

# CHAPTER-I

## INTRODUCTION

### **1.1 Background of the Study:**

Capital markets are the markets meant for long-term securities issued by the government or corporation. Capital market typically involves financial assets (stocks, debentures) that have life span of greater than one year. Capital market helps the economy of the country to rise up. But, Nepal's capital market is very lean in providing investment alternatives to the investors. Among possible various investment alternatives like common stocks, government bonds, corporate debentures, preference shares, rights, options, warrant and convertibles etc., only very few alternatives are available for Nepalese investors.

Equity financing is inevitable sources, which may not be profitable if fully depending on it. Thus, debt financing is another economical source of long-term financing. Funds required for expanding business as well as conducting long-term project might be financed cheaply and easily by issuing corporate debenture securities.

Debt securities are the important types of financial instruments of the capital market of the nation. They are the securities which provide fixed income to their holders involves lower risk than the securities that yield variable income. If the company is going to be liquidated, firstly debt holders are paid. Debt holders get fixed interest before the stock holders get dividends. Generally, risk averter investor want to invest in debenture. Debt securities are of many types such as-secured or unsecured, perpetual or redeemable, convertible or non-convertible.

Nepalese capital market as well as debt market has not reached its maturity stage. There is not proper exercise of debt-securities till now and its history is also very short. For the growth and development of Nepalese debt market, development of government debt securities market as well as corporate debenture or debenture securities markets is necessary.

Corporate debenture is a debenture issued by a private firm business enterprise whether owned by private investors or by a government. Corporate debentures have high default risk. Unsecured debentures of a corporation are known as debentures. Investors look to the earning power of the corporation and then security. Debenture holders are protected by the restriction imposed in the indenture.

Debenture issue is more suitable for profit oriented institutions for taking leverage effects benefit. Debenture is a tool of maximizing share holder's rate of return. Debt financing as well as equity financing is used in supply of long-term capital. Debt is economical sources of long-term financing.

The corporate debenture market in Nepal is very lean. Very few companies have issued debenture in the market. The first instance of issuing debenture in the Nepalese history was by Bottlers Nepal Ltd., when it issued 18% coupon rate debenture worth Rs. 5 million in FY 1986/87. During the nine-year period between 1993/94 to 2001/02 debenture issue occupied the third largest share portion in the total issue amount approved by SEBO (5.99%). Only two companies have issued debenture though the time gap between the issues of corporate debenture is as high as five years. Among them, Joti Spinning Mills Ltd. issued 14% coupon rate debenture worth Rs. 20 million in FY 1992/93 and Shree Ram Sugar Mills Ltd. issued 14% convertible debenture worth Rs. 93 million (with par value Rs. 1,000). However, since last year, some positive signals can be observed in the Nepalese capital market. Though the govt. debentures are not available in the stock exchange floor, corporate debentures are being made available.

Thereafter, the issuance of the 8.7% Himalayan Bank Ltd. 2009 Debenture and its listing in the secondary market with separate trading system became a milestone in this regard. But, before the listing of HBL's debenture, SSML's convertible debenture was also listed in the exchange without following separate trading system. Very few of these debentures were traded. However, SSML debenture was de-listed (and redeemed) in FY 2001/02. Out of 360,000 units of debentures issued by HBL, 100,000 units were issued to the general public and the rest were privately placed which were heavily oversubscribed. Nearly one and half year after HBL debenture, Nepal Investment Bank Ltd. (NIBL<sub>1</sub>) has issued Rs. 300 million Nepal Investment Bank Debenture 2010 (with 7.5% coupon interest with semi-annual payment) in the FY 2003/04. Out of 300,000 units of issue,

100,000 units are issued to the general public and the rest are privately placed (Bhattarai, 2005:193-194).

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

Again Nepal Investment Bank Ltd. (NIBL<sub>2</sub>) has issued “Nepal Investment Bank Debenture-2070” (with 6% coupon interest rate paid semi-annually) in the FY 2005/06. Out of 250,000 units of issue, 80,000 units are issued to the general public and 170,000 units are 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).

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

For the development of corporate debenture/debenture market in Nepal, the main contributors are as follows: Security Board of Nepal (SEBON), Commercial Banks, Nepal Ratra Bank (NRB), Finance Companies, Private Organizations, Government, Nepal Stock Exchange Ltd. (NEPSE), Brokers, Investors and concerned bodies etc.

For the growth of corporate debenture market of any country requires: systematic development in industrial sector, development in share market, positive attitude of general as well as institutional investors, adequate rules and regulation system,

availability of secondary market of debentures, cooperative response of control mechanism, and adequate infrastructure facilities etc.

Development and expansion of corporate debenture securities market is essential for the rapid economic growth of country like Nepal. But, the accelerating pace of growth and development of Nepalese corporate debenture securities market has faced many problems. Thus, these problems should be better recognized and competitive strength of Nepalese corporate debenture market should be developed to cope with the existing problems and forecasted problems. Just nine private business institutions have issued debenture till the study is performed.

## **1.2 Focus of the Study**

This study is focus on Nepalese corporate debentures market generated from private companies such as Shree Ram Sugar Mills Ltd, Joti Spinning Mills Ltd, Bottlers Nepal, Himalayan Bank Ltd, Nepal investment Bank Ltd etc.

The researcher focuses on these variables:

- ) Debenture issued by private organization.
- ) Legal rules and regulation of debentures issue and trading
- ) Primary and secondary market of debenture
- ) Information disclosure by private organization

## **1.3 Statement of Problems**

It is found that the countries with developed debenture market are developed countries. As such countries spent heavy investment in research and development activities, many research works regarding to the debt market are conducted. In developing countries, debt market is still in developing stage. In Nepalese context, there are very few research works about the debt securities and almost absent of research works on corporate debenture market. It has been found that there is little concern about debenture market of Nepal among the researcher, concerned experts, investors as well as the corporate bodies and corporation. Nowadays, it has been seen that investors are interested to invest on corporate debenture securities too.

Debentures are assumed less risky security of investment with fixed return. They are less risky security in the sense that there are very few chances of losing principal and interest even in liquidation of company. They are means of maximizing value of firm. Shortages of the fund for the process of industrial expansion and growth can be received from debenture issue. Instead of having so many opportunities Nepalese debenture market is not being able to grow smoothly.

Debenture securities are firstly issued by the capital raising companies through primary capital market and later on these securities are negotiable in secondary capital market. Capital market provides investors good investment opportunity with fair return and instant liquidity with minimum risk of loss.

On the one hand corporate bodies are suffering by financial crisis, on the other investors with surplus money cannot find the appropriate investing scheme. They are unable to bring product innovation, introducing new technologies, and employing management and technological expert due to lack of funds. Only some management organization can utilize this fund by issuing debenture, but there is not proper exercise of debenture in Nepalese capital market.

Though debentures are less risky than the common stock, investors are interested to invest in ordinary shares. This may be due to the unawareness of investors about debenture securities market. Investors take investment decision on haphazardly basis. Very little investors are rational investors, but large volumes of investor are not rational. On the one hand IT system is not developed and on the other information disclosure by the company is not proper. This hinders the growth and development of securities market as well as debenture market too. Due to the poor information disclosure, investors are not interested to invest on debenture securities. In spite of higher return from debenture, investors are interested to deposit their surplus money on commercial banks with decreasing return.

In the past debenture securities issued were under subscribed, but thereafter they are oversubscribing. This shows the growing trend of debenture market. Debenture markets have some prospect of growth even if the whole economic growth is in downturn due to political instability. There is very high risk to invest in shares, but low risk to invest in debentures. Many companies are going to be liquidated due to political instability in the

country. And in such situation the debenture holder are very safe than share holder. But investment in share is higher than in debenture. As we know, investment strategies also depend on the investment environment. But in Nepal, such investment strategies are not practiced yet.

In this way, it is seen that public concern towards debenture market is growing but there are various problem found by organization and people concerned with it. This hinders the growth of debenture market. Inadequate legal provisions, limited supply of quality debentures, poor knowledge about securities etc. might be the obstacles in the development of debenture market. Thus, the researcher felt need of research on topic issues and prospects of developing corporate debenture markets in Nepal. The researcher gives his attention in identification of issues/problems restricting Nepalese corporate debenture market and its future growth prospect.

As the research has to be made on some specific problems, they are highlighted hereunder as follows:

- (a) What is the current position of corporate debenture market in Nepalese securities market?
- (b) What are the main issues/problems of existing corporate debenture market in Nepal?
- (c) Why the companies are not issuing debentures instead of taking loan in Nepal?
- (d) Why the smooth development of corporate debenture market is not achieved in Nepal?
- (e) What are the prospects of developing corporate debenture market in Nepal?
- (f) What are the key factors responsible for the hindrance of corporate debenture market growth in Nepal?
- (g) Why the investors are not interested to invest in debenture securities?

## **1.4 Objectives of the Study**

As the Nepal became member of W.T.O many challenges and opportunities will be seen ahead. So to face that challenges and grab the opportunities brought by W.T.O., development of debenture market in Nepal will play vital role. For achieving optimum capital structure also debenture issuance will necessary. Optimal capital structure of organization will be the strength which will help to cope with challenges. The main research objective will identify issues and prospects of debenture market in Nepal, which contributes in the development of corporate debenture market.

- a) To evaluate existing mechanism of corporate debenture market in Nepal;
- b) To identify the issues that hinder development of corporate debenture market in Nepal;
- c) To examine valuation and duration of Nepalese corporate debenture securities;
- d) To access the future prospects of corporate debenture market;
- (e) To suggest and recommend on the basis of major findings;

## **1.5 Significance of the Study**

This study is concerned with the issues and prospects of developing corporate debenture markets in Nepal. This study tries to explain the theoretical concept and also identify the major problems faced by corporate debenture market and analyze its future prospects. This study is helpful for the policy reforms of corporate debenture market of Nepal. This study also helps to make clear, better and appropriate legal rules and regulations related with corporate debenture market.

The output of this study is very helpful to develop just creeping forward Nepalese debenture market. All the concerned parties related with debenture market of Nepal are benefited. It is hoped that this study highlights present problems and future prospects of debenture market in Nepal. Since only few researches have conducted on the related topic and no research is done mainly to focus on corporate debenture market, this is new in this field. Thus government, investors, private organizations, security board, concerned government bodies, M.B.S students and concerned parties related with private debenture market for this study are benefited from this study.

## **1.6 Limitation of the Study**

Each and every research works has more or less limitations. To make this study precise, meaningful and valuable some limitations are made so that objective of this study is achieved within limited time, resource and information.

So the researcher has experience following limitations in this research:

- (a) The study is based on primary and secondary data.
- (b) The study mainly covers period from FY 2001/02 to 2007/08.
- (c) The study focuses only on corporate debenture/debenture market of Nepal.
- (d) The study is concerned only on existing securities acts, legal rules and regulations relating to the topic.
- (e) The study is mainly focused in debenture issuing companies, investors, some private companies, related parties within the Katmandu valley.

## **1.7 Organization of the study**

The study has been organized in to six chapters each devoted to some aspects of the study of the debt security market in Nepal. The chapters one to six consist of introduction, review of literature, research methodology, presentation and analysis of the secondary data, presentation and analysis of primary data, and summary and conclusions. To follow the simple research methodology, it is rational behind this kind of organization of the study as:

### **Chapter 1: Introduction**

It deals with introduction of the main topic of the study like general background, statement of the problems, objective of the study and organization of the study and other introductory framework.

### **Chapter 2: Review of literature**

It includes with the review of available relevant studies. It will includes the conceptual review of the related books, journals, articles and the published and unpublished research works as well as thesis. It will also include security act.

### **Chapter 3: Research methodology**

It describes research methodology employed in this study i.e. research carried out in this size and shape. For the purpose various financial and statistical tools and techniques are defined which is used for the analysis of the presented data.

### **Chapter 4: Presentation and Analysis of data**

This chapter is the major part of the whole study in which all collected relevant data are analyzed and interpreted by the help of different financial & statistical tools. In this chapter we will explain the major findings of the study.

### **Chapter 5: Summary, Conclusion and Recommendation**

It contains the summary of the study, conclusion recommendation and suggestion on the basis of the study

## **CHAPTER-II**

### **REVIEW OF LITERATURE**

#### **2.1 Background**

Review of literature is an essential part of all studies. It is not only a way to discover what other research in the area of our problem has uncovered, but also helps to avoid investigating problems that have already been definitely answered. It is an integral and mandatory process in research works. It is necessary to show how the problem under investigation relates to previous research within theoretical framework and in such situation the underlying theory needs to be reviewed well.

The research has also reviewed related literatures. Firstly, it has reviewed literature for conceptual framework which help to develop concept about bond market (focusing on corporate debenture market), and terms related with it. Then important finance journals, previous master degree level thesis, articles and newspapers related to the research topics were reviewed on the second part. It helps the researcher not only to find out the research gap but also helps to precede this study in a systematic manner.

#### **2.2 Conceptual Framework**

##### **2.2.1 Debt Securities Market**

The market is the number of people –buyers and sellers who have some need or want, have resources and are also willing to participate in the transaction (Koirala, 2056:5). Securities are marketable financial instruments that bestow on their owners the right to make specific claims on particular assets. An individual security provides evidence of either creditor ship or ownership–depending on whether it is a bond or a stock, respectively (Francis, 1988:10). Thus, security markets are mechanisms created to facilitate the exchange of financial assets. The securities market comprise both money and capital market. Capital markets consist of the markets in which the intermediate and long term securities of individuals, business firms and governmental units are issued and traded each others (Schall and Haley, 1991: 21). Where as long term debt securities are

traded in capital market, capital market exists in order to bring together buyers and sellers of securities, i.e. they are mechanisms created to facilitate the exchange of financial assets (Sharpe et al; 1995: 7).

On the basis of securities traded, security markets can be divided into primary and secondary markets. Markets in which new securities are issued by government bodies and corporation are known as primary markets. The success of the issue depends upon the public response. After the securities have been issued, they are traded among investors in the secondary markets (Bhattarai, 2005:2).The secondary market is the only way to turn securities into cash. Debt securities market may be short term, intermediate term and long term. It provides a variety of securities for investment purpose, which in turn is issue by any organization and government. Debt securities market is an essential part of capital market, where trading of debt securities are held. Debt securities market is important in channeling funds from unproductive people to productive one. Entrepreneur, who have ideas but do not have funds to establish, manage and operate the business, can collect the required funds by mobilizing the scattered public saving.

According to the Cheney & mosses, Similar to the equity securities, both primary and secondary markets exist for the debt securities (bonds). Despite certain similarities, however bond trading differs from stock trading in several ways, bonds, like stocks are initially traded in the primary market, which entirely comprise new issues. This is the market where the underwriter or investment banker sells the bonds to initial investor financial institutions or individuals.

Debt securities market in any country can be divided into two forms, corporate and government market.

### **Government Debt Securities Market**

Variety of purpose, government of any country has collect the financial sources by issuing selling the debt securities to public. Government securities market has great impact in the national economy by mobilization of capital (Bole, 1982: 234). Government issues securities to finance their activities. Revenues collected by the government seldom cover expenses, and the differences have been financed primarily by issuing debt instruments. New instrument are issued to repay the old debt. (Bhattarai 2005:191).

Development government bond market provides a number of important benefits if the prerequisites to a sound development are in a place. Government securities market provides an avenue for domestic funding of budget deficits other than that provided by the central bank and, there by, can reduce the need for direct and potentially damaging monetary financing of government deficits and avoid a build-up of foreign currency-denominated debt (TWB, 2000). Government securities related to collect required amount to fulfill the budgetary deficit of the country, which leads to develop corporate debt securities market.

Government securities are issues to meet the financial requirement and to fulfill the deficit budget. The fund raise by the government from public is known as internal debt. Internal debt is issued to control inflation, to create infrastructure, to increase productivity and to generate wealth for critical situation. 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). Government securities are issued in various maturities short-terms (Treasury bills), intermediate-term (Treasury notes), long-term (Treasury bonds) and also issues saving bonds to individual investors (<http://www.investinginbonds.com>).

### **Corporate Debt Securities Market**

Corporate debt securities are the means by which private firms borrow money directly from the public. These bonds are similar in structure to Treasury issues—they typically pay semiannual coupons over their lives and return the face value to the bondholder at maturity. They differ most importantly from Treasury bonds in degree of risk. Default risk is a real consideration in the purchase of corporate bonds (Bodie et.al, 2002:40-41). The corporation has a choice between equity and debt sources, in meeting its needs for long term finance. The market that deals of the debt securities issued by the corporation is known as the corporate debt securities market. (Kafle, Dipendra Raj, 2003:8).

A corporate debenture is a security representing a long-term promise to pay a certain sum of money at a certain time over the course of the loan with the fixed rate of interest payable to the holder of the bond (Hampton, 2001:27). Firms can obtain long term debt financing privately or through public offerings. Privately debt includes several types of debt that consists of direct loans from banks and institutions while public offering debt includes issuance of bonds and debentures (Esterwood and Kadapkmal, 1991: 50).

“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 repay it in the future under clearly defined terms. Most debentures 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 semiannual installments.”(J, Fred Gittman Larence.2000). Most corporate bonds are traded in the over-the-counter (OTC) market, so it has little transparency. One reason the bond markets are so big is that the number of bond issues far exceeds the number of stock issues. There are two reasons for this. First, a corporation would typically have only one common stock issue outstanding.

According to Van Horne, “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 provisions of the debt contract, then these holders may be able to exert some influence on the discretion of the company. Holders of the long-term debt do not participate in the residual earnings of the company; instead, their return is fixed. In liquidation, the claim of debt holders is before that of preferred and common stockholders. Depending on the nature of the debt instrument, however, there may be differences in the priority of claim among the various creditors of a company.”

To be successful private debt markets need most notably a disclosure system, a credit-rating system, and bankruptcy laws, authorities should avoid possible crowding out and statutory restrictions that impede private sector bond market development.

## **Money Market and Capital Market**

### **Money Market**

A money market is a market for instruments and a means of lending (or investing) and borrowing funds for relatively short periods, typically regarded as from one day to one year. It is a market for short-term securities issued on a negotiable basis. The short-term securities are actively traded in a secondary market. The prices and yields of these securities are closely related to those of the newly issued instruments. Due to short-term

maturity characteristics, money market securities fluctuate very little in price when interest rates change. These securities sell before maturity at very close to their purchase price. Large volume of daily transaction takes place in the money market. The various money market instruments such as government treasury bills, negotiated certificate of deposit, banker's acceptance, commercial papers, short term bank loans, Euro dollars etc. are traded in the money market.

### **Capital Market**

It is a market for long term securities issued under various terms and conditions. In this market, trading is conducted on the long term marketable government securities, corporate bonds, and common stock, municipal bonds, and mortgage bonds. Government securities pay low interest rate and they are not so much profitable as capital market investment vehicle. Other market instruments provide substantially a higher rate of return. Even then, government securities are used in capital market as they ensure considerable liquidity and safety for financial institutions. Thus, banks and financial institutions are the principle buyers of these securities. Corporate bond is another important tool used in capital market. Non-bank financial institutions such as insurance companies, pension funds, and individuals are the buyers of corporate bond because of its tax deduction feature on interest paid. However, at present, tax deduction is not provided. Municipal bonds issued by the state and local government also provided additional outlet for capital market. These are tax exempt bonds attractive to the lender like banks, insurance companies and individual under high income tax brackets. Mortgages are in fact the largest element in capital market in term of amount outstanding.

### **Primary Debt Market**

The market that offers the security to the public first time is known as primary market. It is initial public offering market. In primary market issuers inform and request public to buy debt securities. Specifically, in primary market sales of new securities and cash raised from it goes to the issuer. But, trading in other market does not contribute any thing to the issuing company.

### **Secondary Debt Market and (OTC) Markets**

The market on which trading of once issued securities are performed is known as secondary market. The secondary markets comprise the organized securities exchanges

and the over the counter (OTC) markets. The majority of all capital market transactions occur in the secondary markets. The proceeds from sales of securities in the secondary markets do not go to the original issuer but to the owners (sellers) of the securities.

The function of secondary markets is to provide liquidity for securities purchased in the primary markets. Once investors have purchased securities in the primary markets, they need a place to sell those securities. Without the liquidity of the secondary market, firms would have difficulty raising funds for productive purposes in the primary markets. The secondary market is the organized center for securities exchange. By the trading performed at secondary market the issuer never gets cash. Over the counter (OTC) market is one of the important segments of the secondary market. The over the counter market is a way of trading securities that involves no organized exchanges. The broker dealers who engage in the OTC are linked by a net work of telephones and computers terminals through which they deal directly with one another and with customers. Thus, a process that takes place over communication lines that span thousands of miles and allows investors to select between competing markets makers arrives at prices (Jack Clark, 2000: 75). This type of practice is not prevalent in Nepal. Initially these markets are also important to promote the debt market of Nepal.

### **Third market**

This is the combination of the over the counter market and organized stock exchange. The market refers to the trading of any securities that are listed on organized stock exchange in over the counter market. It is notable that trading hours in the third market is not fixed like organized stock exchange. The third market is made up of securities dealers making markets in anywhere one two a few hundred securities. Thus, third markets are market makers who are in directing competitive with the specialist that make markets on the organized exchange.

### **Forth market**

The forth market refers to those institutional investors and wealthy investors who buy and sell securities directly from each other. Thus, forth market participants completely bypass normal dealer services. Forth market essentially a communication network among institutional investors that trade large blocks individual or a few persons who

communicate the buy and sell desires of their market organizer may collect a small commission or a flat annual fee for helping to arrange these large transactions.

### **International Bond Market**

Any bond sold outside the country of the borrower is called an international bond, but it is necessary to distinguish further between two types of international bonds i.e., Euro bonds and Foreign bonds. The term international bonds is often used to describe several types of bonds with a variety of characteristics relating to issuer or buyer domicile, the location of the primary trading market, or currency denomination (Fischer and Jordan, 2000:288).

### **Foreign Bonds**

Foreign bond is such bond where denominated currency is other than that of the country in which it is issued. Moreover, the foreign bond market refers to bonds issued and denominated in the currency of a country other than the one in which the issuer is primarily located. For example, if Nepalese corporation issues bond with face value in US dollar, then such bond will be foreign bond (Bhattarai, 2005: 194).

Borrowers sometimes raise long-term debt capital in the domestic capital market of a foreign country is known as foreign bonds. In issuing foreign bonds, the issuer must abide by the rules and regulations imposed by the government of the country in which the bonds are issue. One of the main advantages of purchasing foreign bonds is the opportunity to diversify internationally the default risk of a bond portfolio while not having to be concerned about foreign exchange fluctuations (Sharpe et.al, 2003:484).

### **Euro Bonds**

Eurobond is such bond which is offered outside the country of the borrower and outside the country in whose currency the securities are denominated. For example, bond issued by Indian corporation that is denominated in US dollars and sold in Nepal is refunded as a Eurobond (Bhattarai, 2005: 194). As the Eurobond market is neither regulated nor taxed, it offers substantial advantage for many issuers and buyers of bonds (Sharpe et.al, 2003:484).

## **2.2.2 Characteristics of Debt Securities**

A bond is a long-term contract under which a borrower agrees to make payments of interest and principal, on specific dates to the holders of the bond. Debt securities do not have the same contractual features (Brigham and Houston, 2001). Although all bonds have some common features which are as follows:

### **Par value**

The par value is the stated face value of the bond; it usually is set at \$1000. The par value generally represents the amount of money the firm borrows and promises to repay at some future date. Firm borrows and promises to repay on the maturity date.

### **Coupon interest rate**

Coupon is the specified number of dollars of interest paid each period, generally each six months. This payment, which is fixed at the time the bond is issued, remains in force during the life of the bond. Weather the company earns profit or suffers from losses. The company must pay the pre-determined interest amount.

### **Maturity date**

Generally debt securities are issued for a specific period of time. So it has a fixed maturity date. The maturity of debt indicates the length of time until the company redeems (returns) the par value to debt holders and terminates the debts.

### **Call provisions**

Most corporate bonds contain a call provision, which gives the issuing corporation the right to call the bonds for redemption. Callable bonds can exceed their call prices when investors face proportional costs of refunding called debt (Longstaff and Tuckman, 1994: 21). The call provision generally states that the company most pays the bondholders an amount greater than the par value if they are called. The additional sum is termed as a call premium.

### **Convertibility**

Debt also has the features of convertibility into equity shares, at the option of debt holders.

## **Registration**

Bonds can be either registered or bearer bonds for interest and/or principal payments. The issuer maintains records on the ownership of registered bonds, but the holder is assumed to be the owner of bearer bonds. The transfer of securities will be possible only after registering the name of the new holders and canceling the name of the original holders.

## **Trustee**

Trustee is an agent of a bond issuer who handles the administrative aspect of loan and ensures that the borrower complies with the terms of the bond indenture. The bond trustee is responsible for the collection and investment of loan and the registration, transfer and payment of bond. Trustee has three main responsibilities:

- J They certify the issue of bond. This involves making certain that all the legal requirements for drawing up the bond contract and indenture have been carried out.
- J They police the behavior of the corporation in its performance of the responsibilities set forth in the indenture provisions.
- J They are responsible for taking appropriate action on behalf of the bondholders if the corporation defaults on payments of interest or principle.

## **Indenture**

The legal agreement between the corporation issuing the bonds and the trustee, who represents the bondholders, is defined in the indenture. The indenture contains the terms of the bond issue as well as the restriction placed on the company (Van Horne, 2002). The bond indentures can be a document of several hundred pages, that discusses a large number of factors important to the contracting parties, such as;

- J The form of the bond and the instrument
- J A complete description of the property pledged
- J The authorized amount of the bond issue
- J Detailed prospective clauses, or covenants
- J A minimum current ratio requirements
- J Provisions for the redemption or call privileges

### **Sinking fund Bonds**

A provision is a bond contract that requires the issuer to retire a portion of the bond issue each year. A sinking fund is money taken from corporation earnings that is used to redeem bonds periodically, before maturity a specified in the indenture (<http://www.investinginbonds.com>) company, it can be used the required number of bonds on the open market.

### **Collateral**

The type of collateral is important for bonds that have probability of default. The investors must be cautions about the assets that are pledged as collateral in the event of default of regular payment of interest and principal. Variation in collateral lead to several types of bonds (Cheney and Moses, 10<sup>th</sup>:332).

### **2.2.3 Merits and Demerits of debt**

From the issuer's view point, there are some merits and demerits of debt financing.

#### **Merits:**

**(a) Flexibility**

Debt provides flexibility in the financial structure of the corporation. The company can issue debt or repay whenever required to make financial structure flexible.

**(b) Tax deductible**

The interest payment on debt is deductible as a tax expenses.

**(c) Less costly**

The specific cost of debt capital is less expensive than that of the equity & preferred stock.

**(d) Facility of trading on equity**

The debt enables the firm to trade in equity.

**(e) No interference in management & control**

Creditors have no interference in business operations. The owner may extend the scope of their operation by using funds furnished by creditors and still maintain their position of control.

**(f) Remedy for over capitalization**

In case of over capitalization the company can redeem the debt to balance its capital structure.

**Demerits:**

**(a) Burden to the company**

Long term debt is a commitment for a long period, so the company has to pay interest to debt holders at fixed rate whether it earns profit or not.

**(b) Unreliable source**

Only well established companies can take the advantage of debt financing. Small companies and new companies have difficulty in raising the fund from their sources.

**(c) Repayment of the debt**

Debt usually has a fixed maturity date, and the financial officer must take provision for the repayment of the debt

**(d) Increase the financial liabilities**

Since most of the debt issue requires some security as mortgages, the firm's liability will increase.

From the investor view point, there are some advantages and disadvantages while investing in debt securities.

### **Advantages:**

**(a) Fixed rate of return**

There is a fixed rate of return on debt. It does not consider whether company's condition is good or bad.

**(b) Priority of earning**

Control right in assets at the time of liquidation is another important feature of debt to investors.

**(c) Maturity**

Generally, debt securities have a fixed maturity period.

**(d) Less risk**

There is less risk in debentures than preferred stocks and common stocks

**(e) Liquidity**

Debt securities can easily sell in the market.

### **Disadvantages:**

**(a) Right to vote**

Debt holders do not carry the right to vote.

**(b) Interest is taxable**

The Interest on debentures is fully taxable.

**(c) No right in the share in company's prosperity**

Debt holders do not get the share in the company's prosperity when the company earns profits. Holders get the fixed rate of interest on their investment.

## **2.2.4 Debt Market Instrument**

Documents used to raise the loan for short-term as well as long term are called debt market instrument. Long term debt instrument, consider the various kinds (Van Horne: 2002). Some of them are:

### **Bond**

A bond is a long term contract under which an issuer promises to make payment of interest and principal on specific dates to the holder of the bond. It is also called secured debenture.

### **Income Bond**

Income bonds pay interest only when the firm has sufficient income to cover the interest payments. Thus these securities can not bankrupt a company, but from an investor's viewpoint they are riskier than regular bonds. According to J. Fred Weston and Thomas E. Copland "Income bonds, historically, have been issued because a firm has been in financial difficulties and its history suggests that it may be unable to meet in the future payment of income bond interest obligation 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".

### **Debenture**

A debenture is an unsecured bond. No lien has been provided on specific property. Therefore, debenture holders are termed as general creditor of the company. Whose claim is protected by property not otherwise pledged. The use of debenture depends on the nature of the firm's assets and its general credit strength. A firm whose credit position is exceptionally strong can issue debentures; it simply does not need specific security. But if the credit position of a company may be so weak that it has no alternative to use of debentures all its property may already be encumbered.

### **Subordinated Debentures**

Subordinated debentures represent debt that ranks behind debt senior to these debentures with respect to claim on assets. In the event of liquidation or reorganization, holders of

subordinated debentures cannot be paid until all senior debt, as named in the debentures' indenture, has been paid (Weston and Brigham, 1996:811). The existence of subordinated debentures may work to the advantage of senior holders, because senior holders are able to assume the claims of subordinated debenture holders. Because of the nature of the claim, a straight subordinated debenture issue has to provide a yield higher than a regular debenture issue in order to be attractive to investors.

### **Secured Bonds**

Bonds that have specific assets pledged as collateral are secured bonds. Mortgage bond is an example.

### **Unsecured bonds**

Bonds without specific collateral are unsecured except for the general creditworthiness of the issuer. Debentures or subordinated debentures are example of this type of security.

### **Term Loan**

A term loan is a contract under which a borrower agrees to make a series of interest and principle payments on specific dates to the lender. Term loans usually are negotiated directly between the borrowing firm and a financial institution generally bank, an insurance company or a pension fund.

### **Floating rate notes**

Floating rate note is an important means of raising fund at the time of fluctuating interest rate. Therefore, it is used to decrease the risk associated in the change in the market interest rate. The interest rate is adjusted periodically with the change in the market interest rate.

### **Junk Bond**

A junk bond has a relatively high risk of default. Junk bonds are riskier than other types of bonds and thus pay a high interest rate.

## **2.2.5 Terms Related to Corporate Debenture Markets**

### **(a) Interest Rate**

Interest is the price paid to the lenders for the use of their money. It is calculated as a percentage of the amount borrowed. From a lender's viewpoint, interest is the excess money that is received over the amount that was loaned. But, borrowers are prepared to pay interest so they can make purchases that they could afford if they had to pay for them immediately (The World Book Encyclopedia, 1996:278). Interest is the cost of using money overtime. Interest expenses (or interest revenue) equal the interest rates times the carrying value of the liability (or receivable) at the beginning of the period. Interest rate features are stated in percentage terms of the par values of the related obligation. The contract value is directly related to interest rates .So contract will increase when interest rate decrease and vice-versa (Shim et al, 1989: 243).

The most common type of interest is simple, compound and discount interest. The interest rate depends on the relationship between supply and demand. If the demand for loans increases, interest rate rise and fall if the demand for loans decreases. Supply and demand, in turn, are affected by several factors, such as government policy, inflation, economic activities, the length of loan and the degree of risk (The World Book Encyclopedia, 1996:278-279).

Different theories of interest rates are developed. They are expectation theory, Liquidity preference theory & Market segmentation theory. The expectation theory maintains that long term yields are a function of the anticipated short term rates that will prevail during the term of the long term security (Chenny & Moses, 1992:379). In a free economy, interest rates will adjust until the total amount of capital demanded by producers equals the amount that owners of wealth are willing to supply.

### **(b) Inflation**

Inflation refers to a persistent rise on the general level of price over a certain period to the continuous growth of demand very much in excess supply of goods and services. Inflation reduces the purchasing power of consumer and as a persistent and appreciable raise in the general of prices (Shapiro, 1995: 409). A state in which value of money is falling i.e. prices are raising (Crowther, 1958: 197). The real interest rate has been

obtained by subtracting the inflation rate from the one-year nominal interest rate. And nominal interest rates are highly correlated with inflation (Kaen, 1995: 160). In times of changing prices, the nominal return on an investment may be a poor indicator of the real return (real rate) obtained by the investor. This is because part of the additional dollars received from the investment may be needed to recoup the investor's purchasing power due to the inflation that has occurred over the investment period. As a result, adjustments to the nominal return are needed to remove the effect of inflation in order to determine the real return (Bailey et al: 1995, 367); and inflation rate is denoted by  $q$ .

$$q_t = \frac{CPI_{(t+1)} - CPI_t}{CPI_t} * 100$$

Where,

- $q_t$  = Rate of inflation at time  $t$
- $CPI_t$  = Consumer price index at time  $t$  or at the beginning
- $CPI_{(t+1)}$  = Consumer price index at time  $(t+1)$  or at the end

And for annualized inflation rate is  $(1 + \text{per month } q)^{12}$

To provide the full compensate for the investors, borrower has to adjust the Inflation rates with nominal rates (Sharpe et al: 1999). Adjusted, then normal rate of return,  $r$  can be defined:

$$r = r + q$$

Where,

- $rr$  = Real rate of return
- $r$  = Nominal rate of return
- $q$  = Rate of inflation

Borrower, necessary to consider the inflation rate while determine the interest rate of debt securities.

**(c) Immunization**

The introducing concept of duration led to the development of the technique of bond portfolio management known as immunization (Sharpe et.al, 2002:429). Immunization is the strategy for protecting a bond portfolio against the risk of rising interest rates. Theoretically, this is possible because of the twin effects of rising rates. Immunization will provide a compound rate of return over the immunized period that equals the YTM, regardless of the fluctuations in market interest rates during this period.

Investors only need to immunize to lock in a desired rate of return when future market interest rates are expected to change. Investors' desires to immunize (or lock in) an interest rate increase as market interest rates approach what are perceived to be peak levels. Bond investors who expect market interest rates to fall in the future will want to buy bonds at peak interest rates for two reasons. First, bonds will enjoy capital gains if their market interest rates decline. Second, locking in a high YTM is most rewarding to investors at a time when market rates are high (Alexander et.al, 2003:388). Even when corporate bonds are included in the portfolio, immunization does not attempt to reduce any risk other than interest rate risk. Immunization is said to exist if the total value of a portfolio of bonds at the end of some specified planning horizon is equal to the value of the portfolio based on the YTM that existed when it was purchased.

What does immunization accomplish? According to the theory, if yields fall, then the loss from being able to reinvest the maturing one-year bonds (and first-year coupons on the three-year bonds) at a lower rate will be exactly offset by being able to sell the three-year bonds after two years at a premium. Thus the portfolio is immunized from the effect of any movements in interest rates in the future (Sharpe et.al, 2002:430).

Immunization is accomplished simply by calculating the duration of the promised outflows and then investing in a portfolio of bonds that has an identical duration. In doing so, this technique takes advantage of the observation that the duration of a portfolio of bonds is equal to the weighted average of the durations of the individual bonds in the portfolio (Sharpe et.al, 2002:429).

The main problems with immunization that can cause it to work less than perfectly are; default and call risk, multiple nonparallel shifts in a no horizontal yield curve, rebalancing, and many candidates.

Immunization strategies were introduced to eliminate the interest rate risk in a portfolio of bonds. The discussion revealed that duration was not only (i) an insightful measure of the time structure of a bond's cash flows and (ii) a measure of a bond's interest rate risk; it was also (iii) useful in the development of strategies for managing the interest rate risk in a portfolio of bonds.

### **2.2.6 Linkage between Private Sector and Government Bond Market**

A well functioning government bond market often is the forerunner of private sector bond market, and provides the institutional and operational infrastructure for the private sector market. The rate of government benchmark issues, the experience of the dealer community and the investor base for security purchase and trading all are valuable features of securities markets that could be drawn upon in his development of an effective private sector securities market. The government bond market observes as a means of educating authorities, financial and non-financial institutions and a wide portion of the populace about debt market operations. This will create a knowledge base about bonds that will be valuable when developing the private sectors bond markets.

#### **(a) Government as Benchmark Issuer**

The government is by the most likely issuer of debt securities that would serve as benchmarks. The benchmark yield curve is a basic benchmark for pricing other government or non government bond issues of comparable maturities across the yield curve on the primary market as well as the secondary market. The government benchmark is the important tool for price discovery in other fixed-income securities markets, including the private sector debt market. Without that benchmark, it is difficult to price fixed-income securities, including private sector debt securities, in a rational manner.

#### **(b) Dealer Community and Investor Base for Government and Private Sector Bonds**

An efficient government bond market encourages the development of highly skilled fixed income securities intermediaries. Two types of intermediaries where the government role is especially important are market makers and inter-dealer brokers. These intermediaries, in turn, can support the development of the private sector bond market. The government bond markets can provide the necessary experience to deal with private sector bond

market because it is more liquid than the private sector bond market and involves more issuance and trading both of which also provide a strong profit base. Dealers need these skills and profit to support private sector bond transactions which are more risky and less liquid than government bond transactions.

Government securities also provide dealers with mechanism to hedge their private sector securities market exposures. This could be done through repurchase agreements that are typically based on government securities; through government securities themselves that are lower risk and more liquid than private sector debt securities, or through interest rates derivatives that are often based on government securities.

### 2.2.7 Buying and selling rules of security

Buying security with view of generating capital profit is very important investing decision. In bear market, securities prices fall down. So that it should buy securities. Bull markets refer to that market where security prices maximum occurs. It should sell securities in the bull market.

There is also another alternative approach regarding buying and selling of securities, considering expected and required rate of return.

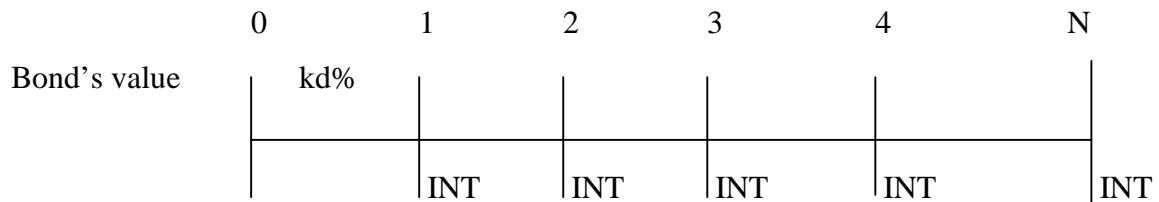
- ) When expected rate of return is greater than required rate of return, securities are under priced. Hence buying decision of securities is preferred.
- ) If expected rate of return is less than required rate of return, securities are over priced. Hence it should sell.
- ) When expected rate of return equal to required rate of return, there is appropriate pricing of securities, hence no trading of securities is preferred.

**Table 2.1: Buying and Selling Rules of Security**

S N	Condition	Pricing	Decision
1	Required rate of return > Expected rate of return	Overpriced	Sell
2	Required rate of return < Expected rate of return	Under priced	Buy
3	Required rate of return = Expected rate of return	Exactly priced	No trading

### 2.2.8. Valuation of Bond

The value of a bond is the sum of the present value of the periodical interest payments and the par value that is due to at the end of bond life. Weston and Brigham illustrators' value of bond as follows:



Where,

- $K_d$  = Appropriate interest rate on bond
- $N$  = No. of years after bond is matured
- $INT$  = Coupon interest rate
- $M$  = Face value, Maturity value or Par value

Similarly,

$$V_b = f(F, P_m, N, i, K_b)$$

Where,

- $V_b$  = Present value of bond
- $F$  = face value or par value
- $N$  = Maturity period
- $I$  = Coupon interest rate
- $K_b$  = Market rate of return on bond or opportunity rate.
- $P_m$  = Market price of bond

The bonds can be categorized in three forms.

#### (a) Redeemable coupon interest bond

Redeemable bond has finite maturity period and the firm will pay annual fixed amount of interest and after the maturity period. The principal will be repaid. The value of a bond is the present value of its interest payment plus the present value of its par value. When a bond

or debenture has a finite maturity, the valuation formula for such type can be express as follows.

$$\text{Present value (V}_b\text{)} = I (\text{PVIFA@k, n years}) + M (\text{PVIF@k, n}^{\text{th}} \text{ year})$$

Alternatively,

$$V_b = \frac{I_t}{(1+k)^t} + \frac{M}{(1+k)^n}$$

Where,

- V<sub>b</sub> = Present value of bond
- I = Coupon interest in rupees
- PVIFA = Present value of interest factor of an annuity
- K = Market interest rate, discount rate
- N = Maturity period
- M = Maturing value

**(b) Discount (Zero Coupon) Bond**

A zero coupon bond is a bond that has a certain maturity period but does not pay any coupon interest during its maturity after the issuance, but it is issued on discount (less than par value) and repaid a face value at its maturity. The difference between a face value and an initial selling price becomes the return to the investor. It is calculated as under.

$$\text{Present value (V}_b\text{)} = \frac{M}{(1+kd)^n}$$

Where,

- V<sub>b</sub> = Present value of bond
- M = Maturity value
- Kd = Market interest rate, discount rate
- N = Maturity period

**(c) Perpetual Bond**

A perpetual bond is the one which is never redeemed by the issuer, but the issuer pays interest for an indefinite period. The issuer is never required to pay the par value to the bondholders. For an infinite series, the value of bond may be expressed as follows:

$$V_b = \frac{I}{K}$$

Where,

- $V_b$  = Present value of bond
- $I$  = Coupon interest in rupees
- $K$  = Market interest rate, discount rate

**(d) Bond valuation with semi-annual compounding**

If bonds, pay interest semi-annually, it requires modifying bond valuation model. It should divide yield to maturity rate by 2 and maturity period (N) should multiply by 2 like this way, semi- annually interest should use.

We can calculate value of bond using following modified formula:

$$V_b = I_{/2} (\text{PVIFA@ } k_{/2}, 2n \text{ yrs}) + M (\text{PVIF@ } k_{/2}, 2n^{\text{th}} \text{ yr})$$

**2.2.9 Bond Returns Measures**

While computing bond valuation, it is assumed that the required rate of return is given and used this rate to compute value. To measure the bond return, the price or investment value of bond is given and uses this value to compute a rate of return. Various rates of return measure for the fixed income securities are as follows:

**Yield to Maturity (YTM)**

Investors may also like to know the rate of return they earn on their investment. The rate of return on bond is termed as yield to maturity (YTM) and is synonymous to the effective interest rate or the internal rate of return that is commonly used in capital budgeting. The YTM can be found if the price and the value of a bond are known. The YTM is the discount rate that equates the present value of all the bond's expected future cash flows with the current market price of the bond (Alexander et. al, 2003:368). Yield

and bond prices are inversely related. In computing the yield to maturity, several important assumptions are made (Cheney and Moses, 10<sup>th</sup>:354):

- (a) The bond will be held to maturity.
- (b) The bond will not be called or redeemed by the issuer before specified maturity date.
- (c) Coupon receipts will be reinvested at a rate of return equal to the yield to maturity.
- (d) All cash flows (interest and principal) will occur as indicated in the indenture (i.e., the issuer will not default on the contractual obligation).

Therefore, the yield to maturity of a bond represents the annual rate of return that will occur if certain conditions are satisfied. The YTM can be calculated by using following formula.

**(i) By trail and error or interpolation method:**

The market price of debt,

$$P_o = \sum_{t=1}^n \frac{\text{Interest}}{(1+YTM)^t} + \frac{\text{Maturity Value}}{(1+YTM)^n}$$

**(ii) By Approximation Formula Method:**

Approximate YTM can be calculated as:

$$\text{AYTM} = \frac{I + \left( \frac{M-V_o}{N} \right)}{\frac{M+2V_o}{3}} * 100$$

Where,

- AYTM = Approximate yield to maturity
- M = Maturity (face) value of bond
- V<sub>o</sub> = Current selling price of bond
- N = Number of years of bond life
- I = Interest payment per year

## Yield to Call

At the time of bond issue, the issuer may have put a covenant in its indenture that the bond can be called at any time before maturity. This means that the bond may be redeemed any time before the maturity date. This is known as the call of bond such bonds are called callable bond. The YTC can be calculated by using following formula.

$$YTC = \frac{I + \left( \frac{\text{Call price} - V_0}{N} \right)}{\frac{\text{Call price} + 2V_0}{3}} * 100$$

Where,

$$YTC = \text{Yield to call}$$

## Holding Period Return

A holding period or single period return is simply the total return an investor would earn during the period of holding securities (Bhattacharya, 2005:87). Investors are often concerned about bond returns over a particular holding period. The period return equals income earned over a period (including capital gain or losses) as a percentage of the bond price at the start of the period. The holding period return can be calculated for any holding period. (Bodie et.al, 1999: 422).

For bonds with coupons, the HPR can be calculated as (Cheney and Moses, 10<sup>th</sup>:357),

$$HPR_t = \frac{P_{t+1} - P_t + I_{t+1}}{P_t}$$

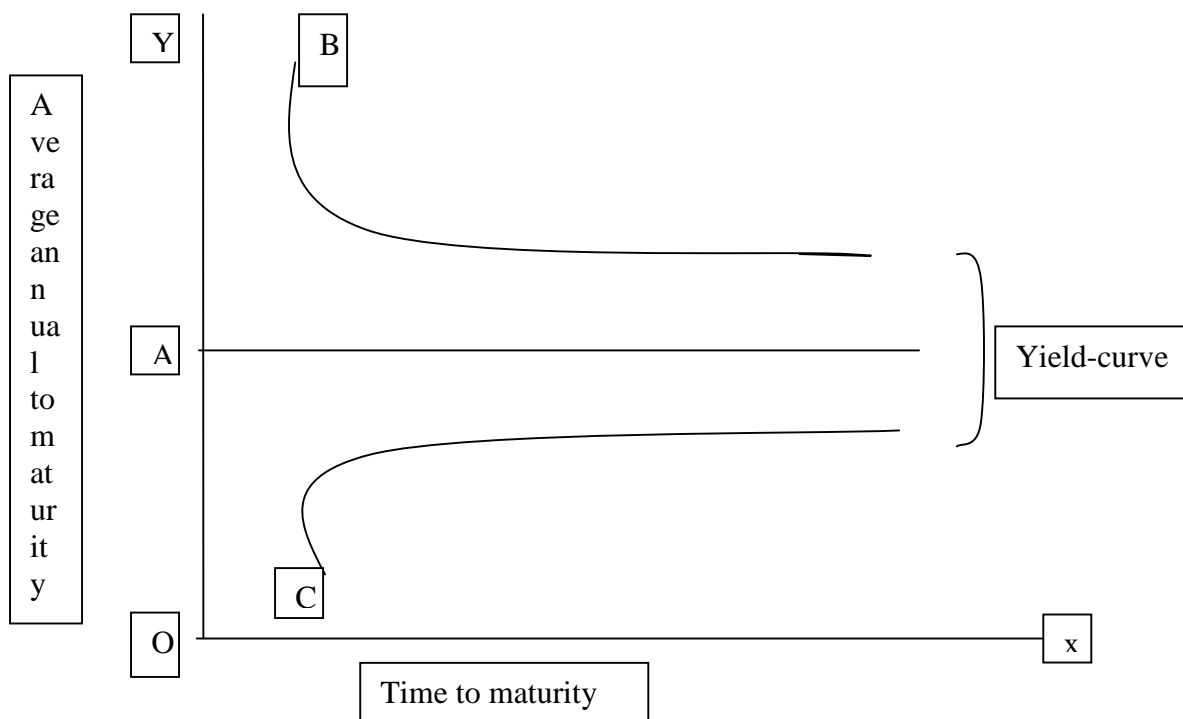
Where,

$$\begin{aligned} HPR_t &= \text{Holding period return for period 't'} \\ P_t &= \text{the beginning or purchase price of the bond} \\ P_{t+1} &= \text{the ending or selling price of the bond} \\ I_{t+1} &= \text{the coupon or interest received for period 't'} \end{aligned}$$

This equation assumes that interest will be received at the end of holding period 't'. This assumption is correct for bonds because they are sold with accrued interest due to the seller.

## Yield Curve

The phrase yield curve is for the term structure of interest rate. The relationship between yield and maturity is described by means of a yield Curve. The term of maturity is in horizontal position (time) and the average yield to maturity is in a vertical position (Singh, 1991: 232). To determine the shape of the yield curve, three theories were developed (Francis, 1986: 339). As the liquidity premium theory asserts that, on average, the yields from long term bonds should be a little higher than the yields from short-term bonds. The theory maintains that investors pay a price premium (resulting in lower yields) on short maturities to avoid the higher interest rate risk prevalent in the longer maturities. Due to the higher interest rates for a longer period of time and the yield curve would be upward sloping. And, the segmentation theory suggests that the term structure depends on the supply demand conditions. The determination of term structure is viewed as the outcome of the supply and demand in two-segmented market of demand and supply, the markets for longs and for shorts. Such segment of the yield curve is determined independently by the supply and demand conditions peculiar to that maturity segment. Similarly the expectations theory asserts that long-term yields are the average of the short-term yields. This implies that if all investors expect rates to rise, the yield curve will slope upward; if they expect rates to remain unchanged, the yield curve will be horizontal; if they expect rates to fall, the curve will slope downward ([www.bloomber.com](http://www.bloomber.com)). The various shapes of yield curve may be seen as in figure 2.1.



Curve A is called a 'flat curve' indicating approximately equality of short-term and long-term yields. Curve B is a descending curve and shows short-term rates significantly above long term rates. And curve C is an ascending curve with short rates significantly below long term rates.

Yield curve, a visual representation of the term structure of interest rates (Madura, 2000: 511). The slope of yield curves can vary among the countries. While the United States typically has an upward sloping yield curve, in other countries are commonly inverted, implying a lower annualized yield on long-term debt. ([www.bloomberly.com](http://www.bloomberly.com)).

#### **2.2.10. Duration of bond**

Duration is directly related to term and inversely related to coupon and yield to maturity. Duration is defined as the weighted average number of years that cash flows occur. Cash flows include both coupon and principal payments. The weights are the present value of each cash flow as a percentage of the total present value of all cash flows (Macaulay, 1938).

According to Chenny & Moses, "Duration is a function of term, coupon maturity value and yield to maturity. Bonds with "low" coupons and "long" term will have duration greater than bonds with "high coupons" and "short" terms. Also as yield to maturity increases, duration will increase". Duration led to the development of technique of bond portfolio management known as immunization. Specifically; this technique allegedly allows a bond portfolio manager to be relatively certain of being able to meet a given promised stream of cash outflows. Thus once the portfolio has been formed, it is 'immunized' from any adverse effects associated with future changes in interest rates (Alexander et al., 1999: 437). A bond's duration is a convenient way to summarize information about a bond's volatility or price sensitivity to changes in market interest rates and estimate what affect such interest rates movements would have on the bond's price.

Macaulay's duration (MD) can be defined mathematically as follows:

$$D \text{ or MD} = \frac{\sum_{t=1}^T PV(C_t)}{TPV} = \frac{\text{Total of (Present Value}_t \text{ | Time)}}{\text{Total Present Value}}$$

Where,

PV (C<sub>t</sub>) = Present value of the cash flow at time t

t = Time (Year)

TPV = Total present value

### 2.2.11. Investment Banker

A number of financial institutions are needed for the efficient functioning of a financial market. One of these institutions is an investment banking firm. The firm acts as a middle man in the distribution of new securities to the public and creates a primary market. Therefore, the people or institutions responsible for finding out investors for the public offering (IPOs) of the securities sold in the primary market are called investment bankers. Investment bankers are also called underwriters; they purchase new issues from security issuers and arrange for their resale to the investing public.

First, the members of the issuing firm and the investment banker hold pre underwriting conferences, at which they discuss the amount of capital to be raised, the security to be issued, and the terms of the agreements. When the investigations are completed, an underwriting agreement is drawn up by the investment banker (Weston and Copeland, 1992:893).

Investment bankers advise their clients, handles the administrative task, underwrite the issue, and distribute the securities as follows.

) Advisory Functions:

- Advising the potential security issuer.
- Suggesting various ways to raise needed funds.
- Advising about mergers, acquisitions and refinancing operation.

) Administrative Functions:

- Filling up the registration statement for the issue approval in accordance with law.

-Producing prospectus after the issue approval by Security Board (SEBO) Nepal and then distributing to the potential investors.

) Underwriting:

- To purchase securities from issuers and resell them to the public.
- The resale price must be neither too high nor too low.
- Underwriting functions also include private placement where the investment banker act as intermediary in bringing together the issuer and investors.

) Distribution:

One of the major functions for the investment banker is marketing the new issue of securities. Investment banker is a specialist with a staff and organization to distribute securities and therefore, the capacity to perform the physical distribution function more efficiently and more economically than can an individual corporation.(Western & Copeland, 1992:892)

### **2.2.12. Cost of Capital**

The cost of capital is the minimum rate of return, which a firm or a project must earn in order to maintain the market value of the firm. It is the minimum acceptable rate of return i.e. cut off point or hurdle rate for the investment and financing decision. The analysis of cost of capital is very important. It minimizes the cost of capital in order to maximize the value of the firm. It is also very essential for evaluating and selecting capital projects. “Cost of capital is recognized rate of different names such as required rate of return, hurdle rate, average cost of fund etc. the average return required by the firm’s investor determines how much must be paid to attract funds. It is the firms average cost of funds, which is more commonly termed the cost of capital.” (J.Fred Weston and et.al.) There are different sources of capital such as:

#### **Cost of debt of capital**

Interest payable on debt capital is known as the cost of debt. Corporate bond/debenture securities may be issued at par, or at discount, or at premium. Company should incur some expenditure for issuing such as preparation prospectus, advertising, and brokerage costs etc. Cost of debt increases due to flotation cost.

Mathematically, cost of debt can be calculated as follows:

$$\text{Cost of debt } (k_d) = \frac{I}{NP}$$

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:

$$\text{Cost of debt after tax } (k_{dt}) = k_d (1-t)$$

Where,

$T$	=	Tax rate
-----	---	----------

### **2.3 Historical Development of Corporate Bond/Debenture Securities Market in Nepal**

Nepal's capital market is very lean in providing investment alternatives to the investors. Among possible various investment alternatives like common stocks, government bond, corporate bond, preference share, right, option, warrants, convertible etc, very few are available for Nepali investors. It can be said that the present capital market is almost monopolized by the equity shares. For those investors, who are risk seeker and want to invest in the variable income securities, the present capital market offers sufficient alternatives but for those investors who are risk averse and want to invest in the fixed income securities, there are very few avenues available (Bhattarai, 2005:192).

“Securities Marketing Center” (SMC) was established in 1976 to develop corporate securities market in Nepal. Before the establishment of SMC, there were no institutional arrangements to undertake and to manage the new issue of securities. Initial public offering had to be made on as per the provision of companies Act. 1963, was not adequate and relevant. The Act had not ever included preference share as corporate security. Only companies Act.1994 recognized it as a corporate security.

SMC started secondary trading of securities in 1981, which was restricted to government bonds till 1983, the concept of well-structured secondary market had not involved in Nepal. No separate Act existed to regulate the trading of securities. The securities exchange Act. 1983 was enacted in 1983. The Act restricted the exchange of unlisted securities. SMC was renamed as Securities Exchange Center (SEC) in 1984. SEC was the only one institution concerned in managing and operating primary and secondary markets of long-term government and corporate securities.

A need to develop different institutional mechanisms relating to securities market was strongly felt to avoid potential conflict of interest between the services provided. The first amendment of the securities exchange Act. 1983 in 1993 paved the way for the structuring of securities market in Nepal, which led to the establishment of Securities Board of Nepal (SEBON) in 1993. With a mandate to regulate and develop the securities markets, SEBON started to register securities and grant approval for issuing securities to the public in 1993. The first amendment in the Act also led to conversion of SEC into Nepal Stock Exchange Ltd. (NEPSE) in 1993 with the objective of operating and managing secondary transactions of securities. The initial efforts led to the opening of a full-fledged stock exchange in January 13, 1994.

The second amendment in securities exchange Act.1983 was made in 1997. This amendment made provision for registering securities businesspersons in SEBON. As per the provision of the second amendment, SEBON provided licenses to the securities businesspersons in 1997. The amendment made mandatory provisions for the listed companies to submit annual and semi-annual reports to SEBON. This amendment also required securities businesspersons to submit annual reports incorporating the securities transactions carried out by them to SEBON.

In the context of establishing proper identification of the investors for the development of fair and transparent securities markets, SEBON has made amendment in its Securities Registration and Issue Approval Guidelines, 2000 in 2005 and add new provision which requires the investors to submit along with the application for the buying of securities in the public offering, the photocopy of their citizenship certificate or the identification with photograph, issued by HMG/N attested by themselves.

Presently, there are twenty-four stockbrokers, seven issue managers, two issue managers and securities dealers, one stock exchange and one hundred twenty-five listed companies in the Nepalese securities market.

Bond is the other instrument providing fixed income to the investors and involves lower risk than the securities that yield variable income. Also the bond market in Nepal is very lean. Very few companies have issued bond in the market. Just seven private business organizations have issued bond or debenture till 2006. Though, Nepalese government is more forward in exercising debt instrument, only countable number of corporate sector are found exercising debt instrument.

Nepal does not have a long history of corporate debt securities market. Only few (i.e. eight) corporate debt securities have been issued prior or after the enactment of Securities Exchange Act 1983, till now. Corporate bond/debenture securities issued by private organizations in the Nepalese capital markets are shown with their characteristic features as follows:

First time in the Nepalese history, Bottlers Nepal had issued 18% debenture of Rs.5 million (with par value Rs.1,000) in the FY 1986/87. It was slightly over subscribed (i. e. Rs.5.13 million) and was redeemed at maturity.

Secondly, Jyoti Spinning Mills Ltd. had issued 14% bond of Rs.20 million (with par value Rs.1,000) in the FY 1992/93. It was managed by NIDC (Bhattarai, 2005:193).

The primary issue of debt securities disappeared for more than a decade. Then thirdly, Shree Ram Sugar Mill's Ltd. had issued the debenture as "14% convertible and redeemable debenture" in the FY 1997/98. The Mill's issued debentures worth Rs.93 million (with par value Rs.1, 000) and managed by NIDC and charge 0.50% of total collected amount as flotation cost. This debenture was heavily undersubscribed (i.e.17.13 million) and there was no conversion ratio (Shree Ram Sugar Mill's Ltd., Debenture Prospectus, 1997).

Himalayan Bank Ltd. had issued Rs. 360 million "8.5% Himalayan Bank Ltd. Debenture–2066" (with par value Rs. 1,000 and semi-annual interest payment) in the FY 2057/58.

The bank decided to distribute debentures through the private placement with the amount of Rs.260 million and through the issue–managed company of Rs.100 million issues was managed by the Nepal Merchant Banking and Finance Limited with charged of 0.54% of total amount. It was heavily over subscribed (i.e.141.7 million). Its issue was managed by NMB (Himalayan Bank Ltd., Debenture Prospectus, 2002).

Nearly one and a half year after HBL bond, another big Nepali bank, Nepal Investment Bank Ltd. (NIBL) 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 300,000 units of issue (with par value Rs. 1,000), 100,000 were issued to the general public and 200,000 units were privately placed. Though the interest rate offered by NIBL was one percent lower than that in HBL’s bond (where it was 8.5% with semi-annual payment arrangement), it had good chances of being oversubscribed. Its issue manager was AFCL (Nepal Investment Bank Ltd., Debenture Prospectus, 2005).

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

Everest Bank Ltd. had 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 seven years (i.e., redeemable after 7 years). Out of 300,000 units of issue 50,000 units were issued to the general public and 250,000 units were privately placed. EBL bond issue date was 2062/01/07. Its issue manager was CIT (Everest Bank Ltd., Debenture Prospectus, 2005).

Again Nepal Investment Bank Ltd. has issued “Nepal Investment Bank Bond-2070” (with 6% coupon interest rate paid semi-annually) in the FY 2005/06. Out of 250,000 units of issue, 80,000 units are issued to the general public and 170,000 units are 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).

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

Again after a three years, Nepal Investment Bank Ltd. (NIBL) has issued Rs. 250 million “6.25% Nepal Investment Bank Bond-2071” (with maturity period of 7 years and semi-annual coupon payment) in the FY 2007/08. Out of 250,000 units of issue, 50,000 units are issued to the general public and 200,000 units are privately placed. Its issue manager is ACFL (Nepal Investment Bank Ltd., Debenture Prospectus, 2007).

Similarly, Kumari Bank Limited (KBL) has issued Rs. 400 million “8% Kumari Bank Limited Bond-2070” (with maturity period of 5 years and semi-annual coupon payment) in the FY 2007/08. Out of 250,000 units of issue, 50,000 units are issued to the general public and 200,000 units are privately placed. Its issue manager is NMB (Kumari Bank Ltd, Debenture Prospectus, 2008).

After a 7 years, again Himalayan Bank Ltd. (HBL) has issued “8% Himalayan Bank Bond–2072” with par value Rs. 1,000 and semi-annual interest payment of Rs. 500 million in the FY 2008/09, with 7 years maturity periods. 100,000 units were privately placed and 400,000 units were issued to the general public out of 500,000 units of issue. Its issue was managed by ACDB (Himalayan Bank Ltd, Debenture Prospectus, 2008).

After issuing of debenture three times, again Nepal Investment Bank Ltd. has issued Rs. 250 million “8% Nepal Investment Bank Bond-2072” (with maturity period of 7 years and semi-annual coupon payment) in the FY 2008/09. Out of 250,000 units of issue, 50,000 units are issued to the general public and 200,000 units are privately placed. Its

issue manager is ACDB (Nepal Investment Bank Ltd., Debenture Prospectus, 2008).

After the issuing of four times debenture by NIBL, one of the most leading commercial bank of Nepal called Nabil Bank Limited (NBL) has issued Rs. 300 million “8.5% Nabil Bank Bond-2075” (with the highest maturity period of 10 years from commercial band, semi-annual coupon payment) in the FY 2008/09. Out of 300,000 units of issue, 60,000 units are issued to the general public and 240,000 units are privately placed. Its issue manager is NIDC, (Nabil Bank Limited, Debenture Prospectus, 2008).

After the issuing of bond by Nabil Bank Limited, another commercial bank of Nepal called Siddhartha Bank Limited (SBL) has also issued Rs. 400 million “8% Siddhartha Bank Limited Bond-2072” (with maturity period of 7 years and semi-annual coupon payment) in the FY 2008/09. Out of 400,000 units of issue, 80,000 units are issued to the general public and 320,000 units are privately placed. Its issue manager is ACDB (Siddhartha Bank Limited, Debenture Prospectus, 2008).

Finally till the report writing, Laxmi Bank Ltd. (LBL) has issued Rs. 250 million “8.5% Laxmi Bank Limited Bond-2072” (with maturity period of 7 years and semi-annual coupon payment) in the FY 2008/09. Out of 350,000 units of issue, 50,000 units are issued to the general public and 300,000 units are privately placed. Its issue manager is ACDB (Laxmi Bank Limited, Debenture Prospectus, 2008).

This means, more of such bond issues can be expected in the future, particularly from the banks to meet their higher capital requirement under Nepal Rastra Bank directives (Bhattarai, 2005:193-194).

## **2.4 Review of related Journals and Articles**

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 approaches is important in order to build up an 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) has written 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 price are not market oriented. Furthermore, he mentioned that the capacity to develop the local corporate bond or debenture, market is sincerely 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.

**Roy Batchelor and Katuscia Manzoni** (2006) have studied on “The Dynamics of Bond Yield Spreads around Rating Revision Dates.” They have examined the effect of rating revisions on sterling Eurobond yields using a panel model with conditional heteroskedasticity that controls for event-induced changes in the variance of spreads. Positive rating revisions are fully anticipated by the time the upgrade occurs. Negative revisions are only partially anticipated, and spreads on downgraded bonds rise for some time after the downgrade have been announced. All ratings announcements are accompanied by a temporary fall in yield volatility. They have attributed this to the resolution of uncertainty about the true rating of the bond. Ratings may provide a mean for conveying relevant inside information to bondholders without providing full information to the entire marketplace. Supporting these arguments was the revealed preference of bond issuers and purchasers to pay for rating services.

Their data relate to all sterling Eurobond ratings revisions made by Standard & Poor’s (S&P) from January 1992 through December 1999. From a total of 477 bonds traded in this period, 313 Eurobonds were not re-rated and 164 experienced a rating revision, of which 123 were downgrades and 41 were upgrades. The largest individual category was the highest rated AAA group (about 30% of all Eurobonds), and they are the most stable with only about 10% downgraded one class to AA+ between 1992 and 1999. A further

30% of bonds are rated AA+ to AA-, and about 40% are A+ and below. For these groups, the incidence of ratings changes is about 45%. Most changes are one class up or down, and only in 35 cases do ratings change by more than one class. Eight bonds were re-rated within 60 days from a previous revision.

The first hypothesis they have tested was whether Eurobond yields react differently to positive and negative rating revisions, a consistent finding of the U.S. studies surveyed earlier. The second hypothesis they have tested was related to the effect of the ratings change on volatility. Third, they have tested for significant differences in the effect the rating event have on spread and volatility across classes of bonds.

In their article they have analyzed the effects of rating change announcements on the abnormal yield and volatility of daily returns on sterling-denominated Eurobonds. The question of the effect of rating changes on bond and stock prices in the United States have been well studied in the literature. Specifically, ratings events percolate through to yields in an asymmetric way. Positive rating news releases are fully anticipated by the market, but downgrades are accompanied by a significant increase in the yield spreads in the post-announcement period. The asymmetric effect of rating announcements on spreads implies that a strategy of shorting downgraded bonds would be profitable.

The methodological contribution of their study was that it employed a panel GARCH model to the yield spread series. That helps them to identify how ratings affect volatility, and by allowing for time-varying, event-dependent, volatility changes, it gave them more confidence in the validity of their statistical inferences. The effect of any ratings announcement was to reduce volatility during and around the time the information was released. They conjectured that that calming effect occurred because the re-rating announcement resolved uncertainty about the current status of the bond.

## **2.5 Review of Thesis**

This review prepared by master degree students is one of the ways to get better acquainted with the subject matter. Such review not only helps to provide knowledge about recent studies but also helps to recognize new area of study. Some of the relevant thesis review and their recommendations are explained below.

The study conducted by **Mr. Joshi** (1982) in his thesis, “Structure of Public Debt in Nepal”. He tried to sum up his views stating that the essential of internal borrowing as pictured the poor economic performance of the country cause of country’s natural topography and human behavioral limitations. In addition to above, he mentioned that the internal borrowing plays crucial role to develop the money and capital market in the country. He recommended floating the various public borrowing schemes that may suit the pocket of rich as well as poor people.

**Daya Ram Sharma (2002)** has studied on “Public debt system and practices in Nepal”. He has opined mixed view regarding public debt use by government. In his opinion, Nepal has been passing through s critical phase of inadequate financial resources while its duties and responsibilities are widening day by day. But public funds available for the administration and development are limited. Therefore, the government adopts the policy of borrowing internally and externally. He added that the total debt service payment is increasing and external debt servicing growth rate is a remarkably greater than of internal debt service. The ratio of internal and external public debt to GDP is not so unsatisfactory. He came to the point that the percent of interest servicing in a total servicing is greater than principal servicing. Interest servicing has occupied 58% (app) of share out of total servicing and rest is by the principle servicing. This fact shows all or either following weakness in our debt financing economy.

**Nirmal Kumar Mainali** (2003) he studied on “Problems and prospects of debenture market growth in Nepal”. He addressed that there are many problems, which are restricting debenture market growth prospects. There has not been good attitude towards debenture yet in Nepalese market. He found insufficient legislative provision regarding Nepalese debenture market, political instability, insufficient information disclosure, poor price sensitivity, poor preference on debenture etc. are responsible for the very slow growth and also very serious problems of existing Nepalese debenture market. He added that capital supply, tax saving, interest income, means of meeting deficit budget, growth on public debt is some plus point which signifies the prospects of debt market growth. He also mentioned that, emphasis should be given to the development of private sector debenture.

**Mr. Dipendra Raj Kafle** (2003) had studied problems and prospects of debt market growth in Nepal. He has explained the weakness of Nepalese debt securities market. In his view, debt market is very important to accelerate the process of industrialization and raise the capital. He has explained the significance of debt markets for government and public as well. He has explained that the debt security market of Nepal is dominated by government debt securities. However the government debt securities market is growing but not as expected. Debt securities market of corporate bodies is limited in existence. He concluded that the habit of over reliance of government in foreign debt has created huge problems in the growth of Nepalese debt securities market. He added that lack of arbitraging, trading rule, public awareness; problems of protecting investor's rights, lack of strong rating agency etc are also the major problems facing by Nepalese debt securities market.

He came to the point that the Nepalese investors preferred national saving bond and development bond rather than other government bonds. He added that normally commercial banks did not issue debt securities because of over supply of deposit by customers. On the other hand big corporate bodies could easily get loan at lower cost from banks. So they do not need to issue debt securities. However, small corporate firm have been facing the problems of raising funds from debt securities as well as from banks. Tedious and lengthy process of issuing the debt securities is another problem that affects the growth of debt securities market.

**Sandip Mohan Bhattari** (2003) has studied "problem & prospects of debt market growth in Nepal". He state that the Nepalese debt securities market is still at underdeveloped stage. He thought that government debt securities market is slightly at maturity stage as compared with corporate debt securities market. According to him, there are many problems in Nepalese debt securities market like lack of awareness, difficult process of issuing debenture, limited supply of quality bonds, insufficiency of legal provisions and the infrastructure of capital market, investors attractions towards common stock/shares and also towards the banking sector's securities, felling of non-existence of debt market, lack of large business organizations and narrow area of govt. security market etc are hindrance of the smooth growth of Nepalese debt securities market.

On the other hand, he also found some prospects which shows the future growth of Nepalese debt market the main factors such as investors as investor's attraction towards liquid assets like debt securities, attractions towards convertible debentures, increasing the trend amount of govt. securities and increasing trend of issuance of corporate debentures, declining interest

rate on deposit of commercial banks etc. He came to know that the interest rate of deposit on commercial banks is decreased every year. But the interest rate on debt is higher to some extent than bank's deposit rate. Also investor's fund can be utilized in a productive way if invested in govt. securities, which helps in the upwards growth of national economy. Furthermore, he added that if any organization is going to issue debenture Nepalese investors will invest on it. So he recommended to the govt. to bring new rules and regulations and to the Nepalese companies to use debenture as a source of financing to them.

**Mr. Ramesh Raj Ghimire** (2004) in his research entitled "A Study on Problems and Prospects of Government Debt in Nepal," has found that there has been excessive flow of foreign loans to bridge the resources gap but internal borrowing is not emphasized as much as foreign loans in Nepal. He explained that the developing countries like Nepal is always characterized revenue of the country and the government has to raise the required funds through the tax and tax revenue and internal as well as external borrowing. Hence, he suggested that the internal borrowing is the best way of financing development expenditure of the government which helps to control inflation and to mobilize the domestic resources isolated in the country. In case of external borrowing, there is the need of foreign currency for repayment which may cause the greater problems.

## **2.6 Research Gap**

Research means to investigate or to search again & again about a phenomenon under study. Very few researches have been made on topic "present status of corporate debenture market with issues and prospects". Most of the research was conducted regarding the system & procedures of public debt, problem and prospects of government debt etc. the previous researchers with the topic of "problems & prospects of debt market growth" has covered all the area of debt market, which seems very vast whereas this research has covered only the area of debt securities market. The researcher has also try to point out the determinant of corporate debt securities market development along with the major impediment to the debt securities market growth. Most of the previous researches have explained the situation of corporate debt securities while this research is trying to find out the solution to remove the impediments regarding debt securities market growth. So, this research covers corporate debt securities market and an attempt has been made to overtake research gap remained in previous research.

## **CHAPTER-III**

# **RESEARCH METHODOLOGY**

### **Introduction**

In this chapter, the methodology used for collecting and analyzing data will be discussed. Every research study can reach towards the proper conclusions adopting the proper methodology regarding the subject matter of the study. A research study can produce the fruitful results if an appropriate methodology is taken under consideration to highlight and evaluate the different aspect of the study. Being a novice researcher, it should be kept under considerations that the wings of methodology should not be misdirected. The methodology should be adopted in such a way that the leakages and errors of the study could be minimized. Thus, the quality of the study depends upon the methodology used by the researcher.

### **3.1 Research Design**

Research design is a plan, structure and strategy of investigation conceived, so as research design helps the investigator obtain answer to the questions of research and also helps to control the experimental extraneous and error variance of the particular research problem under study.

This research study attempts to analyze the “**Issues and Prospects of Corporate Debenture Market in Nepal**”. Thus, to fulfill the objective of the study, both primary as well as secondary data are used. To conduct the study descriptive research as well as analytical and quantitative approaches has been adopted.

A descriptive approach has been mainly focused on prevailing the current position and various problems associates with Nepalese corporate debt securities market. Similarly, analytical approach has been used mainly to examine various related variables of corporate debt securities. Various statistical tools such as curvilinear model and chi-square test for testing hypothesis are applied to interpret and come to conclusion.

### **3.2 Population and Samples**

To get information about corporate debt security market in Nepal, more representatives and comprehensive samples are selected for wide coverage of population.

### **3.3 Sources of Data**

Data is the fact, information, views etc. collected systematically and presented formally for the purpose of reaching in the appropriate decision. So, data is necessary for conducting the research work. Without the data we cannot prove the reliability and cannot support the research properly. This research study is based on both primary and secondary data. The sources of primary data are mainly questionnaire methods. A set of questionnaire is developed for various respondents. These are allocated to them and collected after some times. Personal interviews are also conducted during field visits. The main sources of the primary data are as follows:

- ) Sample Companies out of Listed Companies - 23
- ) Issue Managers/Brokers - 12
- ) Individual Investors – 59
- ) Other Experts - 18

To examine the trend and ownership pattern and for interest rate analysis, secondary data are also used. The main sources of secondary data are as follows:

- ) Various quarterly Economic Bulletins published by NRB
- ) Various Economic Reports
- ) Various Statistical year books and other publication of Department of Statistics
- ) Various Reports of Listed Companies, recorded in SEBO/N
- ) Various Annual Report of NEPSE and SEBO/N
- ) Economic Survey
- ) Prospectus of Debenture Issuing Banks
- ) Website of NEPSE Ltd., *http: www.nepalstock.com*
- ) Other publications, books, journals, articles, previous research studies, dissertations, The World Book Encyclopedia and websites etc. have been used.

### 3.4 Method of Analysis

“The main purpose of analyzing the data is to change it from as unprocessed form to an understandable presentation. The analysis of data consists of organizing, tabulating and performing statistical analysis and drawing inferences” (Wolf and Pant, 2003:204). Various possible statistical and financial tools are used where necessary in each case in order to obtain the best result and to classify, to tabulate and to analyze primary data. The empirical results have been estimated in this study by using data for the period of 1986/86 to 2007/08.

#### A. Valuation Model

This study used the valuation model as described by Brigham and Houston (2001). The valuation of bond is the sum of the par that is due at the end of bond life. The specific models as:

$$V_b = I (PVIFA, k, n) + M (PVIF, k, n^{th})$$

Where,

$V_b$	=	Intrinsic Value of Bond Interest
$I$	=	Coupon Amount of Bond
$M$	=	Par Value (Maturity Value)
$k$	=	Market Interest Rate
$n$	=	Maturity Period
PVIFA	=	Present Value Interest Factor of Annuity
PVIF	=	Present Value Interest Factor

This model is used to find out whether the Nepalese debt securities are over priced or under priced.

#### B. Duration

Frederick Macaulay suggested the time structure of the bond measuring its average term to maturity called duration. A bond's duration may be defined as the weighted average number of years until the cash flows occurs, with the relative present values of each cash

flow used as weight. Duration is directly related to term and inversely related to coupon and yield to maturity. This model helps to analyze the actual maturity period for bondholders described by Macaulay (1938) as shown below.

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

Where,

- MD = Macaulay Duration
- Y = Market Interest Rate (YTM)
- T = Term to Maturity
- C = Coupon Interest Rate

This, specifies, model was used for calculating the duration of Nepalese corporate debt securities.

### C. Statistical Tools Used

In the process of estimating above models, various statistical tools have been used, e.g., simple arithmetic mean, weighted mean, median, etc. A brief explanation of statistical tools employed in this model is as follows:

Simple arithmetic mean is the sum of the values of all the elements in the sample and divided by the number of elements in the sample.

Mathematically,

$$\bar{X} = \frac{\sum X}{n}$$

Where,

- $\bar{X}$  = Simple arithmetic mean
- $\sum X$  = Sum of sample items
- n = No. of sample items

### **Weighted Mean**

Sometimes, we might come across the situations where the relative importance of all the item of the distribution is not same. In situations where the numbers are not equally important, we can assign to each a weight that is proportional to its relative importance and calculate the weighted mean. The weighted mean is a found by dividing the sum of the products of the values and their weights by the sum of the weights.

### **Median**

Median can be defined as the value of that item which divides the series into two equal parts, one half containing values greater than it and other half containing values less than it. Therefore, the series has to be arranged in ascending or descending order, before finding the median. In other words, arranging is necessary to compute median.

### **3.5 Testing of Hypothesis**

Testing hypothesis is one of the most important aspects of the theory of decision making. It consists of decision rules required for drawing probabilistic inferences about the population parameters. It is an assumption that is made about the population parameter and then its validity is tested. The act of verification involves testing the validity of such assumption which, when undertaken on the basis of sample evidence, is called testing of hypothesis. The main goal of testing of hypothesis is to test the characteristics of hypothesized population parameter based on sample information whether the difference between the population parameter and sample static is significant or not. Usually the statistical hypothesis is tested at 1%, 5% and 10% level of significance. Thus, the significant test will be conducted in the analysis of data.

In testing of hypothesis, Chi- square has been tested. Expected frequencies are calculated by applying the following formula:

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

Where,

RT = Row Total  
CT = Column Total

GT = Grand Total

$$\text{Then, } \chi^2 = \sum \frac{(O-E)^2}{E}$$

Where,

O = Observed Frequency

E = Expected Frequency

$\chi^2$  = Chi-square

The quantity of  $\chi^2$  describes the magnitude of the discrepancy between theory and observations. It is defined as,

### 3.6 Test of Hypothesis

A quantitative statement about the population parameter which may be true or false is called a hypothesis. In order to make proper decision about the qualitative statement of the population, testing of hypothesis technique is used. But, testing of hypothesis is carried out by using sample information.

**According to Rumen and Balline**, “A hypothesis is a statement capable of being tested and verified or rejected”. After setting the hypothesis, it is necessary to test the consistency of such statistical statements. For this purpose, an experiment is conducted by using sample information and the hypothesis is rejected if the results obtained are doubtful under this hypothesis. But, if the results are not doubtful, the hypothesis is accepted. The procedure of drawing such conclusion based on sample information is known as testing of hypothesis.

**It has tested following few hypotheses:**

#### **Hypothesis No. 1**

**Null Hypothesis (H<sub>0</sub>):** There is no significant difference between observed and expected frequencies regarding to the choice of securities.

**Alternative Hypothesis (H<sub>1</sub>):** There is significant difference between observed and expected frequencies regarding to the choice of securities.

## **Hypothesis No. 2**

**Null Hypothesis ( $H_0$ ):** There is no significant difference between observed and expected opinions regarding to the reason for the slow growth of corporate debenture market.

**Alternative Hypothesis ( $H_1$ ):** There is significant difference between observed and expected opinions regarding to the reason for the slow growth of corporate debenture market.

## **Hypothesis No. 3**

**Null Hypothesis ( $H_0$ ):** There is no significant difference between observed and expected frequencies regarding to the sufficiency of present rules and regulations related to debt market in Nepal.

**Alternative Hypothesis ( $H_1$ ):** There is significant difference between observed and expected frequencies regarding sufficiency of present rules and regulations related to debt market in Nepal.

## **Hypothesis No.4**

**Null Hypothesis ( $H_0$ ):** There is no significant difference between observed and expected opinions regarding to the factors that plays vital role to attract investor towards purchase of corporate bond/debenture.

**Alternative Hypothesis ( $H_1$ ):** There is significant difference between observed and expected opinions regarding to the factors that plays vital role to attract investor towards purchase of corporate bond/debenture.

## CHAPTER – IV

### PRESENTATION AND ANALYSIS OF DATA

1. This chapter includes two main sections. Section 4.1 and 4.2 include the presentation and analysis of secondary data and primary data respectively.

#### 4.1 Presentation and Analysis of Secondary Data

##### 4.1.1 Corporate debt Market in Nepal.

The main objective of the study was to examine the “Issues and Prospects of Corporate Debt Market in Nepal”. Nepal does not have a very long history of corporate debt securities market and only few corporate debt securities have been issued prior or after the enactment of Securities Exchange Act 1983, till now. So only few investment alternatives are available in Nepalese capital markets. Therefore it can be said that the development of corporate debenture/bond market in Nepal is in very initial stage. Securities help the private sector to contribute on economic development through more efficient reallocation of capital. For the development of capital market, each and every sector of securities markets needs to be developed. So, for the overall development of capital market development of corporate debt market is necessary.

In the Nepalese history, very few corporate bodies (i.e. 14 corporations till now) have issued corporate debenture for the purpose of raising long-term fund. M/S Bottlers Nepal Ltd. is the pioneer to practice corporate debenture, from manufacturing company. Table 4.1 shows that it had issued 18% debenture of Rs. 5 million with par value of Rs. 1,000 in the FY 1986/87 and it was slightly over subscribed (i. e. Rs.5.13 million) and was already redeemed.

Then, Joti Spinning Mills Ltd. was the second to issue corporate bond. It had issued 14% debenture of Rs. 20 million (with par value of Rs. 1,000) in the FY 1992/93. Its issue was managed by NIDC (See Table 4.2).

Thereafter, M/S Shree Ram Sugar Mills Ltd. (SRSML) was the third company in the case of issuing debenture in the Nepalese history. It had issued 14% convertible debenture of Rs. 93 million with par value of Rs. 1,000 in the FY 1997/98 (Table 4.1). Table 4.2 shows that its debenture had been converted after four years. Only 17,130 units out of total debenture were applied. The under subscription rate was 0.18 times. These means 75,870 units issue were not subscribed. This shows those debentures were heavily under subscribed. The issue manage was NIDC. This shows that all three pioneer issuer of debenture were manufacturing companies.

Table 4.1: Amount of Debenture Issued by the Corporate Bodies (FY 1986/87 to 2008/09)

Companies	Issued Yr.	IA(M)	IPO(Unit)	PP(Unit)	C I	Sector	MP (Yrs.)	Growth %
BNL	1986/87	Rs.5	0	0	18%	Mfg.	0	0
JSML	1992/93	Rs.20	0	0	14%	Mfg.	0	300
SRSML	1997/98	Rs.93	0	0	14%	Mfg.	C-4	365
HBL	2001/02	Rs.360	100,000	260,000	9%	Bank	7	287
NIBL <sub>1</sub>	2003/04	Rs.300	100,000	200,000	8%	Bank	7	17
EBL	2004/05	Rs.300	50,000	250,000	6%	Bank	7	0
BOKL	2005/06	Rs.200	50,000	150,000	6%	Bank	7	-33
NIBL <sub>2</sub>	2005/06	Rs.250	80,000	170,000	6%	Bank	7	25
NICBL	2005/06	Rs.200	50,000	150,000	6%	Bank	7	-20
NSBIB L	2005/06	Rs.200	50,000	150,000	6%	Bank	7	0
NIBL <sub>3</sub>	2007/08	Rs.250	50,000	200,000	6.25%	Bank	7	25
KBL	2008/09	Rs.400	80,000	320,000	8%	Bank	5	60
HBL	2008/09	Rs.500	100,000	400,000	8%	Bank	7	25
NIBL <sub>4</sub>	2008/09	Rs.400	50,000	200,000	8%	Bank	7	-25
NABIL	2008/09	Rs.250	60,000	240,000	8.5%	Bank	10	-37.5
SBL	2008/09	Rs.400	80,000	320,000	8%	Bank	7	60
LBL	2008/09	Rs.350	50,000	300,000	8.5%	Bank	7	-12.5

Source: Annual Report of SEBO/N 2007/08, Debenture Prospectus of Issuing Companies, and Investment Book of Rabindra Bhattarai 2005

Thereafter, some banking sector has issued redeemable debenture which were heavily oversubscribed. In this matter, Himalayan Bank Ltd. (HBL) was the first bank to issue corporate bond from the banking sector in the Nepalese history but Fourth Corporation out of total companies. Table 4.1 shows that it had issued “8.5% Himalayan Bank Bond–2066” with par value Rs. 1,000 and semi-annual interest payment of Rs. 360 million in the FY 2001/02, with 7 years maturity periods. 260,000 units were privately placed and 100,000 units were issued to the general public out of 360,000 units of issue. Table 4.2 shows that total no. of debentures issued was 360,000 units whereas total no. of debentures applied was 401,700 units. It was oversubscribed by 41,700 units and over

subscribe rate was 1.12 times. The over subscription rate 1.12 times shows that investors are attracted towards corporate debt securities. Its issue was managed by NMB. So it can be said that the oversubscription of HBL debentures and very low subscription of SRSML debentures shows that investors prefer to invest in corporate debt securities of banking sectors rather than manufacturing sectors.

Table 4.2: Name of the corporate debenture Issuing Companies, Year of Issue Over/Under Subscription, Types of Issue and Issue Manager (FY 1986/87 to 2008/09)

Year	Issuer	B I (Units)	B A (Units)	O S (Units)	O/U S (x)	I M	Types
1986/87	BNL	5,000	-	-	-	-	-
1992/93	JSML	20,000	-	-	-	NIDC	-
1997/98	SRSML	93,000	17,130	-75,870	-0.18	NIDC	Convertible
2001/02	HBL <sub>1</sub>	3,60,000	4,01,700	41,700	1.12	NMB	Redeemable
2003/04	NIBL <sub>1</sub>	3,00,000	3,00,000			AFCL	Redeemable
2004/05	EBL	3,00,000	5,13,000	2,13,000	1.71	CIT	Redeemable
2005/06	BOKL	2,00,000	2,66,620	66,620	1.33	NMB	Redeemable
2005/06	NIBL <sub>2</sub>	2,50,000	2,56,825	6,825	1.03	AFCL	Redeemable
2005/06	NICBL	2,00,000	2,00,000			AFCL	Redeemable
2005/06	NSBIBL	2,00,000	2,32,400	32,400	1.16	CIT	Redeemable
2007/08	NIBL <sub>3</sub>	2,50,000	3,00,000	50,000	1.20	AFCL	Redeemable
2008/09	KBL	4,00,000	4,05,258	5,258	1.01	NMB	Redeemable
2008/09	HBL <sub>2</sub>	5,00,000	5,00,000			ACDB	Redeemable
2008/09	NIBL <sub>4</sub>	2,50,000	3,00,000	50,000	1.20	ACDB	Redeemable
2008/09	NABIL	3,00,000				NIDC	Redeemable
2008/09	SBL	4,00,000	400,000		1.0	ACDB	Redeemable
2008/09	LBL	3,50,000	3,50,000		1.0	NMB	Redeemable

Source: Annual Report of SEBO/N 2008/09, and Trading Report of Issue Manager

After nearly one and a half year after issuing of HBL debentures. Nepal Investment Bank Ltd. (NIBL<sub>1</sub>) has issued corporate bond. Table 4.1 shows that it had issued “7.5% Nepal Investment Bank Ltd. Bond–2067” with par value Rs. 1,000 and interest paid semi-annually of Rs. 300 million in the FY 2003/04, with maturity period of 7 years. Similarly, this bank also issued 100,000 units to the general public and 200,000 units were privately placed out of 300,000 units of issue. The interest rate offered by NIBL<sub>1</sub> was one percent lower than that in HBL’s debenture (where it was 8.5% with semi-annual payment arrangement). NIBL<sub>1</sub> bond was issued and managed by AFCL. Table 4.2 shows that total no. of debentures issued was 300,000 units and total no. of debentures applied was 300,000 units because of after full subscription, debenture issuance was stopped.

Similarly, Bank of Kathmandu Ltd. had issued “ Bank of Kathmandu bond, 2069” of Rs. 200 million with 6% coupon interest paid semi-annually in the FY 2004/05 Table 4.1 shows that the par value of debenture was Rs. 1,000, with maturity period of seven years (i.e. redeemable after 7 years). 50,000 were issued to the general public and 150,000 units were privately placed out of 200,000 units of issue. Table 4.2 shows that total no. of bonds issued was 200,000 units and no. of bonds applied was 266,620 units. This shows that it was oversubscribed by 66,620 units. Its over subscription rate was 1.33 times. The bond was issued and managed by NMB.

Likewise, Everest Bank Ltd. (EBL) also had issued debenture of Rs. 300 million with 6% coupon interest paid semi-annually in the FY 2004/05. Table 4.1 shows that the par value was Rs. 1,000 with maturity period of 7 years. Out of 300,000 units of issue, 50,000 units were issued to the general public and 250,000 units were privately placed. Table 4.2 shows that EBL bond was issued and managed by CIT. Total no. of debenture issued was 300,000 units and no. of debenture applied was 513,000 units. It was oversubscribed by 213,000 units. The over subscription rate 1.71 times shows that it was heavily subscribed.

Again for the second time, Nepal Investment Bank Ltd. (NIBL<sub>2</sub>) has issued “Nepal Investment Bank Bond-2070” (with 6% coupon interest rate paid semi-annually) in the FY 2005/06. The par value of debenture is Rs. 1,000, with maturity period of 7 years (See Table 4.1). NIB bond-2070 is issued on 2063/02/26. Out of 250,000 units of issue, 80,000 were issued to the general public and 170,000 units were privately placed. The bond is issued and managed by AFCL. Total no. of debenture issued is 250,000 units and no. of debenture applied is 256,825 units. It is over subscribe by 6,825 units. The over subscription rate is 1.03 times (See Table 4.2).

Thereafter, Nepal Industrial and Commercial Bank Limited has issued Rs. 200 million “NIC Bond–2070” (with 6% coupon interest paid semi-annually) in the FY 2005/06. Out of 200,000 units of issue (with par value Rs. 1,000), 50,000 units are issued to the general public and 150,000 units are privately placed. The bond is redeemable after 7 years (See Table 4.1). The bond is issued on 2063/02/29. The bond is issued and managed by AFCL. Total no. of debenture issued is 200,000 units and no. of debenture applied is 200,000 units (See Table 4.2). This shows that after full subscription, debenture issuance has been stopped.

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 200,000 units of issue, 50,000 units are issued to the general public and 150,000 units are privately placed (See Table 4.1). The bond is issued on 2063/03/20. Its issue manager is CIT. Total no. of bonds issued are 200,000 units and no. of bonds applied are 232,400 units. It is over subscribe by 32,400 units. The over subscription rate is 1.16 times (See Table 4.2).

Again after a three years, Nepal Investment Bank Ltd. (NIBL) has issued Rs. 250 million “6.25% Nepal Investment Bank Bond-2071” (with maturity period of 7 years and semi-annual coupon payment) in the FY 2007/08. Out of 250,000 units of issue, 50,000 units are issued to the general public and 200,000 units are privately placed (See Table 4.1). The bond is issued on 2064/02/16. Its issue manager is ACFL. Total no. of bonds issued are 250,000 units and no. of bonds applied are 300,000 units. It is over subscribe by 50,000 units. The over subscription rate is 1.20 times (See Table 4.2).

Similarly, Kumari Bank Limited (KBL) has issued Rs. 400 million “8% Kumari Bank Limited Bond-2070” (with maturity period of 5 years and semi-annual coupon payment) in the FY 2007/08. Out of 250,000 units of issue, 50,000 units are issued to the general public and 200,000 units are privately placed (See Table 4.1). The bond is issued on 2064/02/16. Its issue manager is ACFL. Total no. of bonds issued are 250,000 units and no. of bonds applied are 300,000 units. It is over subscribe by 50,000 units. The over subscription rate is 1.20 times (See Table 4.2).

After a 7 years, again Himalayan Bank Ltd. (HBL) has issued “8% Himalayan Bank Bond-2072” with par value Rs. 1,000 and semi-annual interest payment of Rs. 500 million in the FY 2008/09, with 7 years maturity periods. 100,000 units were privately placed and 400,000 units were issued to the general public out of 500,000 units of issue (Table 4.1). Table 4.2 shows that total no. of debentures issued was 500,000 units whereas total no. of debentures applied was also 500,000 units. It was neither oversubscribed nor under subscribed. Its issue was managed by ACDB.

After issuing of debenture three times, again Nepal Investment Bank Ltd. has issued Rs. 250 million “8% Nepal Investment Bank Bond-2072” (with maturity period of 7 years

and semi-annual coupon payment) in the FY 2008/09. Out of 250,000 units of issue, 50,000 units are issued to the general public and 200,000 units are privately placed (See Table 4.1). The bond is issued on 2065/03/02. Its issue manager is Ace Development Bank Ltd. Total no. of bonds issued are 250,000 units and no. of bonds applied are 300,000 units. It is over subscribed by 50,000 units. The over subscription rate is 1.20 times (See Table 4.2).

After the issuing of four times debenture by NIBL, one of the most leading commercial bank of Nepal called Nabil Bank Limited (NBL) has issued Rs. 300 million “8.5% Nabil Bank Bond-2075” (with the highest maturity period of 10 years from commercial band, semi-annual coupon payment) in the FY 2008/09. Out of 300,000 units of issue, 60,000 units are issued to the general public and 240,000 units are privately placed (See Table 4.1). The bond is issued on 2065/03/15. Its issue manager is NIDC. Total no. of bonds issued are 300,000 units (See Table 4.2) and bonds are redeemable.

After the issuing of bond by Nabil Bank Limited, another commercial bank of Nepal called Siddhartha Bank Limited (SBL) has also issued Rs. 400 million “8% Siddhartha Bank Limited Bond-2072” (with maturity period of 7 years and semi-annual coupon payment) in the FY 2008/09. Out of 400,000 units of issue, 80,000 units are issued to the general public and 320,000 units are privately placed (See Table 4.1). The bond is issued on 2065/06/09. Its issue manager is ACDB. Total no. of bonds issued are 400,000 units. It is neither oversubscribed nor under subscribed (See Table 4.2).

Finally till the report writing, Laxmi Bank Ltd. (LBL) has issued Rs. 250 million “8.5% Laxmi Bank Limited Bond-2072” (with maturity period of 7 years and semi-annual coupon payment) in the FY 2008/09. Out of 350,000 units of issue, 50,000 units are issued to the general public and 300,000 units are privately placed (See Table 4.1). The bond is issued on 2065/06/26. Its issue manager is ACDB. Total no. of bonds issued are 350,000 units and no. of bonds applied are also 3,62,500 units. It is over subscribe by 12,500 units. The over subscription rate is 1.21times (See Table 4.2).

The over subscription trend of corporate bond issued by banking sector shows that Nepalese corporate bond market has better future growth prospects. The high subscription of corporate debt securities attracts issuing companies towards debenture markets. After

one year gap is seen in HBL bond issue, continuous issuing of debenture securities is seen thereafter. Four Nepalese banks have issued corporate bond in the same FY 2005/06 but found heavily oversubscribed and/or slightly oversubscribed. And again, other four new leading commercial banks KBL, NABIL, SBL and LBL have issued corporate bond where as HBL and NIBL has repeated in FY 2008/009. This means, more of such bond issues can be expected in the future. But the under subscription of manufacturing sectors shows that the investors prefer to invest in corporate debt securities of only banking sectors. The number of investors as well as the number of issuing companies is increasing. Recently, many factors shows that the corporate debt securities market has started to grow in comparison to the past. But we can see that there seems to be a trend of declining response to debentures as the numbers of issuing companies are increasing.

#### 4.1.2 Valuation of Nepalese Corporate Debt Securities

Bonds, like any other financial assets, can be valued by estimating the total present value of these flows by using an appropriate discount rate (i.e. market interest rate). This approach is generally much easier to apply to fixed types of securities. This study used the valuation model  $[V_b = I (PVIFA, k, n) + M (PVIF, k, n^{th})]$  developed by Brigham and Houston (2001) for valuation of Nepalese corporate debt securities. Valuation of debenture depends on its contractual features as described above. Above mention model is used for a standard coupon bearing bond issued by corporate bodies. As the corporate bond issued by three manufacturing companies (Bottlers Nepal, Joti Spinning Mills Ltd., and Shree Ram Sugar Mills Ltd.) had already been matured, only non-matured bond of other seven companies (HBL<sub>1</sub>, NIBL<sub>1</sub>, EBL, BOKL, NIBL<sub>2</sub>, NICBL, NSBI BL, NABIL<sub>3</sub>, KBL, HBL<sub>2</sub>, NIBL<sub>4</sub> NABIL, SBL and LBL) valuation has been done. The cash flows consist of interest payments during the life of the bond, plus the amount borrowed (Rs. 1,000 par value) when the bond matures. This study assumes that market interest rate (YTM) remains constant during the maturity period of debentures.

As noted earlier the holder of bond receives a fixed annual interest payment for a certain number of years and a fixed principal repayment (equal to par value) at the time of maturity.

Hence, the present value of these debentures is presented in the Table 4.3.

Table 4.3: Valuation of Corporate Debt Securities

Companies	YTM	CIR	Par Value (Rs.)	P V (Rs.)	Buy/Sell Decision
HBL <sub>1</sub>	5.63%	8.5%	1,000	1015.85	Buy
NIBL <sub>1</sub>	4.50%	7.5%	1,000	1049.37	Buy
EBL	4.48%	6%	1,000	1023.70	Buy
BOKL	4.45%	6%	1,000	1029.71	Buy
NIBL <sub>2</sub>	4.45%	6%	1,000	1029.71	Buy
NICBL	4.45%	6%	1,000	1029.71	Buy
NSBIBL	4.45%	6%	1,000	1029.71	Buy
NIBL <sub>3</sub>	5.25%	6.25%	1,000	1047.24	Buy
KBL	5.25%	8%	1,000	1098.08	Buy
HBL <sub>2</sub>	5.25%	8%	1,000	1149.78	Buy
NIBL <sub>4</sub>	5.25%	8%	1,000	1122.55	Buy
NABIL	5.25%	8.5%	1,000	1240.67	Buy
SBL	5.25%	8%	1,000	1149.78	Buy
LBL	5.25%	8.5%	1,000	1188.39	Buy

Source: Annex-II

Table 4.3 shows that NIBL<sub>1</sub> debenture value (i.e., Rs.1240.67) is greater than all other debentures value. Debentures of HBL<sub>1</sub>, NIBL<sub>1</sub>, EBL, BOKL, NIBL<sub>2</sub>, NICBL, NSBI BL, NIBL<sub>3</sub>, KBL, HBL<sub>2</sub>, NIBL<sub>4</sub>, NABIL, SBL, and LBL were under priced due to the higher value than their market price. As stated by previous studies, when the market interest rate is equal to the coupon rate the value of bond is equal to its par value. Similarly, when the market interest rate is greater than the coupon rate, the value of bond is less than its par value while the market interest rate is less than the coupon rate; the value of a bond is more than its par value. This last concept was strongly supported by Nepalese corporate debt securities. As shown in the table, for NABIL market interest rate (i.e., 5.25%) is less than the coupon interest rate (i.e., 8.5%), the present value of NABIL (i.e., Rs.1240.67) is more than its par value (i.e., Rs.1000). Similarly, for NIBL<sub>1</sub> market interest rate (i.e., 5.25%) is less than the coupon rate (i.e., 7.5%), the present value of NIBL<sub>1</sub> (i.e., Rs.1049.37) is more than its par value (i.e., Rs.1000). In the similar manner, coupon rate of EBL, BOKL, NIBL<sub>2</sub>, NICBL, NSBI BL, NIBL<sub>3</sub>, KBL, HBL<sub>2</sub>, NIBL<sub>4</sub>, NABIL, SBL

and LBL are greater than market interest rate, and due to that their present values are greater than their par values.

The basic concepts of valuation discussed above provide the foundation for investment decisions. A security's investment determines its prices and value. The professional investors follow the more scientific procedure of forming estimates of a security's value before they make a decision to buy or sell the security. Buying-selling decisive rules as, described by Francis (1986), examined this study for Nepalese Corporate debt securities as in the following way:

If a security's market price is below its value, it is under priced and should be bought and held in order to profit from price gains thinking that profit should occur in the future. Similarly, if a security's market price equals its value, the price is in equilibrium and is not expected to change. If the security's market price is above the security's value, the security is overpriced; security should be sold in order to avoid losses. When its prices fall down to the level of its value, then it may be sold short in order to make profit from the expected price decline. As corporate debt securities issued by above mentioned companies coupon rate are greater than market interest rate, their debt securities present value are more than their par values. This shows that the above mentioned debentures are under priced. So, such under priced debenture should be bought in order to made profit in the future from price gain.

#### 4.1.3 Duration of Nepalese Corporate Debt Securities.

The duration is a measure of the 'average maturity' of the stream of payments associated with a bond. A bond's duration is considered to be an appropriate measure of its time structure than its years-to-maturity because it reflects the amount and time of every cash flow rather than merely the length of time until the final payment occurs. Duration is directly related to term and inversely related to coupon and yield to maturity. This study has been based on the model developed by F.R. Macaulay (1938) for calculating the weighted average time of Nepalese corporate debt securities.

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

Where,

MD = Macaulay Duration

Y = Market Interest Rate (YTM)

T = Term to Maturity

C = Coupon Interest Rate

The duration of Nepalese corporate debt securities is presented in Table 4.4.

Table 4.4: Duration of Nepalese Corporate Debt Securities

Companies	YTM	C I R	Duration	Maturity Period
HBL <sub>1</sub>	5.63%	8.5%	5.55 yrs.	7 yrs.
NIBL <sub>1</sub>	4.50%	7.5%	5.70 yrs.	7 yrs.
EBL	4.28%	6%	5.89 yrs.	7 yrs.
BOKL	4.45%	6%	5.89 yrs.	7 yrs.
NIBL <sub>2</sub>	4.45%	6%	5.89 yrs.	7 yrs.
NICBL	4.45%	6%	5.89 yrs.	7 yrs.
NSBIBL	4.45%	6%	5.89 yrs.	7 yrs.
NIBL <sub>3</sub>	5.25%	6.25%	4.76 yrs	7 yrs.
KBL	5.25%	8%	3.90 yrs	5 yrs.
HBL <sub>2</sub>	5.25%	8%	5.30 yrs	7 yrs.
NIBL <sub>4</sub>	5.25%	8%	5.30 yrs	7 yrs.
NABIL	5.25%	8.5%	7.29 yrs	10 yrs.
SBL	5.25%	8%	5.30 yrs	7 yrs.
LBL	5.25%	8.5%	5.30 yrs	7 yrs.

Source: Annex-III

The result presented in the Table 4.4 shows that all the fourteen corporate debt securities have less actual term-to-maturity than their book-term-to-maturity. HBL<sub>1</sub> duration 5.55 years is less than its maturity period 7 years. Also for HBL<sub>1</sub>, market interest rate is less than coupon interest rate. Similarly, duration of bond of NIBL<sub>1</sub>, EBL, BOKL, NIBL<sub>2</sub>, NICBL, NSBI BL, NIBL<sub>3</sub>, HBL<sub>2</sub>, NIBL<sub>4</sub>, NABIL, SBL and LBL are less than their maturity periods. Also their coupon rates are higher than market interest rate. This shows that when market interest rate is less than the coupon rate, the duration is less than its maturity period. The investors may not wait for whole return until the maturity period. The investor receives income prior to the maturity date as described by Alexander et. al.: (2002).

Similarly, duration and price volatility are closely related. Duration is directly related to price volatility because bonds with longer duration will experience more price volatility if interest rate changes. Bonds with long duration have more price risk than that of short-

duration. Therefore, Nepalese corporate debt securities have less price risk because of less duration than their term-to-maturity (i.e., 5.55 years < 7 years for HBL<sub>1</sub>, 5.70 years < 7 years for NIBL<sub>1</sub>, 5.89 years < 7 years for EBL, 5.89 years < 7 years for BOKL, 5.89 years < 7 years for NIBL<sub>2</sub> and so on). Furthermore, we can see in the above table that, decreases in bonds coupon rate (i.e., for HBL 8.5% with duration 5.55 years, for NIBL<sub>1</sub> 7.5% with duration 5.70 years, for EBL 6% with duration 5.89 years and so on) increases bonds duration (See Table 4.4). This shows that duration is inversely related to coupon interest rate

## 4.2 Presentation and Analysis of Primary Data

### 4.2.1 Introduction

This investigation deals with the study of the opinions of respondents with respect to “Problems and Prospects of Corporate Debt Market in Nepal”. This study mainly based on questionnaire survey of the opinions of 112 respondents. Out of 112 respondents, 23 belongs to listed companies in different sectors of business, 12 respondents belongs to issue manager/ broker, 59 belongs to individual investors, 18 belongs to experts group in related field. The classification of the respondents into listed companies, issue manager/broker, individual investors, and experts on the related field has been made in order to systematically analyzing the difference in their opinions with respects to problems and prospects of corporate debt market in Nepal. These aspects include assessing priority for raising long-term fund, type of long-term investment preferable, preferred sector debenture issue, major factor hindrances the smooth growth of Nepalese corporate bond market, , and reasons for using bank loan instead of issuing bond.

Never the less, the pro- forma structured details of respondents and questionnaires obtained are presented in appendix V and VI

In order to assess whether the difference in the opinions of the listed companies, issue manager/broker, individual investors and experts as to the major aspects of corporate bond market in Nepal is significant, chi-square values are computed and the results are presented. Similarly, the response to each choice in those questions where choices are to be ranked is weighted by the value of the rank assigned to it by the respondents. And

weighted arithmetic mean is calculated. With the help of this, average weighted arithmetic mean is calculated to find the overall rank for each choice of the listed companies, issue manager/broker, individual investors, experts and all respondents.

#### 4.2.2 Study of Opinions Major Aspects of Corporate Debt Market in Nepal:

##### Q.No.1 Choice of Securities for Raising Long-term Fund:

In their overall ranks for raising long-term fund by using different options such as common stocks, preferred stocks, debt securities, bank loan and others. The majority of respondents gave their first priority to option 'a' (common stocks), second priority to option 'd' (bank loan), third priority to option 'c' (corporate bond), fourth priority to option 'b' (preferred stocks) and finally no respondents have not shown any response towards option 'e' (others)

Table 4.5: Choice of securities for Raising Long-term Fund by all Respondents:

Options	L.C.	I.M./B	Ind. Inv.	Experts	Total
(a)	11	6	37	8	62 (55.35)
(b)	2	0	4	0	6 (5.36)
(c)	4	2	8	4	18 (16.07)
(d)	6	4	10	6	26 (23.21)
(e)	0	0	0	0	0 (0)
Total	23 (100)	12 (100)	59 (100)	18 (100)	112 (100)

Source: Annex-V

After analyzing the data received by all respondents on choice of securities for raising long term fund, Table 4.5 shows that out of 112 total respondents, 55.35% respondents gave their first priority to common stocks, 23.21% respondents gave their first priority to bank loan, 16.07% respondents gave their first priority to debt/ debenture securities, 5.36% respondents gave their first priority to preferred stock while no priority to others. So the analysis shows that the highest 55.35% respondents gave their first priority to common stocks.

Furthermore, each group response on choice of securities for raising long-term fund is analyzed. The majority of respondents, i.e. 47.83% listed companies, 50% issue

manager/broker, 62.71% individual investors and 44.44% experts gave their first priority to common stock for raising long-term fund (See Table 4.5). As the practice of issuing common stock is very popular in the Nepalese capital market, majority of investors are familiar with these securities only.

Common stock market has dominated Nepalese capital market because of very few practice of issuing other investment alternatives as preferred stock, corporate bond, and very few availability of investment alternatives majority of investors are familiar with common stock only. Majority of the companies used common stock for raising long-term fund, as it is already popular to investor and easily subscribe.

Q.No.2. Preferable for Long-term Investment:

In their overall ranks about the type of long-term investment preferable, majority of respondents gave their first preference to option 'b' (government debt securities), second preference to option 'd' (real assets), third preference to option 'c' (corporate debt securities), and no one give their priority to option 'a' (Debt securities of Manufacturing Sector).

Table 4.6: Priority for Long-term Investment by all Respondents

Options	L.C.	I.M./B	Ind. Inv.	Experts	Total
(a)	0	0	0	0	0 (0)
(b)	10	8	28	7	53 (47.32)
(c)	5	2	13	5	25 (22.32)
(d)	8	2	18	6	34 (30.36)
Total	23 (100)	12 (100)	59 (100)	18 (100)	112 (100)

Sources: Annex-V

After analyzing the data received by all respondents on priority for long-term Investment by all respondents, Table 4.6 shows that out of total respondents (i.e., 112), 47.32% respondents gave their first preferences to invest in government debt securities, 30.36% respondents gave their first preferences to invest in real assets, only 22.32% respondents gave their first preferences to invest in corporate debt securities and no any respondents gave their first preference to invest in Manufacturing debt securities. This shows that the

majority of the respondents gave first preference to invest in government debt securities. But second highest percentage of respondents gave their first priority to invest in real assets as these have high capital gain and less investment risk. Thirdly, only 22.32% respondents give first priority to invest in corporate debt securities as these have higher risk in comparison other two alternatives.

Furthermore, each group's response on preferable type of long-term investments is analyzed. The majority of respondents, i.e. 43.48% listed companies, 66.67% issue managers/brokers & market makers, 38.89% experts, and 47.45% individual investors gave their first preference to invest in government securities. Least preference was given to first option 'a' (manufacturing debt securities) i.e. only 0%. This infers that Nepalese investors are least interested to corporate debt securities in comparison to government debt securities and real assets although they have good return with less investment risk.

Q.No.3 Choices of various sectors' Debenture Issuers:

Banking sector, manufacturing sector, hotel, finance companies, and others are option available to respondents for giving their preferences on the choice of debenture issue sector. In their overall ranks about the preference on choice of various sectors' debenture issue, majority of respondents gave their first priority to option 'a' (banking sector), second priority to option 'd' (finance companies), third priority to option 'b' (manufacturing sector), fourth priority to option 'c' (hotel) and fifth priority to other sectors –Annex - V.

Table 4.7: Choices of Various Sectors Debenture Issue by all respondents

Options	L.C.	I.M./B.	Ind. Inv.	Experts	Total
(a)	21	12	51	15	99 (88.39)
(b)	0	0	3	0	3 (2.68)
(c)	0	0	3	0	3 (2.68)
(d)	2	0	2	3	7 (6.25)
(e)	0	0	0	0	0 (0)
Total	23 (100)	12 (100)	59 (100)	18 (100)	112 (100)

Source: Annex-V

After analyzing the data received by all respondents on choices of various sectors' debenture issue by all respondents, Table 4.7 shows that out of total respondents (i.e., 112), majority of the respondents i.e., 88.39% respondents gave their first priority on banking sector's debenture issue. Similarly, 6.25% respondents gave their first priority on finance companies and only 2.68% respondents gave their first priority on manufacturing sector and remaining 2.68% respondents gave their first priority on hotel sector's debenture issue. None of them gave their first priority on other sectors' debenture issue.

In addition, while analyzing each group's responses on their priority, we see these results. The majority of respondents, i.e. 91.30% listed companies, 100% issue managers/brokers, 86.44% individual investor and 83.33% experts have given their first priority on banking sector's debenture issue (Table 4.7).

This infers that banking sectors' debenture issue is most preferable to majority of respondents which is due to the reason that they find this sector is less risky for investment in comparison to other sectors. Then finance companies, manufacturing and hotel sectors' debenture issue is preferable but in least. So, all other sectors should disclose their performance reports like information to the general public or investors in order to attract them towards their debenture securities.

Q. No. 4 Reasons for slow growth of Nepalese corporate debt market in Nepal:

In their overall ranks for the major reasons for slow growth of Nepalese corporate debt market, majority of the respondents gave their first priority to option 'a' (lack of investors awareness towards debt securities), second priority to option 'd' (limited issuance of quality bonds), third priority of option 'c' (lack of proper legal provision), fourth priority of option 'b' (lack of capital gain opportunity) and finally fifth priority to option 'e' (poor practice of information disclosure by private organization).

Table: 4.8 Reasons for slow growth of Nepalese corporate debt market

Options	L.C.	I.M./B.	Ind. Inv.	Experts	Total
(a)	10	3	29	5	47 (41.96)
(b)	2	2	7	2	13 (11.61)

(c)	5	3	8	4	20 (17.85)
(d)	4	2	11	5	22 (19.64)
(e)	2	2	4	2	10 (8.93)
Total	23 (100)	12 (100)	59 (100)	18 (100)	112 (100)

Source: Annex-V

After analyzing the data received by all respondents on reasons for slow growth of Nepalese corporate debt market in Nepal, Table 4.8 shows that out of total 112 respondents, majority of respondents i.e. 41.96% respondents gave their first reasons due to lack of investor's awareness towards debt securities which is reason for the slow growth in debt market, 19.64% respondents gave their reason because of limited issuance of quality of bonds, 17.85% respondents gave their reasons due to lack of proper legal provision, 11.61% respondents gave their reasons for lack of capital gain opportunity and finally 8.93% minimum respondents gave their reasons due to poor practice of information disclosure by private organization.

In addition, while analyzing each group's responses on their reasons, we see these results. The majority of respondents, i.e. 43.47% listed companies, 25% issue managers/brokers, 49.15% individual investors and 27.78% experts gave their first priority due to lack of investors awareness towards debt securities ( Table 4.8). The above table clearly shows that the most important factor for slow growth of Nepalese corporate debt market is lack of investor's awareness.

**Q. No. 5 Factors that Plays Vital Role to Attract Investors towards Purchasing Corporate Debentures:**

In overall ranks for the factors that plays significant role to attract investors towards corporate debenture, majority of the respondents gave their first opinion to option 'a' (declining interest rate on bank deposits), second opinion to option 'e' (less risky in comparison to common stock and preferred stock), third opinion to option 'b' (lack of investment alternatives), fourth opinion to option 'd' (portfolio with less risk), last opinion to option 'c' (fixed income).

**Table 4.9: Factors that Plays Vital Role to Attract Investors towards Purchasing Corporate Debentures:**

Options	L.C.	I.M./B.	Ind. Inv.	Experts	Total
(a)	7	6	23	10	46 (41.07)
(b)	3	1	7	0	11 (9.82)
(c)	2	2	11	0	15 (13.39)
(d)	5	0	6	3	14 (12.50)
(e)	6	3	12	5	26 (23.22)
Total	23 (100)	12 (100)	59 (100)	18 (100)	112 (100)

Source: Annex-V

After analyzing the data received by all respondents on factors that plays vital role to attract investors towards purchasing corporate debentures. Table 4.9 shows that out of total respondents (112), 41.07% respondents' purchase of corporate debt/debenture because of declining interest rate on bank deposits. Similarly, 23.22% respondents purchase of corporate debenture due to less risky in comparison to common stock and preferred stock, 13.39% respondents purchase of corporate debenture securities due to fixed income. While 12.50% respondents want to invest their investment because of portfolio with less risk and finally 9.82% respondent purchase of corporate debenture securities because of lack on investment alternatives.

Furthermore, while analyzing each group responses on their priority we see these responses. The majority of respondents, i.e. 30.43% listed company, 50% issue manager/broker, 38.98% individual investors and also 55.55% experts have given their first priority on declining interest rate on deposit. Also the respondents gave least interest towards corporate bond/debenture due to very few investment alternatives available in Nepalese capital market. If debenture is issued at that time investors gets an opportunity to invest on it. So, if the quality bonds are issued then surely these fixed income securities influence the investors towards corporate bond, (See Table 4.9).

Q.No.6 Reasons for using bank loan instead of issuing bond by Nepalese Organization:

In their overall ranks on reasons for using loan instead of issuing bond by Nepalese organization, majority of respondents gave their first priority to option 'a' (bank loan is easily available), second priority to option 'b' (collection of funds by issuing bond is a lengthy and difficult process), this priority of option 'c' (cost of bank loan is less than that of bond issue), and last priority of option 'd' (others).

Table 4.10: Reasons for using bank loan instead of issuing debenture by Nepalese Organization:

Options	L.C.	I.M./B.	Ind. Inv.	Experts	Total
(a)	11	7	30	9	57 (50.89)
(b)	7	5	13	6	31 (27.68)
(c)	3	0	11	3	17 (15.18)
(d)	2	0	5	0	7 (6.25)
Total	23 (100)	12 (100)	59 (100)	18 (100)	112 (100)

Source: Annex-V

After analyzing the data received by all respondents on priority of reasons for using bank loan instead of issuing bonds/debentures by Nepalese organizations, Table 4.10 shows that out of total respondents (i.e. 112), 50.89% respondents gave their first priority to bank loan instead of bonds issue as it is easily available, 27.68% respondents gave their first priority to bank loan because the collection of funds by issuing bond is a lengthy and difficult process, while 15.18% respondents gave their first priority to bank loan due to less costly, finally 6.25% respondents gave their first priority to bank loan instead of bond issue.

Furthermore, each group's response on reasons for using bank loan instead of issuing bond is analyzed. The majority of respondents, i.e. 47.82% listed companies, 58.33% issue managers/brokers, 50.84% individual investors and finally, 50% experts gave their first priority to bank loan instead of issuing debentures/bonds by Nepalese corporate organizations. Similarly, 58.33% of issue managers/brokers gave their first priority to bank loan as the collection of funds by issuing bond is a lengthy and difficult process. The majority of respondents gave their first priority to bank loan instead of issuing corporate debentures because of less costly and easily available source of financing.

Q. No. 8 Due to the lack of large corporate houses, public awareness, various kind of debt instruments are not practiced in Nepal:

The Above question had been asked in order to analyze poor practice of debt instruments in Nepal due to lack of large corporation houses, public awareness and various kinds of debt instruments are not practiced in Nepal. Out of total 112 respondents 75.89% respondents agreed with the statement asked while 24.11% of respondents disagreed with

the statement which shows in the table 4.11. The majority of respondents believe that large flotation costs at the time of issue can be bear by only large corporate houses. These big corporate houses can raise required funds easily and they did not need to issue bonds like securities. Therefore only fewer companies have been practicing issuing of corporate debenture/ bond like securities.

Table: 4.11 Profile of Respondents on Poor Practice of Various Kinds of Debt Instruments, due to Lack of Large Corporate Houses:

Options	L.C.	I.M./B.	Ind. Inv.	Experts	Total
Yes	16	10	44	15	85 (75.89)
No	7	2	15	3	27 (24.11)
Total	23 (100)	12 (100)	59 (100)	18 (100)	112 (100)

Source: Annex-VI

Furthermore, to analyze each group response on “Yes” or “No” on the statement that due to lack of large corporate houses, public awareness, and various kinds of debt instruments are not practiced in Nepal, the majority of respondents, i.e. 69.57.73% listed companies, 83.33% issue manager/brokers and experts, and 74.58% individual investors said “Yes” with the statement and remaining said “No” with the statement (See Table 4.11. This indicates that due to the lack of large corporate houses, various kinds of debt instrument are not practiced in Nepal.

Q. No. 9 Present rules and regulations sufficient for Nepalese capital market growth for corporate debt market in Nepal:

A question had been asked to the total no. of respondents about sufficient of the present rules and regulations for Nepalese corporate market growth for corporate debt in Nepal, Table: 4.12 shows that out of 112 total respondents, 28.57% respondents were satisfied with the sufficiency of the present rules and regulations of Nepal capital market growth for corporate debt in Nepal while the major portion 71.43% respondents was not satisfied with legal provisions. The majority of respondents replied that the present rules and regulations are not sufficient for Nepalese capital market growth for corporate debt in Nepal.

Table: 4.12 Profile of Respondents on Sufficiency of Present Rules and Regulations  
Related to Debt Securities Market in Nepal:

Options	L.C.	I.M./B.	Ind. Inv.	Experts	Total
Sufficient	7	3	17	5	32 (28.57)
Insufficient	16	9	42	13	80 (71.43)
Total	23 (100)	12 (100)	59 (100)	18 (100)	112 (100)

Source: Annex-VI

In addition, while analyzing each group's response on sufficiency of present rules and regulation for Nepalese capital market growth for corporate debt market in Nepal, the majority of respondents i.e. 69.57% listed companies, 75% issue managers/brokers, 71.18% individual investors and finally 72.22% experts have not satisfied with the present rules and regulations of Nepalese capital market is sufficient.

Q. No. 10 Political instability hinders the growth of corporate debt market in  
Nepal:

A question had been asked to total no of respondents about the political instability hinder the growth of corporate debt in Nepal. Out of total respondents (i.e. 112), 83.04% respondents think that the political instability is the barrier for the growth of corporate debt market while 16.96% do not think that the political instability really affect the growth of corporate debt market in Nepal. The majority of respondents think that political instability is the barrier for the growth of corporate debt market in Nepal.

Table: 4.13: Profile of Respondents on Political Instability Hinder the Growth of  
Corporate Debt Market in Nepal:

Options	L.C.	I.M./B.	Ind. Inv.	Experts	Total
Yes	17	10	51	15	93 (83.04)
No	6	2	8	3	19 (16.96)
Total	23 (100)	12 (100)	59 (100)	18 (100)	112 (100)

Source: Annex-VI

Furthermore, each group response on the political instability hinders the growth of Nepalese corporate debt market is analyzed. The majority of respondents, i.e. 73.91% listed companies, 83.33% issue managers/brokers and experts, and 86.44% individual investors agree with the statement that the political instability hinder the growth of Nepalese corporate debt market. And the very few respondents i.e., 16.67% respondents disagree with the statement that the political instability hinders the growth of Nepalese corporate debt market (See Table 4.13. This means that only political instability is the major factor that hinders the growth of Nepalese corporate debt market.

**Q.No.11 Present Pace of Corporate Debenture (Bond) Market Growth in Nepal:**

A question had been asked with five options to the total no. of respondents to get their opinion about present pace of corporate debenture market growth in Nepal. Out of total respondents (i.e., 112), 66.07% respondents present their opinion that present pace of corporate debenture market growth in Nepal is weak, 19.64% respondents agree with option satisfactory, 7.14% respondents agree with the option very weak, 5.36% respondents agree with the option very good while very few 1.78% respondents agree with the option 'don't know' as mentioned in the following Table 4.14. This indicates that if some homework is done (i.e., revising legal rules and regulation and making it workable for the mutual benefits of issuers and investors, providing better infrastructure facilities continuously for the systematic growth of capital market, punishing the cheaters, making computerized system instead of open cry in NEPSE, establishing credit rating agencies, and making compulsion for timely disclosure of information etc.) then surely corporate debenture market move towards its development.

**Table 4.14: Responses of Respondents on Present Pace of Corporate debenture Market Growth in Nepal:**

Options	L.C.	I.M./B	Ind. Inv.	Experts	Total
Very good	2	2	2	0	6 (5.36)
Satisfactory	4	2	12	4	22 (19.64)
Weak	15	6	39	14	74 (66.07)
Very Weak	2	2	4	0	8 (7.14)
Don't know	0	0	2	0	2 (1.78)
Total	23 (100)	12 (100)	59 (100)	18 (100)	112 (100)

Source: Annex -VI

In addition, each group's responses on present pace of corporate debenture market growth in Nepal are analyzed. The majority of respondents, i.e. 65.22% listed companies, 50% issue managers/brokers, 66.10% individual investors and 77.78% experts present their opinions that present pace of corporate debenture market growth in Nepal is weak. Second majority of respondents are agreed with option satisfactory while 1.78% respondents present their opinions to option don't know and they are individual investors which can be seen in the Table 4.14. This shows that a lot of work is needed from the concerned authority, government bodies, SEBO/N, NEPSE and other concerned experts group for the development of corporate debenture market which is still in the creeping stage of its development.

### 4.2.3 Test of Hypothesis

Testing of Hypothesis in Q. No. 1

#### Hypothesis – 1

In random samples of respondents, it contains the following distribution which was noted on the basis of related fields. The test is to draw the choices of various sector's debt securities by Nepalese investors.

Table 4.15 Hypothesis Test Regarding to the Appropriate Source of financing for Raising Long-term Fund by all Respondents:

Options	L.C.	I.M./B	Ind. Inv.	Experts	Total
(a)	11	6	37	8	62 (55.35)
(b)	2	0	4	0	6 (5.36)
(c)	4	2	8	4	18 (16.07)
(d)	6	4	10	6	26 (23.21)
(e)	0	0	0	0	0 (0)
Total	23 (100)	12 (100)	59 (100)	18 (100)	112 (100)

Source: Field Survey

## Hypothesis Setting

Null Hypothesis ( $H_0$ ): There is no significant difference between observed and expected frequencies regarding to the choice of securities.

Alternative Hypothesis ( $H_1$ ): There is significant difference between observed and expected frequencies regarding to the choice of securities.

Fixing the level of significance at 5%

Calculation of expected frequencies (E):

$$\text{Expected Frequency of } R_i C_j = \frac{\text{Row Total} \times \text{Column Total}}{\text{Grand Total}}$$

$$R_1 C_1 = \frac{62 \times 23}{112} = 10.71$$

112

Similarly,

$$R_1 C_1 = 12.73 \quad R_2 C_1 = 1.23 \quad R_3 C_1 = 3.69 \quad R_4 C_1 = 5.33 \quad R_5 C_1 = 0$$

$$R_1 C_2 = 6.64 \quad R_2 C_2 = 0.64 \quad R_3 C_2 = 1.93 \quad R_4 C_2 = 2.76 \quad R_5 C_2 = 0$$

$$R_1 C_3 = 32.66 \quad R_2 C_3 = 3.16 \quad R_3 C_3 = 9.48 \quad R_4 C_3 = 13.70 \quad R_5 C_3 = 0$$

$$R_1 C_4 = 9.96 \quad R_2 C_4 = 0.96 \quad R_3 C_4 = 2.89 \quad R_4 C_4 = 4.18 \quad R_5 C_4 = 0$$

Table 4.16 Test of Chi-Square

Observed Frequencies (O)	Expected Frequencies (E)	O-E	$\frac{(O-E)^2}{E}$
11	12.73	-1.73	0.2351
6	6.64	-0.64	0.0617
37	32.66	4.34	0.5767
8	9.96	-1.96	0.3857
2	1.23		
0	0.64		
4 6	3.16 5.99	0.01	0
0	0.96		
4	3.69		
2 6	1.93 5.62	0.38	0.0257
8	9.48	-1.48	0.2310
4	2.89		
6 14	5.33 10.98	3.02	0.8306
4	2.76		
10	13.70	-3.70	0.9992
6			
0			
0	4.18	1.82	0.7924
0			
0			
Total			4.1381

Test Statistics under Ho,

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

$$\chi^2 = 4.1381$$

$$\begin{aligned} \text{Degree of freedom} &= (R-1)(C-1) - 10 \text{ [Since 6 degree of freedom loss due to pooling]} \\ &= (5-1)(4-1) - 10 \\ &= 2 \end{aligned}$$

Critical Value or Tabulated Value = the critical value of  $\chi^2$  at 5% level of significance for 2 d. f. is 5.991.

**Decision:** Since the calculated value of  $\chi^2$  is less than the tabulated value (i.e.,  $4.1381 < 5.991$ ), the null hypothesis ( $H_0$ ) is accepted at 5% level of significance for 2 degree of freedom, the null hypothesis is accepted, and which means there is no significant difference between observed and expected frequencies regarding to the choice of securities.

To test whether the difference in the opinions of the respondents is significant, the chi-square test is employed. The calculated chi-square value is 4.1381 and critical or tabulated value at 5% significance for 2 d. f. is 5.991. It can be said that opinions of four respondents groups are similar and there is no significant difference with respect to the appropriate source of financing for raising long-term fund.

#### **Testing Hypothesis in Q. No. 4**

##### **Hypothesis No. 2**

In random samples of respondents, it contains the following distribution which was noted on the basis of related fields. The test is to draw the reasons that plays significant role for the slow growth of Nepalese Corporate debentures market in Nepal.

Table 4.17 Hypothesis Test Regarding to the Reasons that Plays Significant Role for Slow growth of Nepalese Corporate debentures:

Options	L.C.	I.M./B.	Ind. Inv.	Experts	Total
Lack of Investors Awareness	10	3	29	5	47
Lack of Capital Gain Opportunity	2	2	7	2	13
Lack of Proper Legal Provision	5	3	8	4	20
Limited Issuance of Quality Bonds	4	2	11	5	22
Poor Practice of Information Disclosure by Private Organization	2	2	4	2	10
Total	23	12	59	18	112

Sources: Field Survey

### Hypothesis Setting

Null Hypothesis ( $H_0$ ): There is no significant difference between observed and expected opinions regarding to the reasons that plays vital role for slow growth of corporate debentures market in Nepal.

Alternative Hypothesis ( $H_1$ ): There is significant difference between observed and expected opinions regarding to the reasons that plays vital role for slow growth of corporate debentures market in Nepal.

Fixing the level of significance at 5%

Calculation of expected frequencies (E):

$$\text{Expected Frequency of } R_i C_j = \frac{\text{Row Total} \times \text{Column Total}}{\text{Grand Total}}$$

$$R_1 C_1 = \frac{47 \times 23}{112} = 9.65$$

112

Similarly,

$$R_1 C_1 = 9.65 \quad R_2 C_1 = 2.67 \quad R_3 C_1 = 4.11 \quad R_4 C_1 = 4.52 \quad R_5 C_1 = 2.05$$

$$R_1 C_2 = 5.03 \quad R_2 C_2 = 1.39 \quad R_3 C_2 = 2.14 \quad R_4 C_2 = 2.36 \quad R_5 C_2 = 1.07$$

$$R_1 C_3 = 24.76 \quad R_2 C_3 = 6.65 \quad R_3 C_3 = 10.53 \quad R_4 C_3 = 11.59 \quad R_5 C_3 = 5.27$$

$$R_1 C_4 = 7.55 \quad R_2 C_4 = 2.09 \quad R_3 C_4 = 3.21 \quad R_4 C_4 = 0.80 \quad R_5 C_4 = 1.61$$

Table 4.18 Test of Chi-Square

Observed Frequencies (O)	Expected Frequencies (E)	O-E	$\frac{(O-E)^2}{E}$
10	9.65	0.35	0.0126
3	5.03	-2.03	0.8192
29	24.76	4.24	0.7260
5	7.55	-2.55	0.8612
2	2.67		
2    11	1.39    10.71	0.29	0.0078
7	6.65		
2	2.09		
5    10	4.11    8.34	1.66	0.3304
3	2.14		
8	10.53	-2.53	0.6078
4	3.21		
4    10	4.52    10.66	-0.66	0.0408
2	2.36		
11	11.59	-0.59	0.0300
5	0.80		
2	2.05		
2    15	1.07    10.80	4.20	1.6333
4	5.27		
2	1.61		
Total			5.0691

Test Statistics under Ho,

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

$$\chi^2 = 5.0691$$

Degree of freedom = (R-1) (C-1) - 10 [Since 10 degree of freedom loss due to pooling]

$$= (5-1) (4-1) - 10$$

$$= 2$$

Critical Value or Tabulated Value = the critical value of  $\chi^2$  at 5% level of significance for 2 d. f. is 5.991.

**Decision:** Since the calculated value of  $\chi^2$  is more than the tabulated value (i.e. 5.0691 < 5.991), the null hypothesis ( $H_0$ ) is accepted at 5% level of significance for 2 degree of freedom, the null hypothesis is accepted, which means there is no significant difference between observed and expected frequencies regarding to the reasons that plays vital role for the slow growth of corporate debenture market in Nepal.

To test whether the difference in the opinions of the respondents is significant, the chi-square test is employed. The calculated chi-square value is 5.0691 and critical or tabulated value at 5% significance for 2 d. f. is 5.991. It can be said that opinions of four respondents groups are similar and there is no significant difference with respect to the reasons that plays vital role for the slow growth of corporate debentures market in Nepal.

### **Testing Hypothesis in Q. No. 5**

#### **Hypothesis No. 3**

In random samples of respondents, it contains the following distribution which was noted on the basis of related fields. The test is to draw the factors that plays significant role to attract investors towards corporate debenture.

Table 4.19 Hypothesis Test Regarding to the Factors that Plays Significant Role to Attract Investors towards Corporate debenture:

Options	L.C.	I.M./B.	Ind. Inv.	Experts	Total
Declining Interest Rate on Bank Deposits	7	6	23	10	46
Lack of Investment Alternatives	3	1	7	0	11
Fixed Income	2	2	11	0	15
Portfolio with Less Risk	5	0	6	3	14
Less Risky in comparison to Common Stock and Preferred Stock	6	3	12	5	26
<b>Total</b>	<b>23</b>	<b>12</b>	<b>59</b>	<b>18</b>	<b>112</b>

Sources: Field Survey

## Hypothesis Setting

**Null Hypothesis (H<sub>0</sub>):** There is no significant difference between observed and expected opinions regarding to the factors that plays vital role to attract investors towards purchase of corporate debentures.

**Alternative Hypothesis (H<sub>1</sub>):** There is significant difference between observed and expected opinions regarding to the factors that plays vital role to attract investor towards purchase of corporate debentures.

Fixing the level of significance at 5%

Calculation of expected frequencies (E):

$$\text{Expected Frequency of } R_i C_j = \frac{\text{Row Total} \times \text{Column Total}}{\text{Grand Total}}$$

$$R_1 C_1 = \frac{46 \times 23}{112} = 9.45$$

112

Similarly,

$R_1 C_1 = 9.45$	$R_2 C_1 = 2.26$	$R_3 C_1 = 3.08$	$R_4 C_1 = 2.87$	$R_5 C_1 = 5.33$
$R_1 C_2 = 4.93$	$R_2 C_2 = 1.18$	$R_3 C_2 = 1.61$	$R_4 C_2 = 1.50$	$R_5 C_2 = 2.78$
$R_1 C_3 = 24.23$	$R_2 C_3 = 5.79$	$R_3 C_3 = 7.90$	$R_4 C_3 = 7.37$	$R_5 C_3 = 13.64$
$R_1 C_4 = 7.39$	$R_2 C_4 = 1.77$	$R_3 C_4 = 2.41$	$R_4 C_4 = 2.25$	$R_5 C_4 = 4.18$

**Table 4.20 Test of Chi-Square**

Observed Frequencies (O)	Expected Frequencies (E)	O-E	$\frac{(O-E)^2}{E}$
7 <b>13</b>	9.45 <b>14.38</b>	-1.38	0.1324
6	4.93		
23	24.23	-1.23	0.0624
10	7.39	2.61	0.9218
3	2.26		
1 <b>11</b>	1.18 <b>9.23</b>	1.77	0.3334
7	5.79		
0	1.77		
2 <b>4</b>	3.08 <b>6.46</b>	-2.46	0.9368
2	1.61		
11	7.90	3.10	1.2165
0	2.41		
5 <b>5</b>	2.87 <b>6.78</b>	-1.78	0.4673
0	1.50		
6	7.37	-1.37	0.2547
3	2.25		
6 <b>12</b>	5.33 <b>10.36</b>	1.64	0.2536
3	2.78		
12	13.64		0.0377
5 <b>17</b>	4.18 <b>17.82</b>	-0.82	
<b>Total</b>			<b>4.6166</b>

**Test Statistics under Ho,**

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

$$\chi^2 = 7.3405$$

**Degree of freedom** = (R-1) (C-1) – 10 [Since 10 degree of freedom loss due to pooling]

$$= (5-1) (4-1) - 10$$

$$= 2$$

**Critical Value or Tabulated Value** = the critical value of  $\chi^2$  at 5% level of significance for 2 d. f. is 5.991.

**Decision:** Since the calculated value of  $\chi^2$  is less than the tabulated value (i.e.  $4.6166 < 5.991$ ), the null hypothesis ( $H_0$ ) is accepted at 5% level of significance for 2 degree of freedom, which means there is no significant difference between observed and expected opinions regarding to the factors that plays vital role to attract investor towards purchase of corporate bond/debenture.

To test whether the difference in the opinions of the respondents is significant, the chi-square test is employed. The calculated chi-square value is 4.6166 and critical or tabulated value at 5% significance for 2 d. f. is 5.991. It can be said that opinions of four respondents groups are similar and there is no significant difference with respect to the factors that plays vital role to attract investor towards purchase of corporate debenture/bond

### **Testing of Hypothesis in Q. No. 9**

#### **Hypothesis No. 4**

In random samples of respondents, it contains the following distribution which was noted on the basis of related fields. The test is to draw the present rules and regulations sufficient for Nepalese corporate market growth for corporate debt in Nepal.

Table: 4.21 Hypotheses Regarding to the Sufficiency of Present Rules and Regulations Related to Debt Securities Market in Nepal:

Options	L.C.	I.M./B.	Ind. Inv.	Experts	Total
Sufficient	7	3	17	5	32
Insufficient	16	9	42	13	80
Total	23	12	59	18	112

Sources: Field Survey

### Hypothesis Setting

Fixing the level of significance at 5%

Calculation of expected frequencies (E):

$$\text{Expected Frequency of } R_i C_j = \frac{\text{Row Total} \times \text{Column Total}}{\text{Grand Total}}$$

$$R_1 C_1 = \frac{32 \times 23}{112} = 6.57$$

Similarly,

$$\begin{array}{ll} R_1 C_1 = 6.57 & R_2 C_1 = 16.43 \\ R_1 C_2 = 3.43 & R_2 C_2 = 8.57 \\ R_1 C_3 = 16.86 & R_2 C_3 = 42.14 \\ R_1 C_4 = 5.14 & R_2 C_4 = 12.86 \end{array}$$

Table 4.22 Test of Chi-Square

Observed Frequencies (O)	Expected Frequencies (E)	O-E	$\frac{(O-E)^2}{E}$
7	6.57		
3    10	3.43    10	0	0
17	16.86	0.14	0.0012
5	5.14	-0.14	0.0038
16	16.43	-0.43	0.0112
9	8.57	0.43	0.0216
42	42.14	-0.14	0.0005
13	12.86	0.14	0.0015
<b>Total</b>			<b>0.0398</b>

Test Statistics under Ho,

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

$$\chi^2 = 1.0711$$

$$\begin{aligned} \text{Degree of freedom} &= (R-1) (C-1)-1 \text{ [Since degree of freedom 1 loss due to pooling]} \\ &= (2-1) (4-1)-1 \\ &= 2 \end{aligned}$$

Critical Value or Tabulated Value = the critical value of  $\chi^2$  at 5% level of significance for 2 d. f. is 5.991

**Decision:** Since the calculated value of  $\chi^2$  is less than the tabulated value (i.e., 0.0398 < 5.991), the null hypothesis (Ho) is accepted at 5% level of significance for 2 degree of freedom, the null hypothesis is accepted, which means there is no significant difference between observed and expected frequencies regarding to the present rules and regulations sufficient for Nepalese corporate market growth for corporate debt in Nepal.

To test whether the difference in the opinions of the respondents is significant, the chi-square test is employed. The calculated chi-square value is 0.0398 and critical or tabulated value at 5% significance for 2 d. f. is 5.991. It can be said that opinions of four respondents groups are similar and there is no significant difference with respect to the present rules and regulations sufficient for Nepalese corporate market growth for corporate debt in Nepal.

### 4.3 Major Findings:

#### 4.3.1 Major Findings from the Analysis of Secondary Data:

The history of corporate debt securities in Nepal started with the issuance of debenture by Bottlers Nepal Ltd. in the FY 1986/87. In 1993/94 and 1997/98 JSML and SRSML had also issued 20,000 and 93,000 no. of debenture respectively with par value Rs. 1,000. At the time of issuance SRSML financial condition was not very good condition so that company's debenture was heavily under subscribed only 18 % debentures were sold. It showed that investors were not interested towards manufacturing sectors debenture securities and SRSML convertible debenture was redeemed before the maturity period.

After the unsuccessful issuance of SRSML convertible debenture, HBL was the first bank to issue debenture of amount Rs. 260 million in the FY 2001/02. It was heavily over subscribed by 1.12 times. Thereafter NIBL, EBL, BOKL, NICBL and NSBIBL had also issued debenture securities and all these five banks debenture securities were highly over subscribed. Oversubscription of banking sectors bond and very low subscription of manufacturing sectors debenture shows that investors prefer to invest in corporate debt securities of banking sector than that of manufacturing sector. It infers better future prospectus of Nepalese corporate debenture market

As stated in the textbook by Van Horne (2002), Alexander (1999), and Ronald and Donald (2000); higher coupon rate always attracts the large no of investors besides that the coupon rate of debenture (14%) of SRSML was higher than the market interest rate (10.25%), but it was heavily under subscribed instead of attracting large no. of investors. Very low subscription of SRSML debenture may be due to lack of people's awareness towards corporate debenture and also lack of people's interest towards manufacturing and trading companies. But the coupon rate of debenture securities of banking sector higher than market interest rate agree with the writers' statement by attracting large no. of investors. If this result continues, corporate debt securities will attract large no. of investors. This means, more of such bond issues can be expected in the future, particularly from the banks to meet their higher capital requirement under Nepal Rastra Bank directives. As stated by previous studies, when the market interest rate is less than the coupon rate, the value of a bond is more than its par value. This concept was strongly

supported by Nepalese corporate debt securities. The market interest rate (i.e., 5.55%) of HBL<sub>1</sub> is less than the coupon interest rate (i.e., 8.5%), the present value of HBL<sub>1</sub> (i.e., Rs.1015.85) is more than its par value (i.e., Rs.1000). In the similar manner, coupon rate of NIBL<sub>1</sub>, EBL, BOKL, NIBL<sub>2</sub>, NICBL, NSBI BL, NIBL<sub>3</sub>, KBL, HBL<sub>2</sub>, NIBL<sub>4</sub>, NABIL, SBL and LBL are greater than market interest rate, and due to that their present values are greater than their par values. This shows that the above mentioned debentures are under priced. So, such under priced debenture should be bought in order to made profit in the future from price gain.

The result of duration obtained after calculating above shows that all the seven corporate debt securities have less actual term-to-maturity than their book-term-to-maturity. In addition, their coupon rates are higher than market interest rate. This shows that if market interest rate is lesser than the coupon rate, the duration is also lesser than its maturity period. This means, investors receive income from debenture investment prior to the maturity date as described by Alexander, et.al.2002. In addition, it can be said that duration of debenture is increasing if coupon interest rate goes on decreasing which means duration is inversely related to coupon interest rate. Less duration always attract the large number of investors as stated by F.R. Macaulay because investors get their whole return before maturity period and less price risk. Less duration of above mentioned Nepalese corporate debt securities and their high over subscription shows that investors are attracted towards them resembles with Macaulay's statement. Therefore, if such types of circumstances continue in future, investors may buy the corporate debt securities of other sectors also.

#### 4.3.2 Major Findings from primary data analysis:

After analysis of research variables relating to the problems and prospects of corporate debt market in Nepal. Such important findings relating to problems and prospects of developing corporate bond market has been obtained after the analysis of primary data which are collected by questionnaires method from all respondents (i.e., listed companies, issue manager/broker, individual investors and experts) has been analyzed through chi-square test and other statistical tools. Findings drawn have been presented as follows.

1. With respect to preference regarding to the appropriate source of financing for raising long-term fund, due to poor practice of issuing other alternatives as preferred stock, bank loan and corporate bond. The majority of investors are familiar with common stock only, so the Nepalese capital market has dominated by common stocks market. In the view of investors, common stocks is more marketable than other securities, lack of strength secondary market, poor practice of other debt instruments and very low interest rate are the reasons for investors not interest toward debt securities. Without manufacturing and trading sector the over subscription of banking sectors debenture is the better example here. This shows some prospects of better future corporate bond market in Nepal. But the lack of investor's awareness towards debt securities has obliged companies to issue common stocks.
2. The majority of the respondents regarding for the long-term investment gave their first priority to invest in government securities rather than corporate bond and real assets as they have good return with less investment risk This infers that Nepalese investors are least interested to corporate debt securities in comparison to government securities and real assets.
3. With respect to preference regarding choices of issuing debt securities of various sectors, the majority of respondents (i.e. listed companies, issue managers/brokers, individual investors and experts) presented their opinions in favour of debt securities of banking sector. The second preference has given to debt securities of finance companies whereas least preference was given to debt securities of remaining sectors.
4. This infers that banking sectors' debenture issue is most preferable to majority of respondents which is due to the reason that they find this sector is less risky for investment in comparison to other sectors. Then finance companies, manufacturing and hotel sectors' debenture issue is preferable but in least. Least preference on other sectors' debt securities may create lots of problems in growth of debt securities market as these sectors' need more debt capital. So, all other sectors should disclose their performance reports like information to the general public or investors in order to attract them towards their debenture securities.

5. With respect to the factors that attract to investors to invest the corporate debt securities, majority of respondents gave their preference in favor of declining interest rate on bank deposits as second preference to less risky in comparison to common stock and preferred stock and finally lack of investment alternatives, fixed income, and portfolio with less risk are the key factors that attract to investors to invest in corporate debt securities. Nepalese investors are risk averter, they likes to invest in less risky securities and corporate debt securities match their choices. On the other hand, declining coupon rate are unable to cover increasing inflation rate, this can be serious problem of Nepalese corporate debenture market. If this problem is managed, some better future prospects of corporate debenture market can be seen.
6. Majority of the respondents agree that the reasons for using bank loan instead of issuing bond by Nepalese organization are: easily available of bank loan, lengthy and difficult process of collection of funds, less cost on bank loan rather than issue bond and others. The majority of preferences were significantly high in favour of easy availability of bank loan and also major portion of them gave the opinion that very lengthy and difficult process of issuing debentures is also the major factors of choosing bank loan instead of corporate bond. And some respondents said that high rate of bond issue and others factors are the major factors of using bank loan instead of issuing bond by Nepalese organization.
7. With respect to the statement that due to the lack of large corporate houses, various kinds of debt instruments are not practiced in Nepal, majority of the respondents agree with the statement stating that the large flotation costs at the time of issue can be bear by large corporate houses only. Investors' also like the debt securities of large and better performing companies. These big corporate houses can raise required funds easily from bank loan so they are not interested to issue debenture securities because of poor discloser of information and insufficient legislation. Therefore only countable companies have been practicing issuing corporate debenture like securities.

8. With respect to sufficiency of present rules and regulations for Nepalese capital market growth of corporate debentures in Nepal, most of the respondents are agreed that the present legislative provisions regarding debenture markets are insufficient. Majority of respondents said that there are lack of investors protection act, trust act, listing provision of debentures in NEPSE is insufficient and also poor information disclosure from manufacturing and trading companies, high broker's commission, inadequate private placement, lack of regulatory provisions regarding the trustee of debenture, lack of punishment for the cheaters and lack of establishing credit rating agencies, etc. shows the insufficiency of present rules and regulations of corporate debt securities market of Nepal
9. Political instability is another issue that hinders the growth of Nepalese corporate debentures market. It's significantly suffering Nepalese debentures market growth. Political instability in form of domestic war, emergency declaration, strike, lock-out etc. activities are creating problems for developing country to develop their economic growth so the Nepalese debenture market also suffering from it whether directly and indirectly.
10. With respect to the present pace of corporate debentures/bonds market growth in Nepal, majority of respondents gave their opinions in favour of weak as very few companies have issued debenture in the market and only very few practices of debt securities can be seen in the Nepalese capital market. Another major portion of them gave their opinions in favour of satisfactory whereas least of them chose option "I don't know" but they are individual investors. This infers that lack of public awareness due to which very few debt instruments are in practices which shows very low pace of corporate debentures. This indicates that if some homework is done by revising legal rules and regulation and making it workable for the mutual benefits of issuers and investors, providing better infrastructure facilities continuously for the systematic growth of capital market, punishing the cheaters, making computerized system instead of open cry in NEPSE, establishing credit rating agencies, and making compulsion for timely disclosure of information etc. then surely corporate debentures/bonds market may move towards its development.

In addition to above all, if inadequate infrastructure facilities are turned into developed state, if political instability turns into stability, making compulsion for timely disclosure of information, poor practice of price sensitive information disclosure system turns into better state, and investors' interest protection act, trustee listing provision of debenture in NEPSE is maintained, then better future prospects of corporate debenture can be seen. The activities followed by NEPSE and SEBO/N such as trading limited listed shares, trading method based on traditional, trading of securities by open cry, not able to monitor Nepalese capital market effectively which indicates poor infrastructure and can be major problems for developing Nepalese corporate debenture market which is the glance of the NEPSE and SEBO/N.

## **CHAPTER-V**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

This research study completely concentrate about problems and prospects of corporate debenture market in Nepal and summarizes the overall study into three sections section first includes the summary of the study, second section presents the conclusion of the study and the third section includes some recommendations provided to the concerned government bodies, general investors, and corporate sector for the systematic development of Nepalese corporate debenture market.

#### **5.1 Summary**

Capital Market, the market for long-term debt and corporate stocks. The New York Stock Exchange (NYSE), which trades the stocks of the larger corporation, is a prime example of a capital market. Efficient capital market helps to mobilize the financial resources and provide efficient channel to productive investment. Capital market is extremely necessary for the economic development of any country lack of capital market can not pump necessary fund to industrialization process.

The capital market of Nepal is very lean in providing investment alternatives to the investors. Among possible various investment alternatives like common stocks, government bond, corporate bond, preference share, right, option, warrants, convertible etc, very few are available for Nepali investors. So needless to say that the present capital market is almost monopolized by the equity shares. Similarly, government debt securities and real assets also dominate Nepalese corporate bond market. The corporate debt securities market is a key element of capital market. There is no controversy whether this sector should be developed or not. However, it is a major sector and once this sector is developed, capital market will be developed as an overall which causes overall economic development of the nation. If someone said their countries are under-developed, it means they do not have sound corporate debenture market. Hence, corporate debenture market in developing countries has been viewed as an effective tool for achieving economic development and reallocation of capital all over the nation.

The history of corporate debt securities in Nepal started with the issuance of debenture by Bottlers Nepal Ltd. in the FY 1986/87. In 1993/94 and 1997/98 JSML and SRSML had also issued corporate debenture but both JSML and SRSML debenture were heavily under subscribed. Thereafter, some banking sector has issued redeemable debenture which were heavily oversubscribed. This may be due to lack of investors' believeness towards manufacturing sectors. As the Nepalese capital market is in the creeping stage of development, corporate bond market is limited in its existence. Only very few, just fourteen issuance of corporate bond are seen from the period of FY1986/87 to FY2008/09 in the Nepalese history. The majority of investors are familiar with common stock only; lack of strength secondary market, poor practice of other debt instruments, very low interest rate and lack of issuers and investors' awareness towards are the reasons for investors not interest toward debt securities.

This study mainly focuses on analyzing the problems and prospects of Nepalese corporate debenture market. Its specific objectives are: (a) to study existing corporate debenture market and to examine valuation and duration of Nepalese corporate debt securities in Nepal, (b) to identify problems that obstructs the development of corporate debenture market in Nepal, (c) to access the prospects of corporate debenture market growth and development in Nepal, and (d) to examine the opinions of concerned parties about the Nepalese corporate debenture market.

This study is based on primary as well as secondary sources of information. The study of existing corporate debenture market of Nepal was accomplished by using secondary data for the period of FY1986/87 to FY2008/09. The valuation and duration of corporate debt securities are analyzed by using the secondary data for the period of FY2001/02 to FY2008/09.

Similarly, survey of respondents has been accomplished by using primary data of 112 respondents. Out of 112 respondents, there are 23 from listed companies, 12 from issue managers/brokers, 59 from individual investors, and 18 from experts. These respondents of four groups gave their opinions on different aspects of Nepalese corporate debt securities market. The opinion of each respondent group also analyzed on each question, to ascertain the differences in their opinions. For this not only a variety of statistical tests

are employed but testing of hypothesis at 5% level of significance by using chi-square is also employed.

The researcher has found many problems in Nepalese bond/debenture market growth in Nepal. There are many problems such as investors unawareness, limited supply of quality debenture, political instability, insufficient infrastructure, lengthy process of issuing debenture, poor practice of debt instrument, investors more preference on ordinary shares etc. are the major problems due to which Nepalese corporate debt securities market could not be developed properly.

## **5.2 Conclusion**

Nepalese debenture market is still in initial stage in growth direction. Very few companies have issued debentures in the market. Since 1986/87 to till the reporting writing, fourteen corporate debentures are issued but most of them are from banking sector. The history of corporate debt securities in Nepal started with the issuance of debenture by Bottlers Nepal Ltd. in the FY 1986/87. In 1993/94 and 1997/98 JSML and SRSML had also issued corporate debenture but both JSML and SRSML debenture were heavily under subscribed. But banking sector has issued redeemable debenture which were heavily oversubscribed shows some better future prospects of corporate bond market. For the development of corporate debt market, only oversubscription of few banking sector organization is not enough. The number of investors as well as the number of issuing companies should be increased. Recently, many factors shows that the corporate debt securities market has started to grow in comparison to the past. But there seems to be a trend of declining response to debentures as the numbers of issuing companies are increasing.

From this research study, the researcher comes to the conclusion that the major factors that hinder the smooth growth of Nepalese corporate bond market are: Lack of investors' awareness towards corporate debt securities, lack of effective and efficient bond market, lengthy process of issuing as well as effective and efficient debenture market, lack of legal provision, limited supply of quality debenture and inadequate infrastructure facilities are serious problems of existing Nepalese debt market whereas poor practice of

price sensitive information disclosure system, political insatiability, dominance of debenture market by credit oriented transaction, and investors' particular preferences on debenture issuing companies. Furthermore, NEPSE and SEBO/N have weak and ineffective working system. NEPSE is being the trading place of limited listed shares through traditional open cry system and computerized system is lacking.

Thus, for systematic growth and development of Nepalese corporate bond market as well as overall capital market above mentioned issues must be coped by developing competitive strength on the one hand and capturing opportunities on the other hand

### **5.3 Recommendations**

During the research the researcher has found so many scattered weaknesses in all areas and overall system of Nepalese corporate bond market. The researcher desires to give some suggestions to concerned bodies i.e., government, corporate sector, issue managers/brokers, individual investors, and institutional mechanism for converting the major problems into strength and grasping the opportunities for the overall development of Nepalese corporate debenture market.

#### **(I) To Government**

Government has main responsibilities in promoting desirable activities and restricting undesirable activities for the growth of Nepalese corporate bond market. As corporate bond market is requirement for the overall growth of capital market. Concerned government bodies should focus on the issues of corporate bond market and then by developing competitive strength to cope with the forth coming problems, they should enable the growth of overall capital market. Government should do following activities for development of corporate bond market.

1. Government should make legal provisions to protect the right of investors. Similarly, lengthy process of issuing as well as ineffective rules and regulation should be revised.

2. HMG should provide tax exemption in income from debt securities and repurchase facility to promote debt market.
3. Government should provide authorities to issue municipal debentures to local states by creating necessary laws.
4. Political instability is the major factor that hinders the growth of Nepalese corporate bond market. So that political stability should be maintained.
5. Investor's interest protection act should be issued. Implementation and monitoring mechanism should make efficient and effective regarding debenture market.
6. Government should provide adequate infrastructure, and make the cost of issuing bond favorable.
7. SEBO/N should ensure the timely disclosure of price sensitive information. NEPSE and SEBO/N have weak and ineffective working system. NEPSE is being the trading place of limited listed shares based on open cry system. There is a need of trading of securities by computerized system. SEBO/N is not able to monitor Nepalese capital market effectively.

## **(II) To Corporate Sector**

Corporate sectors are an important stakeholder of corporate debt securities market. If corporate sectors don't issue debentures, development of corporate debt securities will be remained some as before. The researcher gives following suggestions to corporate sector.

1. True financial conditions of past performance as well as future plan of companies should bring out.
2. The corporate sectors should increase the interest rate higher than the inflation rate, so the people investing on it do not need to sacrifice the purchasing power on the original investment.

3. Companies should issue quality of bonds that attracts the individual investors.
4. Company should provide continuous and timely disclosure of price sensitive information to the investors that may help to earn good reputations, as result investors likes its securities.
5. Inadequate legislation and conflicting control mechanism should be opposed.

### **(III) To Investors**

There are two types of investors such as individual investors and institutional investors. From the field survey, it has found that majority of individual investors aren't interested towards corporate debt securities. So, the researcher gives following suggestions to individual investors mainly.

1. Investor's should change existing perception and attitude on debentures. They should extend their present investment by properly analyzing risk and return on bonds/ debentures.
2. Investors should call investors protection act and they should enforce corporate bond issuing companies to enlist that bond issue in NEPSE
3. Majority of the Nepalese organization are unable to disclose price sensitive information such as income statement, balance sheet, cash flows, profit/loss a/c, financial ratios, etc. So, investors need to know about their past performances and future plan from information analysis before making investment decision.
4. Investor's should expend their times in study about bonds/debentures of companies.
5. From the field survey, majority of investors showed least interested towards manufacturing and trading companies. I like to sum up by stating all manufacturing and trading companies may not be weak. So that, they should identify strong companies and their debentures issue should take positively.

#### **(IV) To Institutional Mechanism**

There has been making some directing, controlling mechanism of debt securities market which also looks after Nepalese debentures market. There is NRB, NEPSE, ROC, SEBO/N etc. as institutional mechanism arrangement made by government. The researcher gives following suggestions to institutional mechanism to over run existing debentures market problems.

1. Company Register Office (ROC) should be transparent and open with modern technology. Bureaucratic procedures must be quick and prospectus should be approved strictly reviewing all economic and technical aspect of companies
2. Security Board of Nepal (SEBO/N) should co-operate NEPSE. Procedures of reviewing debentures prospect and issue approval should be quick. SEBO/N should add additional provisions that help to protect investors' interest. SEBO/N should ensure the timely disclosure of price sensitive information. NEPSE is being the trading place of limited listed shares based on traditional method i.e. open cry system. There is a need of trading securities by computerized system i.e. online trading system. Auditing and accounting system should be strictly review and reward and punishment should be provided. Listing process of securities should be simplified. Information disclosure should be strictly enforced to listed companies.

## BIBLIOGRAPHY

- Acharrya, P. (1968). *A Case Study on Public Deb in Nepal*. Kritipur: An unpublished Masters Degree Dissertation, T.U.
- Alexander, G. J., et al. (2002). *Fundamentals of Investments*. New Delhi: Prentice-Hall of India Pvt. Ltd.
- Annual Report (2007/08). Kathmandu: Security Board of Nepal.
- Asian Development Bank. (2006). *Economic outlook Express*. Philippines, Manila.
- Baral, K.J. (1999). *Security Market in Nepal*. Kathmandu: A research report, FoM, 1-45.
- Basnet, H. Bdr. (2006). *Problems and Prospects of Debt Market in Nepal*. Kritipur: An unpublished Masters Degree Dissertation, Shanker Dev Campus, T.U.
- Bhattraï, P.K. (2042 BS). *A Study of Impact of Securities Exchange Centre on Capital Mobilization with special reference to the government Securities and Share Market in Nepal*. Kritipur: An unpublished Masters Degree Dissertation, FoM, T.U.
- Bhole, L.M. (1982). *Financial Markets and Institution*. New Delhi: Tata Publication, 234.
- Brealey, R.A. and Myers, S.C. (2000). *Principles of Corporate Finance*. New Delhi: Tata Mc Graw-Hill Publishing Company Ltd.
- Brigham, E.F. and Houston J.F. (2001). *Fundamental of Financial Management*. Harcourt Asia P. Ltd.
- Brimmer, A.F. (1960). Credit Conditions and Price Determination in the Corporate Bond Market. *The Journal of Finance*, Vol. 3: No.15, 353-370.

- Campbell, J.Y. and Viceira L.M. (2001). *Who should Buy long-term Bonds*. New York: The American Economic Review, Vol. 91, No.1, 99-127.
- Chalise, N.R. (April: 1989). *Reforms in the Activities of Commercial Banks in Nepal: An Overview*. Economic Review, NRB.
- Cheney J.M. and Moses, E.A. (1993). *Fundamentals of Investments*. New York: West Publishing Company.
- Conard, T. and Frankena, M. (1952). *The Yield Spread between New and Seasoned Corporate Bond 1952-1963*. New York: Columbia University Press, 1343-1355.
- Cottle, R.F., and et.al. (1989). *Security Analysis*. McGraw-Hall International Editions.
- Easterwood, J.C. and Kadapakkam, P.R. (1991). *The Role of Private and Public Debt in Corporate Capital Structures*. Financial Management, Vol. 20: No. 349-97.
- Ederington, L. (Dec.:1974). The Yield Spread on New Issues of Corporate Bonds. *The Journal of Finance*, Vol.29: 1531-1543.
- Ederington, L.H. (1998). Negotiated vs. Competitive Underwriting of Corporate Bonds. *The Journal of Finance*, Vol. 53, 1533-1562.
- Elton, E.J. and et.al. (2001). Explaining the Rate Spread on Corporate Bonds. *The Journal of Finance*, Vol. 46, No.1, 247-277.
- Fisher, D.E. and Jordan, R.J. (2000). *Security Analysis and Portfolio Management*. New Delhi: Prentice-Hall of India Pvt. Ltd.
- Fisher, L. and Weil, R.L. (1971). Coping with the Risk of Interest Rate fluctuation: Returns to Bondholders from Naïve and Optional Strategies. *Journal of Business*. 408-431.
- Francis, J.C. (1988). *Management of Investments*. Singapore: McGraw-Hill Book Company.

- Gitman, L.J. (1990). *Principles of Managerial Finance*. Harper Collins Publishers.
- Gupta, S.P. (1991). *Statistical Method*. New Delhi: Sultan Chand and Sons Publications.
- Hamalainen, P. (2004). Mandatory Subordinated Debt and the Corporate Governance of Banks. *The Journal of Finance*, Vol. 12. 93-104.
- Hampton, J. J. (2001). *Financial Decision Making*. New Delhi: Prentice-Hall of India Pvt. Ltd.
- Jobson, H. J. (1999). *Financial Institution and Markets*. McGraw- Hill, Inc.
- Joshi, M. R. (1982). *Structure of Public Debt in Nepal*. Kritipur: An unpublished Masters Degree Dissertation, T.U.
- Kaen, R. F. (1945). *Corporate Finance*. Blackwell Business.
- Kafle, D.R. (2003). *Problem and Prospects of Debt Market growth in Nepal*. Kathmandu: An unpublished Masters Degree Dissertation, Shanker Dev Campus, T.U.
- Kane, A. and et.al. (2002). *Investments*. New Delhi: Tata McGraw- Hill Publishing Co. Ltd.
- Khan, M.Y. and Jain, P.K. (1999). *Financial Management*. New Delhi: Tata McGraw-Hill.
- Khatriwada, Y. R. (1998). *Public Debt Management and Micro Economics Stability*. Kathmandu: Nepal Foundation for Advance Studies, (NEFAS).
- Khatri, R. (2006). *Issues and Prospects of corporate bond market growth and development Nepal*. Kathmandu: An unpublished Masters Degree Dissertation, Shanker Dev Campus, T.U.

- Kohan, M. (1999). *Financial Institutions and Markets*. New Delhi: Tata McGraw-Hill Publishing Company Ltd.
- Kothari, C.R. (1994). *Quantitative Techniques*. New Delhi: Viksh Publishing House Pvt. Ltd.
- Laks, J. (1978). Corporate Debt Decisions: A New Analytical Framework. *The Journal of Finance*, Vol. 33, No.5, 1297-1310.
- Levi, M.D. and Makin, J.H. (1979). Fisher, Philips, Friedman and the Measured Impact of Inflation on Interest. *The Journal of Finance*, Vol. 34, No.1, 35-51.
- Lewis, L.M. et.al. (1999). *Is Convertible Debt a substitute for straight Debt or for Common Equity?* Financial Management, Vol. 28, No.3: 5-27.
- Link, A.N. and Woelfel, C.J. (1995). *The Complete Encyclopedia of Accounting, Finance, Investing, Banking and Economics*. New Delhi: Vanity Book International.
- Madura, J. (2000). *International Financial Management*. South- Western College Publishing.
- Mainali, N.K. (2003). *Problems and Prospects of Debenture market Growth in Nepal*. Kathmandu: An unplished Masters Degree Dissertation, Shanker Dev Campus, T.U.
- Marsh, P. (1982). The Choice between Equity and Debt: An Empirical study. *The Journal of Finance*, Vol. 37, No.1, 121-144.
- Maxwell, W.F. (1998). *The January Effect in the Corporate Bond Market: A systematic Examination*. Financial Management, Vol. 27, No.2, 18-30.
- Mithal, S. and et.al. (2005). Corporate Yield Spreads: Default Risk or Liquidity? New Evidence from the Credit Oriented Default Swap Mareket. *The Journal of Finace*, Vol. LX, No. 5, 2213-2247.

National Planning Commission, Ninth and Tenth plan, MoF, Kathmandu.

Nepal Rastra Bank. (2008). *Quarterly Economic Bulletin*. Vol.-XXXI, No.-1 & 2

Pant, P.R. and Wolff, H.K. (2005). *Social Science Research and Thesis Writing*.  
Katmandu: Buddha Academic Publishers and Distributors Pvt. Ltd.

Paudel, R. P. (2002). *A Study on Government Securities Practice in Nepal*. Kritipur: An  
unpublished Masters Degree Dissertation, T.U.

Pinches, G.E. (1990). *Essentials of Financial Management*. Harper Collins Publishers.

Pradhan, R.S. (1994). *Financial Management Practice in Nepal*. New Delhi: Vikash  
Publishing House Pvt. Ltd.

Pradhan, R.S. (2003). *Research in Nepalese Finance*. Kathmandu: Buddha Academic  
Publishers and Distributors Pvt. Ltd.

Reilly, F.K. (1986). *Investment*. Japan: Dryden Press.

Ross, S.A. and et.al. (2003). *Fundamentals of Corporate Finance*. New Delhi: Tata  
McGraw- Hill Publishing Co. Ltd.

Saravanel, P. (1999). *Research Methodology*. Patana: Kitab Mahal Agencies.

Schall, L.D. and Haley, C.W. (1991). *Introduction to Financial Management*. New Delhi:  
Tata McGraw- Hill Publishing Co. Ltd.

Schultz, P. (1977). Corporate Bond Trading Costs: A Peak Behind the Curtain. *The  
Journal of Finance*, Vol. 46, No. 2, 677-698.

Scott, R.H. (1962). Debt Management for Economic Stability. *The Journal of Finance*,  
Vol. 17, No. 3544.

- Sharma, G.N. (1991). *Debt Trap and its Management in Nepal*. Kathmandu: Nepal Foundation for Advances Studies, (NEFAS).
- Sharpe, W.F. and et.al. (1999). *Investments*. New Delhi: Prentice-Hall of India Pvt. Ltd.
- Shim, J.K. and Siegel, J.G. (1989). *Encyclopedia Dictionary of Accounting and Finance*. Prentice-Hall, Inc.
- Tanaka, M. (2006). Bank Loan vs. Bond Finance: Implications for Sovereign Debtors. *The Economic Journal*, 116, 149-171.
- The World Book Encyclopedia. (1996). USA: World Book Inc. Vol. 2, 5, and 10.
- Thygeson, K.J. (1993). *Financial Markets and Institutions*. Harper Collins Colleges Publishers.
- Van Horne, J.C. (2002). *Financial Management and Policy*, New Delhi: Pearson Education.
- Weston, J.F. and Copeland, T.E. (1992). *Managerial Finance*. New York: The Dryden Press.
- Weston, J.F. and et.al. (1996). *Essential of Managerial Finance*. San Diego: The Dryden Press.
- Zwick, B. (1980). Yields on Privately Placed Corporate Bonds. *The Journal of Finance*, Vol. 35, No. 1, 23-30.

## ANNEXES

### Annex - I

The market interest rate is taken from the commercial banks' deposit rates of more than two years periods. It is average of deposit rates. The information such as market interest rate of different periods are needed for calculating present values and duration of Nepalese corporate debt securities which are given in the following table.

#### Real Rate of Return, Inflation Rate, and Market Interest Rate

Years	Market Interest Rate (%)	Inflation Rate (%)	Real Rate of Return (%)
1992/93	12.75	8.84	3.91
1993/94	9.75	9.01	0.74
1994/95	9.62	7.68	1.94
1995/96	11.25	8.1	3.15
1996/97	11.25	8.1	3.15
1997/98	10.25	8.33	1.92
1998/99	8.75	11.36	-2.61
1999/00	7.13	3.37	3.76
2000/01	6.38	2.45	3.93
2001/02	5.63	2.90	2.73
2002/03	5.38	4.79	0.59
2003/04	4.50	3.96	0.54
2004/05	4.28	4.52	-0.24
2005/06	4.45	7.97	-3.52
2006/07	4.00	5.98	-1.98
2007/08	5.25		

Source: NRB Quarterly Economic Bulletin, Vol.-42, No. -3, Mid-April 2008.

## Annex - II

### Valuation of Nepalese Corporate Debt Securities:

The information needed for calculating the present values of Nepalese corporate debt securities are shown in the following table.

Information	HBL <sub>1</sub>	NIBL <sub>1</sub>	EBL	BOKL	NIBL <sub>2</sub>	NICBL	NSBIBL
Date	4/3/059	17/7/060	7/1/062	3/6/062	26/2/063	29/2/063	20/3/063
F V (M) in Rs.	1,000	1,000	1,000	1,000	1,000	1,000	1,000
C R (I)	8.50%	7.50%	6%	6%	6%	6%	6%
C A P Yr	Rs.85	Rs.75	Rs.60	Rs.60	Rs.60	Rs.60	Rs. 60
M P (n)	7 yrs.	7 yrs.	7 yrs.	7 yrs.	7 yrs.	7 yrs.	7 yrs
M I R (k %)	5.63%	4.50%	4.28%	4.45%	4.45%	4.45%	4.45%
Int. Pmt.	S-A	S-A	S-A	S-A	S-A	S-A	S-A

*Source: Debenture/bond Prospectus of Issuing Companies, & Annex – I*

Information	NIBL <sub>3</sub>	KBL	HBL <sub>2</sub>	NIBL <sub>4</sub>	NABIL	SLB	LBL
Date	16/2/064	12/1/065	19/2/065	3/6/065	2/3/065	9/6/065	26/6/065
F V (M) in Rs.	1,000	1,000	1,000	1,000	1,000	1,000	1,000
C R (I)	6.25%	8%	8%	8%	8.50%	8%	8.50%
C A P Yr	Rs.	Rs.80	Rs.80	Rs.	Rs.85	Rs.80	Rs. 85
M P (n)	7 yrs.	5 yrs.	7 yrs.	7 yrs.	10 yrs.	7 yrs.	7 yrs
M I R (k %)	4.00%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%
Int. Pmt.	S-A	S-A	S-A	S-A	S-A	S-A	S-A

*Source: Debenture/bond Prospectus of Issuing Companies, & Annex – I*

We have valuation model,

$$V_0 = I(PVIFA_{k,n}) + M(PVIF_{k,n})$$

Where,

PVIFA<sub>k, n</sub> = Present Value Interest Factor of Annuity at k%, for n periods.

PVIF<sub>k, n</sub> = Present Value Interest Factor at k% for n<sup>th</sup> period.

$V_o$	= Present Value of bond
$I$	= Coupon Interest Rate
$K$	= Market Interest Rate or Yield-to-maturity
$n$	= Maturity Period

Also,  $(PVIFA_{k\%, n \text{ periods}})$  and  $(PVIF_{k\%, n \text{ th period}})$  factors are calculated by using the following formula:

$$(PVIFA_{k, n}) = \frac{1 - \frac{1}{(1+k)^n}}{k}$$

$$(PVIF_{k, n}) = \frac{1}{(1+k)^n}$$

Now,

**Valuation of HBL<sub>1</sub> debenture/bond:**

We have,

$$\begin{aligned} V_o &= \frac{85}{2} PVIFA_{\frac{5.25\%}{2}, 2 \times 2.5} + 1000 PVIF_{\frac{5.25\%}{2}, 2 \times 2.5} \\ &= 42.5 \times 0.9752 + 1000 \times 0.9744 \\ &= \text{Rs.}1015.85 \end{aligned}$$

Thus, the present value of HBL debenture/bond is Rs.1015.85.

**Valuation of NIBL<sub>1</sub> debenture/bond:**

We have,

$$\begin{aligned} V_o &= \frac{75}{2} PVIFA_{\frac{5.25\%}{2}, 4 \times 2.5} + 1000 PVIF_{\frac{5.25\%}{2}, 4 \times 2.5} \\ &= 37.5 \times 4.6286 + 1000 \times 0.8785 \\ &= \text{Rs.}1049.37 \end{aligned}$$

Thus, the present value of HBL debenture/bond is Rs. 1049.37.

**Valuation of EBL debenture/bond:**

We have,

$$\begin{aligned}
V_0 &= \frac{60}{2} PVIFA_{\frac{5.25\%}{2}, 5 \times 3.5} + 1000 PVIF_{\frac{5.25\%}{2}, 5 \times 3.5} \\
&= 30 \times 6.32 + 1000 \times 0.8341 \\
&= \text{Rs.}1023.70
\end{aligned}$$

Thus, the present value of HBL debenture/bond is Rs.1023.70.

**Valuation of BOKL debenture/bond:**

We have,

$$\begin{aligned}
V_0 &= \frac{60}{2} PVIFA_{\frac{5.25\%}{2}, 2 \times 4.5} + 1000 PVIF_{\frac{5.25\%}{2}, 2 \times 4.5} \\
&= 30 \times 7.9238 + 1000 \times 0.7920 \\
&= \text{Rs.}1029.71
\end{aligned}$$

Thus, the present value of HBL debenture/bond is Rs. 1029.71.

**Valuation of NIBL<sub>2</sub> debenture/bond**

We have,

$$\begin{aligned}
V_0 &= \frac{60}{2} PVIFA_{\frac{5.25\%}{2}, 2 \times 4.5} + 1000 PVIF_{\frac{5.25\%}{2}, 2 \times 4.5} \\
&= 30 \times 7.9238 + 1000 \times 0.7920 \\
&= \text{Rs.}1029.71
\end{aligned}$$

Thus, the present value of NIBL<sub>2</sub> debenture/bond is Rs. 1029.71.

**Valuation of NICL debenture/bond:**

We have,

$$V_0 = \frac{60}{2} PVIFA_{\frac{5.25\%}{2}, 2 \times 4.5} + 1000 PVIF_{\frac{5.25\%}{2}, 2 \times 4.5}$$

$$= 30 \times 7.9238 + 1000 \times 0.7920$$

$$= \text{Rs.}1029.71$$

Thus, the present value of NICL debenture/bond is Rs.1029.71.

**Valuation of NSBI BL debenture/bond:**

We have,

$$V_0 = \frac{60}{2} PVIFA_{\frac{5.25\%}{2}, 2 \times 4.5} + 1000 PVIF_{\frac{5.25\%}{2}, 2 \times 4.5}$$

$$= 30 \times 7.9238 + 1000 \times 0.7920$$

$$= \text{Rs.}1029.71$$

Thus, the present value of NSBI BL debenture/bond is Rs.1029.71.

**Valuation of NI BL<sub>3</sub> debenture/bond:**

We have,

$$V_0 = \frac{62.5}{2} PVIFA_{\frac{5.25\%}{2}, 2 \times 6.5} + 1000 PVIF_{\frac{5.25\%}{2}, 2 \times 6.5}$$

$$= 31.25 \times 9.4478 + 1000 \times 0.7520$$

$$= \text{Rs.}1047.24$$

Thus, the present value of NSBI BL debenture/bond is Rs. 1047.24.

**Valuation of KBL Bond/debenture/bond:**

We have,

$$V_0 = \frac{80}{2} PVIFA_{\frac{5.25\%}{2}, 2 \times 4} + 1000 PVIF_{\frac{5.25\%}{2}, 2 \times 4}$$

$$= 30 \times 7.1321 + 1000 \times 0.8128$$

$$= \text{Rs.}1098.08$$

Thus, the present value of KBL debenture/bond is Rs.1098.08.

**Valuation of HBL<sub>2</sub> Bond:**

We have,

$$\begin{aligned}
V_0 &= \frac{80}{2} PVIFA_{\frac{5.25\%}{2}, 2 \times 6.5} + 1000 PVIF_{\frac{5.25\%}{2}, 2 \times 6.5} \\
&= 30 \times 10.8946 + 1000 \times 0.7140 \\
&= \text{Rs.}1149.78
\end{aligned}$$

Thus, the present value of HBL<sub>2</sub> debenture/bond is Rs. 1149.78.

**Valuation of NIBL<sub>4</sub> debenture/bond:**

We have,

$$\begin{aligned}
V_0 &= \frac{80}{2} PVIFA_{\frac{5.25\%}{2}, 2 \times 6.5} + 1000 PVIF_{\frac{5.25\%}{2}, 2 \times 6.5} \\
&= 40 \times 10.8946 + 1000 \times 0.7140 \\
&= \text{Rs.}1149.78
\end{aligned}$$

Thus, the present value of NSBI BL debenture/bond is Rs. 1149.78.

**Valuation of NABIL debenture/bond:**

We have,

$$\begin{aligned}
V_0 &= \frac{85}{2} PVIFA_{\frac{5.25\%}{2}, 2 \times 9.5} + 1000 PVIF_{\frac{5.25\%}{2}, 2 \times 9.5} \\
&= 30 \times 14.8111 + 1000 \times 0.6112 \\
&= \text{Rs.}1240.67
\end{aligned}$$

Thus, the present value of NSBI BL debenture/bond is Rs.1029.71.

**Valuation of SBL debenture/bond:**

We have,

$$\begin{aligned}
V_0 &= \frac{80}{2} PVIFA_{\frac{5.25\%}{2}, 2 \times 6.5} + 1000 PVIF_{\frac{5.25\%}{2}, 2 \times 6.5} \\
&= 30 \times 10.8946 + 1000 \times 0.7140 \\
&= \text{Rs.}1149.78
\end{aligned}$$

Thus, the present value of SBL debenture/bond is Rs. 1149.78.

## Annex - III

### Duration of Nepalese Corporate Debt Securities:

Some basic information needed for computing duration is tabulated in this table. So, with the help of this information, duration of Nepalese corporate debt securities is calculated.

For the computation of duration of Nepalese corporate debt securities, we have

The specific model developed by Macaulay as such:

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

Where,

MD = Macaulay Duration

y = Yield-to-maturity i.e., Market Interest Rate

c = Coupon Rate

T = Term-to-maturity i.e., Maturity Period

### Duration of HBL<sub>1</sub> debenture/bond:

We have,

$$MD = \frac{1+0.02815}{0.02815} - \frac{(1+0.02815)+14(0.0425-0.02815)}{0.0425[(1+0.02815)^{14}-1]+0.02815}$$

Where,

MD = Macaulay Duration

$$y = \frac{5.63\%}{2} = 0.02815$$

$$c = \frac{8.50\%}{2} = 0.0425$$

$$T = 7 \times 2 = 14 \text{ periods}$$

$$MD = 36.5240 - 25.4251$$

$$= 11.0989$$

$$= 11.10 \text{ (Semi-annual periods) (Approx.)}$$

So, annual duration =  $\frac{11.10}{2} = 5.55$  yrs.

**Duration of NIBL<sub>1</sub> debenture/bond:**

We have,

$$MD = \frac{1+0.0225}{0.0225} - \frac{(1+0.0225)+14(0.0375-0.0225)}{0.0375 [(1+0.0225)^{14}-1]+0.0225}$$

Where,

MD = Macaulay Duration

$$y = \frac{4.50\%}{2} = 0.0225$$

$$c = \frac{7.50\%}{2} = 0.0375$$

$$T = 7 \times 2 = 14 \text{ periods}$$

$$MD = 45.4444 - 34.0470$$

$$= 11.3974$$

$$= 11.40 \text{ (Semi-annual periods) (Approx.)}$$

So, annual duration =  $\frac{11.40}{2} = 5.70$  yrs.

Similarly,

**Duration of EBL debenture/bond:**

We have,

$$MD = \frac{1+0.0214}{0.0214} - \frac{(1+0.0214)+14(0.030-0.0214)}{0.030 [(1+0.0214)^{14}-1]+0.0214}$$

Where,

MD = Macaulay Duration

$$y = \frac{4.28\%}{2} = 0.0214$$

$$c = \frac{6.00\%}{2} = 0.030$$

$$T = 7 \times 2 = 14 \text{ periods}$$

$$MD = 47.7290 - 35.9622$$

$$= 11.7668$$

$$= 11.77 \text{ (Semi-annual periods) (Approx.)}$$

So, annual duration =  $\frac{11.77}{2} = 5.89$  yrs.

### Duration of BOKL debenture/bond:

We have,

$$MD = \frac{1+0.02225}{0.02225} - \frac{(1+0.02225)+14(0.030-0.02225)}{0.030[(1+0.02225)^{14}-1]+0.02225}$$

Where,

MD = Macaulay Duration

$$y = \frac{4.45\%}{2} = 0.02225$$

$$c = \frac{6.00\%}{2} = 0.030$$

$$T = 7 \times 2 = 14 \text{ periods}$$

$$\begin{aligned} MD &= 45.9438 - 34.1616 \\ &= 11.7822 \\ &= 11.78 \text{ (Semi-annual periods) (Approx.)} \end{aligned}$$

$$\text{So, annual duration} = \frac{11.78}{2} = 5.89 \text{ yrs.}$$

### Duration of NIBL<sub>2</sub> debenture/bond:

We have,

$$MD = \frac{1+0.02225}{0.02225} - \frac{(1+0.02225)+14(0.030-0.02225)}{0.030[(1+0.02225)^{14}-1]+0.02225}$$

Where,

MD = Macaulay Duration

$$y = \frac{4.45\%}{2} = 0.02225$$

$$c = \frac{6.00\%}{2} = 0.030$$

$$T = 7 \times 2 = 14 \text{ periods}$$

$$\begin{aligned} MD &= 45.9438 - 34.1616 \\ &= 11.7822 \\ &= 11.78 \text{ (Semi-annual periods) (Approx.)} \end{aligned}$$

$$\text{So, annual duration} = \frac{11.78}{2} = 5.89 \text{ yrs.}$$

### Duration of NICBL debenture/bond:

We have,

$$MD = \frac{1+0.02225}{0.02225} - \frac{(1+0.02225)+14(0.030-0.02225)}{0.030[(1+0.02225)^{14}-1]+0.02225}$$

Where,

MD = Macaulay Duration

$$y = \frac{4.45\%}{2} = 0.02225$$

$$c = \frac{6.00\%}{2} = 0.030$$

$$T = 7 \times 2 = 14 \text{ periods}$$

$$\begin{aligned} MD &= 45.9438 - 34.1616 \\ &= 11.7822 \\ &= 11.78 \text{ (Semi-annual periods) (Approx.)} \end{aligned}$$

$$\text{So, annual duration} = \frac{11.78}{2} = 5.89 \text{ yrs.}$$

### Duration of N SBI BL debenture/bond:

We have,

$$MD = \frac{1+0.02225}{0.02225} - \frac{(1+0.02225)+14(0.030-0.02225)}{0.030[(1+0.02225)^{14}-1]+0.02225}$$

Where,

MD = Macaulay Duration

$$y = \frac{4.45\%}{2} = 0.02225$$

$$c = \frac{6.00\%}{2} = 0.030$$

$$T = 7 \times 2 = 14 \text{ periods}$$

$$\begin{aligned} MD &= 45.9438 - 34.1616 \\ &= 11.7822 \\ &= 11.78 \text{ (Semi-annual periods) (Approx.)} \end{aligned}$$

$$\text{So, annual duration} = \frac{11.78}{2} = 5.89 \text{ yrs.}$$

**Duration of NIBL<sub>3</sub> debenture/bond:**

We have,

$$MD = \frac{1+0.02625}{0.02625} - \frac{(1+0.02625) + 11(0.03125-0.02625)}{0.03125 [(1+0.02625)^{11}-1] + 0.02625}$$

Where,

MD = Macaulay Duration

$$y = \frac{5.25\%}{2} = 0.02625$$

$$c = \frac{6.25\%}{2} = 0.03125$$

$$T = 2 \times 5.5 = 11 \text{ periods}$$

$$MD = 39.0952 - 29.5778$$

$$= 9.5174$$

$$= 9.52 \text{ (Semi-annual periods) (Approx.)}$$

$$\text{So, annual duration} = \frac{9.52}{2} = 4.76 \text{ yrs.}$$

**Duration of KBL debenture/bond:**

We have,

$$MD = \frac{1+0.02625}{0.02625} - \frac{(1+0.02625) + 4(0.04-0.02625)}{0.04 [(1+0.02625)^4-1] + 0.02625}$$

Where,

MD = Macaulay Duration

$$y = \frac{5.25\%}{2} = 0.02625$$

$$c = \frac{8.00\%}{2} = 0.04$$

$$T = 2 \times 4 = 14 \text{ periods}$$

$$MD = 39.0952 - 31.2878$$

$$= 7.8074$$

$$= 7.80 \text{ (Semi-annual periods) (Approx.)}$$

$$\text{So, annual duration} = \frac{7.80}{2} = 3.90 \text{ yrs.}$$

### Duration of HBL<sub>2</sub> debenture/bond:

We have,

$$MD = \frac{1+0.02625}{0.02625} - \frac{(1+0.02625) + 13(0.04-0.02625)}{0.030 [(1+0.02625)^{13} - 1] + 0.02625}$$

Where,

MD = Macaulay Duration

$$y = \frac{5.25\%}{2} = 0.02625$$

$$c = \frac{8.00\%}{2} = 0.04$$

$$T = 2 \times 6.5 = 13 \text{ periods}$$

$$MD = 39.0952 - 28.5065$$

$$= 10.5887$$

$$= 10.59 \text{ (Semi-annual periods) (Approx.)}$$

$$\text{So, annual duration} = \frac{10.59}{2} = 5.30 \text{ yrs.}$$

### Duration of NIBL<sub>4</sub> debenture/bond:

We have,

$$MD = \frac{1+0.02625}{0.02625} - \frac{(1+0.02625) + 13(0.04-0.02625)}{0.030 [(1+0.02625)^{13} - 1] + 0.02625}$$

Where,

MD = Macaulay Duration

$$y = \frac{5.25\%}{2} = 0.02625$$

$$c = \frac{8.00\%}{2} = 0.04$$

$$T = 2 \times 6.5 = 13 \text{ periods}$$

$$MD = 39.0952 - 28.5065$$

$$= 10.5887$$

$$= 10.59 \text{ (Semi-annual periods) (Approx.)}$$

$$\text{So, annual duration} = \frac{10.59}{2} = 5.30 \text{ yrs.}$$

### Duration of NABIL debenture/bond:

We have,

$$MD = \frac{1+0.02625}{0.02625} - \frac{(1+0.02625) + 19(0.04-0.02625)}{0.030 [(1+0.02625)^{19}-1] + 0.02625}$$

Where,

MD = Macaulay Duration

$$y = \frac{5.25\%}{2} = 0.02625$$

$$c = \frac{8.50\%}{2} = 0.0425$$

$$T = 2 \times 9.5 = 19 \text{ periods}$$

$$MD = 39.0952 - 24.5193$$

$$= 14.5759$$

$$= 14.58 \text{ (Semi-annual periods) (Approx.)}$$

$$\text{So, annual duration} = \frac{14.58}{2} = 7.29 \text{ yrs.}$$

### Duration of SBL debenture/bond:

We have,

$$MD = \frac{1+0.02625}{0.02625} - \frac{(1+0.02625) + 13(0.04-0.02625)}{0.030 [(1+0.02625)^{13}-1] + 0.02625}$$

Where,

MD = Macaulay Duration

$$y = \frac{5.25\%}{2} = 0.02625$$

$$c = \frac{8.00\%}{2} = 0.04$$

$$T = 2 \times 6.5 = 13 \text{ periods}$$

$$MD = 39.0952 - 28.5065$$

$$= 10.5887$$

$$= 10.59 \text{ (Semi-annual periods) (Approx.)}$$

$$\text{So, annual duration} = \frac{10.59}{2} = 5.30 \text{ yrs.}$$

### Duration of LBL debenture/bond:

We have,

$$MD = \frac{1+0.02625}{0.02625} - \frac{(1+0.02625) + 13(0.04-0.02625)}{0.04 [(1+0.02625)^{23} - 1] + 0.02625}$$

Where,

MD = Macaulay Duration

$$y = \frac{5.25\%}{2} = 0.02625$$

$$c = \frac{8.00\%}{2} = 0.04$$

$$T = 2 \times 6.5 = 13 \text{ periods}$$

$$MD = 39.0952 - 28.5065$$

$$= 10.5887$$

$$= 10.59 \text{ (Semi-annual periods) (Approx.)}$$

$$\text{So, annual duration} = \frac{10.59}{2} = 5.30 \text{ yrs.}$$

## **Annex-IV**

### **Questionnaires**

Dear Respondent,

I have been conducting a research on “**Issues and Prospects of Corporate Debenture Market in Nepal** (with special reference to corporate debt securities)” as a requirement for the partial fulfillment of the degree of MBS. I hope these questionnaires be an effective methodology to find out the problems and prospects of corporate debenture market, by using the statistical tool chi-square test of hypothesis based on various categories of samples and their attitude towards corporate debenture.

I have sent you some questions regarding corporate debenture market hoping that your timely response will come. So, I heartily request you to fill this questionnaire at the best of your knowledge. Your kind cooperation in this regard will be of great value for me.

Yours faithfully,

Deepa Pokharel  
Tribhuvan University  
Nepal Commerce Campus  
MBS Final Year

**Respondents:**

Name of Respondent:

Address:

Please tick in the group you belong to:

- Listed Company
- Broker/Issue Manager
- Individual Investors
- Other Experts

**Instructions:** Rank the following aspects of your view in the order of your preference, by indicating '1' to the most preferred aspect, '2' to the second most preferred aspect and so on and put your views in open ended questions.

(1) What types of securities do you prefer for raising long-term fund?

- (a) Common Stock/Equity
- (b) Preferred Stock
- (c) Bank Loan (Term-Loan)
- (d) Debt Securities (Debentures)
- (e) Others (If any, specify.....)

(2) What type of long-term investment do you generally prefer?

- (a) Debt securities of Manufacturing Sector
- (b) Debt Securities of Government Sector
- (c) Debt Securities of Corporate Sector
- (d) Real Assets (Land, Buildings, etc.)

(3) Which sector's debentures (bonds) issue you think will be most preferable?

- (a) Banking Sector
- (b) Manufacturing Sector
- (c) Hotel
- (d) Finance Companies
- (e) Others (If any, specify.....)

(4) In your opinion, what are the main reasons for slow growth of Nepalese Corporate Debentures (bonds) market in Nepal?

- (a) Lack of Investors Awareness towards Debt Securities
- (b) Lack of Capital Gain Opportunity
- (c) Lack of Proper Legal Provision
- (d) Limited Issuance of Quality Bonds
- (e) Poor Practice of Information Disclosure by Private Organization

(5) In your opinion, which factor plays vital role to attract investors towards purchasing corporate debentures (bonds)?

- (a) Declining Interest Rate on Bank Deposits
- (b) Lack of Investment Alternatives
- (c) Fixed Income
- (d) Portfolio with Less Risk

(e) Less Risky in comparison to Common Stock and Preferred Stock

(6) Why do Nepalese Organizations use bank loan instead of issuing debentures (bonds)?

- (a) Easy Access to Bank Loan
- (b) Lengthy Process of Issuing Debentures
- (c) Cost of Bank Loan is less than that of Bonds Issue
- (d) Others (If any, specify.....)

**Please tick ( ) in appropriate place:**

(7) Do you agree that due to the lack of large corporate houses, public awareness, various kinds of debt instruments are not practiced in Nepal?

- (a) Yes
- (b) No

(8) Do you think, are the present rules & regulations sufficient for Nepalese capital market growth for corporate debentures (bonds) in Nepal?

- (a) Sufficient
- (b) Insufficient

(9) Do you think that political instability hinder the growth of corporate bond market in Nepal?

- (a) Yes
- (b) No

(10) What is your view about present pace of corporate debentures (bonds) market growth in Nepal?

Very Good	Satisfactory	Weak	Very Weak	Don't know
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

QN	Options	Rank wise No. of Responses					Total Responses	Weighted Value	Mean Weight	Overall Rank	
		Sectors	1	2	3	4					5
1	(a)	L.C.	11	6	4	2	0	23	43		
		I.M/B	6	4	2	0	0	12	20		
		Ind. Inv.	37	10	8	4	0	59	97		
		Experts	8	6	4	0	0	18	32		
	<b>Total</b>	<b>62</b>	<b>26</b>	<b>18</b>	<b>6</b>	<b>0</b>	<b>112</b>	<b>192</b>	<b>1.71</b>	<b>1</b>	
	(b)	L.C.	2	11	6	4	0	23	58		
		I.M/B	0	6	4	2	0	12	32		
		Ind. Inv.	4	37	10	8	0	59	140		
		Experts	0	8	6	4	0	18	50		
	<b>Total</b>	<b>6</b>	<b>62</b>	<b>26</b>	<b>18</b>	<b>0</b>	<b>112</b>	<b>280</b>	<b>2.50</b>	<b>4</b>	
	(c)	L.C.	4	11	6	2	0	23	52		
		I.M/B	2	6	4	0	0	12	26		
		Ind. Inv.	8	37	10	4	0	59	128		
		Experts	4	8	6	0	0	18	38		
	<b>Total</b>	<b>18</b>	<b>62</b>	<b>26</b>	<b>6</b>	<b>0</b>	<b>112</b>	<b>244</b>	<b>2.18</b>	<b>3</b>	
	(d)	L.C.	6	11	4	2	0	23	48		
		I.M/B	4	6	2	0	0	12	22		
		Ind. Inv.	10	37	8	4	0	59	124		
		Experts	6	8	4	0	0	18	34		
	<b>Total</b>	<b>26</b>	<b>62</b>	<b>18</b>	<b>6</b>	<b>0</b>	<b>112</b>	<b>228</b>	<b>2.04</b>	<b>2</b>	
	(e)	L.C.	0	11	6	4	2	23	66		
		I.M/B	0	6	4	2	0	12	32		
		Ind. Inv.	0	37	10	8	4	59	156		
		Experts	0	8	6	4	0	18	50		
	<b>Total</b>	<b>0</b>	<b>62</b>	<b>26</b>	<b>18</b>	<b>6</b>	<b>112</b>	<b>304</b>	<b>2.71</b>	<b>5</b>	
2	(a)	L.C.	0	10	8	5		23	64		
		I.M/B	0	8	2	2		12	30		
		Ind. Inv.	0	28	18	13		59	162		
		Experts	0	7	6	5		18	52		
	<b>Total</b>	<b>0</b>	<b>53</b>	<b>34</b>	<b>25</b>		<b>112</b>	<b>308</b>	<b>2.75</b>	<b>4</b>	
	(b)	L.C.	10	8	5	0		23	41		
		I.M/B	8	2	2	0		12	18		
		Ind. Inv.	28	18	13	0		59	103		
		Experts	7	6	5	0		18	58		
	<b>Total</b>	<b>53</b>	<b>34</b>	<b>25</b>	<b>0</b>		<b>112</b>	<b>220</b>	<b>1.96</b>	<b>2</b>	
	(c)	L.C.	5	10	8	0		23	49		

		I.M/B	2	8	2	0		12	24		
		Ind. Inv.	13	28	18	0		59	123		
		Experts	5	7	6	0		18	37		
		<b>Total</b>	<b>25</b>	<b>53</b>	<b>34</b>	<b>0</b>		<b>112</b>	<b>233</b>	<b>2.08</b>	<b>3</b>
	(d)	L.C.	8	10	5	0		23	43		
		I.M/B	2	8	2	0		12	24		
		Ind. Inv.	18	28	13	0		59	113		
		Experts	6	7	5	0		18	35		
		<b>Total</b>	<b>34</b>	<b>53</b>	<b>25</b>	<b>0</b>		<b>112</b>	<b>215</b>	<b>1.92</b>	<b>1</b>
3	(a)	L.C.	21	2	0	0	0	23	25		
		I.M/B	12	0	0	0	0	12	12		
		Ind. Inv.	51	2	3	3	0	59	76		
		Experts	15	3	0	0	0	18	21		
		<b>Total</b>	<b>99</b>	<b>7</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>112</b>	<b>134</b>	<b>1.20</b>	<b>1</b>
	(b)	L.C.	0	21	2	0	0	23	48		
		I.M/B	0	12	0	0	0	12	24		
		Ind. Inv.	3	51	2	3	0	59	123		
		Experts	0	15	3	0	0	18	39		
		<b>Total</b>	<b>3</b>	<b>99</b>	<b>7</b>	<b>3</b>	<b>0</b>	<b>112</b>	<b>234</b>	<b>2.09</b>	<b>5</b>
	(c)	L.C.	0	21	2	0	0	23	48		
		I.M/B	0	12	0	0	0	12	12		
		Ind. Inv.	3	51	2	3	0	59	123		
		Experts	0	15	3	0	0	18	39		
		<b>Total</b>	<b>3</b>	<b>99</b>	<b>7</b>	<b>3</b>	<b>0</b>	<b>112</b>	<b>222</b>	<b>1.98</b>	<b>2</b>
	(d)	L.C.	2	21	0	0	0	23	44		
		I.M/B	0	12	0	0	0	12	24		
		Ind. Inv.	2	51	3	3	0	59	125		
		Experts	3	15	0	0	0	18	33		
		<b>Total</b>	<b>7</b>	<b>99</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>112</b>	<b>226</b>	<b>2.02</b>	<b>3</b>
	(e)	L.C.	0	21	2	0	0	23	48		
		I.M/B	0	12	0	0	0	12	12		
		Ind. Inv.	0	51	2	3	3	59	129		
		Experts	0	15	3	0	0	18	39		
		<b>Total</b>	<b>0</b>	<b>99</b>	<b>7</b>	<b>3</b>	<b>3</b>	<b>112</b>	<b>228</b>	<b>2.04</b>	<b>4</b>
4	(a)	L.C.	10	4	5	2	2	23	51		
		I.M/B	3	2	3	2	2	12	34		
		Ind. Inv.	29	11	8	7	4	59	123		
		Experts	5	5	4	2	2	18	45		
		<b>Total</b>	<b>47</b>	<b>22</b>	<b>20</b>	<b>13</b>	<b>10</b>	<b>112</b>	<b>253</b>	<b>2.56</b>	<b>3</b>

	(b)	L.C.	2	10	4	5	2	23	64		
		I.M/B	2	3	2	3	2	12	36		
		Ind. Inv.	7	29	11	8	4	59	150		
		Experts	2	5	5	4	2	18	53		
		<b>Total</b>	<b>13</b>	<b>47</b>	<b>22</b>	<b>20</b>	<b>10</b>	<b>112</b>	<b>303</b>	<b>2.71</b>	<b>4</b>
	(c)	L.C.	5	10	4	2	2	23	55		
		I.M/B	3	3	2	2	2	12	33		
		Ind. Inv.	8	29	11	7	4	59	147		
		Experts	4	5	5	2	2	18	47		
		<b>Total</b>	<b>20</b>	<b>47</b>	<b>22</b>	<b>13</b>	<b>10</b>	<b>112</b>	<b>282</b>	<b>2.52</b>	<b>2</b>
	(d)	L.C.	4	10	5	2	2	23	57		
		I.M/B	2	3	3	2	2	12	35		
		Ind. Inv.	11	29	8	7	4	59	141		
		Experts	5	5	4	2	2	18	45		
		<b>Total</b>	<b>22</b>	<b>47</b>	<b>20</b>	<b>13</b>	<b>10</b>	<b>112</b>	<b>278</b>	<b>2.48</b>	<b>1</b>
	(e)	L.C.	2	10	4	5	2	23	64		
		I.M/B	2	3	2	3	2	12	36		
		Ind. Inv.	4	29	11	8	7	59	162		
		Experts	2	5	5	4	2	18	53		
		<b>Total</b>	<b>10</b>	<b>47</b>	<b>22</b>	<b>20</b>	<b>13</b>	<b>112</b>	<b>315</b>	<b>2.81</b>	<b>5</b>
5	(a)	L.C.	7	6	2	5	3	23	60		
		I.M/B	6	3	2	0	1	12	23		
		Ind. Inv.	23	12	11	6	7	59	139		
		Experts	10	5	0	3	0	18	32		
		<b>Total</b>	<b>46</b>	<b>26</b>	<b>15</b>	<b>14</b>	<b>11</b>	<b>112</b>	<b>254</b>	<b>2.27</b>	<b>1</b>
	(b)	L.C.	3	7	6	2	5	23	63		
		I.M/B	1	6	3	2	0	12	30		
		Ind. Inv.	7	23	12	11	6	59	163		
		Experts	0	10	5	0	3	18	50		
		<b>Total</b>	<b>11</b>	<b>46</b>	<b>26</b>	<b>15</b>	<b>14</b>	<b>112</b>	<b>306</b>	<b>2,73</b>	<b>5</b>
	(c)	L.C.	2	7	6	5	3	23	66		
		I.M/B	2	6	3	0	1	12	28		
		Ind. Inv.	11	23	12	6	7	59	152		
		Experts	0	10	5	3	0	18	47		
		<b>Total</b>	<b>15</b>	<b>46</b>	<b>26</b>	<b>14</b>	<b>11</b>	<b>112</b>	<b>293</b>	<b>2.62</b>	<b>3</b>
	(d)	L.C.	5	7	6	2	3	23	60		
		I.M/B	0	6	3	2	1	12	34		
		Ind. Inv.	6	23	12	11	7	59	167		
		Experts	3	10	5	0	0	18	38		

	<b>Total</b>	<b>14</b>	<b>46</b>	<b>26</b>	<b>15</b>	<b>11</b>	<b>112</b>	<b>299</b>	<b>2.67</b>	<b>4</b>
(e)	L.C.	6	7	2	5	3	23	61		
	I.M/B	3	6	2	0	1	12	26		
	Ind. Inv.	12	23	11	6	7	59	150		
	Experts	5	10	0	3	0	18	37		
	<b>Total</b>	<b>26</b>	<b>46</b>	<b>15</b>	<b>14</b>	<b>11</b>	<b>112</b>	<b>274</b>	<b>2.45</b>	<b>2</b>

## Annex - VI

Total no. of respondent is 112. Seven questions with yes/no type are asked to them. Their responses are tabulated as shown below.

### Number of Responses to Field Survey Based on Questionnaires

<b>Q. N.</b>	<b>Options</b>	<b>L.C.</b>	<b>I.M./B</b>	<b>Ind. Inv.</b>	<b>Experts</b>	<b>Total</b>
<b>7</b>	(a) Yes	16	10	44	15	<b>85</b>
	(b) No	7	2	15	3	<b>27</b>
	<b>Total</b>	<b>23</b>	<b>12</b>	<b>59</b>	<b>18</b>	<b>112</b>
<b>8</b>	(a) Sufficient	7	3	17	5	<b>32</b>
	(b) Insufficient	16	9	42	13	<b>80</b>
	<b>Total</b>	<b>23</b>	<b>12</b>	<b>59</b>	<b>18</b>	<b>112</b>
<b>9</b>	(a) Yes	17	10	51	15	<b>93</b>
	(b) No	6	2	8	3	<b>19</b>
	<b>Total</b>	<b>23</b>	<b>12</b>	<b>59</b>	<b>18</b>	<b>112</b>
<b>10</b>	(a) Very Good	3	2	2	0	<b>7</b>
	(b) Satisfactory	4	2	13	3	<b>22</b>
	(c) Weak	14	5	38	15	<b>72</b>
	(d) Very Weak	2	3	3	0	<b>8</b>
	(e) Don't Know	0	0	3	0	<b>2</b>
	<b>Total</b>	<b>23</b>	<b>12</b>	<b>59</b>	<b>18</b>	<b>112</b>