PROBLEM AND PROSPECTS OF BOND MARKET IN NEPAL

A THESIS

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Symbol No.: 4080019/2066

TU Registration No.:7-2-408-149-2004

KHWOPA COLLEGE

Submitted to:

Office of the Dean

Faculty of Management

Tribhuvan University

In partial fulfillment of the requirement for the degree of Masters of Business Studies (MBS)

May 2013

Kathmandu, Nepal

RECOMMENDATION

This is to certify that the thesis

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PROBLEM AND PROSPECTS OF

BOND MARKET IN NEPAL

has been prepared as approved by this Department in the prescribed format of the Faculty of Management. This thesis is forwarded for examination.

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Thesis Supervisor Thesis Supervisor

DECLARATION

I hereby declare that, the work reported in this thesis entitled **" Problem and Prospects of Bond Market in Nepal"** submitted to Khwopa College, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirement of Master of Business Studies under the supervision of Mr. Roopak Joshi.

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ACKNOWLEDGEMENT

This study has been possible with the generous help and cooperation of many. I, therefore, wish to convey my heartfelt thanks and sincere appreciation to all the people who have been very kind to me in the preparation the study.

I wish to express my deep gratitude to Roopak Joshi, of Khwopa College, for patient Guidance and valuable supervision. I wish to express my sincere gratitude and deep respect to my supervisor Mr. Roopak Joshi for his constant encouragement and meticulous care, without whom it could not have been possible to complete this thesis work. I would also acknowledge all the faculty members of Khwopa College for their valuable suggestions.

I am equally thankful to many friends, with whom I have spent time discussing their experience; I wish to thank all of them for their time and effort in helping me in research writing. I would like to express my heartiest thanks to my parents for their moral as well as economic support during the study period. It is hoped that it will stimulate a wide circle to engage in discussion on the relevant issued. Any errors of judgment and fact are my responsibility although every effort has been made to eliminate the latter following the comments received from various personnel

Ram Prasad Tyata

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ABBREVIATIONS

A.D.	**Anno Domini/ After Death**
ADB	**Asian Development Bank**
AGM	**Annual General Meeting**
BOK	**Bank of Kathmandu**
CDs	**Certificates of Deposits**
DB	**Development Bond**
FY	**Fiscal Year**
HBL	**Himalayan Bank Limited**
JMF	**Juddha Match Factory**
KBL	**Kumari Bank Limited**
MoF	**Ministry of Finance**
NA	**Not Available**
NBB	**Nepal Bangladesh Bank**
NCDs	**Negotiable Certificates of Deposits**
NEPSE	**Nepal Stock Exchange**
NEA	**Nepal Electricity Authority**
NIB	**Nepal Investment Bank Limited**
NRB	**Nepal Rastra Bank**
NSB	**National Savings Bond**
NSCs	**National Saving Certificates**
NSML	**Nepal Share Markets Ltd.**
OTC	**Over-the Counter**
SB	**Saving Bond**
SCB	**Standard Charter Bank**
SEBON	**Securities Exchange Board of Nepal**
SEC	**Securities Exchange Center**
SLR	**Statutory Liquidity Ratio**
SRSM	**Shree Ram Sugar Mills**
TB	**Treasury Bills/ T- Bills, T- Bonds**
T-notes	**Treasury Notes**

CHAPTER - I

INTRODUCTION

1.1. Background

Nepal is a developing country whose financial market is also at the developing stage. For the development of every country, the financial market as well as the capital market plays a vital role. The capital market is the place or mechanism in which various kinds of financial instruments are issued, which is transferred from one person /parties to another by means of different ways of trading mechanism. Due to which, the group of people who have excess funds can utilize their funds in productive sectors and the group of people who need funds to run their enterprises can get funding. This process can help the economy of the country rise up.

Besley & Brigham, (2002:109) define, **"**A Bond is a long term contract under which a borrower aggrees to make payments of interest and principal on specific dates to the holder of the bond**."** Bond securities are an important type of financial instrument of the capital market of the nation. The bonds are promises by the issuing firm or government to pay interest and principal on the unpaid balance. The maturity of a debt instrument refers to the length of time. Generally bonds and debentures have a face value of Rs. 1000/-. The bondholders get interest on an annual or semi annual basis on their investment amount. Bondholders get interest before the stockholders get dividends. There is no restriction to get interest by bondholders whether the issuing agency suffers to loss or it gains. The relation between bondholders and issuing bodies is similar to the relation between creditors and debtors. "The holders of a company's long-term debt, of course, are creditors. Generally they cannot exercise control over the company and do not have a voice in management. If the company violates any of the provision of the debt contract, then their bodies may be able to exert some influence on the direction of the company. Holders

of long-term debt do not participate in the residual earnings of the company instead their return is fixed. Their debt instrument has a specific maturity, whereas preferred stocks or common stocks do not have. In liquidation, the claim of debt holder is before that of preferred and common stock. (Van Horne, 2002:509).

If the issuing agency cannot provide interest to the bondholders, they can take action to liquidate the company. Generally, risk averter investors prefer to invest in bonds. The bonds are collateral or non- collateral based perpetual or redeemable, convertible or non-convertible types. The primary bond market is of government or government agencies or fully government secured bonds and the securities of the corporate bodies offered to the market. The secondary market for the bonds and debenture stands for once sold securities. The trading floor of the securities once it is issued is called secondary market. Basically, the issuing agency or its issue manager and debt securities holders are the main parties involved in the transaction of the primary market. But the secondary transaction for the bonds and debenture is held more through the over the counter (OTC) or third or fourth market rather than the stock exchanges. In the case of Nepal, the securities exchange center was involved in transaction of the government bonds and debentures. Transaction of bonds has started being done through the same Nepal Stock Exchange (NEPSE) recently.

The transaction of debentures has recently started. The market value of the bond or debenture is determined on the basis of the face value of the bond, coupon rate of the bond and the rate of interest in the market. While talking on the Nepalese market, the market started from the year 1962 A.D. when the government issued the bonds for the first time. After that period, the government issued debt securities regularly to meet its financial needs. Presently the Public Debt Act 2059 and its rules and by laws are active in regulating the Nepalese debt market. But in case of private sector there is lack of specific act for the debt securities. Yet, the bond indenture act has not been enacted.

Now our concern is mainly about bond market. The term bond market simply refers to the demand and supply pattern as well as trading mechanism of bonds and debentures. Basically the issuing agencies and bonds holders are the main parties involved in this mechanism. Transaction between bondholders and bond buyers determines the market value of the bond. Actual bond market value depends on the general level of interest rate. The bond market of Nepal can be classified into two parts.

1. Government bonds market

2. Corporate bonds/ debenture market

1.2. Classification of Debentures and Bonds

Someone takes debentures and bond with same meaning. However, it is generally classified as follows;

Secured Bond

Secured bonds are also classified into different categories on the basis of priority to claims and right of issuers to issue additional securities;

a. Priority of claims: - senior mortgage has prior claims on assets and earnings. Senior railroad mortgages, for example, have been called the "mortgages next to rail," implying that they have the first claim on the land and assets of the railroad corporations. A **junior mortgage** is a subordinate lien, such as a second or third mortgage. It is a lien or claim junior to others.

b. Right to issue additional securities: - Mortgage bonds can be classified with respect to the right to issue additional obligations pledging already encumbered issue property. This can be classified as follows;

i. **Closed end mortgage: -** In this mortgage, a company cannot sell additional bonds (beyond those already issued) secured by the

property specified in the mortgage. If the mortgage is closed-end, no more bonds having first liens on this property can be issued. Thus, a closed -end mortgage provides security to the bonds buyer. The ratio of the amount of the bonds to the value of the property is not increased by subsequent issues.

ii. **Open-end mortgage: -** In this mortgage, a company can sell additional bonds (beyond those already issued) if the indenture provides to sell such additional bonds.

c. Scope of the Lien: - Bonds can also be classified with respect to the scope of their lien. A lien is granted on certain specified property. When a **specific mortgage** exists, the security for a first or second mortgage is a specifically designated property. On the other hand, a **blanket mortgag**e pledges all real property currently owned by the company. Real property includes only land and those things affixed thereto: thus, a blanket mortgage is not a mortgage on cash, account receivables, or inventories, which are items of personal property. A blanket mortgage gives more protection to the bond-holder than does a specific mortgage because it provides a claim on all real property owned by the company.

Unsecured Bond

Unsecured bonds are of different types. They are as under;

a. Debenture is unsecured bond and, as such, provides no lien on specific property as security for the obligation. Debenture holders, there are general creditors whose claim is protected by property, not otherwise pledged. Companies in industries also issue debentures where it is not practical to provide a lien through a mortgage on fixed assets.

b. Subordinate Debentures: Subordinate means below or inferior. If there are subordinate debentures, these debentures have right to get back their principal only after liquidation of non-subordinate debenture.

The reasons on the use of subordinated debentures stock is that they do not restrict the borrow ability to obtain senior debt.

c. Income Bonds: Income bond provides interest if the earnings of the firm are sufficient to meet the interest obligations. Principal is paid at the time of maturity. So that, interest obligation is not assumed as fixed obligation. Income bonds, historically, have been issued when a firm is in financial difficulties and its history suggests that it may be unable to meet the future payment of income bond interest obligation. It is similar with payment of preferred stock dividend, which does not welcome liquidation due to default in payment of interest. Issuing income bond is beneficial because interest is deductible while computing after tax income. The main advantages of this type of bond is that interest is payable only if the company earns a profit. Some time income bonds are also convertible.

d. Floating Rate Note: The floating rate note has been developed to avoid the risk of interest rate volatility at high levels. The coupon rate changes according to change in short term and long term Treasury bill.

e. Zero Coupon Bond: It pays no regular interest. They are issued at a substantial discount to par value, so that the interest is effectively rolled up to maturity (and usually taxed as such). The bondholder receives the full principal amount on the redemption date. Here, the separated coupons and the final principal payment of the bond may be traded separately.

Other Types

a. **Convertible Bond:** Convertible bond lets a bondholder exchange a bond to a number of shares of the issuer's common stock.

b. **Exchangeable Bond:** It allows for exchange to shares of a corporation other than the issuer.

c. Perpetual Bond: It is also often called perpetuities or 'Perps'. They have no

maturity date.

d. Bearer Bond: It is an official certificate issued without a named holder. In other words, the person who has the paper certificate can claim the value of the bond. Often they are registered by a number to prevent counterfeiting, but may be traded like cash. Bearer bonds are very risky because they can be lost or stolen.

1.3. Importance of Debt Market

Nepal is one of the poor nations in the world. It is a progressive-economy. It is far behind in the economic progress. To progress economically, all the sectors of the economy should contribute significantly to the gross domestic product (GDP). But, the nation falls under non-industrialized nation. Debt market is very much important for the developing economy because it helps the nation to industrialize easily. It is more useful in collection of fund which otherwise remains idle with public. We can differentiate the equity market and debt market on the basis of their nature.

Usually, debt markets supply the capital for short-term purpose, and prove the liquidity of those debt securities. But, equity markets supply capital for the life long of the corporation. Debt seems more appropriate to mobilize the capital, which otherwise remains idle with public.

In order to channel the idle funds, a responsible debt active system is necessary. It is the debt market that could work prominently to channel small funds of people, otherwise unproductive, to productive sectors. In other word, fund could be supplied effectively to the productive peoples from the hands of people if the active debt market exists. People save money for better use in future. They are always seeking the best opportunity to put their money so that they could save and could earn more money in future. For this reason they put their money in the form of saving deposits at commercial banks because of the lack of next best alternative opportunity. If the perfect debt market is there, they will be interested to invest their money in debt securities. But due to lack

of such opportunities it is a matter of compulsion for them to put their money as deposits in banks. The debt market would be attractive for them if, it would have been working popularly and it was liquid. People prefer to put their money at commercial banks because it is more liquid. So, it needs an effort to make a strong and prominent as well as liquid debt market. It will provide best returns to the savings of peoples. It is necessary to encourage them to save by reducing their present consumption habits, collect fund that otherwise remains scattered, and mobilize in productive sector. This process will help to industrialize the nation, create more employment opportunities for the people, and contribute more significantly towards the GDP. If the debt market works properly, the fund seeker (Entrepreneur) could get funds more easily at lower rate of interest from the market and could utilize it in more productive sector. Debt market is important from the point of view of government and public because it contributes significantly to the GDP, utilizes the savings of the people, which otherwise remain idle with them, activates the economy, creates employment opportunities and helps in the industrialization of the nation.

1.4. Criteria for Selecting Securities

The applicable criterion for selection among the wide range of securities available includes;

Financial Risk: The greater the degree to which the price and returns of a security fluctuate, the greater is the financial risk. Many factors may influence the size and frequency of a security's price changes, but the greater the fluctuation, the greater is the risk that a loss may be incurred. In the extreme, the most serious unfavorable event is that the issuer cannot meet interest payments or principal payments – the risk of default. U.S. government securities are assumed to not carry the risk of default and, therefore, are considered "safer" than other securities. Bonds issued securities are considered to be subject to some degree of default risk. Rating agencies such as Moody's investors' service and the Standard & Poor's Corporation assign quality ratings to securities. Among the factors influencing a security's rating is the degree of

likelihood that default may occur. These quality assessments can and do change with time. For many years, the securities of utility companies were regarded as of the highest quality with minimum risk of default. In recent years however, some utilities have been downgraded to lower quality ratings.

Interest Rate Risk: Changes in the general level of interest rates will cause the prices of securities to fluctuate. This is especially true for such securities as notes or bonds, which carry a fixed rate of interest. In general, the shorter the maturity, lower the fluctuations in its price. A partial exemption to this generalization should be noted.

In general, long – term bonds are riskier than short-term securities for a firm's marketable securities portfolio. However yields are more frequently available on long –term than on short – term securities.

Given the motives most forms have for holding marketable securities portfolios; it is generally not feasible for them to be exposed to a high degree of risk from interest rate fluctuations. Accordingly, firms usually confirm their portfolios to securities with short maturity. Only if the securities are expected to be held for a long period and not be subject to forced liquidation on short notice will long- term securities be chosen. Additional protection from interest rate fluctuations is provided by the use of the interest rate futures markets.

Purchasing Power Risk: Changes in general price levels will affect the purchasing power of both the principal and income from investments in securities. The total return from a security is measured by the capital gain or loss plus the income yield. Varied relationships have developed for different types of assets during the prolonged inflation since the late 1960s in the United States. Bonds with fixed dollar amounts of income and a fixed dollar amount at maturity have declined in value as inflation caused interest rate levels to rise. But common stocks whose dividends theoretically are not fixed in amount have also declined in value because the underlying earning power of corporations appears to have been impaired during persistent inflation. Commodities such as

gold and diamonds have value even though they pay no interest or other forms of income. Real estate is a hybrid case in that rentals have not risen as fast as the general price level, but the values of homes and commercial properties have outpaced the rise in the general price level. The 1980s saw moderate inflation with strong securities markets.

Liquidity or Marketability risk: The potential decline from a security's quoted market price when the security is sold is its liquidity or marketability risk. Liquidity risk is related to the breadth or thinness of the market for a security. U.S. Treasury bonds or AT&T securities will be more widely held and have greater liquidity than the securities of a normal, little know company.

Taxability: The tax position of a firm's marketable securities portfolio is influenced by the overall tax position of a firm. A firm with prior year's losses to carry forward can postpone taxability. The market yields on a security will reflect the total demand and supply of tax influences. Yet, the position of the individual firm may be different from the overall pattern of the market; it might find that taxability considerations are either favorable or unfavorable. A number of kinds of securities, such as the bonds of state and local governments, have varying degrees of tax exemption. Additionally, securities that sell at a discount offer opportunities for taking returns in the form of capital gains rather than ordinary income.

Return on Securities: The higher the risk, the higher is the required return. Thus, in building a marketable securities portfolio, corporate treasurers must evaluate the risk – return trade- off. Since the motive for holding marketable securities is protection against uncertain and fluctuating inflows and outflows, the dominant policy is to choose relatively less risky alternatives at the sacrifice of some return. Accordingly, corporate treasurers will emphasize relatively short- term, highly liquid assets in constructing the marketable securities portfolio. (Weston & Copeland, 1992: 779-781)

1.5. Statement of the Problem

The efficiency of the Nepalese capital market is questionable. The investors are not aware of the financial indicators of the companies and bonds issued by government. In such situations, therefore, the following issues have been raised to address in this study.

1. What is the investor's attitude about corporate bond and government bonds?
2. What are the prospects of development of bonds market in Nepal?
3. What are the factors that affect the corporations to take decision about issuing securities?
4. Why do the various types of debt instrument are not properly practiced in Nepal?
5. What are the value and duration of Nepalese Corporate Bond?
6. What is the pattern of Investment in Government bond and Corporate Bond?
7. What is the trend of corporate bond issues in Nepal?
8. What is the trend of government bond as well as T-Bills issues in Nepal?

1.6. Objectives of the Study

The main objective of this research is to analyze the problems and prospects of the bond market in Nepal. More especially this study concentrates into the present scenario of bond market in Nepal. To achieve the main objectives, the following specific objectives are put forth.

1. To study existing bonds Market in Nepal and examine the potentiality in the growth of bonds market.

2. To study the weight of bonds in investment and government share in the market.

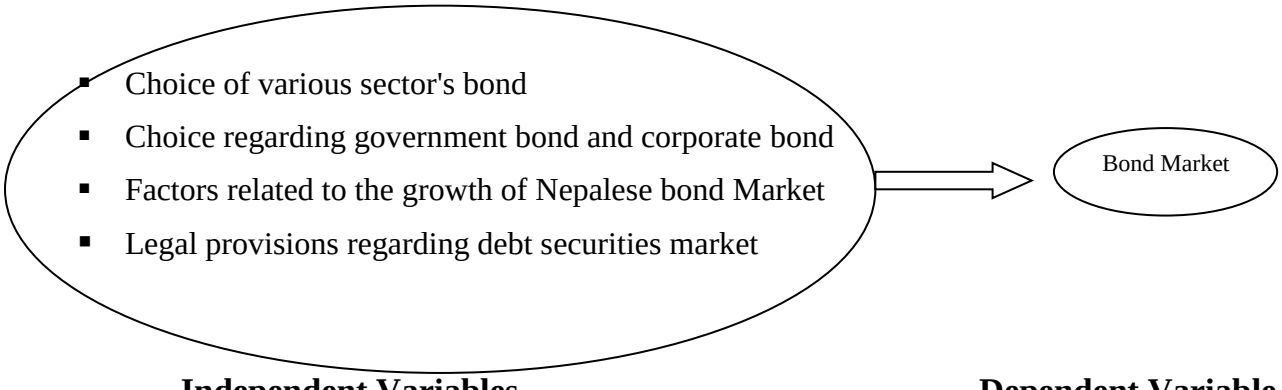
3. To evaluate opinion of the investor's as well as the issuing agency about bonds and debenture.

4. Forward Suggestions and recommendations to foster the Bond market development in Nepal and its Systematic growth.

Theoretical Framework:

The theoretical framework is the foundation on which the entire thesis is based. It is logically developed, described and elaborated network of associations among variables that have been identified through such processes as interviews, observations and literature survey (Sekaran 1992:73). The variable of primary interest in this research is the dependent variable of bond market. The various independent variables that are used to analyze the trend of bond market along with present scenario are: choice of various sector's bonds, importance of bond, choice regarding government bond and corporate bond, legal provisions regarding debt securities market, factors related to the growth of Nepalese bond market, dominant prospect of debenture issued etc.

Diagrammatic representation



1.7. Hypotheses Formulation

Based on the theoretical framework proposed in the study, the following hypotheses have been formulated:

1. **a) Null Hypothesis (Ho)** : There is no significant relationship between observed and expected opinion regarding factor that dominates the growth of Nepalese Bonds Market

   b) Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding factor dominates the growth of Nepalese Bonds Market

2. **a) Null Hypothesis (Ho) :** There is no significant relationship between observed and expected opinion regarding the choice of securities by Nepalese investors.

   b) Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the choice of securities by Nepalese investor.

3. **a) Null Hypothesis (Ho)**: There is no significant relationship between observed and expected opinion regarding the choice of various sector's bond.

   b) Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the choice of various sector's bond.

4. **a) Null Hypothesis (Ho) :** There is no significant relationship between observed and expected opinion regarding the reasons for Influencing the investors to purchasing debt securities.

b) Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the reasons for influencing the investors to purchasing debt securities.

5. **a) Null Hypothesis (Ho)**: There is no significant relationship between observed and expected opinion regarding the importance of bond in investment.

   b) Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the importance of bond in investment.

6. **a) Null Hypothesis (Ho) :** There is no significant relationship between observed and expected opinion regarding the use of bank loan or issuing of debenture.

   b) Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the use of bank loan or issuing of debenture.

7. **a) Null Hypothesis (Ho) :** There is no significant relationship between observed and expected opinion regarding choice between government bonds and corporate bonds.

   b) Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding choice between government bonds and corporate bonds.

1.8. Significance of the Study

The study is concerned with the prospects of bond market growth in Nepal. This study has attempted to explain theoretical concept about bonds and debentures, its market, prospects of its growth. The output of the study will help to develop Nepalese bonds market. The investors, individuals, issuers and

government will be benefited through this study. It is hoped that the study will actually highlight present Nepalese bond market.

1.9. Limitations of the Study

This study has following limitations:

1. The data available in published annual reports have been assumed to be correct and true.
2. Inability to collect views from the individuals.
3. The greatest challenge faced was data collection because corporate sectors and NRB was very reluctant to furnish the data regarding their bond issues. Hence, Varied and elaborate data was not available regarding all bonds issued in Nepalese bond Market, especially from the corporate sectors.

1.10. Organization of the study

Chapter I: Introduction

This chapter included the background information of the subject matter of research undertaking to provide a general idea of its history. Likewise it also included statement of problem, objectives of study, significance of the study, limitation, and theoretical framework, formulation of hypothesis and organization of study.

Chapter II: Review of Literature

This chapter included the reviews of relevant previous writing and studies to find the existing gaps. So past studies in the study of bond market was reviewed to examine what new can be contributed. Review of journal, books, thesis and newspaper was also included in this chapter.

Chapter III: Research Methodology

This chapter included methodology used in the study. It briefly explains about the research methodology, which has been used to evaluate the trend analysis and importance of bond market in Nepal. It is consists of research design, population and sample, sources of data, various tools and techniques for analysis, methods of presentation of analysis etc.

Chapter IV: Data Presentation and Analysis

Chapter four is the main part of this study; it presents the data and information collected from primary as well as secondary sources. First, the data from the secondary sources are analyzed, wherein ownership pattern of government bonds and treasury bills are studied, curvilinear model has been applied to find out the trend of the development of bonds in Nepal. Similarly, it includes the analysis of corporate bonds market and trend of interest rate. The next part of the study includes analysis of primary data. At primary data, analysis of questionnaire survey is included.

Chapter V: Summary, Conclusion and Recommendation

This chapter is for major findings, summary conclusion and recommendation.

Bibliography and appendices are incorporated at the end of the study.

CHAPTER - II

REVIEW OF LITERATURE

The study about bond market in Nepal has already streamlined to some extent in the first chapter regarding statement of the problem, objectives and significance of study. Now, in this chapter the main focus is given on the review of literature relevant for the study. Moreover, in order to make this study more comprehensive it is important to go through the relevant literature.

This literature review section consist of two parts, firstly it has reviewed literature for theoretical framework which helps to develop concept about what is the bond market along with its mechanism and what theories are developed on it. It also helps researcher to determine the subject matter of the study. It covers the area of the research work and the theoretical concept, which is important to various studies research works; and reviews of journals, articles about debt market and related terms to it in the Nepalese context as well the international context also.

2.1. Conceptual Framework

2.1.1. Meaning and Definition of Bond

A bond is a written instrument acknowledging a debt and containing a contract for the payment of the principal sum at a specified period and for the payment of interest at a fixed rate. So, many scholars have explained the core concept of the bond and its mechanism, such as, "A bond is simply a long term promissory note" (Weston & Copeland, 1992:955).

"A corporate bond is a certificate indicating that a corporation has borrowed a certain amount of money from an institution or an individual and promises to reply it in future under clear definite terms. Most bonds are issued with maturity of 10 to 30 years and with par or face value of $ 1000. The coupon interest rate on bond represents the percentage of the bond par value that will be paid annually, typically in two equal semi-annual instruments"(Gittman, 2000:581-582).

“The holder of a company’s long term debt, of course, creditors. Generally, they cannot exercise control over the company and do not have a voice in management. If the company violates any of the provisions of the debt contract, then these holders may be able to exert some influence on the direction of the company. Holder of the long-term debt instrument has specific maturity, where as share of common or preferred stock does not. In liquidation, the claim of debenture holders is before that of the stock holders, however, there may be differences in the priority of claim among the various creditors of a company (Van Horne, 2002:509).

Debt Securities Market

Debt market may be short-term, intermediate-term and long- term, short-term and intermediate-term financing sources include trade credit, bank loan, finance company loan, commercial paper; long term financing includes issuance of mortgages and bonds.

Capital Market

Capital market refers to the links between lenders and borrowers of fund and arranging a fund transfer process to seek each other’s benefit. The lenders and borrowers coming together in the capital market play effective financial intermediary role to activate both primary and secondary market through the use of various long term capital instruments like common stock, bonds, preferred stock, convertible issues and many more like that people invest money through primary market and secondary market.

"Capital Market is the market place through which the entrepreneurs collect long-term capital by mobilizing the individual and institutional savings either directly or indirectly. Besides, the securities once sold through the primary market are traded in the secondary market of the capital market. From this point of view, the market can be classified into primary market and secondary market" (Bhattarai, 2002:3).

2.1.2. Primary Market and Secondary Market

2.1.2.1. Primary Market

Primary market is new issue market of securities. The primary market deals with those securities, which have been made available for the first time. "Primary Market is the market place where instead of goods and services securities are sold to mobilize the savings for the establishment and operation of the business" (Bhattarai, 2002:3).

Primary market is new issue market of securities. The primary market deals with those securities, which have been made available to the subscribers for the first time. The growth of primary market is encouraging since many public companies including joint venture banks have been successful to tap capital through the flotation of securities to the general people. According to Henderson, There are following important functions of primary market.

- Organization
- Undervaluing
- Distribution

The new issues in primary market facilitate for raising long-term funds and these can be classified as “initial issues”. Any additional issues made in the market after initial issues is called further issues. The interplay of these functions helps to maintain the supply and demand of securities in the market.

2.1.2.2. Secondary Market

Secondary market is that market where trading of outstanding securities of private business organizations and governments is done. Investors can purchase and sell outstanding securities of companies in secondary market. "Secondary market is the market place where secondhand securities are traded. It means securities once purchased through primary market are traded in secondary market" (Bhattarai, 2002:5).

In growth of primary market, there is also contribution of secondary market. Secondary market accelerates the liquidity of securities. Stock is traded in two different kinds of market: Stock exchange and OTC market. New York exchange (NYSE) and (NEPSE) are examples of organized and secondary market. Securities traded in primary and secondary market can be divided as follows:

Ordinary Shares

Ordinary share provides possession of company to shareholders. Common shares are mostly risky than both bonds and preference shares. Common shareholders have attraction in investing due to their voting right, enjoying large amount of dividend, to earn capital profit from stock price raise.

Preference Shares

Preference shares are those shares, which have fixed dividend and right of acquiring principal before ordinary shares at the time of liquidation. It is hybrid of bond and common stock because preferred stock has fixed dividend similar to the bond whereas the stockholders enjoy right of ownership of company and do not get their investment back like ordinary shares. There is no principal repayment in preference shares unlike in the case of bonds.

Bond

Bonds are debt instruments and issued with coupon rate. Interest is paid at coupon rate semi annually or annually. Bonds are generally issued with some certain maturity period. Principal is returned at maturity period. There are different types of bonds as per variation in terms, conditions and features of bond. Bond may be distinguished according to their repayment provisions, type and security pledged, time of, maturity and technical factor.

2.2. Bonds Market in Nepal

Both government and corporate bonds are floating in Nepalese securities Market. The discussion on Government and Corporate Bonds are presented below.

2.2.1 Government Bonds Market in Nepal

Government bonds are issued by the government. Government promises to provide a certain percentage of interest at certain period of time with pre-determined maturity period. The government raises a huge amount of fund by issuing such bonds. "Developed debt market helps to increase the tendency of saving and reduce the poverty Government relies heavily on debt finance. Revenues have seldom-covered expenses, and the difference have primarily been financed by issuing debt investments. Moreover, new debt must be issued in order to get the necessary funds to pay off old debt that comes due." (Sharpe & Jeffery, 1989:391).

The government has ascertained various plans for development of the country. These plans are of short-term, medium-term and long-term and must be completed at a certain period of time. To complete these plans/projects at the pre-determined period, the government must provide the capital required for these plans. To conduct the program determined, the government forecast the estimated expenditure and source of income before the fiscal year by means of budget. If the expenditure regarding a fiscal period and the corresponding income is equal, the income – expenditure of the government is balanced and need for debt does need not exist. In the developing countries like Nepal, usually government's expenditure is greater than corresponding income.

Government collects funds from various sources to conduct regular administrative activities continuously and to carry out development programme; the government collects funds through various sources. These sources are internal as well as external. The external sources are in the form of loan, subsidies and other kind of cooperation. The funds collected from internal sources are in the form of loan by means of securities issued on regular basis.

The government also guarantees these types of securities and the features of every security may also be different.

The purpose of issuing debt securities by the government is as follows:

i. The capital, which is useless and spread to various sector of the country, is utilized in the productive sector by the government.

ii. To collect funds from the potential savers of the society.

iii. To utilize the unused (i.e. liquid) capital of the organized institutions.

iv. To achieve the goal directed by the monetary policy.

v. To avoid the lack of capital for the developments projects.

vi. To expand economic activities.

vii. To recover the deficit financing.

viii. To absorb liquidity of the economic sector.

After enforcement of Public Debt Act 1960, public debt was issued in Nepal for first time in 1962 through T-Bills amounting Rs.7 millions. Development bond amounting Rs. 131.0 millions was first issued in fiscal year 1963/64. National saving certificate is being issued since January 1984, the first issue amounting Rs. 250 millions. Others are citizen saving certificate and various special bonds.

The bonds and T- bills are being issued on a regular basis. Some of them are issued with a view to control the money market. Apart from these, different kinds of special bonds have also been issued. Most of the special bond is held by Nepal Rastra Bank.

2.2.1.1 Government bonds primary market in Nepal

The process of selling and purchasing government securities for the first time for collection of capital is called first market or primary market transaction. Such transactions of government securities are done by publishing the notice publicly. Certain institutions are specified for selling/distributing the securities. In Nepal usually Government of Nepal is the seller of the government securities in primary market (except the special bond) and the general public, financial institutions and other institutions are purchasers of the primary issuances. Primary issues are distributed through NRB and other institutions permitted by Nepal Rastra Bank. In this process, some issuers deal directly with purchasers in this market but many rely on investment bankers who serve as purchaser of their securities. Government gives authority to such intermediaries for selling such securities within certain time and price. In Nepal, functions of issuing, accounting and managing such issue is done by Nepal Rastra Bank. Nepal Rastra Bank Act 2058 provides such authority to NRB. Nepal Government proposes the amount of internal debt for every fiscal year in its regular budget. According to that proposed amount for which securities are to be issued, terms, conditions and timeframe of securities are determine by NRB.

2.2.1.2 Government Bonds Secondary Market in Nepal

The process of selling and purchasing the securities that are sold through primary market is called secondary market transaction. Before 1976, the secondary market transaction of the government securities was held by NRB in Nepal. After the establishment of securities exchange center in 1976, the Citizen Investment Fund performs this transaction. Transactions related to bonds and debentures are now held at the floor of NEPSE.

As per the economic liberalization and open market policy adopted worldwide, various economic changes have taken place in Nepal. Financial institutions have increased hugely. Nepal Rastra Bank has granted permission to different

institutions as market maker for the secondary market transactions of National Saving Certificate, Development Bonds and Citizen Saving Certificate. These permitted market makers sell government securities at primary issue and carry out subsequent sales and purchase.

Now, Treasury bill is the only short-term government security being sold in the market. It is sold on discounted basis according to auction sales. After the maturity period, par value is paid to the T- bills holders. This instrument is popular among commercial banks for managing their liquidity position.

2.2.2 Corporate Bonds Market in Nepal

The history of corporate debt securities market in Nepal is very short. Only few corporations have issued debenture prior or after the enactment of Securities Exchange Act 1983. Firstly Bottlers Nepal issued debenture of 5 millions in fiscal year 1986/87 and was redeemed at maturity. Similarly, Shree Ram Sugar mills Ltd. had issued debenture worth Rs 93 million in the fiscal year 1997/98. It was convertible in nature and had 14% coupon rate and it was also redeemed at the maturity. It had provided two options to its debenture holders – either convert their debenture into equity share or get principle at maturity repaid. As per these options, it had kept the provision that each debenture of par value Rs. 1,000 will be converted into 10 shares of Rs 100 par value each. After this, Himalayan Bank Limited issued debenture worth Rs 260 million by the name Himalayan Bond. It had coupon rate 8.5% and was listed on security board of Nepal.

Nearly one and a half year after HBL bond, another big Nepali bank, Nepal Investment Bank Ltd, has issued Rs. 300 million “Nepal Investment Bank Bond-2010" with 7.5% coupon interest paid semi-annually in the FY 2003/04. Out of 300 thousand units of issue with par value Rs. 1,000, one third were issued to the general public and the remainings were privately placed. Though the interest rate offered by NIBL was one percent lower than that of HBL bond (where it was 8.5% with semi-annual payment arrangement), it was over

subscribed. Its issue manager was AFCL (Nepal Investment Bank Ltd., Debenture Prospectus, 2005). Nepal Investment Bank Ltd. again issued "Nepal Investment Bank Bond-2070" with 6% coupon interest rate paid semi-annually in the FY 2005/06. Out of 250 thousand units of issue, 50 thousand units were issued to the general public and 200 thousand units were privately placed. The par value of debenture is Rs. 1,000, with maturity period of 7 years. Its issue manager is AFCL (Nepal Investment Bank Ltd., Debenture Prospectus, 2006).

Everest Bank Ltd. has issued debenture of Rs. 300 million with 6 % coupon interest paid semi-annually in the FY 2004/05. The par value of debenture was Rs. 1,000 with maturity period of 7 years (i.e. redeemable after 7 years). Out of 300 thousand units of issue 50 thousand units were issued to the general public and 250 thousand units were privately placed. EBL bond issue date was 2062/01/07. Its issue manager was CIT (Everest Bank Ltd., Debenture Prospectus 2005)

Bank of Kathmandu Ltd has issued Rs. 200 million "Bank of Kathmandu bond, 2069" with 6% interest paid semi-annually in the FY 2004/05. Out of 200 thousand units of issue, 50 thousand units were issued to the general public and 150 thousand units were privately placed. The par value of debenture was Rs. 1,000, with maturity period of 7 years. Its issue manager was NMB (Bank of Kathmandu Ltd., Debenture Prospectus, 2005).

Nepal Industrial & Commercial Bank Ltd has issued Rs. 200 million "NIC Bond-2070" with 6% coupon interest paid semi-annually in the FY 2005/06. Out of 200 thousand units of issue (with par value Rs. 1,000), 50 thousand units are issued to the general public and 150 thousand units are privately placed. Its issue manager is AFCL (Nepal Industrial and Commercial Bank Ltd., Debenture Prospectus, 2006).

Nepal SBI Bank Ltd, has issued Rs. 200 million "6% Nepal SBI Bank Debenture-2070" (with maturity period of 7 years and semi-annual coupon payment) in the FY 2005/06. Out of 200 thousand units of issue, 50 thousand

units are issued to the general public and 150 thousand units are privately placed. Its issue manager is CIT (Nepal SBI Bank Ltd., Debenture Prospectus, 2006).

Nepal Electricity Authority has issued Rs. 1500 million "7.75% NEA Bond 2069" (with maturity period of 5 years and semi-annual coupon payment) in the FY 2064/65. Out of 1500 thousand units of issue, 150 thousand units are issued to the general public and 1350 thousand units are privately placed. Its issue manager is NMB (Nepal Electricity Authority, Debenture Prospectus, 2007/08).

Kumari Bank Limited has issued Rs. 400 million "8% KBL Bond 2070" (with maturity period of 5 years and semi-annual coupon payment) in the FY 2064/65. Out of 400 thousand units of issue, 80 thousand units are issued to the general public and 320 thousand units are privately placed. Its issue manager is ACE (Kumari Bank Limited, Debenture Prospectus, 2007/08).

Himalayan Bank Limited has issued Rs. 500 million "8% HBL Bond 2072" (with maturity period of 7 years and semi-annual coupon payment) in the FY 2064/65. Out of 500 thousand units of issue, 100 thousand units are issued to the general public and 400 thousand units are privately placed. Its issue manager is ACE (Himalayan Bank Limited, Debenture Prospectus, 2007/08).

Nabil Bank Ltd. has issued Rs. 300 million "8.5% HBL Bond 2072" (with maturity period of 10 years and semi-annual coupon payment) in the FY 2064/65. Out of 300 thousand units of issue, 60 thousand units are issued to the general public and 240 thousand units are privately placed. Its issue manager is ACE (Nabil Bank Ltd, Debenture Prospectus, 2007/08).

The outstanding bonds and debentures are being traded at the floor to Nepal Stock Exchange. However, the secondary market has not been understood to be well developed as compared to the secondary market for common stock.

2.3 Types of Government Securities

2.3.1 Treasure Bill

Treasury bills are issued to meet short-term financial requirement of the government. It is issued on discount basis. The government has been collecting huge amount of fund through sales of T- Bill every years. The discount rate of treasury bills percentage can be calculated as:

$$\text{Discount rate in percentage} = \frac{(100 - BP) \times 365 \times 100}{BP \times T}$$

Where, BP = Bill Price or purchase price of T-Bills

T= Maturity period of treasury Bills

The issuance of short- term government securities has following reasons:

- To fulfill deficit budgetary system in Nepal
- To collect scattered funds and to mobilize it in productive sector.
- To conduct fiscal and monetary policies.

2.3.2 Development Bond

It is a kind of long-term government bond. It has normally had five years maturity periods. Individuals and institutions purchase it. It can be used as collateral when taking loans. The holders normally obtain 90% amount of total value if he keeps them on collateral. It has also fixed and minimum interest rate. The interest amount will be paid on semi- annual basis. The income from these bonds is taxable.

Characteristics of development bond

1. It is a long –term government bond.
2. The holders get interest in semi annual basis.

3. The holders can use it as collateral if money is needed immediately.

4. Institutional and individual buyers can purchase it.

2.3.3 National Savings Bond

The issuance of National Saving Certificate was initiated in order to mobilize savings from the non-banking sectors. It is also a long-term government bond normally issued for five years maturity periods. Except commercial banks, other parties like individuals, financial institutions and others organizations etc are the holders of this bond. It has fixed interest rate payable semi annually. It can be purchased as promissory note. The holders get principal after a certain maturity period. These bonds are normally tax-free bonds and have high interest rates. Therefore the National Saving Bonds have large trading in market.

2.3.4 Special Bond

It is issued on special occasions when government falls sort of funds for any special project or programs. The government issues special bonds to make payment, instead of paying cash; the government issues special bonds as a substitute of cash repayment. The holder of this bond can also use it as collateral.

2.3.5 Citizen Saving Bond

It is also a long-term government bond, which normally matures in five years. The characteristic of the citizen saving certificate is same as the long-term bonds. The only difference is that it cannot be used as collateral. It has also a fixed interest rate. The interest amount is paid on semi annual basis. Individual as well as institutional buyers can purchase it. It is also a taxable government bond.

2.5. Securities in practice in U.S.A

a. US Treasury Bills

Treasury bills are issued on a discount basis, their earning is the difference between the purchase price and the face value if the bill is held to maturity and the earning is treated as interest income for tax purpose.

b. US Treasury Notes

Treasury notes are issued with maturity from one to ten years and generally make coupon payments semi annually.

c. US Treasury Bonds

Treasury bonds have maturity greater than ten years at the time of issuance. Treasury bonds have call provision. Its face value is normally more than $1000.

d. US Savings Bonds

These bonds are offered only to individuals and selected organizations. The purchaser can purchase a specified amount of bonds in a single year.

e. Zero coupon Treasury security receipts

A non-callable Treasury note or bond is, in effect, a portfolio of pure discount bonds (or, equivalently, a portfolio of zero coupon bonds). That is, each coupon payment, as well as the principal, can be viewed as bonds unto itself; the individual who owns the bond can therefore be viewed as holding a number of individual pure- discount bonds (Francis, 2000:393).

2.6. Bond Price Theorems

Theorem 1: Bond's price move inversely to bond's YTM.

Theorem 2: If all other factors are held constant, a bond's interest rate risk increases with the length of time remaining until it matures.

Theorem 3: A bond's interest rate risk increases at a diminishing rate as the time remaining until its maturity increases.

Theorem 4: The price changes that results from an equal-sized increase or decrease in a bond, YTM is asymmetrical. More specifically, for any given maturity, a decrease in yields causes a price rise that is larger than the price loss that results from an equal increase in yields.

Theorem 5: A bond's interest rate risk varies inversely with its coupon rate. (Francis, 2000:383-385)

2.7. Bond Market Terminology

Following are the terminologies from the point of view of a bond traders / investors;

1. Coupon: The percentage interest to be paid on a bond in the course of a year. The interest is usually payable semi-annually, although it can also be payable monthly, quarterly, and annually. If a bond worth Rs 100,000/- at maturity has a 6% coupon, this means Rs6000 in interest is payable over a year's time.

2. Maturity: The date the bond will be redeemed or paid off. If the same Rs. 100,000/- bond has a maturity date of June 1, 2008, then the investor is due to be paid off in full at that date.

3. Price: The quoted price is usually based on the bond maturity at a price of par, or 100.00. In the case of the above-mentioned bond 6% of June 1, 2008, if the price is Rs105.13, this means the bond is at a 5.13% premium to its maturity price (par or 100.00). An investor who pays RS 105.13 for the bond will receive only Rs100.00 back on maturity.

4. Yield: The term "yield" usually means, "yield to maturity." At a price of Rs105.13 for the 6% of June 1, 2008, the yield to maturity is 5.31%. The yield

to maturity takes into account the fact that the coupon payment is 6% per year, but that the bond is maturing at a different price than its current price. The calculation also assumes that the coupon payments each year is re-invested at the yield to maturity (5.31% in this case).

5. Bid: The price the trader will pay for a bond.

6. Offer (Ask): The price at which the trader will sell a bond.

7. Bid-offer spread: The price difference between what the trader will buy a bond at, and the price at which the trader will sell a bond. The difference on highly liquid and tradable government bonds is usually very low. But it can be much more on illiquid bonds, such as some corporate bonds, which are not easily traded.

8. Basis points: A basis point is a hundredth of a percentage point. For instance, if a yield moves from 4.5% to 5%, it has moved 50 basis points.

9. Bond auctions: Bonds are auctioned on the basis of ask price and bid price. The "Public Debt Act, 2002" has delegated authority to the NRB to arrange primary and secondary transactions of government securities. NRB issues new bonds in discount basis. Such bonds are later traded in the secondary market i.e. NEPSE, where the market price of bonds is determined by the market mechanism.

10. New issues: Most other governments and corporations use a different system of distributing new issues, namely offering them to investors through bond dealers. The bond dealers earn a commission for distributing the bonds to investors. The offering can be on a fixed price basis, or on the basis of a fixed yield spread to comparable government bonds. There are variations in approach. Sometimes the bond dealer act merely as agents, on the best effort basis. But in recent years, the most common approach is for the issuer to sell the bonds (still with commission attached) to the bond dealers, which then re-sell to investors. In this latter case, the bond dealers are taking a risk that they

can actually re-sell the bonds, and that they can re-sell them at the specified price. In a fast-moving bond market, where prices are changing by the second, this can be a risky approach for the bond dealers.

11. Book-based bonds: In the distant past, when bonds were bought and sold, they physically had to be moved from one institution or dealer to another. In financial centers, this involved dozens of messengers walking from building to building with large amounts of bonds in their briefcases. In recent years, however, bonds have gone "book-based". What that means is that the bonds are lodged with a central trustee and do not physically move from there. Instead, the dealers and institutions have accounts set up with the trustee, and when a bond trade takes place, the buyer's account is credited with the bonds, while the seller's account is debited. This all happens electronically and quickly, without the risk of the bonds physically going missing. (www.bondmarket.com)

2.8. Buying and Selling Rules of Security

1. Investors typically buy or sell securities through brokers who are compensated for their services with commissions.

2. When transacting in a security, investors must specify the following: the security's name, buy or sell, order size, time limit, and type of order.

3. The four standard types of orders are market, limit, stop, and stop limit. Market orders, followed by limit orders, are the most common types of orders.

4. Investors may purchase securities with cash or may borrow from brokerage firms to buy securities on margin.

5. Investors must make down payments on their purchases, maintain minimum levels of collateral in their margin accounts, and pay interest on margin loans.

6. If an investor's actual margin falls below the maintenance margin requirement, the investor's account in under margined. The investor will receive a margin call and must increase the actual margin level in the account.

7. Buying on margin results in financial leverage, thereby magnifying (positively or negatively) the impact of a security's return on the investor's wealth.

8. Short sales involve the sale of securities that are not owned, but rather are borrowed by the sellers. The borrowed securities must ultimately be purchased in the market and returned to the lenders.

9. A short seller must deposit the proceeds of the short sale and initial margin with his or her broker. The short seller must also maintain a minimum actual margin level in his or her margin account or face a margin call.

10. For investors who purchase on margin or short sell several securities or do both, the determination of whether an account is under margined, restricted, or over margined depends on the aggregated activity in their accounts (Sharp,2003:40-41).

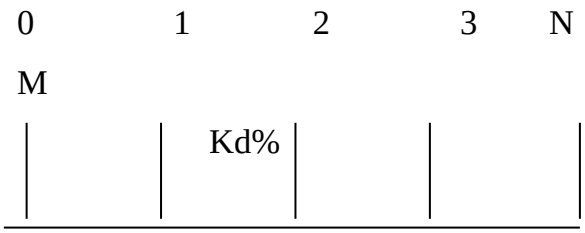
2.9. Bond Valuation Model

Value of bond is a present value of all interest receipts and principal pay back after its maturity.

A. Basic Bond Valuation Model

Weston, Brighman and Ehehard illustrate value of bond as;

Figure 1



Bond's Value

INT INT INT INT

Where,

K_d = Appropriate interest rate on bond

N = No of years after bond is matured

INT = Interest each year

M = Par value or face value of the bond. M refers the amount must be paid in maturity.

Valuation of bond can systematically present in equation form:

$$\text{Value of Bond (Vd)} = \frac{INT}{(1+Kd\%)^1} + \frac{INT}{(1+Kd\%)^2} + \ldots .. + \frac{INT}{(1+Kd\%)^N} + \frac{M}{(1+Kd\%)^N}$$

Vd = INT (PVIFA@Kd%N)+ M (PVIF@Kd%N)

There are following important features of bond model:

- When going rate of interest, Kd is equal to the coupon interest rate, a bond will sell at its par value
- When coupon interest rate is fixed, if going rate of interest rises up, bond is valued below its par value. Such bond is sold at discount. So it is called discounted bond.
- When coupon interest rate is fixed, if going rate of interest falls, bond is valued above their par value. These bonds are sold at premium and are called premium bonds.
- The market value of bond will always approach its par value as its maturity date approaches, provided the firms do not go bankrupt.

B. Finding Bond Yield to Maturity

The rate of return, which is used in discounting future cash flows, is called yield to maturity. It can be calculated by using bond valuation model:

Vd= INT (PVIFA@Kd%N)+ M (PVIF@Kd%N)

Putting all available values to maturity of bond (Kd)

Approximately yield to Maturity: $= \frac{INT+\frac{M-VD}{N}}{\frac{2VD+M}{3}}$

$$= \frac{INT+ \frac{M-Vd}{N}}{\frac{2Vd+M}{3}}$$

Where, INT=Par value/ face value/ Maturity value.

M= Annual amount of coupon interest

Vd = Market value of bond

N= Maturity period

C. Bond valuation with semi annual compounding

If bonds pays interest semi annually, it requires modifying bond valuation model. We can calculate value of bond using following modified formula:

$$= \frac{INT}{2}\left[PVIFA@\frac{Kd}{2}\%2N\right] + M\left[PVIF@\frac{Kd}{2}\%2N\right]$$

D. Interest Rate Risk on bond

Interest rate risk refers variability on price of bond as result of fluctuation in market interest rate. Price risk of bond tends to appear in following two ways:

a) When interest rate of the market increases, price of bond decreases. Declining price of bond causes loss in the value of bond and such price loss risk is interest rate risk. However, reinvestment rate of interest cash flow will increase.

b) Alternatively, if the market interest rate falls, value of bond will increase. However, reinvestment rate of interest cash flow will decrease.

Hence, "for bonds with similar coupon, this differential sensitivity to changes in interest rate always holds true, the longer the maturity of the bond, there is greater its price change s in response to a given change in interest rate. Thus, even if the risk of default on two bonds is exactly the same, the one with the longer maturity typically is exposed to more price risk from a change in interest rates" (Brigham, Gaspenski, Ehehard, 1985:291)

2.10. Financial Structure and Capital Structure

Financial structure refers to the composition of sources and amount of funds collected to use or invest in business. In other words, financial structure refers to 'capital and liabilities' side of balance sheet. So it includes shareholder's funds, long-term loans as well as short-term loans. It is different from capital structure as capital structure includes only the long-term sources of financing while financial structure includes both long-term and short-term sources of financing.

Financial structure can mainly be sub divided into ownership financing and borrowed financing. Ownership financing includes equity share capital and reserve and surplus. Joint Stock Company cannot be established without equity financing. In Nepal, promoters must hold at least one share for the incorporation of joint stock Company in accordance with company act 2063. Borrowed financing includes short-term debt and term loans as well as the varieties of bond and debentures. Preferred stock is neither purely a debt nor equity. Since it contains the characteristics of both debt and equity, it is called a hybrid security. So there is no unanimous practice about the treatment of

preferred stock. However, it is said to be equity from legal point of view since the company is not obliged to pay dividends on preference shares.

Capital Structure refers to the combination of long term sources of funds, such as debentures, long term debt, preference share, and capital and equity capital including reserves and surpluses. Normally, a firm raises long-term capital through the issue of shares, sometimes accompanied by preference shares. The share capital is often supplemented by debenture capital and other long term borrowed capital. In some cases, corporate accept deposits. In a going concern, retained earnings or surpluses are also used in capital structure. Capital structure decision is one of the most important decisions that are taken by Finance Manager. It is because optimal capital structure maximizes shareholder's wealth and minimizes overall cost of capital. However, capital structure is taken as irrelevant factor for valuation of the firm by some theories.

2.11. Cost of Capital

Cost of Capital is premium payable for the use of capital in business organization. Cost of Capital is the rate that must be earned on the company's investment in order to satisfy all the investors' required rate of return. It is the minimum required rate of return from an investment at which price of firm's common stock remains unchanged. It is liability of users against suppliers of capital. Cost of capital is standard of measuring investment project profitability. Hence, project appraisal requires cost of capital.

Cost of capital is recognized rate of different names such as required rate of return, flat rate of return, hurdle rate, average cost of fund etc. The average return required by the firm's investors determines how much must be paid to attract funds.

There are different sources of capital such as:

1. **Debt Capital:** Interest payable on debt capital is cost of debt. Debentures or bonds may be issued at par (sold on price equaling the face

value), discount (sold on price lower than the face value) and premium (sold on price higher than the face value).

Companies incur some expenditure for issuing bonds, such as preparation of prospectus, advertising, brokerage cost etc. These costs are termed as floatation cost. Cost of debt increases due to floatation cost

Cost of debt is derived by applying following formula:

Cost of debt (K_d) = I / NP (for perpetual debt)

Where,

K_d = Cost of debt before tax

I = Interest

NP = net processed amount actually available

Tax saves interest expenditure of issuer. So that cost of debt after tax may be:

Cost of debt after tax (K_{dt}) = k_d (1-t)

Where,

t = tax rate

2.12. Review of Earlier Studies

Having reviewed the research report, most of the research studies are related with public debt and very few studies are found related with overall debt securities market.

Subedi (2006), studied on **"Problems and prospects on Bond Debt market growth in Nepal".** This study is mainly concerned with the bond's investment in total securities market along with the trend analysis of government bonds. He found that Nepalese investors are keen to invest in common stock rather than debentures. Tedious and lengthy process of issuing debt securities is another problem that hinders the growth of debt securities market. He also found that interest on deposit of commercial bank is lower than the coupon rate

of debt securities. Therefore he suggest all the investors instead of depositing their saving in commercial bank should invest in debt securities of Nepalese securities market so that they may earn much more than that. He concluded that government securities market is slightly at the maturity stage as compared to corporate debt securities. He recommended to the government to bring new rules and regulations regarding debt securities.

Kafle (2005) studied on **"Problems and prospects on Debt market growth in Nepal".** He summarized that, capital market of Nepal is in the infant stage and debt securities market is limited in exercise. The growth debt securities market is growing but not as expected. The heavy reliance of government in foreign debt has created huge problem in the growth of Nepalese debt securities market. He added that investment is being made on impulse rather than through market study or credit ratings in Nepalese capital Market. He pointed that Nepalese investors preferred national saving bond and development bond rather than other government bonds. He concluded that due to over supply of deposits by customers; commercial banks do not issue debt securities. On the other hand, big corporate bodies could get loan easily from banks at lower cost so they didn't need to issue debt securities, but on the other side small corporate firms have been facing problems of raising fund by issuing debt securities as well as from banks. Tedious and lengthy process of issuing debt securities is another problem that hinders the growth of debt securities market.

Mainali (2003) conducted a study on **"Problems and prospects on Debenture market growth in Nepal."** It was conducted with the objective of studying existing debentures market, potentiality in growth of debenture market, existing problems of debenture market. This study concludes that Nepalese debentures market is still in initial stage and growth direction. The researcher has pointed out many problems, such as insufficient legislative provisions regarding Nepalese debentures market, political instability, poor price sensitive information disclosure, investors' preference on ordinary shares, lack of listing of debentures. He also concluded that Nepalese debentures

market is in better position than preferred stock market. If problems are cured in time, its growth prospect is widely felt by the researcher. Nepalese public debentures market is comparatively better than private sector debentures. So, emphasis should be given in the development of private sector debentures market for the growth of overall debentures market of Nepal.

Bhattarai (2002) studied on **"Problem and prospects of debt security market in Nepal"** by using both primary and secondary data. He found that investor always had first choice to invest in common stock and then in bonds, which mean investors are attracted towards common stock. He also found that the existing rules and regulations for Nepalese debt market are insufficient. Interest rate of deposit on commercial bank has decreased every year, so the researcher has suggested the depositors to invest in debt so that they earn more than what they earn from depositing in the Bank and financial Institutions (BFIS).

Sharma (2001) inquired into on "**Public Debt System and practice in Nepal"** with the objective to overview the system and practice of public debt in Nepal; to understand the attitude of the investors towards the government securities and concluded that the interest of investors on government securities and their educational background is completely independent with each other. Both educated and uneducated people are equally interested on government securities. The study also concluded that both poor and rich people are interested to government securities. These mean that government is efficacious to draw the attention of rich and poor, educated and uneducated people whom the government sells its securities which are the means of borrowing the loan internally. The study verifies the general statement that the people in urban area are more aware to the government securities. The study also draws the conclusion that the people who have insufficient time to run private enterprise and who are not dexterous grab the opportunity in the market and are more interested to the government securities. He also concluded that persons with

academic background of economics, finance and management are more aware to the government securities.

Baral (1999) studied all types of securities –corporate or government, debt or owner. His study was based on the pure secondary data. He came to know that till 1976, companies willing to issue securities had to manage their issues themselves. NIDC and RBS had legal mandate to manage issues, but they never performed these roles to that date. Furthermore the researcher added that the bond market is least developed in Nepal.

Chhetri (1984) conducted a study on "**Internal Public Debt in Nepal**", with the objective of analyzing contribution of internal borrowing to the financing of development plans and concluded that the system of internal debt has helped to mobilize the internal financial resources in the productive sector of the country's economy.

Joshi (1982) investigated on **"Structure of Public Debt in Nepal"** with the objective of finding out the role of Public debt in the Nepalese fiscal system. He pictured the poor economic performance of the nation, which is due to nation's national topography and human behavioral limitation. He concluded that internal borrowing is most essential to develop the money and capital market in the nations and describes the external debt as supplementary tools for the resources gap in the country's budgetary expenditures. Researcher has recommended floating different public borrowing schemes, which may suit the pocket of the rich as well as poor people. He concluded, "Public Debt is one of the best ways of financing development expenditure of the government, which helps to control inflation in the country."

2.13. Review from Articles and Journals

Some of the Journals, written by different authors, published from abroad are studied and reviewed to understand present debt market of Nepal as there is not sufficient publication regarding corporate bond/debenture market in Nepal. Review of different approach that can be applied in the context of Nepalese

debt securities market. Comparing Nepalese corporate debenture market with respect to international debt market helps to identify issues and prospects on the one hand, and helps in recommending appropriate measures to overcome present problems on the other.

Some of the relevant articles and journals found to be important and are reviewed.

Mikal Kviback (2005) presents an article on **"Issues in Local Bond Market Development (i.e. Nepal Survey)"** and concluded that there is still no position to be satisfied or pleased due to development of Nepalese financial market. Very few debenture or bond markets are in operation as well as very few corporate bonds are issued by corporation till now. Government market is more developed than corporate market but prices are not market oriented. Furthermore, he mentioned that the capacity to develop the local corporate bond or debenture market is seriously constrained by a weak supply and demand for the product. The number of potential blue chip issues and size of the collective investors' base are not enough to create an institutionalized market and very few financial alternative instruments are available in the market for the investors to invest.

Elton, Grober, Agrawal and Mann (2001), in their **Article "Explaining the rate spread between rates on corporate bonds"**, explain the spread between rates on corporate and government bonds. The purpose of this article is to examine and explain the differences in the rates offered on the corporate bonds and those offered on government bonds (spreads) and in particular to examine whether there is a risk premium in corporate bond spreads and if so why it exist.

They have shown that the spread can almost entirely be explained by three influences; the loss from expected defaults, state and local taxes, which must be paid on corporate bonds but not on government bonds and a premium required for bearing systematic risk.

They even accounted for the impact of default and taxes. There still remains a large part of the difference between corporate and treasuries. Making use of the Fama – French factors, they showed that as much as 85 percent of the part of the spread that is not accounted for by taxes and expected default can be explained as a reward for bearing systematic risk. They had been able to account for almost all differences between corporate rates and government rates. They had provided explicit estimates of the size of these influences and had shown that both state taxes and risk premiums are more important than the financial economics has suggested.

Khatiwada (1998) presents an article on **"Debt trap and its management in Nepal"** explain that when government resorts to heavy borrowing from the market to finance the budget deficit the interest rate on government securities is high, long term interest rates are also higher. This is how excessive public borrowing results in a higher rate of interest in the money and capital markets.

Brad M. Barber (1999) studied on **"Exchangeable Debt".** This study analyzes the valuation effects of and motivation for issuing exchangeable debt as hybrid from of convertible debt. This research is motivated by what Miller describes as a "revolution" in financial innovation that has occurred over the last 20 years. The question addressed in this paper is whether these tax considerations are potential sources of value for issuing firms, why exchangeable debt is chosen over alternative divestment strategy. In this paper he analyzes two tax benefits posed by Jones and Mason and frequently cited in the financial press as motivating exchangeable issue.

He concluded that the price response of the convert firm is less pronounced than negative price response associated with secondary distribution.

He argue that as a result of the repurchase guarantee implicit in the exchangeable debt offered by the issuing firm, it will keep the convert firm's stock should its value fall below the value of the straight bond component of

the exchangeable debt offering. Exchangeable debt was probably originally conceived to capitalize on specific features of the tax code. However these tax motivations don't appear to be potential sources of value for firms issuing exchangeable debt.

Pant (1997) in her article, **"Management of Internal Debt and Economic Stability"** concluded that private industrialists and traders would be hesitant and discouraged the state simultaneously conducts business and industries. This may create the unhealthy competition between the government and private imitative, government should not interfere the liquidity position that exists in the market. She recommends the government not to borrow capital from public so that private investors do not face lack of capital.

Paul Marsh (1982) studied on **"The Choice between Equity and Debt: An Empirical study"** focusing on how companies actually select between financing instrument at a given point in time. He developed a descriptive model o f the choice between equity and long-term debt. The co- efficient of the model is estimated using logic analysis applied to a sample of 748 issues o f the equity and debt made by U.K. Companies over the period 1969-70. The predictive ability of the model is tested on a hold out sample of 110 equity and debt issues made between 1971 and 1974.

This study throws some light on a number of interesting questions such as whether companies behave as though they target debt ratio; whether they have similar targets for the composition o f their debt; whether market condition or company's historical share price performance affects their choice of instrument are influenced by other factors such as operating risk, company size, the composition o f company's assets and the rate at which retention are generated. The study assumes that a company's choice of financing instrument is a function of the difference between its current and a target debt ratio.

The major findings of this study were- companies are heavily influenced by market conditions and the past history of security prices in choosing between

equity and debt. This study also provides evidence that companies do appear to make their choice of financing instrument as though they have target levels in mind for both the long-term debt ratio and the ratio of short term to total debt. The target levels are themselves functions o f company size, bankruptcy risk and assets composition.

Mark I. Weinsten (1978) presents a paper on **"The seasoning process of New Corporate Bond Issues".** This paper approaches the question of difference between new and seasoned issues by concentrating on holding period returns (coupon plus capital gain) instead of the more usual yields to maturity. Researcher analyzed whether there are differences in holding period returns between seasoned and unseasoned bonds.

They consider these specific hypotheses concerning the seasoning process of new issues.

H_0: There is no seasoning process what ever.

H_1: Bonds are under priced at issue but this under pricing disappears rapidly.

H_2: There is a seasoning process, which extends over a number of months.

To test these hypotheses they define the abnormal return on a bond j at time t as.

$$ABR_{jt}=R_{jt}-R_{pt}$$

Where, R_{jt} is the return on bond j during calendar month t and R_{pt} is the return on portfolio of bonds with same rating as bond j during calendar month t. In this study they have seen the evidence that the post issue behaviors of bonds is similar to that reported by Ibbotson for common stock that is there is some evidence of initial under pricing which is eliminated by the end of calendar

month of issue. They are unable to find any evidence supporting the existence of a "seasoning process" beyond the calendar month of issue.

2.14. Review from Newspapers

The Kathmandu Post, Wednesday 15 January 2003 reported that, more than 30% of the companies listed with the NEPSE have failed to comply with the working norms of the secondary market. Information revealed that most companies fall under finance, manufacturing and processing, and trading groups. They have either defaulted in clearing their registration or renewal fees or have not provided the NEPSE with the audited financial statements for over two years. Only 65% of the listed companies do pay heed to the norms of the stock exchanges. If the other companies do not pay heed to the repeated warnings they can be suspended or de- listed. So companies must comply with the stock market rules. NEPSE was prompted to de-list the 25 companies in line with the budgetary announcement made by the Former Finance Minister Ram Saran Mahat in July 2001. Former Minister Mahat then announced to de-list those companies that did not provide financial statements for more than two consecutive years. Since de- listing of shares from stock exchange would impact small investors, proper care should be taken when the process is moved ahead. This process affected on debt market as well as equity market growth of Nepal.

Kantipur daily of 27th Baishak 2060 published -about the listing of Nepal's first debenture. It has given that NEPSE fixed the T= O system for the bond trading in Nepalese capital market. The bond of the Himalayan Bank 'Himalayan bond 2066' initiated this system. Up to 15 of Shrawan, 2060, only 570 shares of bond at par were traded at the floor of NEPSE. Trading was held between individual to individual. It is the first transaction held at the NEPSE from the corporate/ bank debt security.

Kantipur daily of 24th August 2002, published an article, "**public issue cost high in Nepal**". It has given that, despite huge appetite of investor for

investment, inadequate investment opportunities has resulted as substantially rise in the cost of issue. A latest study carried out by SEBON has following conclusions to highlight;

1 Need of necessary adjustments in laws, by – laws, and directives.

2. During share issue, financial sector is bearing the maximum brunt of investor pressure.
3. Cost ranges from 0.34% to 24.25% of total issued capital but same in non- financial sector ranges from 1.77 to 5.36%
4. Major cause for such huge issue cost in financial sector is the increased cost of processing the huge no. of applications that companies receive during share subscription.
5. Cost of processing is high as share of total issued capital go up when a large number of investor applies for a comparatively small issue.
6. Printing and other expenses and money collection and its refund increase the cost.
7. Underwriting commission, advertisement expenses and issue commission.
8. Issue cost for rights share is lower. Which is only 0.30% to 2.09%
9. Lack of one window policy has caused high issue cost.

2.15. Research Gap

Very few research works has been conducted on the bonds and debenture despite this being such a major part in capital formation. The corporate society, individual and investors are not interested towards bonds and debenture and are only interested in issuing and purchasing common stock. The corporate society usually averts bonds and debentures. It is due to unawareness about its characteristic like no intervention of bondholders in management, tax benefit, minimum cost of capital, repayment of debt after the expiration, flexibility in

capital structure management, no voting rights, no participation in company profitability distribution and other advantages.

Most of the researchers had highlighted on the problems and prospects of debt and debenture but not on its importance and prospects. The researchers are also lagging behind on the government securities, which are going to be listed on stock exchange in a recent time.

CHAPTER - III

RESEARCH METHODOLOGY

3.1 Introduction

Research Methodology is the way of carrying research to derive information about something. It deals with the situation and interpretation of data in meaningful form and helps to generate ideas for further investigation and research. Research can be;

a) Descriptive research: It includes survey and fact finding inquiries of different questions. The main purpose of descriptive research is the description of the status of affairs, as it exists at present.

b) Analytical research: In this type of research, researchers use the facts and information already available and analysis that data to make a critical evaluation.

3.2 Research Design

This research study attempts to analyze overall study of Bond market growth in Nepal. To fulfill the objective of the study, it used both primary data as well as secondary data. The study adopts descriptive research design as well as the analytical and quantitative approaches to examine issues.

To examine the trend of Government bond and examine ownership pattern and interest rate structure, mostly analytical research design is adopted so that prospect can be analyzed. Similarly, to examine various sectors' view towards Nepalese bond market and to find out its advantages, descriptive research design is also done. Various statistical tools such as curvilinear Model and chi-square testing hypotheses are applied to interpret and come to conclusion.

3.3 Population and Sampling

From the title of the study, it is clear that the research covers vast area. On one side, the population of this study comprises all the listed organized companies,

which are the potential companies for issuing debenture. Similarly, all the holders of debt securities are also considered as population. This study covers government bodies, concerned staff or experts, the brokerage firm and market makers. A questionnaire survey is conducted from the population. In another side two practices of corporate debt securities, and many government securities issuance practice held from 1962 are also taken as population of the study.

35 listed companies, 15 market maker and brokers, 30 individual investors and 20 experts are taken from various sectors using judgmental sampling. The list of investors included corporate debt holder as well as government securities holders, which were taken using random sampling. To analyze the trend of government securities a sample of issuance from 1987 to 2012 are taken for study.

3.4 Source of Data

The research study is based on both primary and secondary data. The source of primary data is mainly questionnaire methods. A set of 10 questionnaires is developed for various respondents. These are allocated to them and collected after some times. The main sources of the primary sources of data are,

- Listed companies
- Brokers and market makers
- Individual Investor
- Other experts, mainly staffs of SEBON, NEPSE and different commercial banks.

To examine the **trend and ownership pattern** and for **Interest rate analysis** secondary data are also used. The main sources of secondary data are

- Various Quarterly Economic Bulletins of NRB and SEBON
- Various Economic Report
- Economic Survey
- Various Budget Speeches

- Various Statistical Year Book and other publications of Department of Statistics
- Various Annual Report of Securities Board, Nepal
- Prospectus of Shree Ram Sugar Mills Ltd.
- Prospectus of Himalayan Bank Ltd.
- Prospectus of Nepal Investment Bank Ltd
- Prospectus of Everest Bank Ltd
- Prospectus of Nepal SBI Bank Ltd
- Prospectus of Kumari Bank Ltd
- Prospectus of Nepal Industrial and Commercial Bank Ltd.
- Prospectus of Nabil Bank Ltd
- Prospectus of Nepal Electricity Authority
- Various publications of NEPSE

3.5 Research Methods

A questionnaire is made and distributed to various respondents through which a field survey is conducted and analyzed by using various statistical tools like Chi-square test of Hypothesis. A descriptive analysis is also done to find out the overall view and reach to the conclusion.

3.6 Testing of Hypothesis

This study is based on both secondary as well as primary data. The primary data has been collected through questionnaire. Processing has been done by using computer application programs, especially MS- Excel. Some others statistical tools have been used for presentation and make raw data into organized forms and also for presentation to organize raw data for analysis and interpretation.

Chi-square test of Hypothesis is useful to examine the Importance of bonds market. Samples are taken to clarify the importance of bonds in investment

from various related sectors' individuals and organizations randomly selected according to their education, locations, position on various jobs etc from the group of listed companies, which are selected using judgmental sampling. Another group is Brokers and Market Makers, which are also randomly selected, and the last group is staff of SEBON &NEPSE. With the available data, some hypothesis are tested decision is given accordingly.

While testing hypothesis by the Chi-square test, the expected frequencies are calculated by applying the formula;

$$E = \frac{RT \times CT}{N}$$

Where, RT= Row Total, and the calculated values of $\chi 2$ were calculated by the following formula,

$$\chi 2 = \Sigma \frac{(O - E)^2}{E}$$

Where, O = Observed frequency

E = Expected frequency

3.7 Curvilinear Model

Curvilinear model is used to predict the trend of government securities by using data of the total amount of issue on the past. With the help of this model, the forecasted amounts of securities to be issued by government in coming years are calculated.

The equation of curvilinear is as below:

$y = a + bx + cx^2$.....……1

$\Sigma y = Na + b\Sigma x + c\Sigma x^2$ 2

$\Sigma xy = a\Sigma x + b\Sigma x^2 + c\Sigma x^2$ 3

$\Sigma x^2y = a\Sigma x^2 + b\Sigma x^3 + c\Sigma x^4$.....4

By solving the above equations, the value of a, b, c are calculated. The

forecasted value can be calculated by using the following equation

$$y = a + bx + cx^2$$

Similarly, to find out the trend line of the individual government securities, a time series is used. A trend line is a diagram constructed by taking years (i.e. time) at X- axis and the amount of issue at Y- axis.

3.8 Research Tools and Instruments

Mainly the following tools are used in this research study

- Chi-Square (χ^2) test of hypothesis
- Curvilinear Model

CHAPTER - IV

DATA PRESENTATION AND ANALYSIS

4.1. Introduction

This chapter "Data Presentation and Analysis" is the main body part of the dissertation. The secondary data have been obtained from Quarterly Economic Bulletin, Current Macroeconomic Situation, Annual Report of SEBON and other related newspaper. Te primary data have been obtained through field survey. The available data have been tabulated and presented into graphs, carts and analyzed to reach at the findings. So this dissertation has been prepared by using various available data to fulfill its objectives.

Following methods are used to analysis the data:

- Chi-Square Model of Hypothesis
- Curvilinear Model

4.2. Ownership Pattern of Government Bonds and Treasury Bills

The ownership pattern of Government Bond and Treasury Bills refers to the proportion of total Government Bonds and Treasury Bills purchased by different financial institutions and individuals.

Following tables shows the ownership pattern of Bonds and Treasury Bills.

Table 1: Ownership Pattern of Government Bonds & T-Bills

Rs. In million

Debt holder/Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	
Nepal Rastra Bank	18,066	15,965	22,116	20,909	17,950	25,504	26,826	19,139	17,457	11,049.00	15,630.00	1
%	50.34%	41.57%	44.53%	38.47%	29.89%	34.64%	33.06%	22.22%	19.94%	12.28%	15.74%	
Commercial Banks Bank	7,738	10,281	12,659	18,177	25,393	29,361	35,883	43,796	48,551	58861	65,836.00	7
%	21.56%	26.77%	25.49%	33.44%	42.29%	39.88%	44.22%	50.85%	55.45%	65.43%	66.30%	
Other	10,087.0	12,161.0	14,895.0	15,271.0	16,701.0	18,756.0	18,439.0	23,199.0	21,556.0	20,045.0	17,838.0	
%	28.10%	31.66%	29.98%	28.09%	27.81%	25.48%	22.72%	26.93%	24.61%	22.28%	17.96%	
Total	**35,891.0**	**38,407.0**	**49,670.0**	**54,357.0**	**60,044.0**	**73,621.0**	**81,148.0**	**86,134.0**	**87,564.0**	**89,955.0**	**99,304.0**	
%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	

Source: *NRB, Quarterly Economic bulletin, Mid July 2012,*

Note: Figures in parentheses indicate percentage of the total amount of issue on specific year.

The data shown in Table 1 reveals the portion of Nepal Rastra Bank in total purchase of bonds and treasury bills from 1994 to 2012 i.e. 47.16%, 50.93%, 51.23%, 50.34%, 41.57%, 44.53%, 38.47%, 29.89%, 34.64%, 33.06%, 22.22%, 19.94% 12.28% 15.74%, 16.98%, 19.92%, 23.9%, 17.66% and 13.50% Although participation in purchasing Government Bonds and Treasury Bill by NRB in absolute terms has increased from Rs. 14,447 in 1994 to 28,223.2 in 2008 but the table clearly shows that NRB is losing its portion in the purchase of total Government Bonds and Treasury Bills from the year 1996 to 2006 year, but it increased by years 2007, 2008, 2009 and 2010. Again, in years 2011 and 2012, the ownership share of the government is decreased and has reached up to 13.50% only by 2012.

The next substantial buyers of government bonds and treasury bills are the commercial banks whose purchase has increased from Rs. 8,886 million in the year 1994 to Rs. 128,987.4 million in the year 2012. It clearly shows that the participation of commercial banks in the total purchase has been increasing in absolute terms (except from 1996 to 1999, when it had a decreasing trend). It is also observed that the portion in total purchase has been in increasing trend and reached to 64.85% in 2008. However, with both side fluctuations since year 2009, the total share of the commercial banks has reached up to 61.68% in year 2012

Similarly, other purchasers include Insurance Companies and provident fund along with government public enterprises, private business enterprises and non-profit organizations as well as individuals. Such purchase has increased from 7,298 million in 1994 to 51,909.6 in 2012. The amount invested by others was in increasing trend up to year 1998. It then was in decreasing trend up to year 2003 subsequent to which there has been ups and downs and has reached to figure 24.82% by year 2012.

4.3. Trend and Amount of Government Securities Issued in Nepal

Since 1961, Nepal has started to borrow from the internal sources to bridge the resource gap in the budget, by means of issuing various kinds of securities. In the initial year 1961, the government issued treasury bills for internal borrowings (Budget speech 1961) after which a systematic borrowing is done by issuing T- Bills, Development Bonds, National saving Bonds, Citizen Saving Bonds and Special Bonds.

As stated in the Table 2, substantial changes occurred in the structure of government securities during the period of **1985-2005**. The total amount of government securities amounted to Rs **6,031.60** million in **1985** and its growth rate is positive every year. By the mid June 2012 its total amount reached Rs. **209,120.2** millions. T-Bill's contribution is the highest in every year.

Table 2

Amount of Government Securities Issued In Nepal (In Million)

Year	Total Bonds & T Bills	Growth rate (%)	Year	Total Bonds & T Bills	Growth rate (%)
1987	8,997.40	-	2000	54,357.00	9.44
1988	11,636.00	29.33	2001	60,043.80	10.46
1989	12,887.90	10.76	2002	73,621.00	22.61
1990	14,673.10	13.85	2003	81,148.30	10.22
1991	20,855.90	42.14	2004	86,133.70	6.14
1992	23,234.90	11.41	2005	87,564.30	1.66
1993	25,456.00	9.56	2006	89,954.90	2.73
1994	30,631.20	20.33	2007	99,303.80	10.39
1995	32,057.90	4.66	2008	111,239.10	12.02
1996	34,241.80	6.81	2009	120,873.70	8.66
1997	35,890.80	4.82	2010	142,859.70	18.19
1998	38,406.60	7.01	2011	179,328.40	25.53
1999	49,669.70	29.33	2012	209,120.20	16.61

Source: *NRB, Quarterly Economic Bulletin, Volume 43, Mid June 2012*

Figure 2: Total Bond & Treasury Bills issued by Government

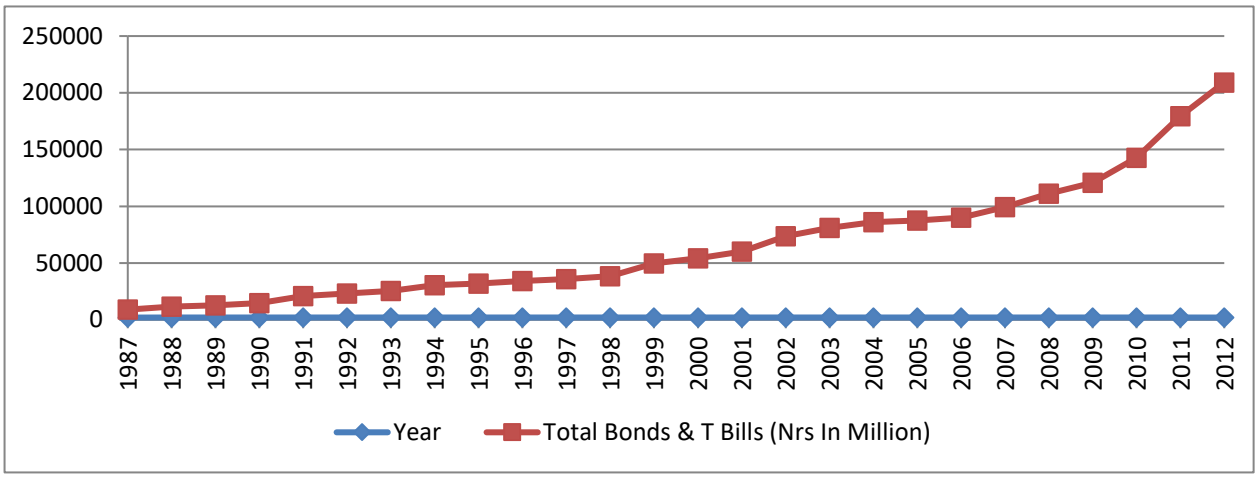


Table 2 and Figure 2 show the total amount of debt issued by the government during the past 26 years (1987-2012), which is in increasing trend. After 2010 the growth rate is speeding up where there were slow growth rates in previous years from 1987 to 2008. The minimum positive growth rate was observed in 2005, when it was only 1.66%. The growth rate has been calculated by taking the previous year as the base year.

4.3.1. Treasury Bills Issued by Government

Table 3 shows the amount of Treasury Bills issued by the government to collect fund in 26 years periods.

Table 3
Treasury Bills Issued by Government
Rs. in million

years	Total Amount of Treasury Bills	Growth Rate (%)	years	Total Amount of Treasury Bills	Growth Rate (%)
1987	3440		2000	21026.9	19.56
1988	4090	18.9	2001	27610.8	31.31
1989	1171	-71.37	2002	41106.9	48.88
1990	1821	55.51	2003	46884.9	14.06
1991	2351	29.1	2004	49429.6	5.43
1992	3483.3	48.16	2005	51383.1	3.95
1993	4403.2	26.41	2006	62970.3	22.55
1994	5216.3	18.47	2007	74445.3	18.22
1995	6392.5	22.55	2008	85033	14.22
1996	7142.5	11.73	2009	86515	1.74
1997	8092.5	13.3	2010	102043.7	17.95
1998	9182.5	13.47	2011	120340.7	17.93
1999	17586.9	91.53	2012	131624.1	9.38

Source: *NRB, Quarterly Economic bulletin, Mid July 2012, Number 4*

Figure 3: Trend of Treasury Bills issued by Government

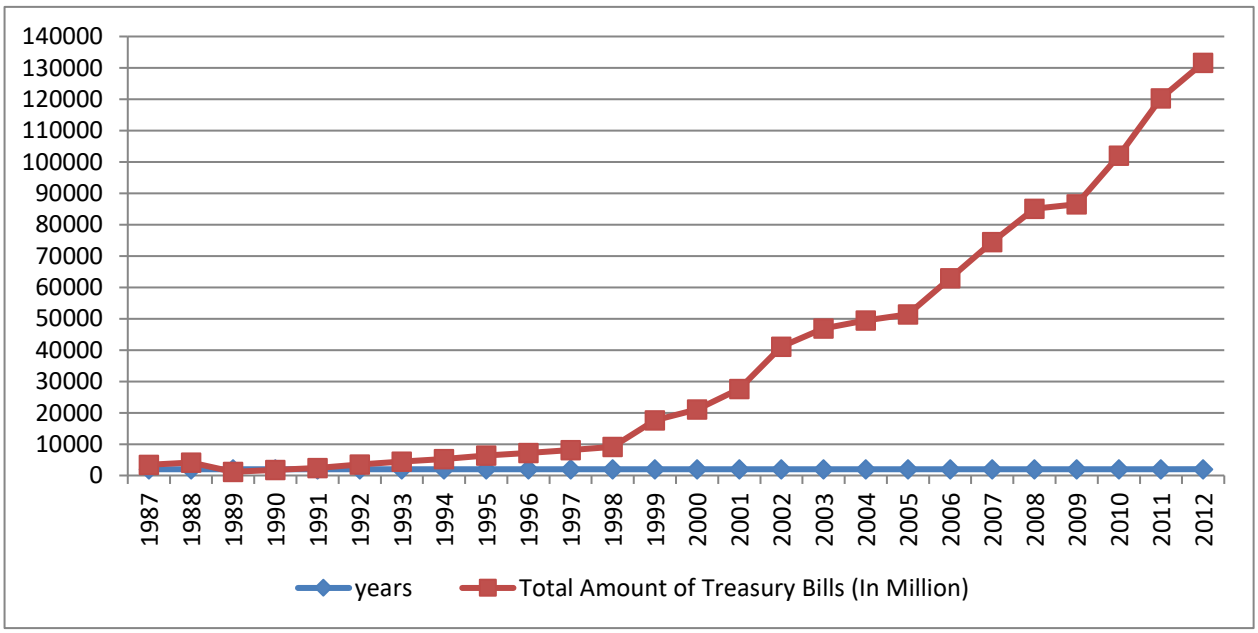


Table 3 and Figure 3 show the total amount of treasury Bills issued by the government during the past 26 years (1987-2012), which is in the increasing trend as shown in the line graph except in the year 1989 when it decreased by

71.37% compared to the previous year amount and the growth rate is calculated by taking the previous year's amount as base. Maximum increase in growth rate was observed in 1999 AD when it rose by 91%.

4.3.2. Development Bond Issued by Government:

Table 4 shows the amount of Development bond issued by the government to collect fund in 26 years periods.

Table 4
Development Bond Issued by Government
Rs. in million

Year	Total amount of Development Bond	Growth rate (%)	Year	Total amount of Development Bond	Growth rate (%)
1987	2990	-	2000	4262.2	10.07
1988	4651.7	55.58	2001	5962.3	39.89
1989	5088.6	9.39	2002	11090.7	86.01
1990	5388.6	5.9	2003	13090.7	18.03
1991	5482.3	1.74	2004	17549.2	34.06
1992	5132.2	-6.39	2005	19999.2	13.96
1993	5132.2	0	2006	17959.2	-10.2
1994	4732.2	-7.79	2007	19177.1	6.78
1995	4122.2	-12.89	2008	21735.4	13.34
1996	3672.2	-10.92	2009	29478.5	35.62
1997	3042.2	-17.16	2010	35519.4	20.49
1998	3302.2	8.55	2011	43519.4	22.52
1999	3872.2	17.26	2012	57519.4	32.17

Source: NRB, Quarterly Economic bulletin, Volume 43, Mid July 2008, Number 4.

Figure 4: Development Bond issued by Government

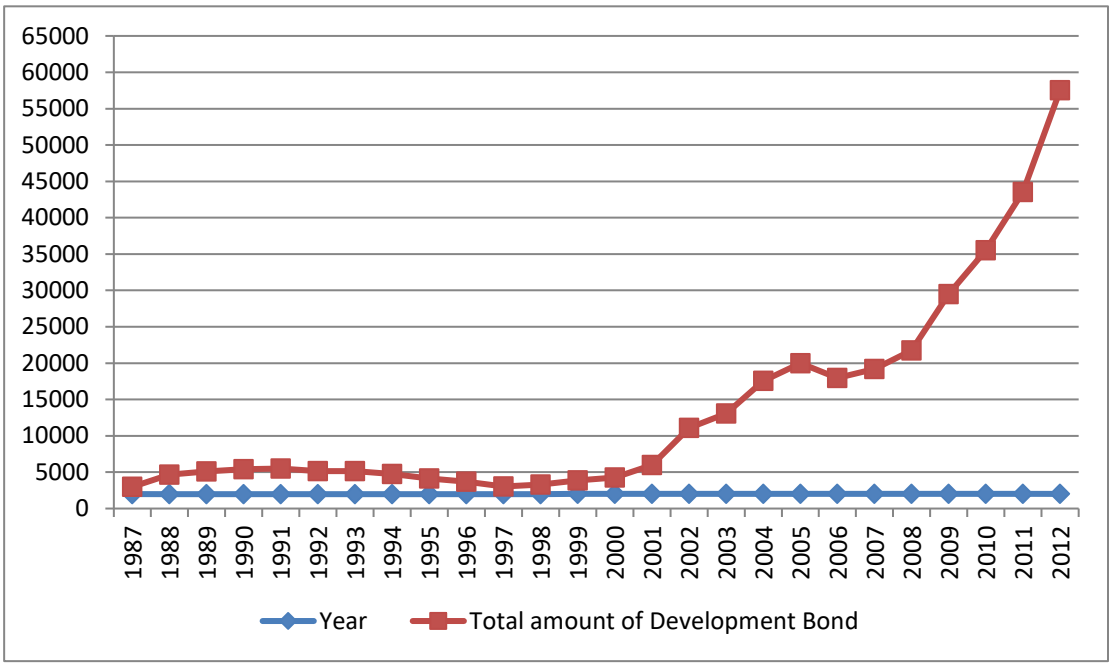


Table and Figure 4 show the amount of development bond issued by the government during the past 26 years (1987 to 2012). The issue was in increasing trend in first five years and reached Rs. 5,482.30 millions in 1991. But in 1992 AD the amount of development bond decreased by 6.39 % however in 1993 AD there was no change in the amount. From the year 1994 AD to 1997 AD the amount of development bond decreased. From 1998 AD the Development bond growth rate again showed positive trend except in 2006 AD when negative growth rate was observed. After the year of 2006, there shows slow pace of increment in the trend which is rocketed since 2008 amounting 57519.4 million by the end of 2012.

4.3.3. National Saving Bond Issued by Government

Table 5 shows the amount of National Saving Bond issued by the government to collect fund in 26 years periods.

Table 5
National Saving Bond Issued by Government

Rs. in million

Year	Total amount of National Saving Bond	Growth rate (%)	Year	Total amount of National Saving Bond	Growth rate (%)
1987	1940	-	2000	11526.5	10.55
1988	2196.5	13.22	2001	12476.5	8.24
1989	2196.5	0	2002	11536.1	-7.54
1990	2896.5	31.87	2003	10659.9	-7.6
1991	3646.5	25.89	2004	9029.8	-15.29
1992	4546.3	24.68	2005	6576.8	-27.17
1993	4901.5	7.81	2006	3876.8	-41.05
1994	5691.5	16.12	2007	1516.9	-60.87
1995	6076.4	6.76	2008	1116.9	-26.37
1996	7376.5	21.4	2009	216.9	-80.58
1997	8736.5	18.44	2010	0	-100
1998	9886.4	13.16	2011	10680	
1999	10426.4	5.46	2012	15680	46.82

Source: NRB, Quarterly Economic bulletin, Volume 43, Mid July 2012, Number 4.

Figure 5: National Saving Bond Issued by Government

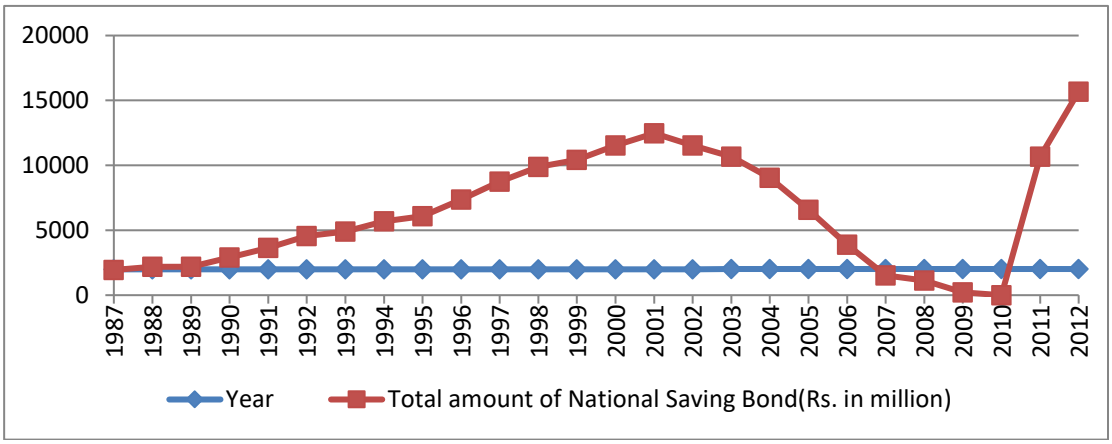


Table and Figure 5 show the amount of National Saving Bond issued by the government during past 26 years (1987-2012). Such issued showed increasing growth trend up to 2001 AD. But after this there was negative growth rate and reached to Nil in year 2010. However, the figure has sky rocketed in following years amounting 15,860 millions of Nepalese Rupees.

4.3.4. Special Bond Issued by Government

Table 6 shows amount of Special Bond issued by the Government to collect fund in 21 years period.

Table 6
Special Bond Issued by Government

Rs. in million

Year	Total Amount of Special Bond	Growth rate (%)	Year	Total Amount of Special Bond	Growth rate (%)
1987	627.4		2000	17541.4	-1.37
1988	697.8	11.22	2001	13994.3	-20.22
1989	4431.8	535.11	2002	9259.3	-33.84
1990	4567	3.05	2003	9621.7	3.91
1991	9376.1	105.3	2004	8946.2	-7.02
1992	10073.2	7.43	2005	8176.3	-8.61
1993	11019.1	9.39	2006	3469.8	-57.56
1994	14991.2	36.05	2007	2773.5	-20.07
1995	15466.8	3.17	2008	339.4	-87.76
1996	16050.6	3.77	2009	229.6	-32.35
1997	16019.6	-0.19	2010	169.7	-26.09
1998	16035.5	0.1	2011	158	-6.89
1999	17784.2	10.91	2012	157.6	-0.25

Source: NRB, Quarterly Economic bulletin, Volume 43, Mid July 2008, Number 4.

Figure 6: Special Bond issued by Government

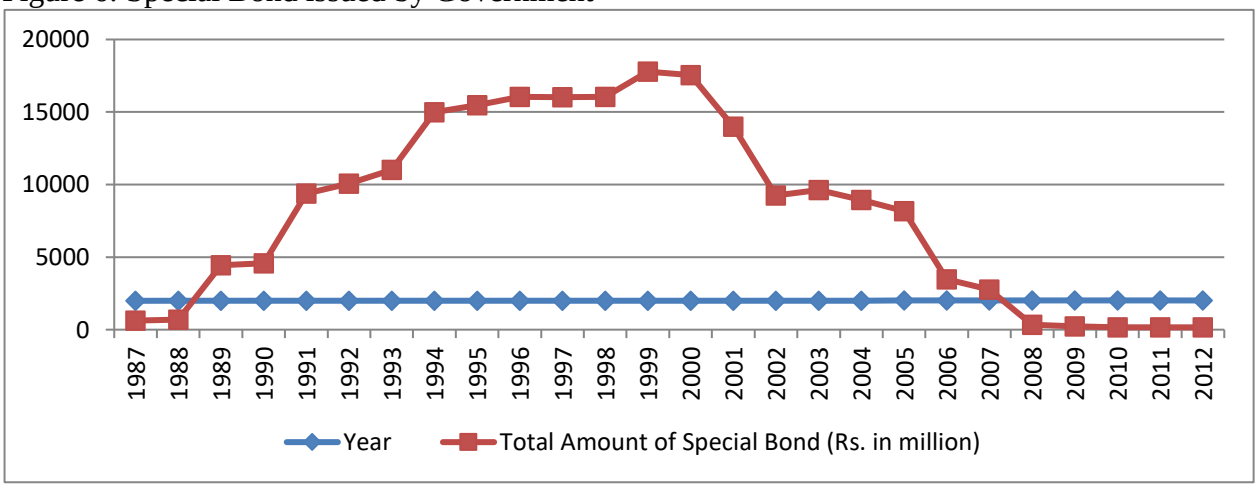


Table and Figure 6 show the amount of special bond issued by the government during the past 26 years (1987-2012). This shows lot of fluctuation in its

growth rate. In the year 1989 AD it showed the maximum growth rate i.e. 535.11% compared to the previous year. The first 11 years showed positive growth rate although the growth rate was fluctuating with larger percentage. From the year 1997 AD to 2005 AD the growth rate decreased from 0.19% to 33.84% in various span of time. From 2006 AD to 2012 AD, the growth rate remained negative which shows that the prospect of special bonds market is bleak.

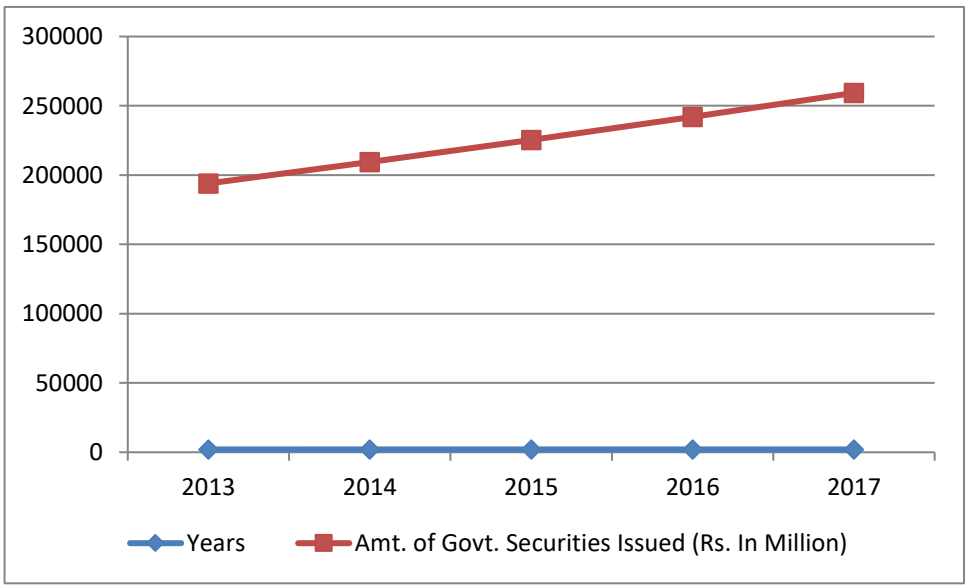
Table 7

Forecasted Total Amount of Debt Securities from 2013 to 2017

Rs. In Million

Year (AD)	Amount of Govt. Securities Issued
2013	193,991.43
2014	209,359.31
2015	225,364.74
2016	242,007.72
2017	259,288.26

Figure 7: Forecasted Total Amount of Debt Securities from 2013 to 2017



The figure and table 7 shows the increasing trend of estimated amount of government securities. The curve is upward sloping. The estimated or forecasted value is 193,991.43 million in 2013 and increased to 259,288.26 million in year 2017. (See ANNEX-3)

4.4. Forecasting Government Securities through Curvilinear Model

The trend of amount of government bond and T - bill issued every year is clearly curvilinear model after observing the fitted data in the figure. It shows the increasing trend of the amount of government securities. The curve is upward sloping. Hence, to find out correct result the curvilinear model is suitable according to the nature of the past data. The model has been followed:

The equation of curvilinear model is as below:

$y = a + bx + cx^2$..... 1

$\Sigma y = Na + b\Sigma x + c\Sigma x^2$ 2

$\Sigma xy = a\Sigma x + b\Sigma x^2 + c\Sigma x^2$ 3

$\Sigma x^2y = a\Sigma x^2 + b\Sigma x^3 + c\Sigma x^4$..... 4

Table 8

Amount Rs. In Million

Growth Trend of Government Debt Securities Fitted in Curvilinear Model

Year	X	Y = Amount of govt. Securities	xy	x^2	x^3	x^4	x^2y
1987	1	8,997	8,997	1	1	1	8,997
1988	2	11,363	22,726	4	8	16	45,452
1989	3	12,888	38,664	9	27	81	115,992
1990	4	14,673	58,692	16	64	256	234,768
1991	5	20,856	104,280	25	125	625	521,400
1992	6	23,235	139,410	36	216	1,296	836,460
1993	7	25,456	178,192	49	343	2,401	1,247,344
1994	8	30,631	245,048	64	512	4,096	1,960,384
1995	9	32,058	288,522	81	729	6,561	2,596,698
1996	10	32,242	322,420	100	1,000	10,000	3,224,200
1997	11	35,891	394,801	121	1,331	14,641	4,342,811
1998	12	38,407	460,884	144	1,728	20,736	5,530,608
1999	13	49,670	645,710	169	2,197	28,561	8,394,230
2000	14	54,357	760,998	196	2,744	38,416	10,653,972
2001	15	60,044	900,660	225	3,375	50,625	13,509,900
2002	16	73,621	1,177,936	256	4,096	65,536	18,846,976
2003	17	81,148	1,379,516	289	4,913	83,521	23,451,772
2004	18	86,134	1,550,412	324	5,832	104,976	27,907,416
2005	19	87,564	1,663,716	361	6,859	130,321	31,610,604
2006	20	89,955	1,799,100	400	8,000	160,000	35,982,000
2007	21	99,304	2,085,384	441	9,261	194,481	43,793,064
2008	22	111,239	2,447,258	484	10,648	234,256	53,839,676
2009	23	120,874	2,780,102	529	12,167	279,841	63,942,346
2010	24	142,860	3,428,640	576	13,824	331,776	82,287,360
2011	25	179,328	4,483,200	625	15,625	390,625	112,080,000
2012	26	209,120	5,437,120	676	17,576	456,976	141,365,120
Total	**Σx=351**	**Σy=1,731,915**	**Σxy=32,802,388**	**Σx^2 =6,201**	**Σx^3 =123,201**	**Σx^4 =2,610,621**	**Σx^2y= 688,329,550**

4.5. Trend of Corporate Bonds

Corporate of Nepal have issued various kinds of securities to raise capital. Debenture is one of them. Bottlers Nepal Limited, Shree Ram Sugar Mills, Himalayan Banks Ltd, Nepal Investment Bank, Everest Bank, Bank of Kathmandu, NIC Bank, Nepal SBI Bank, Siddhartha Bank, Laxmi Bank, Kumari Bank, Nabil Bank and NRB have issued such securities so far. The

debenture of Bottlers Nepal Limited has already been matured before the observed period here. Shree Ram Sugar Mills had issued debentures amounting Rs.93 millions in fiscal year 1997/98 which was of 14% coupon rate and convertible in nature. Then in the fiscal year 2001/02, Himalayan Bank Ltd. had issued "Himalayan Bond- 2066" with 8.5% coupon rate and in fiscal year 2003/04, Nepal Investment Bank had issued "Investment Bank Bond 2060" with 7.5% coupon rate and maturity period of 7 years. Kumari Bank Limited, Himalayan Bank Limited. Nepal Investment Bank Limited, Nabil Bank Limited and Nepal Electricity Authority had issued debenture of Rs. 2,950 Million in this fiscal year 2007/2008. The total no of organizations issuing debenture issued is only 14 but the portion of debenture out of total securities is in increasing trend. It is Rs.93 millions when it all started in F/Y 1998/99. It has gradually increased to Rs. 9200 million in F/Y 2011/12. The proportion of debenture issued to the total securities issued has increased from 4.03% in year 1998/99 to 45.07% in year 2007/08 and again decreased to 30.58% in the year 2011 AD.

Table 9

Portion of Debenture Out of Total Amount of Securities Till FY 2010/11 (In Million)

Year	Total No of Issues		Total Approved Amount		Total Cumulative Amount		Debenture & Total Securities (%)
	Securities	Debenture	Securities	Debenture	Securities	Debenture	
1994/95	17		244.4		244.4		
1995/96	12		974		1,218.40		
1996/97	12		293.7		1,512.10		
1997/98	5		332.2		1,844.30		
1998/99	12	1	462.4	93	2,306.70	93	4.03
1999/00	5		258		2,564.70	93	3.63
2000/01	9		326.9		2,891.60	93	3.22
2001/02	9	1	410.5	360	3,302.10	453	13.72
2002/03	16		1,441.40		4,743.50	453	9.55
2003/04	17		556.5		5,300.00	453	8.55
2004/05	16	1	1,027.50	300	6,327.50	753	11.9
2005/06	14	1	1,626.80	300	7,954.30	1053	13.24
2006/07	29	5	2,443.30	1100	10,397.60	2153	20.71
2007/08	16	5	924.8	2950	11322.4	5103	45.07
2008/09	12	2	1815.7	750	13138.1	5853	44.55
2009/10	18	5	5251.68	0	18389.78	5853	31.83
2010/11	16	1	1728.83	300	20118.61	6153	30.58
Total	**235**	**22**	**20118.61**	**6153**	**113576.1**		

Source: *Annual Reports and Quarterly Bulletin of SEBON & NRB*

Table 10 CORPORATE BOND ISSUE IN NEPAL

S.N.	ISSUING COMPANY	ISSUSING AMOUNT (In Million)		Total	Approval Date	Issue Date	Maturity Period	Coupon Rate	Issue Manager	Remarks
		Public Offering	Private Placement							
1	Shree Ram Sugar Mills Limited	93	0	93	7/7/2054	8/5/2054	4 Years	14%	NCML	
2	Himalayan Bank Limited	100	260	360	2/21/2059	3/4/2059	7 Years	8.50%	NMB	
3	Nepal Investment Bank Limited	100	200	300	6/27/2060	7/17/2060	7 Years	7.50%	AFC	
4	Everest Bank Limited	50	250	300	12/17/2061	1/7/2062	7 Years	6%	CIT	
5	Bank Of Kathmandu Limited	50	150	200	5/22/2062	5/22/2062	7 Years	6%	NMB	
6	Nepal Investment Bank Limited	80	170	250	2/16/2063	2/26/2063	7 Years	6%	AFC	
7	Nepal Industrial & Commercial Bank Limited	50	150	200	2/17/2063	02/29/2063	7 Years	6%	AFC	
8	Nepal SBI Bank Limited	50	150	200	3/11/2063	3/20/2063	7 Years	6%	CIT	
9	Nepal Investment Bank Limited	50	200	250	2/16/2064	2/29/2064	7 Years	6.25%	AFC	NIB BOND 2070
10	Nepal Electricity Authority	150	1350	1500	10/11/2064	11/2/2064	5 Years	7.75%	NMB	NEA BOND 2069
11	Kumari Bank Limited	80	320	400	1/12/2065	2/2/2065	5 Years	8%	ACE	KBL BOND 2070
12	Himalayan Bank Limited	100	400	500	2/19/2065	3/8/2065	7 Years	8%	ACE	HBL BOND 2072
13	Nepal Investment Bank Limited	50	200	250	3/2/2065	3/12/2065	7 Years	8%	ACE	NIB BOND 2072
14	Nabil Bank Limited	60	240	300	3/15/2065	3/29/2065	10 Years	8.50%	NCML	NBL BOND 2075
15	Siddhartha Bank Ltd.	228	172	400		5/10/2008	7 Years	8.50%	ACE	
16	Laxmi Bank Ltd.	70	280	350		12/10/2008	7 Years	8.50%	NMB	
17	Nepal Investment Bank Limited	20	250	300		10/6/2011	7 Years	12.00%		
Total		1381	4742	6153						

Source: *Unpublished report of SEBON/ NRB*

4.6. Comparison of Corporate Bond and Government Bond Flotation

Government Bond and Corporate Bond together make the total bond market. Government Bonds is issued by NRB and Corporate Bonds is usually issued by Corporate Sectors. The Comparative position of Government Bond and corporate bonds are as follows.

Table 11

Flotation of Corporate Bonds and Government Bonds (In Million)

Years	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Government Bonds	60044	73621	81148	86138	87564	89955	99304	111239	120873	142859	179328
Corporate Bonds	93	453	753	753	1253	1903	2153	5130	5853	5853	6153
Total Bonds	60137	74074	81901	86891	88817	91858	101457	116369	126726	148712	185481
% of Government Bonds	99.85	99.39	99.08	99.13	98.59	97.79	97.88	95.6	95.4	96.1	96.7
% of Corporate Bonds	0.15	0.61	0.92	0.87	1.41	2.07	2.12	4.4	4.6	3.9	3.3

Source: *Quarterly Economic Bulletin, NRB and Annual Report SEBON 2010/11*

According to table 11, the percentage of Government Bonds to Total Bonds is about 99.85% where as the percentage of Corporate Bonds to total Bonds is about 0.15% in the 2001 year. Likewise the percentage of Government Bonds to Total Bonds is about 96.70 % and the percentage of Corporate Bonds to Total Bonds is about 3.30 % in 2011 AD. This table reveals that the percentage of Government Bonds to Total Bonds is in decreasing trend whereas the percentage of Corporate Bonds to Total Bonds has increased slightly. The table also shows that the increase in government bond in recent years 2010 and 2011is remarkably huge than corporate bond.

4.6.1 Bond Duration:

The duration is the measure of average maturity of the stream of payments associated with a bond. Bond Duration is concerned to be an appropriate measure of its term structure than its years to maturity as it reflects the amount and time of every cash flow rather than merely the length of time until the final payment occur. This study has used the model developed by F.R. Macaulay (1938) for calculating the weighted average time of Nepalese Corporate Bonds.

The sensitivity (duration) of bond price is important in the portfolio management. Therefore various determinants should be considered while determining durations. These determinants are expressed as rules in the following sections:

RULE 1: Duration of Zero Coupon (Discount) Bond equals its time to maturity.

MD=n (maturity period)

RULE 2: Holding maturity period constant, a bond's duration is higher when the coupon rate is lower.

RULE 3: Holding the coupon rate constant; a bond's duration generally increases with its time to maturity.

RULE 4: Holding other factors constant, the duration of a coupon bond is higher when bond's yield to maturity is lower.

The duration of bonds can be calculated by using following formula:

$$MD = \frac{1+Y}{Y} - \frac{(1+Y) - T(C-Y)}{C[(1+Y)T - 1] + Y}$$

Where Y = Yield to maturity, T = Duration of Bond, C = Coupon Rate

The durations of 5 corporate bonds have been taken as sample and the result can be generalized to other issuance too. The duration of 5 different Corporate Bonds are calculated and presented in the following table.

Table 12

Duration of Nepalese Corporate Bonds

S.N.	Issuing Company	Duration	Maturity Period
1	Shree Ram Sugar Mills Limited	3.22 Years	4 Years
2	Himalayan Bank Limited	5.67 Years	7 Years
3	Nepal Investment Bank Limited	5.79 Years	7 Years
4	Everest Bank Limited	5.95 Years	7 Years
5	Bank Of Kathmandu Limited	5.95 Years	7 Years

Source: ***ANNEX 6***

The result presented in the table 12 indicates that the durations of Nepal Corporate Bonds are lesser than their respective years to maturity years. And so is the case with other bond issuances. It is because when the market rate of

interest is lesser than the coupon rate of bonds, the duration is lesser than its maturity period. Therefore, investors receive their income prior to the maturity period, which indicates the higher prospects of Nepalese Bond Market. Duration and price volatility are directly related and the bonds with the longer duration have more price risk than short duration bonds. Therefore, Nepalese Corporate Bonds face less price risk because of less duration than their terms to maturities. However the result depicts an increasing trend of durations of Nepalese Corporate Bonds as well as increase in risks. The same result can be applied to other bond issuances. Though the debentures of HBL, NIBL, EBL and BOK have same maturity period i.e. 7 years, the duration is in a rising pattern due to increased price risks.

4.7. Valuation of Nepalese Corporate Bonds

The value of bonds can be determined by using following formula:

Value of bond = I [PVIFA k_d%, n] + M [PVIF k_d%, n]

Table 13

Valuation Of Nepalese Corporate Bonds

S.N.	Issuing Company	Value (Rs.)	Market Price (Rs.)
1	Shree Ram Sugar Mills Limited	1105.49	1000
2	Himalayan Bank Limited	1172.33	1000
3	Nepal Investment Bank Limited	1142.43	1000
4	Everest Bank Limited	1064.29	1000
5	Bank Of Kathmandu Limited	1064.29	1000

Source: ***Annex 5***

Table 13 shows that HBL bonds had the highest value among all. However, all the bonds price are under priced due to the higher value in comparison with the market price per bond i.e. Rs. 1000. The table below depicts the bond valuation rules as well as buying and selling decisions.

Bond Valuation Rules

S.N.	Conditions	Pricing	Decisions
1	Market Interest rate > Coupon Rate	Overpriced	Sell
2	Market Interest rate < Coupon Rate	Under priced	Buy
3	Market Interest rate = Coupon Rate	Fairly Priced	No Trading

If a bond is priced below its intrinsic value, the bond is under priced and is a good investment opportunity. Similarly, if bond price equals the value of bond, then it is said to be in equilibrium and if the bond price is lesser than the market price, the bond is said to be overpriced and should be sold to avoid losses. Therefore under priced bonds always attract rational investors for investment and encourage the holding position to profit from price gains that should occur from price rise in future.

The bonds in Nepal are usually found to be under priced and deemed good and profitable investment. The calculations proved that the coupon rates were always higher than the market rates for the above-analyzed bonds. Therefore the under priced bonds reflect good prospects of Corporate Bond Market in Nepal.

4.7.1 Interest Rate Analysis

Normally the government issues four types of securities. The interest rates are different in these securities depending upon the nature of securities. The bond with short maturity period has less interest rate than the securities with long maturity periods.

Table 14: Structure of Interest Rate

Percent Per annum	Mid Jul 2001	Mid Jul 2002	Mid Jul 2003	Mid Jul 2004	Mid Jul 2005	Mid Oct 2005	Mid Jul 2006	Mid Jul 2007	Mid Jul 2008	Mid Jul 2009	Mid Jul 2010	Mid Jul 2011	Mid Jul 2012
A. Government Securities													
Treasury Bill for 28 days	-	-	-	1.82	-	2.62	2.4	2.13	5.16	4.94	8.7	8.08	0.1
Treasury Bill for 91 days	4.94	3.78	2.98	1.47	3.94	3.1	3.25	2.77	5.13	6.8	8.13	8.52	1.15
Treasury Bill for 182 days	-	-	-	-	4.42	3.7	3.86	3.51	5.16	5.91	8.28	8.59	1.96
Treasury Bill for 364 days	-	-	4.93	3.81	4.79	3.87	4.04	400	6.47	6.55	7.28	8.61	2.72
National Saving Certificate	8.5-13.25	8.0-13.25	7.0-13.0	6.5-13.0	6.5-13.0	6.5-13.0	6.0-8.5	6.0-8.5	6.0-7.75	6.0-8.0	6.0-10	6.0-10	6.0-10
Development Bonds	3.0-8.0	3.0-8.0	3.0-8.0	3.0-8.0	3.0-8.0	3.0-8.0	3.0-6.75	3.0-6.75	5.0-8.0	5.0-9.0	5.0-9.0	5.0-9.6	5.0-9.5
B. Commercial Banks													
1. Deposit Rates													
Saving Deposits	3.5-6.5	2.5-6.25	2.5-6.0	2.0-5.0	1.75-5.0	2.0-5.0	2.0-5.0	2.0-5.0	2.0-6.5	2.0-7.5	2.0-12	2.0-12	
Time Deposits													
3 months	2.5-6.0	2.5-5.25	2.0-5.0	2.0-4.0	1.5-4.0	1.5-3.5	1.5-4.0	1.5-4.0	1.5-6.75	1.5-6.0	1.75-9.5	1.75-9.5	
6 months	3.5-6.75	2.5-6.0	2.5-6.0	2.0-4.5	2.5-4.5	1.75-4.5	1.75-4.5	1.75-4.5	1.75-6.75	1.75-7.0	2.75-10.0	2.75-10.5	
1 Year	4.5-7.75	3.5-7.0	3.0-7.0	2.75-5.75	2.25-5.00	2.25-5.0	2.25-5.0	2.25-5.0	2.5-6.0	2.5-9.0	4.75-11.5	4.7-11.5	
2 Years and above	4.25-8.5	3.25-8.0	3.25-7.5	3.0-6.0	2.5-6.05	2.5-6.05	2.5-6.4	2.5-5.5	2.75-6.75	2.75-9.5	5.0-13.0	5.0-12.5	

Source: NRB, Quarterly Economic Bulletin 2012

The Table 14 reveals that the highest interest rate on T-Bills for 28 days was 8.7% on July 2010 and lowest was 0.10% on July 2012 AD. Likewise, the highest interest rate on T-Bills for 91 days was 8.52% on Mid-July 2011 AD and lowest was 1.15% on Mid July 2012 AD. For T-Bills for 182 days, the highest interest rate was 8.59% on Mid-July 2011 AD and the lowest interest rate was 1.96% on Mid July 2012. In the T-Bills for 364 days, the highest interest rate was 8.61% on Mid-July 2011 and the lowest interest rate was 2.72% on Mid July 2012 AD.

There is slow either side fluctuation in the interest rate on National saving Certificate. The interest rate on National Saving Certificate was on an average of (6.64-11) for the observed period. There is gradual increase in the rate in recent Fiscal years.

The interest rate on development bond was (3-10.5) percent on Mid –July 2001 AD and decreased to (3-8.5) percent on Mid – July 2002 AD. It again decreased and reached (3.0-8.0) percent on Mid July 2003 AD. It remained constant till mid Jan 2006 and latter decreased to (3.0-6.75) on Mid Oct 2007 AD. It increased to (5.0-9.5) in July 2012 AD.

The interest rate on saving deposit of commercial banks was on average (3.5-6.5) percent on Mid July 1999 AD and continuously decreased every year by fluctuating in various span of time and reached (2.0-5.0) on Mid Jan 2006 AD. It remained constant till Mid Oct 2007 AD and reached (2.0-12) on Mid July 2012 AD.

The interest rate on time deposit of different periods of commercial banks has been increasing, decreasing and again increasing in trend. In recent three years the interest rate in deposit increased continuously and had reached up to 1.7-9.5% for 3 months, 2.75- 10.5% for 6 months, 1.7-11.5% for 1 year and 5-1.5% to more than 1 year time deposits.

4.8. Analysis of Questionnaire

Questionnaire was distributed among 100 different respondents from diverse fields. Analysis of response from respondents is compiled as under;

4.8.1. Existing legal provisions regarding debt securities market

Out of total 100 respondents, 26% of them believe that the existing legal provisions regarding debt securities market is sufficient where as 74% of them believe that the existing legal provision is not sufficient and that laws needs to be rectified soon.

4.8.2. Problems regarding secondary and primary market

Out of 100 respondents, 92% responded that there are many problems although government has taken some steps to solve the problem. But 8% responded there is no any problem in primary and secondary market.

4.8.3. Choice of various sectors' debentures

Out of the total 100 respondents, 59% of them opine that Nepalese investors mostly like to invest on banking sector's debenture. While 12% favored manufacturing sector's debenture, 15% of the respondents preferred hotel sector's debenture. 14% of them opine that Nepalese investors mostly like to invest on other sector's debenture.

4.8.4. Dominant prospect of debenture issue

Out of 100 respondents, 59% stated that dominant prospect of debenture issue is additional capital supply, whereas 41% chose tax advantage. Most of them have responded additional capital supply as chief prospect of debentures.

4.8.5. Choice of securities

Out of the total 100 respondents 29% investors liked to invest on debt securities, while 51% agree that Nepalese investors mostly like to invest on common stock Equity share. Similarly, 10% chose preference share and rest 10% of the respondents said that Nepalese investors mostly like to invest on Mutual funds.

4.8.6. Preference of bank loan over issuance of debenture

Out of 100 respondents, 35% responded that bank loan is preferred as bank loan is easily available. 26% stated that issuing debenture is a difficult process, 30% responded that cost of bank loan is less than issuance of debenture. 9% responded that it had some other reasons.

4.8.7. Ease in issuing debenture

Out of 100 respondents, 62% agreed that issuing stock is easier than issuing debenture and 38% disagreed on the same.

4.8.8. Factors influencing investors to purchase debt securities

Out of the total 100 respondents, 41% of the respondents opined that investors are attracted towards debt securities because it is liquid asset whereas 26% of them gave their opinion that because of lack of appropriate investment opportunity it is happening so. 22% of the respondents stated that investors prefer debenture as it is a fixed income security and has less risk. 11% of the respondents believed that they purchase debenture doe to some other reason.

4.8.9. Factors dominating growth of Nepalese bond market

Out of total 100 respondents, 39% of them agree that the major factor is lack of investor's awareness towards debt securities; 35% of the respondents agree with the factor that limited supply of quality bonds is main cause and 26% of the

respondents say that lack of capital gain opportunity to the investors is main cause. While most of the company's view on constraint of growth of Nepalese bond market is lack of investor's awareness; most of the individual investor state that it's happening so due to limited supply of quality bonds. This gap in perception is one of the major problems of the debt market of Nepal.

4.8.10. Preference between government bonds and corporate bonds

Out of the total 100 respondents, 56% Nepalese investors preferred Government bonds whereas 44% of them preferred corporate bonds.

4.9. Testing of Hypothesis

The chi-square test of Hypothesis is useful to examine the Importance of bonds market. The samples are taken to clarify the importance of bonds in investment from various related sectors' persons and organizations. Group of listed companies are selected using judgmental sampling whereas individuals are randomly selected according to their education, locations, position on various jobs etc. Another group is Brokers and Market Makers, which are also randomly selected. The last is staff of SEBON &NEPSE.

Hypothesis – 1

The test is carried out to draw the factors due to which Nepalese bond market is not growing smoothly. Response from 100 random samples of respondents is tabulated as under; (Refer. ANNEX-4 for detail)

Table- 15

Survey results on factors dominating growth of Nepalese bonds market;

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Lack of investor's awareness	14	7	10	8	39
Limited supply of quality bonds	11	5	11	8	35
Lack of capital gain opportunity	10	3	9	4	26
Total	35	15	30	20	100

Source: *Field Survey conducted by researcher*

Hypothesis Testing:

Null Hypothesis (Ho): There is no significant relationship between observed and expected opinion regarding the drawbacks of bond market of Nepal.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the drawbacks of bond market of Nepal.

Interpretation: As per table 15 and subsequent calculations in ANNEX-4, the calculated value of $\chi 2$ at 5% level of significance for 5 degree of freedom (d.f.) is 0.793302 and tabulated value of $\chi 2$ is 9.49. Since tabulated value of $\chi 2$ at 5% level of significance for 4 d.f. is greater than the calculated value (i.e. 9.49> .793302) , the null hypothesis is accepted i.e. there is no significant relationship between observed and expected opinion regarding factor dominates the growth of Nepalese Bonds Market

Hypothesis – 2

The test is carried out to draw the choice of securities by Nepalese investors. Response from 100 random samples of respondents is tabulated as under; (Refer. ANNEX-4 for detail)

Table- 16

Survey result on choice of securities

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Debenture	10	5	8	6	29
Common Stock	20	7	16	8	51
Preference	3	2	4	1	10
Mutual fund	2	1	2	5	10
Total	35	15	30	20	100

Source: *Field Survey conducted by researcher*

Hypothesis Testing:

Null Hypothesis (Ho): There is no significant relationship between observed and expected opinion regarding the choice of securities by Nepalese investors.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the choice of securities by Nepalese investor.

Interpretation: As per table 16 and subsequent calculations on ANNEX-4, the calculated value of $\chi 2$ at 5% level of significance for 2 d.f. is 0.98329 and tabulated value of $\chi 2$ is 5.99**:** Since tabulated value of $\chi 2$ at 5% level of significance for 2 d.f. is greater than the calculated value (i.e. 5.99>0.98329) , the null hypothesis is accepted i.e. there is no significant relationship between observed and expected opinion regarding the choice of securities by Nepalese investors.

Hypothesis – 3

The test is done to draw the choice of various sector's bonds. Response from 100 random samples of respondents is tabulated as under; (Refer. ANNEX-4 for detail)

Table -17
Survey results on choice of various sectors' bonds

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Banking	21	9	15	14	59
Manufacturing	3	3	4	2	12
Hotel Sector	5	2	6	2	15
Others	6	1	5	2	14
Total	35	15	30	20	100

Source: *Field Survey conducted by researcher*

Hypothesis Testing:

Null Hypothesis (Ho) : There is no significant relationship between observed and expected opinion regarding the choice of various sector's bond.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the choice of various sector's bond.

Interpretation: As per table 17 and calculations on ANNEX-4, calculated value of $\chi 2$ at 5% level of significance for 1 d.f. is 0.6237 and tabulated value of $\chi 2$ is 3.84. Since tabulated value of $\chi 2$ at 5% level of significance for 1 d.f. is greater than the calculated value (i.e. 3.84> 0.6237), the null hypothesis is accepted i.e. there is no significant relationship between observed and expected opinion regarding the choice of various sector's bond.

Hypothesis – 4

The test is done to draw the factors influencing investors to purchase debt securities. Response from 100 random samples of respondents is tabulated as under; (Refer. ANNEX-4 for detail)

Table - 18
Survey results on factors influencing investors to purchase debt securities

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Liquid Assets	12	8	11	10	41
Lack of investment opportunity	8	4	9	5	26
Declining interest rate of deposit	10	1	8	3	22
Other	5	2	2	2	11
Total	35	15	30	20	100

Source: *Field Survey conducted by researcher*

Hypothesis Testing:

Null Hypothesis (Ho): There is no significant relationship between observed and expected opinion regarding factors influencing investors to purchase debt securities.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding factors influencing investors to purchase debt securities.

Interpretation: As per table 18 and calculations on ANNEX-4, it can be clearly seen that the calculated value of $\chi 2$ at 5% level of significance for 3 d.f. is 1.743098 and tabulated value of $\chi 2$ is 3.841. Since tabulated value of $\chi 2$ at 5% level of significance for 3 d.f. is greater than the calculated value (i.e. 3.841>1.743098) , the null hypothesis is accepted i.e. there is no significant

relationship between observed and expected opinion regarding the reasons influenced to investors for purchasing debt.

Hypothesis – 5

The test is carried out to draw the importance of bonds in investment and its most dominant prospect. Response from 100 random samples of respondents is tabulated as under; (Refer. ANNEX-4 for detail)

Table-19
Survey results on reasons for purchase of bond in investment (dominant prospect for bond/debenture issue)

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Additional capital supply	28	8	16	7	59
Tax advantage	7	7	14	13	41
Total	35	15	30	20	100

Source: *Field Survey conducted by researcher*

Hypothesis Testing:

Null Hypothesis (Ho): There is no significant relationship between observed and expected opinion regarding the importance of bond in investment.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the importance of bond in investment.

Interpretation: As per Table.19, it can be clearly seen that the calculated value of $\chi 2$ at 5% level of significance for 2 d.f. is 11.74039 and tabulated value of $\chi 2$ is 5.99 Since tabulated value of $\chi 2$ at 5% level of significance for 2 d.f. is less than

the calculated value (i.e. 5.99 < 11.74039), the alternative hypothesis is accepted i.e. there is significant relationship between observed and expected opinion regarding the importance of bond in investment

Hypothesis – 6

The test is done to draw the reason behind preference of bank loan over issuance of debenture or bonds. Response from 100 random samples of respondents is tabulated as under; (Refer. ANNEX-4 for detail)

Table- 20
Survey results on reasons behind preference of bank loan over issuing debenture and bonds

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Bank loan is easily available	13	5	10	7	35
Issuing debenture is difficult process	7	6	8	5	26
Cost of bank loan is less than issuance debenture	12	3	10	5	30
Other	3	1	2	3	9
Total	35	15	30	20	100

Source: *Field survey conducted by researcher*

Hypothesis Testing:

Null Hypothesis (Ho): There is no significant relationship between observed and expected opinion regarding use of bank loan or issuing debenture.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding use of bank loan or issuing debenture.

Interpretation: As per Table 20 and calculation in ANNEX-4, calculated value of $\chi 2$ at 5% level of significance for 4 d.f. is 1.887616 and tabulated value of $\chi 2$ is 9.49. Since tabulated value of $\chi 2$ at 5% level of significance for 4 d.f. is greater than the calculated value (i.e. 9.49> 1.887616), the null hypothesis is accepted i.e. there is no significant relationship between observed and expected opinion regarding use of bank loan or issuing of debenture.

Hypothesis – 7

The test is done to draw the preference of the Nepalese investor between Government bonds and corporate bonds. Response from 100 random samples of respondents is tabulated as under; (Refer. ANNEX-4 for detail)

Table-21
Survey Results on preference between Government bonds and corporate bonds

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Government bonds	15	8	21	12	56
Corporate bonds	20	7	9	8	44
Total	35	15	30	20	100

Source: *Field survey conducted by researcher*

Hypothesis Testing:

Null Hypothesis (Ho): There is no significant relationship between observed and expected opinion regarding the choice between government bonds and corporate bonds.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the choice between government bonds and corporate bonds.

Interpretation: As per Table 21 and calculations on ANNEX-4, it can be clearly seen that the calculated value of $\chi 2$ at 5% level of significance for 5 d.f. is 5.013412 and tabulated value of $\chi 2$ is 11.070. Since tabulated value of $\chi 2$ at 5% level of significance for 5 d.f. is greater than the calculated value (i.e. 11.070> 5.013142) , the null hypothesis is accepted i.e. there is no significant relationship between observed and expected opinion regarding the choice between and corporate bonds.

4.10. Major Findings of the Study:

4.10.1. Finding from the analysis of ownership pattern of government securities

While analyzing the ownership pattern of government securities, it is found that the major holder of T-Bills in the previous years of observation was Nepal Rastra Bank. In the recent years commercial Banks are found to be the major holders of it. The other holder's portion has also increased, which indicates that the range of T- Bills in the recent years has become wider and the researcher expect it will cover wider range in future. It indicates better prospect of T- Bills market.

Similarly, the major portions of other government securities were held by NRB in the initial years of observation. This has changed in the recent years and the major portion of bonds is held by commercial banks, finance companies, individuals and other organizations. It indicates importance and better prospect of government securities.

4.10.2. Findings from the trend analysis of government securities and T-Bills

Issuance of T-Bills as a whole seems to be in increasing trend. While the increment was slight in the initial years of review, it has increased rapidly in the recent years. It shows a good prospect of the debt securities market. It also

indicates that this amount will further increase in coming year due to which the debt securities market will also be wider in range.

Development bond was in increasing trend in initial period of observation, decreased in the midway and again increased in the recent years of the observation. We can expect that it will further increase in coming years. National Savings Bond is also in increasing trend in the observation period. It can be expected that issuance of National Savings Bond will increase in the future as well.

Issuance of special bond has increased in initially but it has slightly decreased in recent years.

To sum up, by observing the trend of government securities, it's identified that the amount of government securities has increased every year. With increase in deficit budget and the present trend to reduce the external debt, it can be expected that it such issuance will increase even further. The forecasted amount for the coming years calculated through curvilinear Model also shows increasing trend of amount of government securities every year. It is the sign of a good prospect of government debt securities market. We can assume that more individuals and institutions will be involved in investing in government securities in future.

4.10.3. Findings of trend analysis of corporate debt securities

Corporate firms issue various kinds of securities to collect funds. During the observation period from the F.Y. 1994/95 to 2007/08, there were total 189 securities issued by different corporate. Out of them, only 14 issued debentures. The percentage of debenture on total issue of securities was zero in the first four years of review. It was 4.03% of total issuance after the issuance of debenture by Shree Ram Sugar Mills and reached 45.07% in F/Y 2007/08. From this, it is clearly shown issuance of debenture has increased in the recent years. From this

trend, we can expect that it will increase even further in coming years as well. It indicates bright prospect of the corporate debt market of Nepal. Following are the major findings from trend analysis of corporate debt securities;

- The total volume of bond securities issued is in increasing trend but the issue of bonds was not regular.
- After enactment of Securities Exchange Act 1983, the first issuance of debenture has been made by Shree Ram Sugar Mills Limited in the Fiscal Year 1997/98 and the issuance of debenture was followed by other 14 corporate sectors till the fiscal year 2007/08.
- The percentage coverage of Government Bonds is much more than Corporate Bonds. Government Bonds cover nearly 95.60% of the total bond issued in Nepalese Market where as Corporate Bond covers only 4.40 %.
- The history of Government Bonds in Nepal started with the issue of Treasury Bills in 1962 A.D. Since then the volume of Government Bonds have been growing. The amount outstanding of Government Bonds has reached Rs. 111239 million till 2008 year.
- The prime characters of Nepalese Corporate Bonds were 1000 par value, long-term maturity, generally 7 years, unsecured etc. However the bonds from the corporate sectors can be judged as a good quality bonds with brighter prospects.
- With respect to the present pace of corporate sector's equity securities, the corporate bond market is very weak. The few issuances of bonds from the Corporate Sector have proved it.
- Investors reflect deep preference for the bonds issued from the banking sector in comparison to other sectors. Issuance of debenture by banking sector indicates good prospect of Bond Market in Nepal.

- The Nepalese Corporate Bonds were under priced. As stated by Francis, if the price of bond is below its intrinsic value, it is under priced and hence it is a good investment opportunity.

- Durations of Nepalese corporate bonds were less than their maturity periods. As stated by McCauley, less duration are more attractive due to less price risk. Thus Nepalese corporate bonds are attractive from investment point of view and have good prospect.

- Many weakness of Nepalese Bond Market were found during the research period. Some of them are: weak governance, fiscal deficit, lack of central market infrastructure, lack of credit rating agencies, lack of trained professionals etc.

4.10.4. Findings from the analysis of interest structure

The Interest rates on government bonds are different depending upon the nature of the bonds. The securities with lower maturity period have higher interest rate. During the observed periods, the interest rate on government securities has slightly changed without substantial ups and downs. Interest rate on deposit of commercial banks was in decreasing trend during these periods. Similarly, the refinance rate of NRB also decreased. This structure of interest rate indicates that investors can get higher return by investing on government securities than placing funds as deposit on commercial banks. However, the liquidity crisis in BFIs during the year 2011/12 has increased the BFI's interest rate for the deposit to the peak level where the rate on deposit was higher than the rate of return in securities. With proper control in the situation now the situation has been resumed to previous level and investing in securities again has proved to be profitable investment sector. So, there are chances that depositors of commercial banks get attracted towards securities. Thus, securities have bright prospect.

4.10.5. Findings of the questionnaire survey

The majority of the respondent's opinion is that lack of investor's awareness towards debt securities is the main factor behind the Nepalese debt market not being able to grow smoothly. They also opine that limited supply of quality bonds is a factor due to which Nepalese debt market is not growing smoothly.

Common stock is highly popular among the Nepalese investors in comparison to other types of securities. It is a problem of debt securities market and the concept of general public needs to be changed gradually.

Debentures issued by the banking sector are most liked by Nepalese investors in comparison to other sector's debentures. It shows brighter prospect for debenture market, especially for those issued by commercial banks.

Most of the respondents have opined that investors are influenced for purchasing debt securities, as it is a liquid asset. It shows that most of the investors want to invest on liquid assets. It seems that investor's attraction towards debt securities has increased. This indicates good prospect of Nepalese debt market.

Most of the respondents stated that, corporate issue debentures for additional supply of capital. This shows the importance of debenture in capital formation and also shows good prospect of bonds market.

Most of the respondents agree that Nepalese debt market is dominated by the credit-oriented transaction. They also seem to prefer government securities because of risk of non-payment of interest and principal associated with the corporate sector.

Most of the respondents agreed that lots of problems are associated with issuance and liquidation of debt security instruments. They also seem to perceive that

issuing stock is easier than debenture because investors are not interested towards and have less knowledge about bonds.

CHAPTER – V

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary

Capital market is extremely necessary for economic development of a country and lack of proper development of capital market cannot pump necessary fund to industrialization process. Debentures market is doing significant contribution in capital market development. The researcher has paid his all attention and efforts to prioritize the bonds as one of the strong part of capital formation and its prospects in Nepal. Development of capital market is essential to develop the overall economy. It is also essential to develop the bonds and debenture market to develop capital market.

The research analyzed various issues related to the debt securities. From the ownership pattern of government securities and T- Bills it is clearly shows that the major portion of government securities is held by NRB, commercial banks and financial institutions. The portion of individual on it is not at satisfactory level. The trend of issuing government securities is increasing. The size of deficit budget of government has always been huge and to fulfill this deficit, government issues various kinds of securities. It seems that it will also increase in coming year. On the other hand, the trend of issuing corporate bonds is also increasing. It is shown by issuance of Himalayan bond 2066, Investment bond 2060, Bank of Kathmandu bond 2069, NIC Bond 2070, Nepal SBI Bank Debenture-2070, NIB Bond 2070, NEA Bond 2069, KBL bond 2070, HBL Bond 2072, NIB Bond 2072 and Nabil Bond 2075. Considering the increasing public concern towards banking sector's debenture, it can be expected to increase in future even more. While analyzing the interest rate structure, the interest rate on deposit of commercial banks for various

schemes has been observed to be decreasing. But the coupon rate on debt securities has not so decreased. This shows a good sign for the investors and could propel general investors towards debt securities.

This research study is also based on the field survey. It takes total 100 samples of respondents of various categories using random and judgmental sampling observes their opinion about various issues of the Nepalese bonds market. The questionnaire contains 10 different questions related to bonds. Questionnaires were distributed to the members of bonds market society such as brokers; issue managers, NEPSE and SEBON officers, listed companies and individual investors. Personal interviews were also conducted to support the data. The data obtained from questionnaires were analyzed using percentage method, ratio and Chi Square. Like this way, other important statistical analysis such as curvilinear analyses was also made. From this research study, the researcher found good prospect of the bonds market of Nepal. Most of the Nepalese investors want to invest in liquid assets and so it can be expected that its market will grow in future. If there is any issuance of debenture, Nepalese investors seem to accept it, which encourage companies and government to issue debenture.

The trend of issuance of government securities has rapidly increased in the recent years. So does the forecasted amount of the debt market of Nepal. Likewise, the trend of issuance of corporate debt securities is also positive. It also shows growth prospect of Nepalese debt market.

From the opinion of these respondents, it can be summarized that investors are gradually interested in bonds and number of debenture issuance is also increasing. On the other hand, trading government securities in the stock exchange is a good sign and shows good prospect for Nepalese bonds market.

5.2. Conclusions

Nepalese bond market is still at under developed stage. Government bond market seems to be at maturity stage as compared to the corporate debt securities market. Many factors have shown that it has started to take speed. From this research study, the researcher came into conclusion that there are a number of advantages of debt securities issue. These advantages are;

a) Advantages from the view point's of issuers like less costly, flexibility in financial structure, having no interference in management and control, facility of trading on the equity i.e. the interest paid on debt can be deducted as tax expenditure.

b) From the viewpoints of investor advantages like liquid investment, security of investment, having fixed maturity period, priority of income. Number of debentures and the issuers are increasing and government has also started to trade its bonds through stock exchange. This shows importance of bonds in capital market and highlights good prospect of growth of bonds market.

It has been identified that some prospects exist in the market. Factors indicating the prospects are;

a) Investor's attraction towards liquid assets like bonds and debentures,

b) Respondent's desire to invest on debenture of any potential issuance,

c) Declining interest rate on deposit of commercial banks,

d) Increasing volume of government securities and corporate debenture.

The "Public Debt Act, 2002" has delegated authority to NRB for necessary arrangement of primary and secondary transactions of government securities. In this context, SEBON has been assisting NRB in drafting the necessary regulation

for implementing program for trading government securities in the stock exchange. Besides, SEBON has also started to draft a "Government securities trading by laws" based on the draft regulation proposed by NRB. These factors indicate good growth prospect of Nepalese bond and debenture Market.

5.3. Recommendations

The researcher desires to give some recommendations drawn through this study. The recommendations are as under;.

- From the field survey, the researcher found that investors are attracted towards bonds and debentures. Additionally, government needs huge amount of money for development propose. So, the government needs to utilize internal source of funds by issuing debt securities. It is also better to provide authority to the local bodies to issue securities. It should provide tax rebates on debenture interest income to individual and institutional investors to promote debenture and bond market.

- Most of the related parties to the bonds market of Nepal opined that the existing rules and regulations are insufficient for the growth of bonds market. So, researcher would like to recommend the government to better the provision of trading securities on stock exchange as soon as possible in order to fulfill this gap.

- The secondary market for bonds and debentures has not developed well as compared to the same for common stock. It is recommended to have better plans and policies in place to develop the market and control it.

- From the analysis of ownership pattern of government securities, it has been observed that most of the government securities holders are institutional investors. Ownership of individual investors is very small.

Government should encourage individuals to invest on government securities to grow the debt market of Nepal.

- From the analysis of interest rate on deposit of commercial bank; it is observed that rates have been decreasing every year. However, interest rate on bonds and debentures has always been higher than this. Investor's fund is better in government bonds as it helps to raise the national economy upwards. So researcher would like to recommend depositors to invest their funds on government bonds.

- Most of the respondents of questionnaire agree that the major factor due to which Nepalese bonds market cannot grow smoothly is lack of public awareness towards debt securities. So, the researcher would like to recommend the investors to change existing perception and attitude towards debenture and bonds. Investors should extend their investment by properly analyzing risk and return on debentures and bonds. Investors should call investors protection act and should enforce debentures and bonds issuing companies to enlist debentures and bonds in NEPSE or any other securities exchange companies. They should also make investment decision analyzing profitability of company, return, risk and liquidity of security. Moreover, they should identify strong companies and their debentures issue should be accepted positively.

- Researcher would like to recommend the brokers and securities dealers to do more efforts to make a smooth transaction of debt securities in the secondary market and to create positive concept in the investors regarding debenture and bonds.

- It is observed from the survey and researcher wants to recommend Security Board of Nepal (SEBON) to co-ordinate with NEPSE. SEBON should

organize conference to discuss about importance and prospects of debentures and bonds market. Research and development activities should be conducted to improve bonds and debentures market. Procedures of reviewing debentures prospect and issue approval should be quick. SEBON should add additional provisions that help to protect investor's interest. SEBON should timely disclose price sensitivity information.

- Company Registrar Office should be transparent and open with modern technology. Bureaucratic procedures must be quick and prospectus should be approved by reviewing all economic and technical aspect of organization.

- Bond Markets are more complicated than Equity Market. Therefore, some efforts need to be taken to distinguish it from Equity Market.

- Legislation and Control mechanism should be made more effective and adequate to provide safety of investment to the investors and hence promote the Nepalese Bond Market.

- The Government should enlist all government bonds on NEPSE and allow all non-banking financial institutions to participate in the secondary market transactions.

- Security and Credit Rating Agencies Should be established.

- Finally, the researcher would like to recommend all the concerned persons, agencies and parties to undertake more and strong efforts for adequate and profitable development of the Nepalese Bond Market.

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ANNEX - 1

Questionnaires

Dear Respondents,

I have been writing thesis on **PROBLEM AND PROSPECTS OF BOND MARKET IN NEPAL** in partial fulfillment of the requirements of Master of Business Studies (MBS). I need your unbiased response on questions asked to you. I have sent you some questions regarding bond market expecting your timely response. Your cooperation has great value for me.

Thanking you,

Researcher

Instructions: Please tick (√) in an appropriate choice and put your view in open-end questions.

1. Do you think existing legal provisions regarding debt securities market is;
   (a) Sufficient ( )
   (b) Insufficient ( )
2. Are there problems in primary and secondary market of bonds?
   (a) Yes ( )
   (b) No ( )
3. In which sector's bond would you prefer to invest?
   (a) Banks ( )
   (b) Manufacturing ( )
   (c) Hotel ( )
   (d) Other ( )
4. Which is most dominant prospect of debenture issue?
   (a) Additional capital supply ( )
   (b) Tax advantage ( )

5. Which security do you prefer the most?
   (a) Bond ( )
   (b) Common stock ( )
   (c) Preference share ( )
   (c) Mutual fund ( )
6. Why do you prefer bank loan over bond?
   (a) Bank loan is easily available ( )
   (b) Issuing bond is difficult process ( )
   (c) Cost of bank loan is less than issuing bond ( )
   (d) Other ( )
7. Is stock issue easier than bond issue?
   (a) Yes ( )
   (b) No ( )
8. What is the reason that influences you to purchase bond?
   (a) Liquid assets ( )
   (b) Lack of investment opportunity ( )
   (c) Declining interest rate of deposit ( )
   (d) Other ( )
9. Which factor limits the growth of Nepalese bonds market?
   (a) Lack of investor's awareness ( )
   (b) Limited supply of quality bonds ( )
   (c) Lack of capital gain opportunity ( )
10. Which type of bond do you prefer?
   a) Government Bonds ( )
   b) Corporate Bonds ( )

ANNEX 2

Tabulation of Responses to Field Survey Based on Questionnaire

S.N		Listed Companies	Broker & Market Maker	Individual Investors	Other Expert	Total
1	a	8	2	10	6	**26**
	b	27	13	20	14	**74**
		35	**15**	**30**	**20**	**100**
2	a	33	12	28	19	**92**
	b	2	3	2	1	**8**
		35	**15**	**30**	**20**	**100**
3	a	21	9	15	14	**59**
	b	3	3	4	2	**12**
	c	5	2	6	2	**15**
	d	6	1	5	2	**14**
		35	**15**	**30**	**20**	**100**
4	a	28	8	16	7	**59**
	b	7	7	14	13	**41**
		35	**15**	**30**	**20**	**100**
5	a	10	5	8	6	**29**
	b	20	7	16	8	**51**
	c	3	2	4	1	**10**
	d	2	1	2	5	**10**
		35	**15**	**30**	**20**	**100**
6	a	13	5	10	7	**35**
	b	7	6	8	5	**26**
	c.	12	3	10	5	**30**
	d.	3	1	2	3	**9**
		35	**15**	**30**	**20**	**100**
7	a	25	8	22	7	**62**
	b	10	7	8	13	**38**
		35	**15**	**30**	**20**	**100**
8	a	12	8	11	10	**41**
	b	8	4	9	5	**26**
	c	**10**	**1**	**8**	**3**	**22**
	d	**5**	**2**	**2**	**2**	**11**
		35	**15**	**30**	**20**	**100**
9	a	14	7	10	8	**39**
	b	11	5	11	8	**35**
	c	10	3	9	4	**26**
		35	**15**	**30**	**20**	**100**
10	a	15	8	21	12	**56**
	b	20	7	9	8	**44**
		35	**15**	**30**	**20**	**100**

Source: *Field Survey*

Annex - 3
Table 8

Amount Rs. In Million

Growth Trend of Government Debt Securities Fitted in Curvilinear Model

Year	X	Y = Amount of govt. Securities	xy	x^2	x^3	x^4	x^2y
1987	1	8,997	8,997	1	1	1	8,997
1988	2	11,363	22,726	4	8	16	45,452
1989	3	12,888	38,664	9	27	81	115,992
1990	4	14,673	58,692	16	64	256	234,768
1991	5	20,856	104,280	25	125	625	521,400
1992	6	23,235	139,410	36	216	1,296	836,460
1993	7	25,456	178,192	49	343	2,401	1,247,344
1994	8	30,631	245,048	64	512	4,096	1,960,384
1995	9	32,058	288,522	81	729	6,561	2,596,698
1996	10	32,242	322,420	100	1,000	10,000	3,224,200
1997	11	35,891	394,801	121	1,331	14,641	4,342,811
1998	12	38,407	460,884	144	1,728	20,736	5,530,608
1999	13	49,670	645,710	169	2,197	28,561	8,394,230
2000	14	54,357	760,998	196	2,744	38,416	10,653,972
2001	15	60,044	900,660	225	3,375	50,625	13,509,900
2002	16	73,621	1,177,936	256	4,096	65,536	18,846,976
2003	17	81,148	1,379,516	289	4,913	83,521	23,451,772
2004	18	86,134	1,550,412	324	5,832	104,976	27,907,416
2005	19	87,564	1,663,716	361	6,859	130,321	31,610,604
2006	20	89,955	1,799,100	400	8,000	160,000	35,982,000
2007	21	99,304	2,085,384	441	9,261	194,481	43,793,064
2008	22	111,239	2,447,258	484	10,648	234,256	53,839,676
2009	23	120,874	2,780,102	529	12,167	279,841	63,942,346
2010	24	142,860	3,428,640	576	13,824	331,776	82,287,360
2011	25	179,328	4,483,200	625	15,625	390,625	112,080,000
2012	26	209,120	5,437,120	676	17,576	456,976	141,365,120
Sum	351	1,731,915	32,802,388.00	6,201	123,201	2,610,621	688,329,550
Total	**Σx=351**	**Σy=1,731,915**	**Σxy=32,802,388**	**Σx^2 =6,201**	**Σx^3 =123,201**	**Σx^4 =2,610,621**	**Σx^2y= 688,329,550**

N = 26

The equation of curvilinear model is as below:

$y = a + bx + cx^2$.....1

$\Sigma y = Na + b\Sigma x + c\Sigma x^2$ 2

$\Sigma xy = a\Sigma x + b\Sigma x^2 + c\Sigma x^3$ 3

$\Sigma x^2y = a\Sigma x^2 + b\Sigma x^3 + c\Sigma x^4$.....4

Where,

$\Sigma y = 1{,}731{,}915$

$\Sigma x = 351$

$\Sigma x^2 = 6{,}201$

$\Sigma xy = 32{,}802{,}389$

$\Sigma x^3 = 123{,}201$

$\Sigma x^2y = 688{,}329{,}550$

$\Sigma x^4 = 2{,}610{,}621$

Substituting the value in equation 2, 3 and 4 equations,

1,731,915= 26a + 351b +6,201c ……..…….. 5

32,802,389= 351a+ 6,201b +123,201c ……..6

688,329,550= 6,201a +123,201b + 2,610,621c…… 7

Solving equation 5 and 6, multiplying equation 5 by 351 and equation by 26,

9126a+123201b+2176551c = 607902165

9126a+161226b+3203226c = 852862088

-38025b-1026675 c = -244959923

Taking (-) as common,

38025b+1026675 c = 244959923…….……8

Solving equation 6 and 7, multiplying equation 6 by 6201 and equation 7 by 26,

161226a +2176551b +38452401c = 10739604915

161226a +3203226b + 67876146c = 17896568300

-1026675b - 29423745c = -7156963385

Taking (-) as common,

1026675b + 29423745c = 7156963385……9

Solving equation 8 and 9, multiplying equation 8 by 205335 and equation 9 by 38025,

7807863375b+210812311125c =50298845789205

7807863375b+223767580725c = 54428706542925

-12955269600c = -4129860753720

c = -4129860753720/-12955269600

c = 318.7785

Now, substituting the value of C in equation (9),

1026675b + 29423745c = 7156963385 ….....9

1026675b+2942374*318.7785=7156963385

b= -2164.9426

Now putting the value of b, and c in equation (5),

1,731,915= 26a + 351b +6,201c ……..... 5

26a+ 351* -2164.9426 + 3775* 318.7785 = 1,731,915

a = 20055.3942

Therefore the value of **a = 20055.3942**

b = -2164.9426

c = 318.7785

Now, substituting the value of a, b, and c in the equation (1), the curvilinear model will be,

y = **20055.3942**+ **-2164.9426**x+**318.7785x**^{2}

Forecast of total bonds

The above equation is used to forecast the amount of government bonds and T-Bills for the year, 2013, 2014, 2015, 2016 and 2017.

For,

Year 2013, x = 27
Year 2014, x = 28
Year 2015, x = 29
Year 2016, x = 30
Year 2017, x = 31

The forecasted amount of government securities issue for 2013:

y = **20055.3942**+ **-2164.9426**x**+318.7785x^2**

= **20055.3942**+ **-2164.9426***27**+318.7785*729**

= Rs. 193,991.4342 (In Millions)

The forecasted amount of government securities issue for 2014:

$\tilde{y}$ = 209,359.3063 (In Millions)

The forecasted amount of government securities issue for 2015:

$\tilde{y}$ = 225364.7354 (In Millions)

The forecasted amount of government securities issue for 2016:

$\tilde{y}$ = 242,007.7213 (In Millions)

The forecasted amount of government securities issue for 2017:

$\tilde{y}$ = 259,288.2641 (In Millions)

ANNEX -4

Test of hypothesis

Hypothesis – 1

The test is carried out to draw the factors due to which Nepalese bond market is not growing smoothly. Response from 100 random samples of respondents is tabulated as under;

Table -15

Survey results on factors dominating growth of Nepalese bonds market;

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Lack of investor's awareness	14	7	10	8	39
Limited supply of quality bonds	11	5	11	8	35
Lack of capital gain opportunity	10	3	9	4	26
Total	35	15	30	20	100

Source: Field Survey conducted by researcher

Hypothesis Testing:

Null Hypothesis (Ho): There is no significant relationship between observed and expected opinion regarding drawbacks of bond market of Nepal.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding drawbacks of bond market of Nepal.

Test statistic: under Ho, the test statistic is $\chi 2 = \Sigma \frac{(O - E)^2}{E}$

Calculation of expected frequencies

Expected frequency of R1C1 = $\frac{\text{Row Total} \times \text{column total}}{\text{Grand Total}}$

R1C1	13.65	**R2C3**	10.5
R1C2	5.85	**R2C4**	7
R1C3	11.7	**R3C1**	9.1
R1C4	7.8	**R3C2**	3.9
R2C1	12.25	**R3C3**	7.8
R2C2	5.25	**R3C4**	5.2

Calculation of $\chi 2$

Observed frequency (O)	Expected frequency (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
14	13.65	0.35	0.1225	0.008974
7	5.85	1.15	1.3225	0.226068
10	11.7	-1.7	2.89	0.247009
8	7.8	0.2	0.04	0.005128
11	12.25	-1.25	1.5625	0.127551
5	5.25	-0.25	0.0625	0.011905
11	10.5	0.5	0.25	0.02381
8	7	1	1	0.142857
10 ⌐	9.1 ⌐	0	0	0
3 ⌙ 13	3.9 ⌙ 13			
9 ⌐ 13	7.8 ⌐ 13	0	0	0
4 ⌙	5.2 ⌙			**0.793302**

Hence, $\chi 2$ tabulated at 5% level of significant for (R – 1) (C – 1) – 2

i.e. (3 – 1)(4 – 1) – 2

i.e. 4 d.f is 9.49

Interpretation: As per table no. 15, it can be clearly seen that the calculated value of $\chi 2$ at 5% level of significance for 5 d.f. is 0.793302 and tabulated value of $\chi 2$ is 9.49. Since tabulated value of $\chi 2$ at 5% level of significance for 4 d.f. is greater than the calculated value (i.e. 9.49> .793302) , the null hypothesis is accepted i.e. there is no significant relationship between observed and expected opinion regarding the drawbacks of bond market of Nepal.

Hypothesis – 2

The test is carried out to draw the choice of securities by Nepalese investors. Response from 100 random samples of respondents is tabulated as under;

Table- 16

Survey result on choice of securities

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Debenture	10	5	8	6	29
Common Stock	20	7	16	8	51
Preference	3	2	4	1	10
Mutual fund	2	1	2	5	10
Total	35	15	30	20	100

Source: Field Survey conducted by researcher

Hypothesis Testing:

Null Hypothesis (Ho): There is no significant relationship between observed and expected opinion regarding the choice of securities by Nepalese investors.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the choice of securities by Nepalese investor.

Test statistic: under Ho, the test statistic is $\chi 2 = \Sigma \frac{(O - E)^2}{E}$

Calculation of expected frequencies

Expected frequency of R1C1 = $\frac{\text{Row Total} \times \text{column total}}{\text{Grand Total}}$

R1C1	10.15	**R3C1**	3.5
R1C2	4.35	**R3C2**	1.5
R1C3	8.7	**R3C3**	3
R1C4	5.8	**R3C4**	2
R2C1	17.85	**R4C1**	3.5
R2C2	7.65	**R4C2**	1.5
R2C3	15.3	**R4C3**	3
R2C4	10.2	**R4C4**	2

Calculation of $\chi 2$

Observer Frequency (O)	Expected Frequency (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
10	10.15	-0.15	0.0225	0.002217
5	4.35	0.65	0.4225	0.097126
8	8.7	-0.7	0.49	0.056322
6	5.8	0.2	0.04	0.006897
20	17.85	2.15	4.6225	0.258964
7	7.65	-0.65	0.4225	0.055229
16	15.3	0.7	0.49	0.032026
8	10.2	-2.7	7.29	0.714706
3 2 4 1 2 1 2 5 — 20	3.5 1.5 3 2 3.5 1.5 3 2 — 20	0	0	0
				0.98329

Hence, $\chi 2$ tabulated at 5% level of significant for (R – 1) (C – 1) – 7

i.e. (4 – 1)(4 – 1) – 7

i.e. 2 d.f. is 5.99

Interpretation: As per Table 16, it can be clearly seen that the calculated value of $\chi 2$ at 5% level of significance for 2 d.f. is 0.98329 and tabulated value of $\chi 2$ is 5.99**:** Since tabulated value of $\chi 2$ at 5% level of significance for 2 d.f. is greater than the calculated value (i.e. 5.99>0.98329) , the null hypothesis is accepted i.e. there is no significant relationship between observed and expected opinion regarding the choice of securities by Nepalese investors .

Hypothesis – 3

The test is done to draw the choice of various sector's bonds. Response from 100 random samples of respondents is tabulated as under;

Table – 17

Survey results on choice of various sectors' bonds

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Banking	21	9	15	14	59
Manufacturing	3	3	4	2	12
Hotel Sector	5	2	6	2	15
Others	6	1	5	2	14
Total	35	15	30	20	100

Source: Field Survey conducted by researcher

Hypothesis Testing:

Null Hypothesis (Ho): There is no significant relationship between observed and expected opinion regarding the choice of various sector's bond.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the choice of various sector's bond.

Test statistic: under Ho, the test statistic is $\chi 2 = \Sigma \frac{(O - E)^2}{E}$

Calculation of expected frequencies

Expected frequency of R1C1 = $\frac{\text{Row Total} \times \text{column total}}{\text{Grand Total}}$

R1C1	20.65	**R2C4**	2.4
R1C2	8.85	**R3C1**	5.25
R1C3	17.7	**R3C2**	2.25
R1C4	11.8	**R3C3**	4.5
R2C1	4.2	**R3C4**	3
R2C2	1.8	**R4C1**	4.9
R2C3	3.6	**R4C2**	2.1

Calculation of $\chi 2$

Observed frequency (O)	Expected frequency (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
21	20.65	0.35	0.1225	0.005932
9	8.85	0.15	0.0225	0.002542
15	17.7	-2.7	7.29	0.411864
14 (26)	11.8 (23.8)	2.2	4.84	0.203361
3	4.2			
3	1.8			
4	3.6			
2	2.4			
5 (29)	5.25 (29)	0	0	0
2	2.25			
6	4.5			
2	3			
6	4.9			
1	2.1			
5	4.2			
2	2.8			
				0.6237

Hence, $\chi 2$tabulated at 5% level of significant for (R – 1) (C – 1) – 8

i.e. (4 – 1)(4 – 1) – 8

i.e. 1 d.f. is 3.84

Interpretation: As per Table 17, it can be clearly seen that the calculated value of $\chi 2$ at 5% level of significance for 1 d.f. is 0.6237 and tabulated value of $\chi 2$ is 3.84. Since tabulated value of $\chi 2$ at 5% level of significance for 1 d.f. is greater than the calculated

value (i.e. 3.84> 0.6237) , the null hypothesis is accepted. Therefore we can conclude that there is no significant relationship between observed and expected opinion regarding the choice of various sector's bond.

Hypothesis – 4

The test is done to draw the factors influencing investors to purchase debt securities. Response from 100 random samples of respondents is tabulated as under;

Table - 18

Survey results on factors influencing investors to purchase debt securities

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Liquid Assets	12	8	11	10	41
Lack of investment opportunity	8	4	9	5	26
Declining interest rate of deposit	10	1	8	3	22
Other	5	2	2	2	11
Total	35	15	30	20	100

Source: Field Survey conducted by researcher

Hypothesis Testing:

Null Hypothesis (Ho) : There is no significant relationship between observed and expected opinion regarding the reasons for the influencing the investors to purchasing debt securities.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the reasons for the influencing the investors to purchasing debt securities.

Test statistic: under Ho, the test statistic is $\chi 2 = \Sigma \frac{(O - E)^2}{E}$

Calculation of expected frequencies

Expected frequency of R1C1 = $\frac{\text{Row Total} \times \text{column total}}{\text{Grand Total}}$

R1C1	14.35	**R3C1**	7.7
R1C2	6.15	**R3C2**	3.3
R1C3	12.3	**R3C3**	6.6
R1C4	8.2	**R3C4**	4.4
R2C1	9.1	**R4C1**	3.85
R2C2	3.9	**R4C2**	1.65
R2C3	7.8	**R4C3**	3.3
R2C4	5.2	**R4C4**	2.2

Calculation of $\chi 2$

Observed frequency (O)	Expected frequency (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
12	14.35	-2.35	5.5225	0.384843
8	6.15	1.85	3.4225	0.556504
11	12.3	-1.3	1.69	0.137398
10	8.2	1.8	3.24	0.395122
8 ┐ 12	9.1 ┐ 13	-1	1	0.076923
4 ┘	3.9 ┘			
9	7.8	1.2	1.44	0.184615
5	5.2	-0.2	0.04	0.007692
10 ┐ 11	7.7 ┐ 11	0	0	0
1 ┘	3.3 ┘			
8 ┐ 11	6.6 ┐ 11	0	0	0
3 ┘	4.4 ┘			
5 ┐ 11	3.85 ┐ 11	0	0	0
2 |	1.65 |			
2 |	3.3 |			
2 ┘	2.2 ┘			
				1.743098

Hence, $\chi 2$tabulated at 5% level of significant for (R – 1) (C – 1) – 6

i.e. (4 – 1)(4 – 1) – 6

i.e. 3 d.f. is 3.841

Interpretation: As per Table 18, it can be clearly seen that the calculated value of $\chi 2$ at 5% level of significance for 3 d.f. is 1.743098 and tabulated value of $\chi 2$ is 3.841. Since tabulated value of $\chi 2$ at 5% level of significance for 3 d.f. is greater than the calculated value (i.e. 3.841>1.743098) , the null hypothesis is accepted. Therefore we can conclude that there is no significant relationship between observed and expected opinion regarding the reasons influenced to investors for purchasing debt.

Hypothesis – 5

The test is carried out to draw the importance of bonds in investment. Response from 100 random samples of respondents is tabulated as under;

Table – 19

Survey results on reasons for purchase of bond in investment

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Additional capital supply	28	8	16	7	59
Tax advantage	7	7	14	13	41
Total	35	15	30	20	100

Source: Field Survey conducted by researcher

Hypothesis Testing:

Null Hypothesis (Ho): There is no significant relationship between observed and expected opinion regarding the importance of bond in investment.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the importance of bond in investment.

Test statistic: under Ho, the test statistic is $\chi 2 = \Sigma \frac{(O - E)^2}{E}$

Calculation of expected frequencies

Expected frequency of R1C1 = $\frac{\text{Row Total} \times \text{column total}}{\text{Grand Total}}$

R1C1	20.65	**R2C1**	14.35
R1C2	8.85	**R2C2**	6.15
R1C3	17.7	**R2C3**	12.3
R1C4	11.8	**R2C4**	8.2

Calculation of $\chi 2$

Observed frequency (O)	Expected frequency (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
28	20.65	7.35	54.0225	2.616102
8	8.85	-0.85	0.7225	0.081638
16	17.7	-1.7	2.89	0.163277
7	11.8	-4.8	23.04	1.952542
7	14.35	-7.35	54.0225	3.764634
7	6.15	0.85	0.7225	0.11748
14	12.3	1.7	2.89	0.234959
13	8.2	4.8	23.04	2.809756
				11.74039

Hence, $\chi 2$ tabulated at 5% level of significant for (R – 1) (C – 1) – 1

i.e. (2 – 1)(4 – 1) – 1

i.e. 2 d.f. is 5.99

Interpretation: As per Table 19, it can be clearly seen that the calculated value of $\chi 2$ at 5% level of significance for 2 d.f. is 11.74039 and tabulated value of $\chi 2$ is 5.99 Since tabulated value of $\chi 2$ at 5% level of significance for 2 d.f. is less than the calculated value (i.e. 5.99 < 11.74039), the alternative hypothesis is accepted. Therefore we can conclude that there is significant relationship between observed and expected opinion regarding the importance of bond in investment

Hypothesis – 6

The test is done to draw the reason behind preference of bank loan over issuance of debenture or bonds. Response from 100 random samples of respondents is tabulated as under;

Table – 20

Survey results on reasons behind preference of bank loan over issuing debenture and bonds

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Bank loan is easily available	13	5	10	7	35
Issuing debenture is difficult process	7	6	8	5	26
Cost of bank loan is less than issuance debenture	12	3	10	5	30
Other	3	1	2	3	9
Total	35	15	30	20	100

Source: Field Survey conducted by researcher

Hypothesis Testing:

Null Hypothesis (Ho) : There is no significant relationship between observed and expected opinion regarding to the use of bank loan or issuing of debenture.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding to the use of bank loan or issuing of debenture.

Test statistic: under Ho, the test statistic is $\chi 2 = \Sigma \frac{(O - E)^2}{E}$

Calculation of expected frequencies

Expected frequency of R1C1 = $\frac{\text{Row Total} \times \text{column total}}{\text{Grand Total}}$

R1C1	12.25	**R3C1**	10.5
R1C2	5.25	**R3C2**	4.5
R1C3	10.5	**R3C3**	9
R1C4	7	**R3C4**	6
R2C1	9.1	**R4C1**	3.15
R2C2	3.9	**R4C2**	1.35
R2C3	7.8	**R4C3**	2.7
R2C4	5.2	**R4C4**	1.8

Calculation of $\chi 2$

Observed frequency (O)	Expected frequency (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
13	12.25	0.75	0.5625	0.045918
5	5.25	-0.25	0.0625	0.011905
10	10.5	-0.5	0.25	0.02381
7	7	0	0	0
7	9.1	-2.1	4.41	0.484615
6	3.9	2.1	4.41	1.130769
8	7.8	0.2	0.04	0.005128
5	5.2	-0.2	0.04	0.007692
12 ┐ 15	10.5 ┐ 15		0	0
3 ┘	4.5 ┘			
10	9	1	1	0.111111
5 ┐ 14	6 ┐ 15	-1	1	0.066667
3	3.15			
1	1.35			
2	2.7			
3	1.8			
				1.887616

Hence, $\chi 2$ tabulated at 5% level of significant for (4 – 1) (4 – 1) – 5

i.e. (4 – 1)(4 – 1) – 5

i.e. 4 d.f. is 9.49

Interpretation: As per Table 20, it can be clearly seen that the calculated value of $\chi 2$ at 5% level of significance for 4 d.f. is 1.887616 and tabulated value of $\chi 2$ is 9.49. Since tabulated value of $\chi 2$ at 5% level of significance for 4 d.f. is greater than the calculated value (i.e. 9.49> 1.887616) , the null hypothesis is accepted. Therefore we can conclude that. there is no significant relationship between observed and expected opinion regarding to the use of bank loan or issuing of debenture.

Hypothesis – 7

The test is done to draw the preference of the Nepalese investor between Government bonds and corporate bonds. Response from 100 random samples of respondents is tabulated as under;

Table- 21

Survey Results on preference between Government bonds and corporate bonds

	Listed Companies	Broker Market Makers	Individual Investors	Other Experts	Total
Government bonds	15	8	21	12	56
Corporate bonds	20	7	9	8	44
Total	35	15	30	20	100

Source: Field Survey conducted by researcher

Hypothesis Testing:

Null Hypothesis (Ho) : There is no significant relationship between observed and expected opinion regarding the choice between government bonds and corporate bonds.

Alternative Hypothesis (H_1): There is significant relationship between observed and expected opinion regarding the choice between government bonds and corporate bonds.

Test statistic: under Ho, the test statistic is $\chi 2 = \Sigma \frac{(O - E)^2}{E}$

Calculation of expected frequencies

Expected frequency of R1C1 = $\frac{\text{Row Total} \times \text{column total}}{\text{Grand Total}}$

R1C1	19.6	**R2C1**	15.4
R1C2	8.4	**R2C2**	6.6
R1C3	16.8	**R2C3**	13.2
R1C4	11.2	**R2C4**	8.8

Calculation of $\chi 2$

Observed frequency (O)	Expected frequency (E)	(O-E)	$(O-E)^2$	$(O-E)^2/E$
15	19.6	-4.6	21.16	1.079592
8	8.4	-0.4	0.16	0.019048
21	16.8	4.2	17.64	1.05
12	11.2	0.8	0.64	0.057143
20	15.4	4.6	21.16	1.374026
7	6.6	0.4	0.16	0.024242
9	13.2	-4.2	17.64	1.336364
8	8.8	-0.8	0.64	0.072727
				5.013142

Hence, $\chi 2$ tabulated at 5% level of significant for (R – 1) (C – 1) – 1

i.e. (2 – 1)(4 – 1) – 1

i.e. 5 d.f. is 11.070

Interpretation: As per Table 21, it can be clearly seen that the calculated value of $\chi 2$ at 5% level of significance for 5 d.f. is 5.013412 and tabulated value of $\chi 2$ is 11.070. Since tabulated value of $\chi 2$ at 5% level of significance for 5 d.f. is greater than the calculated value (i.e. 11.070> 5.013142) , the null hypothesis is accepted. Therefore we can conclude that there is no significant relationship between observed and expected opinion regarding the choice between government bonds and corporate bonds

ANNEX-5

Calculation of value of Bond

S.N.	Issuance Company	Coupon Rate	Maturity Period (n)	Market Int. Rate (Kd)
1	Shree Ram Sugar Mills Limited (SRSM)	14%	4 Years	10.69%
2	Himalayan Bank Limited (HBL)	8.50%	7 Years	5.50%
3	Nepal Investment Bank Limited (NIBL)	6%	7 Years	5.06%
4	Everest Bank Limited (EBL)	6%	7 Years	4.89%
5	Bank Of Kathmandu Limited (BOK)	6%	7 Years	4.89%

Source: Unpublished record of SEBON

Interest on all bonds was payable semi annually.

Value of bond (Vo) = I(PVIFA k_d%, n) + M (PVIF k_d%, n)

For SRSM,

Vo = I/2 (PVIFA k_d%/2, n*2) + M (PVIF k_d%/2, n*2)

= 140/2 (PVIFA 10.69%/2, 4*2) + 1000 (PVIF 10.69%/2, 4*2)

= 70 (PVIFA 5.345%, 8) + 1000 (PVIF 5.345%, 8)

= 70* 6.3740 + 1000* 0.6593

= Rs. 1105.49

For HBL,

Vo = I/2 (PVIFA k_d%/2, n*2) + M (PVIF k_d%/2, n*2)

= 85/2 (PVIFA 5.5%/2, 7*2) + 1000 (PVIF 5.5%/2, 7*2)

= 42.5 (PVIFA 5.345%, 14) + 1000 (PVIF 5.345%, 14)

= 42.5* 11.49 + 1000*0.6840

= Rs. 1172.33

For NIBL,

Vo = I/2 (PVIFA k_d%/2, n*2) + M (PVIF k_d%/2, n*2)

= 75/2 (PVIFA 5.06%/2, 7*2) + 1000 (PVIF 5.06%/2, 7*2)

= 37.5 (PVIFA 2.53%, 14) + 1000 (PVIF 2.53%, 14)

= 37.5* 11.67 + 1000* 0.7048

= Rs. 1142.43

For EBL,

Vo = I/2 (PVIFA k_d%/2, n*2) + M (PVIF k_d%/2, n*2)

= 60/2 (PVIFA 4.89%/2, 7*2) + 1000 (PVIF 4.89%/2, 7*2)

= 30 (PVIFA 2.445%, 14) + 1000 (PVIF 2.445%, 14)

= 30* 11.74 + 1000* 0.7121

= Rs. 1064.29

For BOK,

Vo = I/2 (PVIFA k_d%/2, n*2) + M (PVIF k_d%/2, n*2)

= 60/2 (PVIFA 4.89%/2, 7*2) + 1000 (PVIF 4.89%/2, 7*2)

= 30 (PVIFA 2.445%, 14) + 1000 (PVIF 2.445%, 14)

= 30* 11.74 + 1000* 0.7121

= Rs. 1064.29

ANNEX-6

Calculation of Duration

S.N.	Issuance Company	Coupon Rate (C)	Maturity Period (T)	Market Int. Rate (Y)
1	Shree Ram Sugar Mills Limited (SRSM)	14%	4 Years	10.69%
2	Himalayan Bank Limited (HBL)	8.50%	7 Years	5.50%
3	Nepal Investment Bank Limited (NIBL)	6%	7 Years	5.06%
4	Everest Bank Limited (EBL)	6%	7 Years	4.89%
5	Bank Of Kathmandu Limited (BOK)	6%	7 Years	4.89%

Source: Unpublished record of SEBON

Duration (MD) = $\frac{1+Y}{Y} - \frac{(1+Y) + T(C-Y)}{C[(1+Y)^T-1] +Y}$

For SRSM,

$$MD = \frac{1+Y}{Y} - \frac{(1+Y) + T(C-Y)}{C[(1+Y)^T-1] +Y}$$

$$= \frac{1+0.1069}{0.1069} - \frac{(1+0.1069) + 4\,(0.14-0.1069)}{0.14\,[(1+0.1069)^4-1] +0.1069}$$

= 6.4463 Semiannual periods

For HBL,

$$MD = \frac{1+Y}{Y} - \frac{(1+Y) + T(C-Y)}{C[(1+Y)^T-1] +Y}$$

$$= \frac{1+0.055}{0.055} - \frac{(1+0.055) + 7(0.085-0.055)}{0.085\,[(1+0.055)^7-1] +0.055}$$

= 5.67 Semiannual periods

For NIBL,

$$MD = \frac{1+Y}{Y} - \frac{(1+Y) + T(C-Y)}{C[(1+Y)^T-1] +Y}$$

$$= \frac{1+0.0506}{0.506} - \frac{(1+0.0506) + 7(0.075-0.0506)}{0.075\,[(1+0.0506)^7-1] +0.0506}$$

= 5.7947 Semiannual periods

For EBL,

$$\mathbf{MD = \frac{1+Y}{Y} - \frac{(1+Y) + T(C-Y)}{C[(1+Y)^{T}-1] + Y}}$$

$$= \frac{1+0.0489}{0.0489} - \frac{(1+0.0489) + 7(0.06-0.0489)}{0.06\,[(1+0.0489)^{7}-1] + 0.0489}$$

= 5.9533 Semiannual periods

For BOK,

$$\mathbf{MD = \frac{1+Y}{Y} - \frac{(1+Y) + T(C-Y)}{C[(1+Y)^{T}-1] + Y}}$$

$$= \frac{1+0.0489}{0.0489} - \frac{(1+0.0489) + 7(0.06-0.0489)}{0.06\,[(1+0.0489)^{7}-1] + 0.0489}$$

= 5.9533 Semiannual periods