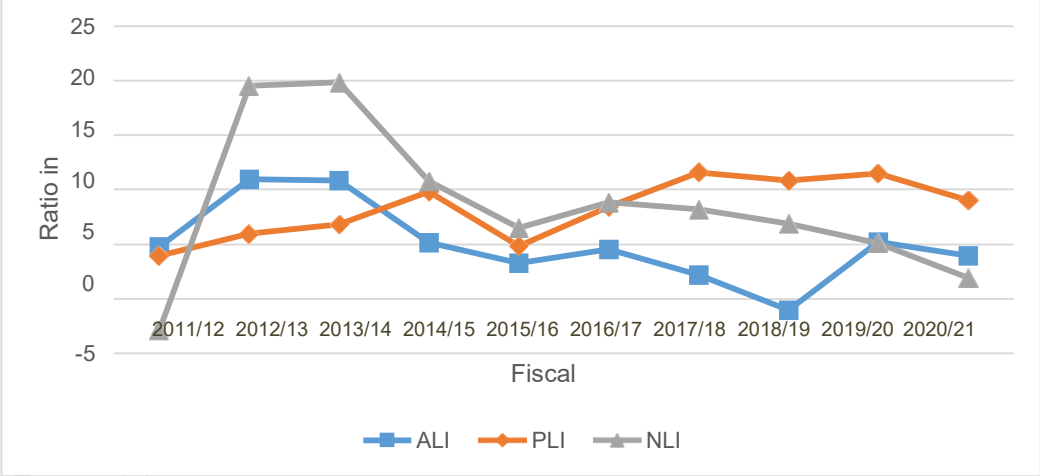

Figure :4.4. Return on Premium

Table 4.4 and Figure 4.4 show the ratio of return of premium of sample insurance companies. The highest and lowers return on premium for ALIC was 10.98 percent and -1.02 percent for fiscal year 2012/13 and 2018/19. Similarly, the highest and lowest return on premium for PLIC was 11.60 percent and 3.96 percent for fiscal year 2017/18 and 2011/12 respectively. The highest and lowest return on premium for NLIC was 19.86 percent and - 2.86 percent for fiscal year 2013/14 and 2011/12

respectively. The mean ratio was 5 percent, 8.29 percent and 8.49 percent for ALIC, PLIC and NLIC. From the average it can be clear that NLIC is in better position than ALIC and PLIC with higher average. It means return on premium is higher for NLIC than other sample companies. From the CV it can be concluded that PLIC has low risk with lower CV i.e. 31.67 percent.

4.1.5 Return on Investment

Investment may be defined as the purchase by an individual or institutional investor of a financial or real asset that produces a return proportional to the risk assumed over some future investment period. Investment is the current commitment of the savings that compensates for the time involved, the expected rate of inflation and uncertainty involved. To stare in both words, an investment is a vehicle into which funds can be placed with the expectation that they will generate positive return or their value will be preserved or increased. Here, quantitative analysis is mentioned which are related to the investment and investment pattern. For meeting the objective, every financial institution has to invest capital and get certain return on it. Return on investment shows the success and failure of company. It is the rate of average investment income. It shows the proportion with respect to investment. This ratio shows the performance of the investment and it indicates whole investment portfolio performance. Here the total investment consists the investment optional and compulsory sectors and the net income carried from profit and loss account.

Table 4.5

Return on Total Investment

(In %)

Fiscal Year	ALIC	PLIC	NLIC
2011/12	1.75	4.89	1.15
2012/13	1.23	3.41	0.75
2013/14	2.92	6.33	5.57
2014/15	2.95	9.51	5.38
2015/16	1.66	4.65	3.35
2016/17	0.56	1.90	2.40
2017/18	1.51	3.21	2.61
2018/19	0.56	4.08	2.08
2019/20	0.34	2.98	1.89
2020/21	0.32	3.49	0.73
Mean	**1.38**	**4.44**	**2.59**
SD	**0.93**	**2.04**	**1.64**
CV	**67.39%**	**45.94%**	**63.32%**

Note. From Appendix iii, vii, viii and ix

Table 4.5 is also presented in Figure 4.5 to show the trend of return on investment of sample insurance companies for ten years of the study period.

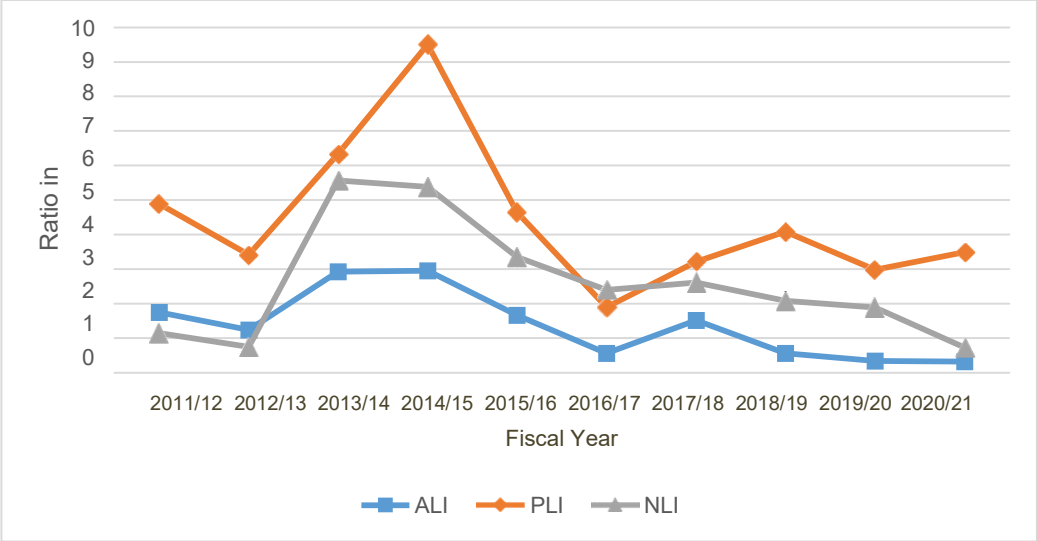

Table 4.5 *Return on Total Investment*

Table 4.5 shows that the return on investment varies between companies and differ year to year. The highest return of Asian Life insurance is 2.95 percent in 2014/15 and lowest 0.32 percent in fiscal year 2020/21. The average return on investment for Asian Life Insurance was 1.38 percent. Standard deviation for Asian Life Insurance was 0.93 and Coefficient of Variance was 67.39 percent for ALIC. The highest return of Prime Life insurance is 9.51percent in 2014/15 and lowest 1.90 percent in fiscal year 2016/17. The average return on investment for Prime Life Insurance was 4.44 percent. Standard deviation for Prime Life Insurance was 2.04 and Coefficient of Variance was 45.94 percent for PLIC. The lowest return was 0.73 percent for Nepal life insurance in 2020/21 and the highest was 5.57 percent in fiscal year 2013/14. The average return for Nepal life insurance was 2.59, Standard deviation 1.64 and CV was 63.32 percent.

In comparison the average return on investment is a bit high for Prime Life Insurance with the average value of 4.44 percent greater than 2.59 percent for NLIC and 1.38 percent for ALIC. But all three insurance companies' average return on investment is not satisfactory. All three insurance have invested their fund in risk free or low risk sector like government bonds, fixed deposit of bank and financial institutions etc. So, the return was not satisfied that the insurance companies invest their fund in more

secure sectors which has very low risk and low return. Insurance companies should invest on the sector that is secure and give more return.

4.1.6 Investment on Government Saving Bond to Total Investment Ratio

This ratio is the average government saving bond investment. It shows the proportion of investment on government saving bond. The entire insurer invests their fund making portfolio planning. Among the various areas of investment portfolio, it is the secured investment instruments. In this, the companies have not to bear risk in their investment. This investment has low but certain return and very low risk. The ratio measures the percentage of investment of particular insurer in government saving bond.

Table 4.6

Government Saving Bonds to Total Investment

(In %)

Fiscal Year	ALIC	PLIC	NLIC
2011/12	12.25	18.37	35.61
2012/13	10.98	20.98	21.10
2013/14	8.76	20.17	15.49
2014/15	6.81	35.00	13.29
2015/16	8.20	10.96	11.25
2016/17	8.38	8.10	9.17
2017/18	2.98	0.00	1.95
2018/19	2.32	0.00	1.40
2019/20	2.11	0.00	0.92
2020/21	1.32	0.00	0.74
Mean	**6.41**	**11.36**	**11.09**
SD	**3.75**	**11.42**	**10.57**
CV	**58.50%**	**100.53%**	**95.31%**

Note. From Appendix iv, vii, viii and ix

Table 4.6 is also presented in Figure 4.6 to show the trend of government saving bonds to total investment ratio of sample insurance companies during the ten years of the study period.

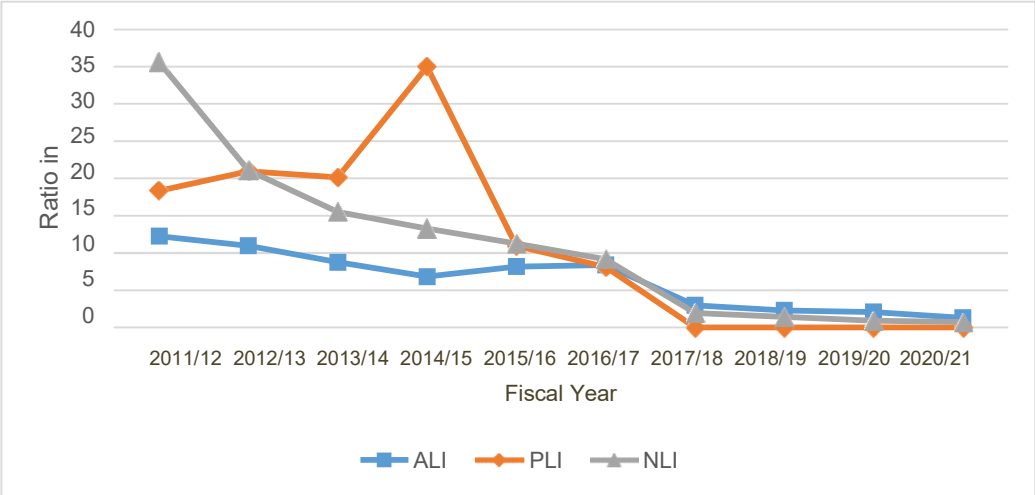

Figure 4.6 Government Saving Bonds to Total Investment

Table 4.7 depicts that Asian Life insurance has decreasing trend except 2015/16 and start from 12.25 percent in 2011/12 and increases to 8.38 percent in fiscal year 2016/17 and fall down to 1.32 percent during the final year of the study period. Prime Life insurance has decreasing trend and start from 18.37 percent in 2011/12 and 8.10 percent in fiscal year 2016/17 and after that the ratio is 0 because there is no investment in government saving bonds till study period. Nepal Life Insurance has decreasing trend of government saving bonds to total investment during the study period. In 2011/12 it was 35.61 percent while in the final year of the study period it reaches to 0.74 percent.

The average ratio of government saving bonds to total investment for PLIC was 11.36 percent which is higher than the ALIC and NLIC was i.e. 6.41 percent and 11.09 percent respectively. The low value of standard deviation i.e. 3.75, 11.42 and 10.57 for ALIC, PLIC and NLIC respectively and CV shows the investment in government saving bond has high variation and low risk. The reason of decreasing the government saving bonds to total investment ratio of both companies is that both companies have invested their funds in other sectors rather than the government saving bonds. The return on government saving bond is too low but it is risk free. So, all three insurance companies have invested their fund in other productive sectors with taking a little bit risk to get high return.

4.1.7 Investment on Fixed Deposit to Total Investment Ratio

The banks fixed deposit is the main investment sector of Nepalese insurer. The entire

insurers deposit their fund in fixed deposits. The investment on bank fixed deposits to total investment ratio is the average of investment on fixed deposit. It is the secured investment sector therefore; almost all insurers invest their higher fund in fixed deposits.

Table 4.7

Fixed Deposit to Total Investment Ratio

(In %)

Fiscal Year	ALIC	PLIC	NLIC
2011/12	71.77	48.07	81.21
2012/13	78.40	51.50	61.50
2013/14	76.70	49.26	50.15
2014/15	73.47	76.85	36.75
2015/16	78.32	73.20	65.58
2016/17	69.21	66.35	72.79
2017/18	80.37	77.68	72.43
2018/19	79.74	78.53	73.50
2019/20	56.13	57.02	70.11
2020/21	50.03	62.82	67.13
Mean	**71.41**	**64.13**	**65.12**
SD	**9.87**	**11.53**	**12.3**
CV	**13.82%**	**17.98%**	**18.89%**

Note. From Appendix v, vii, viii and ix

Table 4.7 is also presented in Figure 4.7 to show the trend of fixed deposit to total investment ratio during the ten years of the study period for sample insurance companies.

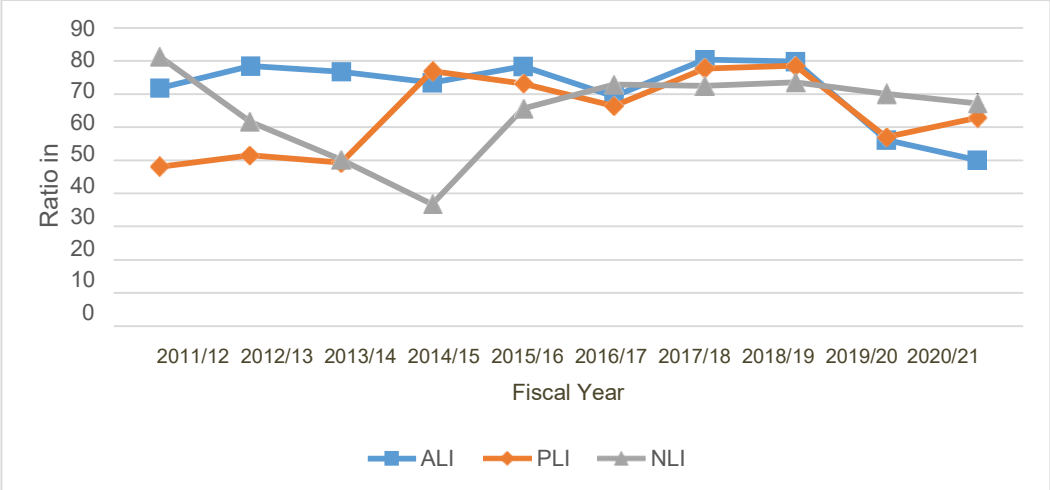

Figure 4.7. Fixed Deposit to Total Investment Ratio

Table 4.7 and Figure 4.7 shows that Asian life insurance has highest percentage of

80.37 percent in fiscal year 2017/18 and lowest 50.03 percent in fiscal year 2020/21. Average fixed deposit to investment for ALIC is 71.41 percent, s d 9.87 and CV 13.82 percent. Prime life insurance has highest percentage of 78.53 percent in fiscal year 2018/19 and lowest 48.07 percent in fiscal year 2011/12. Average fixed deposit to investment for PLIC is 64.13 percent, SD 11.53 and CV 17.98 percent. Nepal Life insurance has highest percentage i.e. 81.21 percent in 2011/12 and lowest 36.75 percent in fiscal year 2014/15. Average fixed deposit to investment for NLIC is 65.12 percent, s d 12.3 and CV 18.89 percent. In comparison, Nepal Life insurance has high variation with higher CV i.e., 18.89 percent and Prime Life and Asian life has low variation in comparison with lower CV i.e., 17.98 percent and 13.82 percent respectively. But all three insurance has very high value which proof that there is low variation and low risk in fixed deposit investment. The greater percentage of fixed deposit investment shows that till now insurance companies are not investing in other sector having high return and high risk. For the development and growth these companies should investment on other secure and highly return sector also. From the result we can conclude that the both insurances have highest percentage of investment in fixed deposit. Both insurances have almost same range of investment in deposit.

4.1.8 Investment on Share to Total Investment Ratio

It is an average of share investment. This ratio shows the share of different company's share in total investment of particular insurer and insurance industries as well.

Table 4.8

Share Investment to Total Investment

(In %)

Fiscal Year	ALIC	PLIC	NLIC
2011/12	1.35	3.86	8.84
2012/13	1.06	4.44	6.74
2013/14	1.07	4.14	5.57
2014/15	1.02	5.72	6.38
2015/16	1.17	1.88	4.35
2016/17	1.26	10.77	5.63
2017/18	1.45	12.56	3.17
2018/19	1.51	10.78	4.33
2019/20	1.37	9.00	4.39
2020/21	1.30	10.17	4.18
Mean	**1.26**	**7.33**	**5.36**
SD	**0.16**	**3.53**	**1.56**
CV	**12.70%**	**48.16%**	**29.10%**

Note. From Appendix vi, vii, viii and ix

Table 4.8 is also presented in Figure 4.8 to show the trend of share investment to total investment ratio during the ten years of the study period for sample insurance companies.

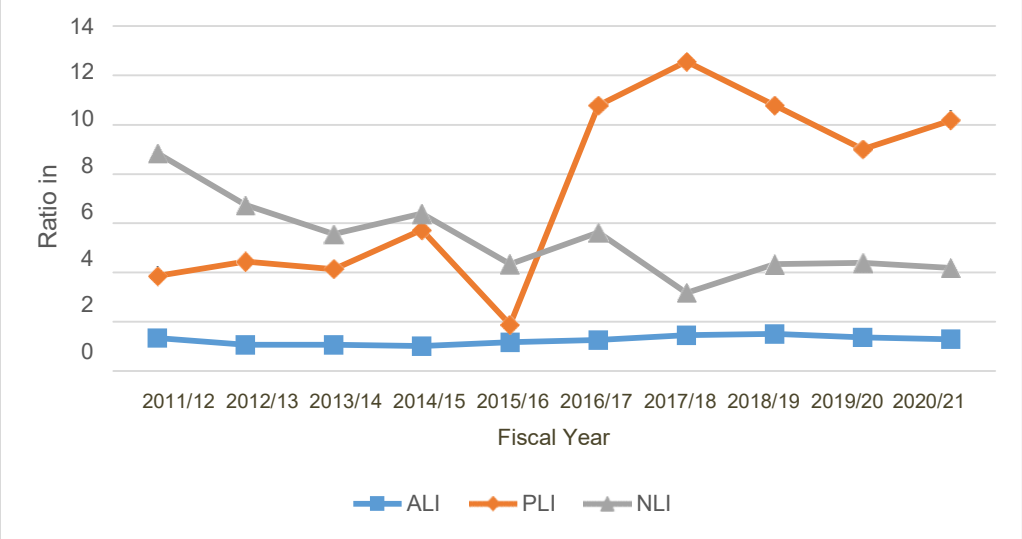

Figure 4.8.Share Investment to Total Investment

Tables 4.8 indicate the share and debenture to total investment ratio for ALIC, PLIC and NLIC for ten years of the study period. The highest and lowest share investment to total investment for ALIC was 1.51 percent and 1.02 percent for fiscal year 2018/19 and 2014/15 respectively. Similarly, the highest and lowest share investment to total investment for PLIC was 12.56 percent and 3.86 percent for fiscal year 2017/18 and 2011/12 respectively. The highest and lowest share investment to total investment for NLIC was 8.84 percent and 4.18 percent for fiscal year 2011/12 and 2020/21 respectively.

The mean value of PLIC was 7.33 percent which is greater than NLIC i.e. 5.36 percent and ALIC which is 1.26 percent. From the CV analysis it can be concluded that PLIC has low uniformity and higher risk as compare to other sample companies with higher CV i.e. 48.16 percent greater than NLIC i.e. 29.10 percent and ALIC 12.70 percent. From the table of share investment to total investment we can see that almost all insurance has same amount of investment in share. The variation of percentage is due to the increase or decrease of total investment amount.

4.2 Statistical Analysis

Uses of financial tools only are not considerable for analysis and evaluation of this

study. So, some statistical analysis tools should also to use for analysis. Under this term various statistical mathematics likes, descriptive statistics, coefficient of correlation and regression are used for the purpose to find out tendency, relation and distinguish between premium collection and investment pattern and its effect on profitability. For this purpose, following measures are analyzed.

4.2.1 Descriptive Statistics

Regarding the premium collection and investment and its impact on profitability, several independent variables were used while dependent variable is return on total assets. Data were collected from the annual reports of sample insurance companies. The premium and investment and its impact on profitability have been analyzed on the basis of various data related to return on premium, return on assets, investment in bonds to total investment, investment in fixed deposit to total investment and investment on share to total investment. Premium collection and investment and its impact on profitability measurement-base statement and their mean score are presented in Table 4.9. Data collected was refined and processed by SPSS software systematically.

Table 4.9

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	30	-.70	5.57	2.3007	1.54439
ROP	30	-2.86	19.86	7.2587	4.95355
ROI	30	.32	9.51	2.8053	2.07582
IB	30	.00	35.61	9.6203	9.68106
IFD	30	36.75	81.21	66.8857	11.93356
IS	30	1.02	12.56	4.6487	3.43204

Where,

ROA = Return on Total Assets (Dependent Variable)

ROP = Return on Premium

ROI = Return on Investment

IB = Investment on Bonds to Total Investment

IFD = Investment on Fixed Deposit to Total Investment

IS = Investment on Shares to Total Investment

Table 4.9 shows that the return on assets ranges from -0.70 percent to Rs. 5.57 percent leading to an average of 2.33 percent. SD for return on assets is 1.54 which indicates the variation in return on assets of the insurance companies during the study period.

The average return on premium of the insurance companies during the study period is noticed to be 7.26 percent with a minimum of -2.86 percent and a maximum of 19.86 percent with SD of 4.95 which shows the variation of return on premium over the study period. Likewise, the return on investment has a minimum value of 0.32 percent and a maximum of 9.51 percent with a mean of 2.80 percent with the standard deviation of 2.07 which shows the variation of return on investment during the ten years of the study period. The investment in bonds to total investment has the minimum value of 0 percent and the maximum value of 35.61 percent leading to the average of 9.62 percent and SD 9.68 which indicate the variance with average during the ten years of the study period. The investment in fixed deposit to total investment has the minimum value of 36.75 percent and the maximum value of 81.21 percent leading to the average of 66.88 percent and SD 11.93 which indicate the variance with average during the ten years of the study period. The investment in shares to total investment has the minimum value of 1.02 percent and the maximum value of 12.56 percent leading to the average of 4.65 percent and SD 3.43 which indicate the variance with average during the ten years of the study period.

4.2.2 Coefficient of Correlation

Correlation is the statically tool, which measure the relationship between two or more variables of a population or a sample. In other words, it describes the degree to which one variable is linearly related to another. The coefficient of correlation measures the degree of relationship between two sets of figures. Among the various methods of finding out coefficient of correlation, Karl Pearson's method is applied in the study. The result of coefficient of correlation is always between +1 and -1 when r is +1, it means there is perfect relationship between two variables and vice versa. When r is 0 it means there is no relationship between two of them.

Table 4.10

Correlation Analysis

		ROA	ROP	ROI	IB	IFD	IS
ROA	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	30					
ROP	Pearson Correlation	.885**	1				
	Sig. (2-tailed)	.000					
	N	30	30				
ROI	Pearson Correlation	.078	.136	1			
	Sig. (2-tailed)	.683	.473				
	N	30	30	30			
IB	Pearson Correlation	.390*	.259	.462*	1		
	Sig. (2-tailed)	.033	.166	.010			
	N	30	30	30	30		
IFD	Pearson Correlation	-.004	-.180	-.255	-.106	1	
	Sig. (2-tailed)	.983	.340	.173	.577		
	N	30	30	30	30	30	
IS	Pearson Correlation	-.211	-.090	.256	.041	-.060	1
	Sig. (2-tailed)	.262	.637	.172	.832	.752	
	N	30	30	30	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Note. From Appendix x

ROA = Return on Total Assets (Dependent Variable)

ROP = Return on Premium

ROI = Return on Investment

IB = Investment on Bonds to Total Investment

IFD = Investment on Fixed Deposit to Total Investment

IS = Investment on Shares to Total Investment

The correlation between return on assets and return on premium is positive (0.885) which is high degree of correlation. Positive correlation coefficients indicate a direct relationship, indicating that as increasing return on premium increases, return on assets also increase. The p-value for return on premium is 0 which is less than 0.05. From this result, it can be concluded that there is a statistically significant relationship between return on assets and return on premium. The correlation between return on assets and return on investment is positively correlated i.e. (0.078) which indicates that the increase in return on investment will increase the profitability. The p-value for return

on investment is 0.683 which is more than 0.05. From this result, it can be concluded that there is a statistically insignificant relationship between return on assets and return on premium. Correlation between return on assets and investment on bonds to total investment ratio is positive i.e. (0.390) which means the increase in investment on bonds to total investment ratio, results increase in the return on assets of the insurance companies. The p-value for investment on bonds to total investment ratio is 0.033 which is less than 0.05. From this result, it can be concluded that there is a statistically significant relationship between return on assets and investment on bonds to total investment ratio. Correlation between return on assets and investment on fixed deposit to total investment ratio is negative i.e. (-0.004) which means the increase in investment on fixed deposits to total investment ratio, results decreased in the return on assets of the insurance companies. The p-value for investment on bonds to total investment ratio is 0.983 which is greater than 0.05. From this result, it can be concluded that there is a statistically insignificant relationship between return on assets and investment on fixed deposits to total investment ratio. Correlation between return on assets and investment on shares to total investment ratio is negative i.e. (-0.211) which means the increase in investment on shares to total investment ratio, results decreased in the return on assets of the insurance companies. The p-value for investment on shares to total investment ratio is 0.262 which is higher than 0.05. From this result, it can be concluded that there is a statistically insignificant relationship between return on assets and investment on shares to total investment ratio.

4.2.3 Regression Analysis

Regression is the statistical tool which is used to determine the statistical relationship between two or more variables and so make estimate of one variable on the basis of the other variable. Regression is the line which gives the best estimate of one variable for any given value of the other variable. The regression line of Y on X estimates the most probable values of Y for given values of X. X is independent variable and Y in dependent variable

Table 4.11

Regression Analysis

Model	B	t-value	p-value	VIF
(Constant)	-.854	-1.051	.304	-
ROP	.266	10.590	.000	1.115
ROI	-.055	-.807	.427	1.444
IB	.036	2.520	.019	1.346
IFD	.019	1.846	.077	1.098
IS	-.052	-1.454	.159	1.093
F	29.542		0.000[b]	
R^2		0.860		

Note. From Appendix xi, xii and xiii

Table 4.11 depict that 30 observations are used in the model and dependent variable is return on assets of insurance companies and independent variables are return on premium, return on investment, investment on bonds to total investment ratio, investment on fixed deposit to total investment ratio and investment on shares to total investment ratio. The f-static is significant at the level of 1 percent because p value is lower than 0.05 i.e., 0.000<0.05 which means that the independent variables were able to explain the dependent variable. The table shows that the R square is 0.860 i.e., 86 percent. The regression result from R square indicates that 86.0 percent of the variation in return on assets is determined by these independent variables i.e. return on premium, return on investment, investment on bonds to total investment ratio, investment on fixed deposit to total investment ratio and investment on shares to total investment ratio. This shows that dependent variable (return on assets) on insurance companies, 86.0 percent is explained by the independent variables used in this study and rests 14 percent are explained by other variables which were not included in this study.

Return on premium has a positive significant impact on return on total assets because p value for this variable is lower than 0.05 i.e., 0.000<0.05. This indicates that when the return on premium was increased then the return on assets will be also increase. Investment on bond to total investment has positive relation with the dependent variable return on assets and indicates statistically significant because p value for this variable is lower than 0.05 i.e., 0.019<0.05. This indicates that when the investment on bond to total investment was increased then the return on assets will be also increase. Investment on fixed deposit has a positive relation with return on total

assets but it is statistically insignificant because p value for this variable is greater than 0.05 i.e., 0.077>0.05. In the same way return on investment and investment on share to total investment ratio has the negative relation with the return on total assets ans also these variables were statistically insignificant because these variables significance value is higher than 0.05 i.e., 0.427 and 0.159 respectively.

Variance inflation factors range from 1 upwards. The numerical value for VIF tells (in decimal form) what percentage the variance (i.e. the standard error squared) is inflated for each coefficient. In multiple regression, the variance inflation factor (VIF) is used as an indicator of multicollinearity. If the VIF is equal to 1 there is no multicollinearity among factors, but if the VIF is greater than 1, the predictors may be moderately correlated. The output above shows that the VIF for the independent factors are about 1.115, 1.444, 1.346, 1.098 and 1.093 for the variables return on premium, return on investment, investment on bonds to total investment ratio, investment on fixed deposit to total investment ratio and investment on shares to total investment ratio respectively which indicates some correlation, but not enough to be overly concerned about. A VIF between 5 and 10 indicates high correlation that may be problematic. And if the VIF goes above 10, it can be assumed that the regression coefficients are poorly estimated due to multicollinearity.

4.3 Major Findings of the Study

- The premium collection for ALIC was 939.17 million in fiscal year 2011/12 and increased to 4,591.19 million in fiscal year 2019/20. The premium collection for PLIC was 670.82 million in fiscal year 2011/12 and increased to 3,300.15 million in fiscal year 2020/21. The premium collection of NLIC was 2,320.70 million in fiscal year 2011/12 and increased to 27,622.24 million in fiscal year 2020/21.
- The average total investment of NLIC during the ten years of the study period was 29,347.4 million which is far better than ALIC i.e., 7,319.36 million and PLIC 3,733.64 million.
- The average ratio for return on assets is 1.51 percent, 3 percent and 2.39 percent for ALIC, PLIC and NLIC respectively. From the ten years' analysis i.e., fiscal year 2011/12 to 2020/21 return on assets is greater for PLIC which is 3 percent than of ALIC which is 1.51 percent and NLIC which is 2.39 percent among the three sample insurance companies.

- The mean ratio for return on premium was 5 percent, 8.29 percent and 8.49 percent for ALIC, PLIC and NLIC. From the average it can be clear that NLIC is in better position than ALIC and PLIC with higher average. It means return on premium is higher for NLIC than other sample companies. From the CV it can be concluded that PLIC has low risk with lower CV i.e. 31.67 percent.
- Average return on investment is a bit high for Prime Life Insurance with the average value of 4.44 percent greater than 2.59 percent for NLIC and 1.38 percent for ALIC. But all three insurance companies' average return on investment is not satisfactory.
- The average ratio of government saving bonds to total investment for PLIC was 11.36 percent which is higher than the ALIC and NLIC was i.e. 6.41 percent and 11.09 percent respectively. The low value of standard deviation i.e. 3.75, 11.42 and 10.57 for ALIC, PLIC and NLIC respectively and CV shows the investment in government saving bond has high variation and low risk.
- Average fixed deposit to investment for NLIC is 65.12 percent, SD 12.3 and CV 18.89 percent. In comparison, Nepal Life insurance has high variation with higher CV i.e., 18.89 percent and Prime Life and Asian life has low variation in comparison with lower CV i.e., 17.98 percent and 13.82 percent respectively.
- The mean value for investment on shares to total investment for PLIC was 7.33 percent which is greater than NLIC i.e. 5.36 percent and ALIC which is 1.26 percent. From the CV analysis it can be concluded that PLIC has low uniformity and higher risk as compare to other sample companies with higher CV i.e. 48.16 percent greater than NLIC i.e. 29.10 percent and ALIC 12.70 percent.
- Average return on assets for all three sample insurance companies ranges from -0.70 percent to Rs. 5.57 percent leading to an average of 2.33 percent. SD for return on assets is 1.54 which indicates the variation in return on assets of the insurance companies during the study period.
- The average return on premium of the sample insurance companies during the study period is noticed to be 7.26 percent with a minimum of -2.86 percent and a maximum of 19.86 percent with SD of 4.95 which shows the variation of return on premium over the study period.

- The return on investment has a minimum value of 0.32 percent and a maximum of 9.51 percent with a mean of 2.80 percent with the standard deviation of 2.07 which shows the variation of return on investment during the ten years of the study period.
- The investment in bonds to total investment has the minimum value of 0 percent and the maximum value of 35.61 percent leading to the average of 9.62 percent and SD 9.68 which indicate the variance with average during the ten years of the study period.
- The investment in fixed deposit to total investment has the minimum value of 36.75 percent and the maximum value of 81.21 percent leading to the average of 66.88 percent and SD 11.93 which indicate the variance with average during the ten years of the study period.
- The investment in shares to total investment has the minimum value of 1.02 percent and the maximum value of 12.56 percent leading to the average of 4.65 percent and SD 3.43 which indicate the variance with average during the ten years of the study period.
- The correlation between return on assets and return on premium is positive (0.885) which is high degree of correlation. The p-value for return on premium is 0 which is less than 0.05 which is significant at 5 percent level of significance.
- The correlation between return on assets and return on investment is positively correlated i.e. (0.078) which indicates that the increase in return on investment will increase the profitability. The p-value for return on investment is 0.683 which is more than 0.05 which indicate insignificant at 5 percent level of significance.
- Correlation between return on assets and investment on bonds to total investment ratio is positive i.e. (0.390) which means the increase in investment on bonds to total investment ratio, results increase in the return on assets of the insurance companies. The p-value for investment on bonds to total investment ratio is 0.033 which is less than 0.05 which is significant at 5 percent level of significance.
- Correlation between return on assets and investment on fixed deposit to total investment ratio is negative i.e. (-0.004) which means the increase in investment

on fixed deposits to total investment ratio, results decreased in the return on assets of the insurance companies. The p-value for investment on bonds to total investment ratio is 0.983 which is greater than 0.05 which is insignificant.

- Correlation between return on assets and investment on shares to total investment ratio is negative i.e. (-0.211) which means the increase in investment on shares to total investment ratio, results decreased in the return on assets of the insurance companies. The p-value for investment on shares to total investment ratio is 0.262 which is higher than 0.05 which indicate insignificant relationship between variables.
- The f-static is significant at the level of 1 percent because p value is lower than 0.05 i.e., 0.000<0.05 which means that the independent variables were able to explain the dependent variable.
- The regression result from R square indicates that 86.0 percent of the variation in return on assets is determined by these independent variables i.e return on premium, return on investment, investment on bonds to total investment ratio, investment on fixed deposit to total investment ratio and investment on shares to total investment ratio.
- Return on premium has a positive significant impact on return on total assets because p value for this variable is lower than 0.05 i.e., 0.000<0.05. This indicates that when the return on premium was increased then the return on assets will be also increase.
- Investment on bond to total investment has positive relation with the dependent variable return on assets and indicates statistically significant because p value for this variable is lower than 0.05 i.e., 0.019<0.05.
- Investment on fixed deposit have a positive relation with return on total assets but it is statistically insignificant because p value for this variable is greater than 0.05 i.e., 0.077>0.05.
- Return on investment and investment on share to total investment ratio has the negative relation with the return on total assets and also these variables were statistically insignificant because these variables significance value is higher than 0.05 i.e., 0.427 and 0.159 respectively.
- The output of the VIF for the independent factors are about 1.115, 1.444, 1.346, 1.098 and 1.093 for the variables return on premium, return on investment,

investment on bonds to total investment ratio, investment on fixed deposit to total investment ratio and investment on shares to total investment ratio respectively which indicates some correlation, but not enough to be overly concerned about.

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

In this study, an attempt is made to find out and provide independent views of the premium collection and investment pattern and its effect on profitability of insurance companies. For the presentation, analysis and evaluation secondary data from the various sources are taken like annual reports of respective companies and other applicable sources as well as journals, articles, newspaper related to concerned subject matter. Necessary help is taken from insurance board, Nepal stock exchange and relevant web sites. Among the 39 insurance companies, the study has been taken to evaluate the premium collection and investment pattern and its effect on profitability of industry through the sample basis. The study analyzed the annual report of ten years starting from 2011/12 to 2020/21 of Nepal life insurance company, Asian life insurance company and Prime life insurance company are taken for the purpose of the study. Secondary data are collected from relevant sources and to reveal the problems, financial as well as statistical tools are applied. The recommendation is provided based on findings from analysis.

As significant differences in the nature of insurance, mainly there are two types of insurance life and non-life. Life insurance premium is nonrefundable. For life insurance companies, they have to refund the premium that collected to insured with bonds. However, general insurance does not have such burden. That is why the premium collection of both businesses dealt in different headlines. Insurer charges the premium differently accordance to nature of risk. Thus, the judgment and personal evaluation play vital role in rating/fixing premium. Insurance business is found in urban area only. In Nepal, there is the possibility of extending the insurance business in remote area. This party can be taken as an opportunity.

Investment means to outflow of the fund as adjustable return. For investing, investment pattern is the formulation of the investment strategy based upon the organizational and financial character of the particulars firm itself. Investment policy was the preliminary decision of selecting the proper investment sector based upon single or joint consideration of safety, liquidity, marketability, profitability and stability or else. Usually, such investment pattern aims at arriving to the optimized or agreed mix of

risk return from the investment. Investment fund for the insurance companies are the excess amount after claims paid and managerial expenses. Premium collection and investment are the major tasks for every insurance company. More premium collection means more income and more investment means more return. Therefore, this study is concentrating on the premium collection and investment position and pattern of insurances industry in Nepal. Companies are aimed at evaluating and analyzing the premium collection trend, investment sector and ratio.

5.2 Conclusion

This study is focus on the investment position and pattern and its effect onprofitability of insurances companies in Nepal. Companies are aimed at evaluating and analyzing the premium collection trend. Ratio analysis show that as the transaction amount is increased, the increase in percentage is not so satisfactory. Increase in premium collection has fluctuated nature and investment fund is low in comparison to other financial companies. From correlation result, it can be concluded that there is a statistically significant relationship between return on assets and return on premium, there is a statistically insignificant relationship between return on assets and investment on fixed deposits to total investment ratio, there is a statistically insignificant relationship between return on assets and investment on shares to total investment ratio, there is a statistically significant relationship between return on assets and investment on bonds to total investment ratio.

From regression analysis it can be concluded that, return on premium has a positive significant impact on return on total assets because p value for this variable is lower than 0.05 i.e., 0.000<0.05. This indicates that when the return on premium was increased then the return on assets will be also increase. Investment on bond to total investment has positive relation with the dependent variable return on assets and indicates statistically significant because p value for this variable is lower than 0.05 i.e., 0.019<0.05. This indicates that when the investment on bond to total investment were increased then the return on assets will be also increase. Investment on fixed deposit have a positive relation with return on total assets but it is statistically insignificant because p value for this variable is greater than 0.05 i.e., 0.077>0.05. In the same way return on investment and investment on share to total investment ratio has the negative relation with the return on total assets and also these variables were

statistically insignificant because these variables significance value is higher than 0.05 i.e., 0.427 and 0.159 respectively.

In the context of Nepal, insurance business is one of the business, which has not any loss and it suffered at profit from establishment date to till now. But the trend of premium collection investment and profit earned are fluctuated. Almost of the companies followed the investment policy at investing a fund but some insurer gives less importance on investment policy and they invest their fund only accordance to government rules and regulation and management desire. Although the entire insurer concerns with investment management and they heartily accepted if too.

5.3 Recommendation

The recommendation is made as per the analysis of secondary and valid findings from the study as well as relating information about Nepalese insurance industry. They have barrier from government rules and regulation and through other relevant side these correctives action needs to be introduced:

- All insurance companies must take some steps to decrease the inconsistency. To take any proper decision, to run the organization smoothly, each ratio should be consistent. Therefore, the companies must start research and development programmed train their work force effectively and scientifically.
- The entire insurer should follow the investment policy and improves its management. In addition, should maintain and make uniformity on premium collection under all insurance policies.
- The entire insurer should improve their premium collection system and investment systems too and try to increase customer service by providing different facilities and to withdraw unnecessary process of insurance and followed scientific insurance system.
- Insurance premium fund should be invested in different sector other than HMG bond and bank fixed deposit is order to inherence the life standard of people thereby increase the insurance premium.
- The insurance companies should introduce new policies and attractive strategy to make ease for the development of insurance business.

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Appendix: I
Return on Total Assets

(Rs. in Million)

Fiscal Year	ALIC			PLIC			NLIC		
	Net Profit	TA	Ratio (%)	Net Profit	TA	Ratio (%)	Net Profit	TA	Ratio (%)
2011/12	44.89	1,810.32	2.48	26.56	1,118.28	2.38	-66.4	9,548.93	-0.70
2012/13	113.91	2,768.92	4.11	56.32	1,426.32	3.95	625.7	11,388.96	5.49
2013/14	125.43	3,897.28	3.22	76.89	2,055.95	3.74	774.61	13,906.34	5.57
2014/15	71.12	5,272.73	1.35	120.14	2,821.53	4.26	614.11	18,905.08	3.25
2015/16	54.37	6,740.41	0.81	66.34	3,710.17	1.79	527.56	27,081.89	1.95
2016/17	91.17	8,728.92	1.04	145.88	4,857.81	3.00	906.63	36,302.20	2.50
2017/18	50.64	11,032.80	0.46	237.62	6,300.51	3.77	1,004.63	50,745.15	1.98
2018/19	-30.88	14,886.41	-0.21	258.99	10,312.20	2.51	1,112.83	62,350.98	1.78
2019/20	219.4	20,076.53	1.09	340	13,013.18	2.61	1,182.04	77,925.10	1.52
2020/21	181.86	24,229.33	0.75	298.56	14,764.82	2.02	530.38	96,584.81	0.55

Appendix: II
Return on Premium

Fiscal Year	ALIC			PLIC			NLIC		
	Net Profit	Premium	Ratio (%)	Net Profit	Premium	Ratio (%)	Net Profit	Premium	Ratio (%)
2011/12	44.89	939.17	4.78	26.56	670.82	3.96	-66.4	2,320.70	-2.86
2012/13	113.91	1,037.61	10.98	56.32	940.17	5.99	625.7	3,201.20	19.55
2013/14	125.43	1,152.39	10.88	76.89	1,126.25	6.83	774.61	3,900	19.86
2014/15	71.12	1,381.68	5.15	120.14	1,224.79	9.81	614.11	5,675.49	10.82
2015/16	54.37	1,651.31	3.29	66.34	1,372.06	4.84	527.56	8,093.29	6.52
2016/17	91.17	2,003.36	4.55	145.88	1,725.26	8.46	906.63	10,256.21	8.84
2017/18	50.64	2,293.95	2.21	237.62	2,049.28	11.60	1,004.63	12,219.80	8.22
2018/19	-30.88	3,019.11	-1.02	258.99	2,379.33	10.88	1,112.83	16,170.08	6.88
2019/20	219.4	4,220.17	5.20	340	2,956.68	11.50	1,182.04	23,111.02	5.11
2020/21	181.86	4,591.19	3.96	298.56	3,300.15	9.05	530.38	27,622.24	1.92

Appendix: III
Return on Investment

Fiscal Year	ALIC			PLIC			NLIC		
	Net Profit	TI	Ratio (%)	Net Profit	TI	Ratio (%)	Net Profit	TI	Ratio (%)
2011/12	44.89	3,425.65	1.75	26.56	768.62	4.89	(66.4)	5,490.32	1.15
2012/13	113.91	3,654.80	1.23	56.32	779.65	3.41	625.7	8,831.00	0.75
2013/14	125.43	3,897.32	2.92	76.89	889.97	6.33	774.61	11,231.65	5.57
2014/15	71.12	4,253.65	2.95	120.14	808.74	9.51	614.11	14,400.25	5.38
2015/16	54.37	4,523.73	1.66	66.34	2,582.01	4.65	527.56	18,343.27	3.35
2016/17	91.17	5,617.67	0.56	145.88	3,496.41	1.90	906.63	21,970.64	2.40
2017/18	50.64	7,023.51	1.51	237.62	4,544.10	3.21	1,004.63	34,687.55	2.61
2018/19	(30.88)	9,038.54	0.56	258.99	5,819.19	4.08	1,112.83	48,217.50	2.08
2019/20	219.4	13,518.51	0.34	340	8,681.85	2.98	1,182.04	58,951.06	1.89
2020/21	181.86	18,240.21	0.32	298.56	8,965.90	3.49	530.38	71,350.49	0.73

APPENDIX - IV
Government Saving Bonds to Total Investment

(Rs. in Millions)

Fiscal Year	ALIC			PLIC			NLIC		
	Govt. Saving Bonds	Total Investment	Ratio (%)	Govt. Saving Bonds	Total Investment	Ratio (%)	Govt. Saving Bonds	Total Investment	Ratio (%)
2011/12	419.52	3,425.65	12.25	141.23	768.62	18.37	1,955.25	5,490.32	35.61
2012/13	401.25	3,654.80	10.98	163.58	779.65	20.98	1,863.46	8,831.00	21.10
2013/14	341.26	3,897.32	8.76	179.52	889.97	20.17	1,739.60	11,231.65	15.49
2014/15	289.65	4,253.65	6.81	283.06	808.74	35.00	1,914.37	14,400.25	13.29
2015/16	370.8	4,523.73	8.20	283.06	2,582.01	10.96	2,063.93	18,343.27	11.25
2016/17	470.8	5,617.67	8.38	283.06	3,496.41	8.10	2,014.73	21,970.64	9.17
2017/18	209.35	7,023.51	2.98	0	4,544.10	0.00	676	34,687.55	1.95
2018/19	209.35	9,038.54	2.32	0	5,819.19	0.00	676	48,217.50	1.40
2019/20	285.65	13,518.51	2.11	0	8,681.85	0.00	541.25	58,951.06	0.92
2020/21	241.32	18,240.21	1.32	0	8,965.90	0.00	525.62	71,350.49	0.74

(Note .From Annual Reports of Respective Companies)

APPENDIX - V
Fixed Deposit to Total Investment

(Rs. in Millions)

Fiscal Year	ALIC			PLIC			NLIC		
	Fixed Deposit	Total Investment	Ratio (%)	Fixed Deposit	Total Investment	Ratio (%)	Fixed Deposit	Total Investment	Ratio (%)
2011/12	2,458.69	3,425.65	71.77	369.5	768.62	48.07	4,458.92	5,490.32	81.21
2012/13	2,865.40	3,654.80	78.40	401.52	779.65	51.50	5,431.50	8,831.00	61.50
2013/14	2,989.25	3,897.32	76.70	438.39	889.97	49.26	5,632.50	11,231.65	50.15
2014/15	3,125.20	4,253.65	73.47	621.5	808.74	76.85	5,292.50	14,400.25	36.75
2015/16	3,543	4,523.73	78.32	1,890	2,582.01	73.20	12,029.40	18,343.27	65.58
2016/17	3,888	5,617.67	69.21	2,320	3,496.41	66.35	15,992.50	21,970.64	72.79
2017/18	5,645	7,023.51	80.37	3,530	4,544.10	77.68	25,125	34,687.55	72.43
2018/19	7,207.50	9,038.54	79.74	4,570	5,819.19	78.53	35,440	48,217.50	73.50
2019/20	7,588.25	13,518.51	56.13	4,950	8,681.85	57.02	41,328.56	58,951.06	70.11
2020/21	9,125.50	18,240.21	50.03	5,632	8,965.90	62.82	47,898.41	71,350.49	67.13

(Note .From Annual Reports of Respective Companies)

APPENDIX - VI
Share Investment to Total Investment

(Rs. in Millions)

Fiscal Year	ALIC			PLIC			NLIC		
	Share Investment	Total Investment	Ratio (%)	Share Investment	Total Investment	Ratio (%)	Share Investment	Total Investment	Ratio (%)
2011/12	46.39	3,425.65	1.35	29.66	768.62	3.86	485.28	5,490.32	8.84
2012/13	38.78	3,654.80	1.06	34.58	779.65	4.44	595.25	8,831.00	6.74
2013/14	41.58	3,897.32	1.07	36.87	889.97	4.14	625.48	11,231.65	5.57
2014/15	43.22	4,253.65	1.02	46.25	808.74	5.72	918.56	14,400.25	6.38
2015/16	53.03	4,523.73	1.17	48.54	2,582.01	1.88	798.59	18,343.27	4.35
2016/17	70.91	5,617.67	1.26	376.73	3,496.41	10.77	1,237.94	21,970.64	5.63
2017/18	101.5	7,023.51	1.45	570.59	4,544.10	12.56	1,098.10	34,687.55	3.17
2018/19	136.08	9,038.54	1.51	627.26	5,819.19	10.78	2,089.92	48,217.50	4.33
2019/20	185.25	13,518.51	1.37	781.56	8,681.85	9.00	2,587.20	58,951.06	4.39
2020/21	236.85	18,240.21	1.30	911.5	8,965.90	10.17	2,984.50	71,350.49	4.18

(Note .From Annual Reports of Respective Companies)

APPENDIX - VII
For ALIC

Fiscal Year	Return on Assets		Return on Premium		Return on Investment	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2011/12	2.48	0.9409	4.78	0.0484	1.75	0.1369
2012/13	4.11	6.76	10.98	35.7604	1.23	0.0225
2013/14	3.22	2.9241	10.88	34.5744	2.92	2.3716
2014/15	1.35	0.0256	5.15	0.0225	2.95	2.4649
2015/16	0.81	0.49	3.29	2.9241	1.66	0.0784
2016/17	1.04	0.2209	4.55	0.2025	0.56	0.6724
2017/18	0.46	1.1025	2.21	7.7841	1.51	0.0169
2018/19	-0.21	2.9584	-1.02	36.2404	0.56	0.6724
2019/20	1.09	0.1764	5.2	0.04	0.34	1.0816
2020/21	0.75	0.5776	3.96	1.0816	0.32	1.1236
Total	15.1	16.1764	49.98	118.678	13.8	8.6412
Mean	**1.51**		**5.00**		**1.38**	
S.D.	**1.27**		**3.44**		**0.93**	
C.V.	**84.23%**		**68.93%**		**67.39%**	

Fiscal Year	Government Saving Bonds to Total Investment		Fixed Deposit to Total Investment		Share Investment to Total Investment	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2011/12	12.25	34.1056	71.77	0.1296	1.35	0.0081
2012/13	10.98	20.8849	78.4	48.8601	1.06	0.04
2013/14	8.76	5.5225	76.7	27.9841	1.07	0.0361
2014/15	6.81	0.16	73.47	4.2436	1.02	0.0576
2015/16	8.2	3.2041	78.32	47.7481	1.17	0.0081
2016/17	8.38	3.8809	69.21	4.84	1.26	0
2017/18	2.98	11.7649	80.37	80.2816	1.45	0.0361
2018/19	2.32	16.7281	79.74	69.3889	1.51	0.0625
2019/20	2.11	18.49	56.13	233.478	1.37	0.0121
2020/21	1.32	25.9081	50.03	457.104	1.3	0.0016
Total	64.11	140.649	714.14	974.059	12.56	0.2622
Mean	**6.41**		**71.41**		**1.26**	
S.D.	**3.75**		**9.87**		**0.16**	
C.V.	**58.50%**		**13.82%**		**12.70%**	

$$\bar{X} = \frac{\Sigma X}{n}, \quad \text{S.D.} = \sqrt{\frac{\Sigma(X - \bar{X})^2}{n}} \quad \text{and} \quad \text{C.V.} = \frac{\text{S. D.}}{\bar{X}}$$

APPENDIX - VIII
For PLIC

Fiscal Year	Return on Assets		Return on Premium		Return on Investment	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2011/12	2.38	0.3844	3.96	18.7489	4.89	0.2025
2012/13	3.95	0.9025	5.99	5.29	3.41	1.0609
2013/14	3.74	0.5476	6.83	2.1316	6.33	3.5721
2014/15	4.26	1.5876	9.81	2.3104	9.51	25.7049
2015/16	1.79	1.4641	4.84	11.9025	4.65	0.0441
2016/17	3	0	8.46	0.0289	1.9	6.4516
2017/18	3.77	0.5929	11.6	10.9561	3.21	1.5129
2018/19	2.51	0.2401	10.88	6.7081	4.08	0.1296
2019/20	2.61	0.1521	11.5	10.3041	2.98	2.1316
2020/21	2.02	0.9604	9.05	0.5776	3.49	0.9025
Total	30.03	6.8317	82.92	68.9582	44.45	41.7127
Mean	**3.00**		**8.29**		**4.44**	
S.D.	**0.83**		**2.63**		**2.04**	
C.V.	**27.52%**		**31.67%**		**45.94%**	

Fiscal Year	Government Saving Bonds to Total Investment		Fixed Deposit to Total Investment		Share Investment to Total Investment	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2011/12	18.37	49.1401	48.07	257.924	3.86	12.0409
2012/13	20.98	92.5444	51.5	159.517	4.44	8.3521
2013/14	20.17	77.6161	49.26	221.117	4.14	10.1761
2014/15	35	558.85	76.85	161.798	5.72	2.5921
2015/16	10.96	0.16	73.2	82.2649	1.88	29.7025
2016/17	8.1	10.6276	66.35	4.9284	10.77	11.8336
2017/18	0	129.05	77.68	183.603	12.56	27.3529
2018/19	0	129.05	78.53	207.36	10.78	11.9025
2019/20	0	129.05	57.02	50.5521	9	2.7889
2020/21	0	129.05	62.82	1.7161	10.17	8.0656
Total	113.58	1305.14	641.28	1330.78	73.32	124.807
Mean	**11.36**		**64.13**		**7.33**	
S.D.	**11.42**		**11.53**		**3.53**	
C.V.	**100.53%**		**17.98%**		**48.16%**	

$$\bar{X} = \frac{\Sigma X}{n}, \quad \text{S.D.} = \sqrt{\frac{\Sigma (X - \bar{X})^2}{n}} \quad \text{and} \quad \text{C.V.} = \frac{\text{S. D.}}{\bar{X}}$$

APPENDIX - IX
For NLIC

Fiscal Year	Return on Assets		Return on Premium		Return on Investment	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2011/12	-0.7	9.5481	-2.86	128.823	1.15	2.0736
2012/13	5.49	9.61	19.55	122.324	0.75	3.3856
2013/14	5.57	10.1124	19.86	129.277	5.57	8.8804
2014/15	3.25	0.7396	10.82	5.4289	5.38	7.7841
2015/16	1.95	0.1936	6.52	3.8809	3.35	0.5776
2016/17	2.5	0.0121	8.84	0.1225	2.4	0.0361
2017/18	1.98	0.1681	8.22	0.0729	2.61	0.0004
2018/19	1.78	0.3721	6.88	2.5921	2.08	0.2601
2019/20	1.52	0.7569	5.11	11.4244	1.89	0.49
2020/21	0.55	3.3856	1.92	43.1649	0.73	3.4596
Total	23.89	34.8985	84.86	447.11	25.91	26.9475
Mean	**2.39**		**8.49**		**2.59**	
S.D.	**1.87**		**6.69**		**1.64**	
C.V.	**78.20%**		**78.80%**		**63.32%**	

Fiscal Year	Government Saving Bonds to Total Investment		Fixed Deposit to Total Investment		Share Investment to Total Investment	
	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$	X	$(X - \bar{X})^2$
2011/12	35.61	601.23	81.21	258.888	8.84	12.1104
2012/13	21.1	100.2	61.5	13.1044	6.74	1.9044
2013/14	15.49	19.36	50.15	224.101	5.57	0.0441
2014/15	13.29	4.84	36.75	804.857	6.38	1.0404
2015/16	11.25	0.0256	65.58	0.2116	4.35	1.0201
2016/17	9.17	3.6864	72.79	58.8289	5.63	0.0729
2017/18	1.95	83.5396	72.43	53.4361	3.17	4.7961
2018/19	1.4	93.8961	73.5	70.2244	4.33	1.0609
2019/20	0.92	103.429	70.11	24.9001	4.39	0.9409
2020/21	0.74	107.123	67.13	4.0401	4.18	1.3924
Total	110.92	1117.33	651.15	1512.59	53.58	24.3826
Mean	**11.09**		**65.12**		**5.36**	
S.D.	**10.57**		**12.3**		**1.56**	
C.V.	**95.31%**		**18.89%**		**29.10%**	

$$\bar{X} = \frac{\Sigma X}{n}, \quad \textbf{S.D.} = \sqrt{\frac{\Sigma(X - \bar{X})^2}{n}} \quad \text{and} \quad \textbf{C.V.} = \frac{\text{S. D.}}{\bar{X}}$$

APPENDIX - X

Correlation Analysis

		ROA	ROP	ROI	IB	IFD	IS
ROA	Pearson Correlation	1	.885**	.078	.390*	-.004	-.211
	Sig. (2-tailed)		.000	.683	.033	.983	.262
	N	30	30	30	30	30	30
ROP	Pearson Correlation	.885**	1	.136	.259	-.180	-.090
	Sig. (2-tailed)	.000		.473	.166	.340	.637
	N	30	30	30	30	30	30
ROI	Pearson Correlation	.078	.136	1	.462*	-.255	.256
	Sig. (2-tailed)	.683	.473		.010	.173	.172
	N	30	30	30	30	30	30
IB	Pearson Correlation	.390*	.259	.462*	1	-.106	.041
	Sig. (2-tailed)	.033	.166	.010		.577	.832
	N	30	30	30	30	30	30
IFD	Pearson Correlation	-.004	-.180	-.255	-.106	1	-.060
	Sig. (2-tailed)	.983	.340	.173	.577		.752
	N	30	30	30	30	30	30
IS	Pearson Correlation	-.211	-.090	.256	.041	-.060	1
	Sig. (2-tailed)	.262	.637	.172	.832	.752	
	N	30	30	30	30	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

APPENDIX - XI

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.927[a]	.860	.831	.63469

a. Predictors: (Constant), IS, IB, IFD, ROP, ROI

APPENDIX - XII

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59.501	5	11.900	29.542	.000[b]
	Residual	9.668	24	.403		
	Total	69.169	29			

a. Dependent Variable: ROA

b. Predictors: (Constant), IS, IB, IFD, ROP, ROI

APPENDIX - XII

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.854	.812		-1.051	.304		
	ROP	.266	.025	.853	10.590	.000	.897	1.115
	ROI	-.055	.068	-.074	-.807	.427	.693	1.444
	IB	.036	.014	.223	2.520	.019	.743	1.346
	IFD	.019	.010	.148	1.846	.077	.911	1.098
	IS	-.052	.036	-.116	-1.454	.159	.915	1.093

a. Dependent Variable: ROA