A STUDY ON PROBLEMS AND POTENTIALS OF GOVERNMENT BOND MARKET IN NEPAL

A THESIS

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RECOMMENDATION

This is to certify that the thesis

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

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VIVA-VOCE SHEET

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

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DECLARATION

I hereby declare that the work in this thesis entitled **"A Study on Problems and Potentials of Government Bond Market in Nepal"** submitted to office of the Dean, Faculty of management, Tribhuvan University, is my original work done in the form of partial fulfillment of the requirement for the Master's Degree in Business Study (M.B.S.) under the supervision of **Prof. Bijaya Prakash Shrestha** People's Campus, Paknajol, Kathmandu.

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Suresh Moktan
Researcher

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ABBREVIATIONS

A.D	:	Anno Domini/ After Death
ADB	:	Asian Development Bank
BOK	:	Bank of Kathmandu
B.S	:	Bikram Sambat
CDS	:	Certificate of Deposits
CEO	:	Chief Executive Officer
CPI	:	Consumer Price Index
d.f	:	Degree of Freedom
FV	:	Future Value
FY	:	Fiscal Year
HBL	:	Himalayan Bank Limited
IRD	:	Interest Rate Derivative
i.e.	:	That Is
KBL	:	Kumari Bank Limited
MOF	:	Ministry of Finance
NEA	:	Nepal Electricity Authority
NEPSE	:	Nepal Stock Exchange
NIBL	:	Nepal Investment Bank Limited
NICB	:	Nepal Industrial and Commerze Bank
NIDC	:	Nepal Industrial Development Centre
NMB	:	Nepal Merchant Bank
NRB	:	Nepal Rastra Bank
OTC	:	Over –the Counter Market
PV	:	Present Value
PVIF	:	Present Value Interest Factor
PVIFA	:	Present Value Interest Factor Annuity
S.A	:	Semi- Annual
S & P	:	Standard and Poor
SBL	:	Siddhartha Bank Limited
SEBON	:	Securities Board of Nepal
THT	:	The Himalayan Times
YTC	:	Yield to Call
YTM	:	Yield to Maturity
ZCB	:	Zero Coupon Bond

CHAPTER 1
INTRODUCTION

1.1 Background of the Study

Government bonds are often referred to as a 'low risk' investment. This means there is little capital risk as the Government promises to repay your investment, plus interest. However, there is still inflation risk, meaning that the money you get when the bond matures could have less buying power, due to higher than expected inflation. You can buy bonds from foreign Governments in a different currency, there is a currency risk as the value of the money you receive when the bond matures will fluctuate in line with the value of the foreign currency. (http://www.consumerhelp.ie/government-bonds)

Capital market is the market insinuate for long term securities issued by the government of private organizations. Capital market typically involves financial assets such as stocks, bonds, preferred stock etc. that have life span 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 a variety of investment alternatives to the investors. Among possible various investment alternatives like common stock, preferred stock, government bond, corporate bonds, right shares, option, warrant and convertibles etc. only very small number of alternatives are available for Nepalese investors.

A bond is a long term contract under which a borrower agrees to male payments of interest and principal on specific dates to the holder of the Bond". Bond securities are an important type of financial instrument of financial instrument of the capital market of the nation. The Bonds are promises by the issuing firm of debt instrument refer to the length of time. Generally bonds and debentures have a face value of Rs. 1000. The bondholders get interest on annual or semiannual basis on their investment amount. Bondholders get interest before the stockholder get dividends. There is no restriction to get interest by interest by bondholders whether the issuing agency suffers to loss. The relation between bondholders and issuing bodies is similar to the relation to the relation between creditors and debtors. "The holders of a company's long-term debt of course, are creditors. Generally they cannot exercise control over the company and do not have a voice in management. If the company violates any of the provision of the debt contract, then their bodies may be able to exert some influence in the direction of the company. Holders of long term debt do not participate in the residual earnings of the company instead their return is fixed. Their debt instrument has specified maturity period. In liquidation the claim of debt holder is before that of preferred and common stock. (Van Horne 2002:509)

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

I. Government Bond: The market that deals on securities issued by government in order to meet its financial needs with promise to pay a certain percent of interest at certain period of

time with predetermined maturity period is known as government bond. Government raises fund from market to conduct the regular activities, development programs and to recover the deficit budget of the Nation.

In Nepal Rastra Bank has been actively issuing various government bonds in the country with the main aims of taking the deficit budget and to collect small and scattered funds from general public. The various types of government bonds are

a. Treasury Bills
b. Development Bonds
c. National Saving Bonds
d. Special Bond
e. Citizen Saving Bond

II. Corporate Bond: The market that deals on the bonds issued by corporations in order to fulfill their financial needs to boost up their financial health and maximization of corporations profit is known as corporate bonds.

A government bond is a bond issued by a national government, generally promising to pay a certain amount (the face value) on a certain date, as well as periodic interest payments. Bonds are debt investments whereby an investor loans a certain amount of money, for a certain amount of time, with a certain interest rate, to a company or country. Government bonds are usually denominated in the country's own currency. Bonds issued by national governments in foreign currencies are normally referred to as sovereign bonds, although the term "sovereign bond" may also refer to bonds issued in a country's own currency. The first ever government bond was issued by the Bank of England in 1693 to raise money to fund a war against France. It was in the form of a tontine. Later, governments in Europe started issuing perpetual bonds (bonds with no maturity date) to fund wars and other government spending. The use of perpetual bonds ceased in the 20th century, and currently governments issue bonds of limited duration.

The history of Nepalese market was started in the year 1962 A.D, when the government issued the bonds for the first time. After that period the government issued securities regularly to meet the financial needs.

Governments bonds are those securities, which are issued by the government promises to provide a certain percentage of interest at certain period of time with pre-determined maturity period. The government raises a huge amount of fund by issuing such bonds. Government heavily realizes on debt financial. To conduct regular activities, continuously, to conduct the development programmers, the government collects funds through various sources. These sources are of internal as well as external also. The external sources are in the form of loans, subsidies and other kinds of co-operatives. The fund collected as internal sources are on the form of loan by means of securities. The government issues various kinds of securities to collect funds from internal sources. The Government also guarantees these types of securities and the features of every security are also different.

1.2 Statement of the Problem

We can find that the countries with developed bonds market are developed countries. As such countries spent heavy investment in research and development activities, many research works regarding to the bond market are conducted. In developing countries, bond market is still developing stage. In Nepalese context, there are few research works about the government bond market.

It has been found that there is little concern about bond market of Nepal among the researcher, concern experts, investors, as well as the corporate bodies and corporation. Now days, it has been seen that investors are interested to invest in bond/debenture securities too. Bonds are assumed less risky security of investment with fixed returns. They are less risky in the sense that there are very few chance of losing principal and interest even in liquidation of corporation where as government bond are risk free.

Bond market has some prospects of growth even if whole economic growth is in downturn due to political instability. In adequate legal provisions, limited supply of quality bonds, poor knowledge about debt securities might be the obstacle in the development of bond market. Thus this research felt need of research on topic problem and prospects of government bond market in Nepal. The researcher will give his attention in identification of past and future and problems restricting Nepalese government bond market.

The major problems are:

I. What is the trend of government bond?
II. What are the main problems of government bond?
III. What should be done to promote the government bond market of Nepal?
IV. What are the prospects of developing government bond market in Nepal?
V. Why various types of debt instruments are not properly practice in Nepal?

1.3 Objectives of the Study

In Nepal the corporate bond market is very small compared with equity and government bond market. The broader objectives of the study are to examine the status of the government bond market in Nepal. Following are the specific objectives of the study.

I. To examine the potentiality in the growth of government bond market.
II. To access the existing mechanism of government bond market in Nepal.
III. To analyze associated risk and safety of government bond.
IV. To analyze the problem that affects the development of government bond in Nepal.

1.4 Significance of the Study

The study is concerned with the problem and prospect of government bond market in Nepal. This study can be benefited to all the stake holders and others who are directly or indirectly related to present bond market. This study explains theoretical concept about government bond, its importance, present situation, problems and prospect of government bond market in

Nepal. The findings of the study can be a reference for researchers, students and other persons interested in this field.

Furthermore this study can/might be beneficial to the investors for investing in corporate bond. It identifies the major problems faced by government bond market, its problems and future prospects. It also can be helpful for the policy reforms of government bond market in Nepal. This study helps to develop Nepalese government bond market which is in growth stage.

1.5 Limitation of the Study

This study has been carried out for the partial fulfillment of the requirement for the degree of masters of business studies, so it possesses number of limitation of its own. Shortage of time, budget, lack of research experience, reliability and availability of secondary data and statistical tools used are the main limitation. However, this study has following limitation.

I. This study focus on the limited area of government bond market in Nepal.

II. This study covers certain period data from 2005/06 to 2011/12 for the analysis, result is based on this data.

III. The secondary data are assumed to be correct and true as provided by organizations.

IV. Primary data are collected and analyzed for the year 2012 from specific place i.e. Kathmandu

V. This study is concerned only on existing securities act, legal rules and regulations relating to the topic.

1.6 Organization of the Study

This section includes the five subsections and references which indicates how the researcher has organized the research work. Those chapters of study and a brief about their components have been organized into following manner.

Viva-voce, Acknowledgement, Table of content, List of table and Abbreviation are initially enclosed.

Chapter One: Introduction

This is the first chapter of the study which introduces the topic. It deals with the introduction of government bond market along with its importance, statement of the problem, objectives of the study, significance of the study, limitation of the study and other introductory framework.

Chapter Two: Review of Literature

This chapter deals with the reviews of available studies. It includes conceptual reviews of the related books, journals, articles, abstracts, published and unpublished research works, thesis as well as security act. This chapter is divided into two sections i.e. conceptual framework and review of related articles.

Chapter Three: Research Methodology

This chapter describes research methodology employed in this study. It deals with research design, population and sample of the study, tools used for the analysis, research method, data collection procedures, and technique of hypotheses.

Chapter Four: Data Presentation and Analysis

This chapter is the main part of the whole study. The relevant data collected are analyzed and interpreted by the help of different financial and statistical tools. Hypotheses are tested.

Chapter Five: Summary, Conclusion and Recommendations

This is the final chapter of the study. It presents major findings and other empirical evidences. It also offers some valuable suggestions recommendation and conclusion of the study.

Beside this Bibliography, Appendixes and Questionnaire are included in the last of the study.

CHAPTER 2
THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

Review of literature is an essential part of all studies. A literature review is the process of locating, obtaining, reading and evaluating the research literature in the area of the interest at any researcher. It is way to discover what other research in the area of problem selection has uncovered. The purpose is to develop some expertise in one's area to see what new contribution can be made and to receive some idea for developing a research design. It is also a way to avoid investigating problems that have already been definitely answered (Wolft and Pant 2001). In view of the consideration this study incorporates the basic capital structure theories and relevant empirical studies in the chapter.

2.1 Conceptual Framework

The market is a number of people “Buyer and Seller” who have some needs or want, have resources and are also willing to participate in the transaction (Koirala, 2065:5) marketable financial instruments that below on their owners the rights to make specific claims on particular asses called securities. An individual security provides evidence of either creditor ship of ownership depending on whether it is a bond or a stock, respectively (Francis, 1988:10). A debt instrument is a long term contract under which a borrower agrees to make payments of interest and particular on specific dates to the holder of the instruments. Thus, security market is mechanism created to facilitate the exchange of financial assets. The securities include both money market and capital market.

Capital market consists of markets where the intermediate and long term security of individuals, Business firms and governmental units are issued and traded each other’s (Scholl & Haley, 1991:21) where as long term debt securities are traded in capital market, capital market brings together buyers and sellers of securities. i.e. security capital market are mechanism created to facilitate the exchange of financial added.(Sharpe, 1995:7)

Debt securities market is an essential part of capital market, where trading of debt securities are held. Similarly the equity securities, the both primary and secondary market exist for the debt securities. But bond trading differs from stock trading. Debt securities market can be divided into corporate and government bond market.

2.2 Meaning and Definition of Bond Market

The bond market (also known as the credit, or fixed income market) is a financial market where participants can issue new debt, known as the primary market, or buy and sell debt securities, known as the Secondary market, usually in the form of bonds. The primary goal of the bond market is to provide a mechanism for long term funding of public and private expenditures. However, a small number of bonds, primarily corporate, are listed on exchanges. References to the "bond market" usually refer to the government bond market, because of its size, liquidity, relative lack of credit risk and, therefore, sensitivity to interest rates. Because of the inverse relationship between bond valuation and interest rates, the bond market is often used to indicate changes in interest rates or the shape of the yield curve. The yield curve is the measure of "cost of funding".

2.3 Meaning and Definition of Bond

A bond is a written instrument acknowledges a debt and containing a contract for the payment of the principal sum at a specified and for the payment of interest at a fixed rate. So many Scholars have explained the core concept of bond and its mechanism, such as, Weston and Copeland (1992) defined the term bond as "A bond is simply a long term promissory Note".

"A corporate bond is a certificate indicating that a corporation has borrowed a certain amount of money from an institution or an individual and promises to reply it in future under clear definite terms. Guttmann (2000:581-582)

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

2.4 Government bond market in Nepal

Variety of purpose government of any country has to collect the financial sources by issuing bond securities to public. Government securities market has great impact in the national economy by mobilization of capital. Government issues securities to finance their activities. Revenues collected by the government seldom cover expense and the differences have been financed primarily by issuing bond. New instruments are issued to repay the old debt in continuously.

Nepalese capital market as well as bond market has not reached its maturity stage. There is not proper exercise of bond till now. Nepal is known as capital scare country as revenue is not enough for financing development expenditure; foreign grant as well as foreign loan and internal borrowing are used to bridge this gap. Development and expansion of bond market is essential for the rapid economic growth of country like Nepal. Capital market help to develop the economy by mobilization of long term fund for productive sectors.

Development of government bond market provides a number of important benefits it the perquisites to a sound development are in a place. Government securities market provides an avenue for domestic funding of deficit budget other than that provided by central bank and

thereby, can reduce the need for direct and potentially damaging monetary financing of government deficit and avoid a build-up of foreign currency- denominated debt. Government bond related to collect requires amount to fulfill the budgetary deficit of the country, which leads to develop the bond market of the nation.

Governments bonds are issued to meet the financial requirements and to fulfill the deficit budget. The fund raised by the government from public is known as internal debt. Internal debt is issued to control the inflation, to create infrastructure, to increase productivity and to generate wealth for critical situation that may happen. Moreover, new bond must be issued in order to get the necessary funds to pay off old debt that comes due.

Government used to raise capital from the national market, which is called national debt and if it raised the debt requirement from international market, it is known as international debt. The debt that is raised from the local market is known as local or national debt. To raise funds from the local market government uses short-term as well as long-term debt instruments. These instruments help to raise the capital for government for short period of time. Government issued debt instruments having maturity period of 91 days to 5 years. The common instruments issued by government to raise short-term as well as long term debt are as follows:

2.5 Treasury Bills

Treasury Bills are the short term money market instruments of the government. Nepal government initiated the process of selling Treasury Bills to banks and financial institutions since fiscal year 1988/89 to uphold deficit budgetary system. It normally matures in 91 days, while some matures in 364 days. The issuance of short-term government securities has following reasons:

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

Thus, treasury bills are issued to meet short-term requirements of the government. It is issued on discount basis. The government has been collecting huge amount of funds through sales of T-Bill every year. The discount rate of treasury bills percentage can be calculated as:

$$\text{Discount Rate in Percentage} = \left(\frac{(100-BP)\times 365\times 100}{BP\times T}\right)$$

Where,

BP= Bill price or purchase price of T-Bills

T= Maturity period of Treasury Bills

2.6 Development Bond

It is a kind of long-term government bond. It has normally five years maturity periods. Individual and institutions purchase it. It can be used as collateral when taking loans. The holder normally obtain 90% amount of total value if keeps them on collateral. It has also fixed and minimum interest rate. The interest amount is paid on semi-annual basis. The income from these bonds is taxable. It was firstly issued in 2020, amounting Rs. 131 lakhs

with the maturity period of five years. It has Rs. 294785 lakhs liability on development bond till 2066 Ashad.

Characteristics of Development Bond

- It is a long-term government bond.
- The holders get interest in semi-annual basis.
- The holder can use it as collateral if holder needs money immediately.
- Institutions and individual buyers can purchase it.

Thus the development bonds are also a major source of government funds. They are issued to collect long-term funds to recover deficit budgeting system of government. NRB, the central bank of Nepal has been issuing these bonds in the market on behalf of the government.

2.7 National Saving Bond

It is also a long- term bond and it normally bears maturity period of five years. It has fixed interest rate payable semi-annually. These bonds are normally tax free bonds and having high interest rates. The main holders of these bonds are generally public because it is focused to the individual investors but also organizations and financial institutions are can purchase it, as they have right to purchase national saving bonds. GON initiated the process of selling national saving bonds since 2040 B.S. GON has issued national saving bond, amounting Rs. 2169.15 lakhs with five years maturity and 6.5% interest rate in 2061 B.S. It has Rs. 2169 lakhs liability on these bonds at the last of 2066 Ashad.

2.8 Special Bonds

By definition, it is issued on special occasions when government falls sorts of funds. The government issues special bonds to those parties to whom the government has to make payments. Instead of paying cash, the government issues special bonds as a substitute of cash payments and extends the period of payments. The holder of these bonds can used it as collateral to fulfill their funds needed. The holder receives 50% cash, when they use it as collateral. GON has started the process of selling special bonds science 2023 B.S. Till 2066, Ashad, GON has Rs. 2296 lakhs liability on special bond.

2.9 Citizen Saving Bond

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

Several Types of Government Debt Securities Practice in U. S. A

There are several types of government debt securities practice in U.S.A are as follows:

2.10 Government Debt Securities

2.10.1 Treasury Bills

Treasury bills are treasury securities having a maturity period of one year or less and sold in the primary market by auction at a discount from face value. Upon maturity the face value will be paid to the holder.

Treasury bills were first issued in Thailand in 1945, worth 50 million baht with a maturity period of 4 months. The issuance of treasury bills continued until 1990 and no treasury bill was issued since then. However, since 27th September 1999, the government has resumed issuing treasury bills until now.

At present, treasury bills typically have 28-day, 91-day, and 182-day maturity periods.

2.10.2 Debt Restructuring Bills

Debt restructuring bills are treasury securities having a maturity period of one year or less and sold in the primary market by auction at a discount from face value. Upon maturity the face value will be paid to the holder.

The issuance of debt restructuring bills is authorized under section 7 of the Emergency Decree Authorizing the Ministry of Finance to raise and administer loans for the Financial Institutions Development Fund B.E. 2541. Debt restructuring bills were first auctioned in March 2001 and continued until 2007.Debt restructuring bills have maturity period based on number of days, typically having a 182-day maturity period.

2.10.3 Government Bonds

Government bonds are debt securities issued by the government, having a maturity period of one year or longer. The primarily objectives are to finance the budget deficit in each fiscal year or when the expenditures exceed the revenue, to support social and economic development and to restructure public debt.

The first government bonds, worth 1 million pound sterling, were issued by the Royal Siamese Government in 1905 called “European Bonds 1905”, to raise fund from investors in London and Paris capital markets. The proceeds were used to finance railroad construction projects, strengthen treasury reserve, and finance other social services. These bonds were in bearer form having a 40-year maturity with a 4.5% coupon per annum. The first domestic

government bonds, called “Loan Bond B.E.2476”, were issued in 1933 during Phraya Manopakorn Nititada government. These bonds were issued according to the Domestic Loan Management Act B.E. 2476 of Baht 10 million, in which the sale was managed by the Ministry of Finance. The bonds were in bearer form having 10-year maturity with a 4.5% coupon per annum.

At present, government bonds are issued with different names, e.g. government bonds, special-issue government bonds, debt restructuring government bonds and debt management government bonds.

Interest payments of government bonds are made at regular intervals throughout the life of the bonds, normally twice a year. Upon maturity, the principal of face value will be paid along with the last interest payment.

2.10.4 Government Savings Bonds

Government savings bonds are debt securities sold, as an investment or savings alternative, to individuals and non-profit institutions such as foundations, the Thai Red Cross Society, and the National Council on Social Welfare of Thailand.

Interest payments of government savings bonds are made at regular intervals throughout the life of the bonds, normally twice a year. Upon maturity, the principal of face value will be paid along with the last interest payment.

Table 2.6: Categories of Government bonds around the world.

Moody's		**S&P**		**Fitch**		
Long Term	**Short Term**	**Long Term**	**Short Term**	**Long Term**	**Short Term**	
Aaa	P-1	AAA	A-1+	AAA	A1+	Prime
Aa1		AA+		AA+		High grade
Aa2		AA		AA		
Aa3		AA-		AA-		
A1		A+	A-1	A+	A1	Upper Medium grade
A2		A		A		
A3	P-2	A-	A-2	A-	A2	
Baa1		BBB+		BBB+		Lower Medium grade
Baa2	P-3	BBB	A-3	BBB	A3	
Baa3		BBB-		BBB-		
Ba1	Not Prime	BB+	B	BB+	B	Non Investment grade speculative
Ba2		BB		BB		
Ba3		BB-		BB-		
B1		B+		B+		Highly Speculative
B2		B		B		
B3		B-		B-		
Caa		CCC+	C	CCC	C	Substantial risks

Ca		CCC				Extremely speculative
C		CCC-				In default with little prospect for discovery
/		D	/	DDD	/	In default
/				DD		
/				D		

Source: Wikipedia

2.11 Main characteristics of Bond

A Bond is a written is a written document that acknowledges a debt and contains a contract for the payment of principal sum at a specific time and the payment of interest at a fixed rate to the holder of a bond. All bonds do not have the same contractual features .Although all bonds have some common features which are as below.

Par Value: The par value is the stated face value of the bond, which is paid at maturity. It is also called maturity value or face value or principal. It usually is set at Rs. 1,000 per bond, although multiple of Rs. 1,000 is also used. But in Nepal, Par value of corporate bonds must be Rs. 1,000.The par value or principal generally represents the amount of money the firm borrows and promise to repay on the maturity date. Par value is used with the bond's price to determine the market value of the bond. Similarly it is also used to determine annual coupon payments.

Coupon Interest Rate: The bond requires the issuer to pay a fixed amount of interest at the end of each year period (year or six month). This amount is called coupon payment. When coupon payment is divided by the par value, the result is the coupon interest rate. Coupon interest rate is also stated in the indenture and bond certificate. It generally remains constant throughout the life of bond.

Maturity Period: Generally, bonds are issued with finite maturity. The specified date on which the principal amount (par value) is repaid is called maturity date. The number of years to maturity at the time a bond is issued is called original maturity. Whereas, the period remaining until the maturity is called time to maturity and time to maturity declines as the bond approaches to maturity.

Bid: The Bid price is the selling price for the investor.

Offer (Ask): The ask price is the purchase price for the investor.

Bid-ask Spread: The price difference between what the traders will buy a bond at, and the price at which the trader will sell the bond. The difference on highly liquid and trade able government bond is usually only a few rupees. But it can be as much as Rs.1 or more on liquid bonds, such as some corporate bonds, which are not easily traded.

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

Bond Auctions: Bonds are auctions on the bases of ask price and bid price. Government has given full authority to trade government bond to NRB. NRB issue the new bond in discount. The public Debt Act, 2002 has delegated authority to the NRB to arrange primary and secondary transactions of government securities.

Indenture: An indenture is a legal document or contract that contains terms and conditions of bonds issue. It includes details of debt issue, description of property pledged (if any), the methods of principal repayments, restrictions (or covenants) placed on the firm by the lenders, right and responsibilities of both borrower and lender. Debt covenants are used to resolve agency problems among bondholders, stockholders, and managers. Various types of restrictive covenants or protective covenants can be used to protect bondholders or creditors by prohibiting certain actions by shareholders, managers that might deteriorate the quality of existing bond. The bond indenture can be a document of several hundred pages, that discusses a large number of factors important to the contracting parties such as,

- The form of the bond and the instrument.
- A complete description of the property pledged.
- The authorized amount of the bond issue.
- Details prospective clauses, or covenants.
- Minimum current ratio requirements.
- Provision for the redemption or call privilege.

Call provisions: A call provision is a special provision in the indenture that gives the issuer the right to call the bonds prior to maturity at call price. Generally, a company or corporation pays the bondholders an amount greater than the par value if they are called before maturity. The amount that is paid to the bondholder is called call price and the excess amount over the par value is called call premium. When interest rate in the market decreases, bonds having call provisions are called i.e. the issuer redeems back the call prices to the bondholder before mature. Hence call provision increases risk to the bondholders**.**

Trustee: A trustee is the representative of the bondholder, who deals with the issuing company. Usually a commercial bank or finance company is appointed as a trustee. Trustee is responsible for ensuring that all the terms and covenants set forth in the indenture are fulfilled by the issuing company. According to company act 2006, a company must appoint a trustee to issue debentures in the market. A trustee acts as a "watch dog" on behalf of the bondholder and carefully watches whether the firm fulfills, its contractual responsibilities or not. The trustee is empowered to take specific actions on behalf of the bondholders if the terms of the indenture are violated.

Collateral: The type of collateral is important for bonds that have probability of default. The investors must be cautious about the assets that are pledge as collateral in the event of default of regular payments of interest and principal. Variation in collateral leads to several types of bonds.

Sinking Fund: In most bond issue, there is sinking fund. By this, there is certainty in paying bond by the firm after expiry of the date of bond. Some part of the bond is paid from time to time out of the amount deposited in this fund. In other words, a sinking fund is money taken

from corporations earning that is used to redeem bond periodically, before maturity as specified in the indenture of company.

Book–Based bonds: In the note to distant past, when bonds were bought and sold, they physically had to be moved from one institution or dealer to another. In financial centers, this involved dozens of messengers walking from building to building with large amounts of bonds in briefcase. In recent years, however, bonds have gone "book-based". What that means is that the bonds are lodged with a central trustee and set up with the trustee, and when a bond trades take place, the buyer's account is credited with the bonds, while the seller's account is debited. This all happens electronically and quickly, without the risk of the bonds physically going missing.

2.12 Risk Associated on Various Kinds Bond

Default Risk: - It has been discussed above but there are also other risks for which corporate bondholders expect to be compensated by credit spread. This is, for example why the Option Adjusted Spread on a Ginnie Mae MBS will usually be higher than zero to the Treasury curve.

Credit Spread Risk: - The risk that the credit spread of a bond (extra yield to compensate investors for taking default risk), which is inherent in the fixed coupon, becomes insufficient compensation for default risk that has later deteriorated. As the coupon is fixed the only way the credit spread can readjust to new circumstances is by the market price of the bond falling and the yield rising to such a level that an appropriate credit spread is offered.

Interest Rate Risk: - The level of Yields generally in a bond market, as expressed by Government Bond Yields, may change and thus bring about changes in the market value of Fixed-Coupon bonds so that their Yield to Maturity adjusts to newly appropriate levels.

Liquidity Risk: - There may not be a continuous secondary market for a bond, thus leaving an investor with difficulty in selling at, or even near to, a fair price. This particular risk could become more severe in developing markets, where a large amount of junk bonds belong, such as China, Vietnam, Indonesia, etc.

Supply Risk: - Heavy issuance of new bond similar to the one held may depress their prices.

Inflation Risk: - Inflation reduces the real value of future fixed cash flows. An anticipation of inflation, or higher inflation, may depress prices immediately.

Tax Change Risk: - Unanticipated changes in taxation may adversely impact the value of a bond to investors and consequently its immediate market value.

Reinvestment Rate Risk: - The risk that, decline in interest rate will lead to a decline in income from a bond portfolio.

2.13 Bond Valuation

Bond valuation is the determination of the fair price of a bond. As with any security or capital investment, the theoretical fair value of a bond is the present value of the stream of cash flows it is expected to generate. Hence, the value of a bond is obtained by discounting the bond's expected cash flows to the present using an appropriate discount rate. In practice, this discount rate is often determined by reference to similar instruments, provided that such instruments exist. Various related yield-measures are calculated for the given price.

If the bond includes embedded options, the valuation is more difficult and combines option pricing with discounting. Depending on the type of option, the option price as calculated is either added to or subtracted from the price of the "straight" portion. This total is then the value of the bond. So the value of a bond is a function

i. Amount and timing of expected cash flows
ii. Riskiness of the cash flows
iii. Investor’s required rate of return

As above, the fair price of a "straight bond" (a bond with no embedded options is usually determined by discounting its expected cash flows at the appropriate discount rate. The formula commonly applied is discussed initially. Although this present value relationship reflects the theoretical approach to determining the value of a bond, in practice its price is (usually) determined with reference to other, more liquid instruments. The two main approaches, Relative pricing and Arbitrage-free pricing, are discussed next. Finally, where it is important to recognise that future interest rates

are uncertain and that the discount rate is not adequately represented by a single fixed number - for example when an option is written on the bond in question - stochastic calculus may be employed.

Where the market price of bond is less than its face value (par value), the bond is selling at a discount. Conversely, if the market price of bond is greater than its face value, the bond is selling at a premium.

Present Value Approach

Below is the formula for calculating a bond's price, which uses the basic present value (PV) formula for a given discount rate (This formula assumes that a coupon payment has just been made.)

$$\begin{aligned} P &= \left(\frac{C}{1+i} + \frac{C}{(1+i)^2} + \ldots + \frac{C}{(1+i)^N}\right) + \frac{M}{(1+i)^N} \\ &= \left(\sum_{n=1}^{N} \frac{C}{(1+i)^n}\right) + \frac{M}{(1+i)^N} \\ &= C\left(\frac{1-(1+i)^{-N}}{i}\right) + M(1+i)^{-N} \end{aligned}$$

Where:
F = face value
i_F = contractual interest rate
C = F * i_F = coupon payment (periodic interest payment)
N = number of payments
i = market interest rate, or required yield, or observed / appropriate yield to maturity
M = value at maturity, usually equals face value
P = market price of bond.

Perpetual Bond (Irredeemable Bond)

Perpetual bond are issued for infinite period. The perpetual bond (is also known as Consol bond) pays a specified amount of interest every year forever and never returns the face value or principal. The value of perpetual bond is calculated by finding the present value on infinite series of interest payments. The value of a perpetual bond would equal to the present value of an infinite stream of interest payments which is discounted at investor's rate of return.

$$V_0 = \frac{C}{(1+y)^1} + \frac{C}{(1+y)^2} + \frac{C}{(1+y)^3} \cdots \frac{C}{(1+y)^\infty}$$

$$V_0 = \frac{C}{Y}$$

Redeemable Bond

Redeemable bond has finite maturity period. Corporation will pay fixed amount of coupon interest and after the maturity, principal will be repaid. The value or a bond is the present value of its interest payments plus the present value of its par, or face value. When a bond or debenture has a finite maturity, the following model used to determine the value of a redeemable bond.

$$V_0 = \sum_{t=1}^{n} \frac{C_t}{(1+y)^t} + \frac{M}{(1+y)^n}$$

$V_0 = C \times PVIFA_{y,n} + M \times PVIF_{y,n}$

Zero Coupon Bond

A zero coupon bond, as the name suggested, pays no interest in a specific basis. Since a zero coupon bond does not earn interest, it is sold at a discount from its face value (below par).The difference between the price paid (or when purchased) and the value at the maturity (or when sell) is the return received on the investment. This return is considered to be interest income. The advantages to the issuer are that no cash outlays are required until maturity, and these bonds often have a lower required rate of return than coupon bonds. The advantages for investor are that there is little danger of a call, and zeros guarantee a "true" yield to maturity since there is no reinvestment rate risk. The value of a zero coupon bond is determined by using the following model.

$$V_0 = \frac{M}{(1+y)^n}$$

Where,
V_0= Value of bond
Y= Required Return (Appropriate interest rate on bond)
M= Maturity Period
N= No. of years before the bond matures.

2.14 Bond Returns (Bond Yields)

Bondholders receive two types of earning by investing in bonds. These are periodic coupon interest and appreciation in the value of Bonds. The coupon interest on a bond remains constant over the maturity period. But the value of the bond changed as per the changed in the market rate of interest. The value of a bond increases when market rate of interest decreases. Similarly, the value of the bond decreases when the market rate of interest increases. This is the reason that the value of a bond will be higher that its face value when the market rate of interest become less that the coupon rate. And the market price (value of bond) will be less than its par value when the market interest goes higher that the coupon rate.

Coupon Yield or Coupon Rate:

The coupon yield is simply the coupon payment as a percentage of the face value. Coupon yield remains constant over the life of the bond. This yield is also known as nominal yield. Coupon yield is based on 360 days in a year. It ignores the time value of money and capital gain yield. Coupon yield is calculated by dividing the annual interest earned on a bond by its face value.

$$Coupon\ Yield = \frac{Coupon\ Payment}{Face\ value\ of\ bond}$$

Current Yield:

The current yield describes the yield on a bond based on the coupon rate and the current market price of the bond (not on its face value or par value). Current yield changes each time the bond price changes. Current yield is important because it gives the investor an indication of the current return that will be earned on the investment. Current yield is calculated by dividing the annual interest earned on a bond by its current market price.

$$Current\ Yield = \frac{Annual\ interest\ payment}{Price\ \ of\ the\ bond}$$

Holding Period Return:

The period during which an investor owns as investment is called its holding period and the return for that period is the holding period return (HPR_t). Holding period return indicates the return in the form of appreciation in the value and current income from the bond. The holding period return formula for a bond is as follows. The holding period return varies from higher to lower in each period as the bond's prices rises and falls, respectively. HPR ignores the time value of money.

$$HPR_t = \frac{(P_1 - P_0) + C_1}{P_0}$$

Where,
HPR_t=Holding period return for a period.
P_0= The beginning or purchase price of the bond
$P_{1\,=}$ The Ending or selling price of the bond
C_1= The coupon or interest received for period1

Yield to Maturity (YTM):

Yield to maturity (also known as promised yield to maturity) is the interest rate that travels the present value of the bond's payment equal to the current market price of the bond. Yield to maturity evaluates both the interest income and price appreciation and considers final cash flow receive over the life of an issue. Other things being equal the higher the yield to maturity of an issue, the more attractive is to the investor. Yield to maturity is computed under the assumption that

- The bond will be held until maturity, and
- Coupons are immediately reinvested at yield to maturity
- The bond will not be called or redeemed by the issuer before the maturity and
- All cash flows (interest and principal) will occur as indicated in the indenture (i.e. the issuer will not default on the contractual obligation).

Computing the yield to Maturity (YTM)

Approximate Method:

This method is very simple. One can calculate the approximate yield to maturity by using the following formula:

$$Y = \frac{C + \frac{M - V_0}{N}}{\frac{M + 2V_0}{3}}$$

Trial And Error Method

Under this method following four steps are used to calculate the yield to maturity.

Step1: Calculate approximate Yield to maturity.

Step2: Calculate the value of bond (or total present value of bond) at low and high rate using bond valuation formula. The bond valuation formula is:

$$V_0 = C \times PVIFA_{y,n} + M \times PVIF_{y,n}$$

Step3: Calculate the net present value at low and high rate.

$$NPV = V_0 - \text{Market Price}$$

Step4: Interpolate the values calculated at low and high rate. The interpolation formula is:

$$Y = LR + \frac{NPV_{LR}}{NPV_{LR} - NPV_{HR}} \times (HR - LR)$$

Yield to Call (YTC):

The rate of return than an investor would earn if he bought a callable bond at its current market price and held it until the call date given that the bond was called on the call date. Yield to call is also known as yield to first call. Yield to call is compared under the assumption that

I. The bond will be held to the call date

II. Coupons are reinvested at the yield to call rate.

III. The issuer calls the bond on the call date.

For premium bonds(which pay high coupons), yield to call is a more relevant yield than YTM> Generally, if coupon rate is greater than yield to maturity or if the price of callable bond is greater than par value, the call is likely, investor should expect to earn yield to call(less than yield to maturity). If the coupon rate is less that the yield to maturity or if the price of bond is less than the par value, the call is unlikely, investors should expect to earn yield to maturity.

Computing the yield to call

Approximate Method:

One can calculate the approximate yield to call by using the following formula:

$$YTC = \frac{C + \frac{P_c - V_0}{N_c}}{\frac{P_c + 2V_0}{3}}$$

Where,

YTC= Yield to Call
C=Coupon Payments
P_c= Call price
N_c=Call period
V_0 = Purchase price

Trial and Error Method

Step1: Calculate approximate Yield to Call.

Step2: Calculate the value of bond (or total present value of bond) at low and high rate using bond valuation formula. The bond valuation formula is:

$$V_0 = C \times PVIFA_{y,nc} + M \times PVIF_{y,nc}$$

Step3: Calculate the net present value at low and high rate.

$$NPV = V_0 - \text{Market Price}$$

Step4: Interpolate the values calculated at low and high rate. The interpolation formula is:

$$Y = LR + \frac{NPV_{LR}}{NPV_{LR} - NPV_{HR}} \times (HR - LR)$$

Realized Compound Return:

It is noted that yield to maturity assumes all coupons are reinvested at an interest rate equal to bond's yield to maturity. This measure the expected rate of return for a bond likely to be sold prior to maturity, it considers specified reinvestment assumptions and an estimated sales price. It can also measure the actual rate of return on a bond during some past period of time. The compound growth rate of invested funds therefore is calculated from.

$$PV(1 + Y_{realised})^n = FV$$

Where,

PV= present value
FV= Future Value
n= No. of periods
$Y_{Realised}$= Yield to maturity

2.15 Review of Journal, Articles and Earlier Studies

Into this section the researcher has been reviewed various previous research articles of different time period held into the matter of Government bond market. Some of those related and relevant are included here for determining further direction of this research work.

Mikal (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 satisfy due to development of Nepalese financial market. Very few debentures of bond market 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 no 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 issue and size of the collective investor's base are not enough to create an institutionalized market and very few financial alternative instruments are available in the market for the investor to invest.

Orgden (2010) present a paper on *"Determinants of the relative interest rate sensitivity of corporate bonds"*. This paper examines the extent to which the interest rate sensitivity of corporate bond prices is affected by various characteristics. The characteristics examined included default risk, the call option and the sinking fund. The result of this study indicates that all three characteristics have strong negative interest rate sensitivity. This finding for the sinking fund is consistent with both the call option aspect of the sinking fund and the presence of accumulators. The result indicates that the month end corporate bond price quotations from a standard sources, Standard and Poor's bond guide, may be non synchronous with respect to true month end quotations. This highlights that importance of using the consistent estimations that is available for some such situations. The market of sinking fund bonds and perhaps by extension the entire corporate bond markets only quasi-competitive. Whether this is true and if so what impact this would have no theories to resolve. Another implication of this that the negative relationship between quality ratings and relative interest rate sensitivity may resolve of long-standing empirical anomaly: the lack of a strong relationship between a bonds quality rating and its system.

Asian Development Bank (ADB) will help establish a Public Debt Management Office at Ministry of Finance (MOF) to boost the Nepali bond market. According to an official at the Securities Board of Nepal (SEBON), "The debt management office

will help prepare the infrastructure required to develop the bond market in Nepal that would bring structural changes in the government bond market," adding that they are looking forward to establishing the government bond market as a benchmark in the capital market. Though there are more than 228-million units of government bonds and corporate debentures listed in Nepal Stock Exchange (NEPSE) with paid-up capital exceeding Rs 27 billion, none of these bonds are traded in the secondary market. Thus, the bonds' secondary market is close to non-existent in Nepal. Experts believe that if bonds are promoted as a lucrative investment instrument, the capital market will see a positive change. The development of bond market has been one of the areas emphasized on in the upcoming Capital Market Master Plan being designed by SEBON in association with World Bank. The international consultant had specifically advised on developing the government bond market as the benchmark so that corporate bonds can follow suit and enter the market. Likewise, due to absence of specialized market intermediaries that deal with fixed income brokerage house, public prefer to dabble in equities than bonds, the official said. Development of bond market is imperative to the development of the financial market as bonds are not only an important tool to meet government's fiscal and monetary objectives but also a mechanism to raise long-term funds without giving up the part of ownership.(The Himalayan Times)

Another article public on the Kathmandu post about "Non-detachable warrant instrumental to propel domestic bond market". The non-existent bond market could get movement, if it is linked to stocks through non-detachable warrant.

"Stocks have been a key attraction in the domestic secondary market," said share market analyst Rabindra Bhattarai. "If listed companies can link stocks to bonds through non-detachable warrant, the bond market also could get movement," he said, adding that investors have to feel bonds to be as lucrative as stocks for a vibrant bond market.The domestic bond market has remained non-existent since the beginning of trading at Nepal Stock Exchange (NEPSE) some 19 years ago. The NEPSE trading floor was opened on January 13, 1994.The bond market could not see any trading at NEPSE, though stocks have seen a rare bullish and bearish trend in the last two decades.The NEPSE currently has Rs 4.97 billion worth of bonds of some 13 institutions 12 banks and one of Nepal Electricity Authority listed at a face value of Rs 1,000 per unit but they are never traded at NEPSE."The institutions should attach warrant — a security that entitles the holder to buy the underlying stock of the issuing company at a fixed exercise price until the expiry date as a sweetener, allowing the issuer to pay lower interest rates while issuing bonds," Bhattarai added. "They can be used to enhance the yield of the bond, and make them more attractive to potential buyers."Currently, banks that have tight liquidity due to regulatory capital adequacy ratio (CAR) have started issuing

bonds to increase their lending capacity. However, the decreasing interest rates have made bonds less lucrative also to be sold let alone being traded at the secondary market."The corporate debentures should be attached with a sweetener like warrant," agreed a banker, who did not want to be named.
"But the regulatory authorities including Nepal Rastra Bank (NRB) and Securities Board of Nepal (SEBON) including the Company Registrar must bring regulation that could make issue of non-detachable warrant possible," he said, adding that banks and financial institutions have started thinking of new instruments to make their bonds more lucrative as it is one of the best possible alternatives to help them expand their lending capacity."It could also help short-term fund mobilization apart from increasing marketability of the bonds," the banker said, adding that the domestic banks did not issue warrants also — apart from regulation — due to their ability to manage capital to maintain capital adequacy ratio (CAR). "But recently most of them have started issuing bonds as they needed supplementary capital."The capital market also might get depth as investors will get an alternative to shares, apart from companies, that will be able to mobilize capital at lower cost as it will be attractive even with less interest. However, the warrant can be attached with corporate bonds only and not government bonds. According to a report from Asian Development Bank, the bond market in Nepal is non-existent and a robust bond market that can match the financing requirements of huge infrastructure projects in Asia and the growing appetite for long-term assets among local pension and insurance companies is key. Asian Development Bank (ADB) Vice President for Finance and Administration Thierry de Longuemar expressed ADB's commitment to continue to support Nepal's development efforts and stressed the need to develop Nepal's capital and bond markets to attract and promote private investments. During his visit to Nepal, he met with Minister of Finance Barsha Man Pun, Governor of Nepal Rastra Bank Dr. Yuba Raj Khatiwada, Chief Secretary Lila Mani Poudel, Secretary Ministry of Finance Shanta Raj Subedi and other senior government officials. He also discussed ADB operations in the country and emphasized the need to urgently address infrastructure deficits, particularly of power, transport, and water, by establishing enabling policy environment, building capacities, and promoting private sector investment.

"Nepal has the potential to achieve stronger economic growth rate, given its natural resource endowments, human capital and strategic geographic location. Achieving stronger growth is also imperative for reducing poverty and establishing lasting peace and stability. This will require substantial increase in investments by both the public and private sectors," said de Longuemar. He discussed the ongoing Capital Markets and Infrastructure Capacity Support Project supported by ADB to develop Nepal's bond market and create an enabling environment for public private partnership in infrastructure development. He also discussed the opportunity for ADB to issue local currency bonds that will help provide long-term financing for private infrastructure investment and also help develop the country's bond markets. VP de Longuemar also visited ADB-assisted Kali Gandaki 'A' Hydroelectric Plant and observed its latest operation of hydropower generation and mitigation of social and environmental impacts and discussed the prospect for further hydropower development in the

country. Thierry de Longuemar, Vice-President (Finance and Administration) of ADB, assumed his position in November 2011. Mr. de Longuemar oversees the operations of the Office of the Secretary; Office of the General Counsel; Budget, Personnel, and Management Systems Department; Office of Administrative Services; Controller's Department; and the Treasury Department. Mr. de Longuemar, who has over 26 years of experience in both multilateral financial institutions and private banking, is responsible for the overall efficiency and effectiveness of ADB's financial and administrative management.ADB has worked in partnership with the Government of Nepal since the country joined ADB as a founding member in 1966. As of 31 September 2012, Nepal has received 158 loans/grants—122 sovereign ADF loans ($2,775.88 million), 5 non-sovereign loans ($58.64 million), and 32 ADF grants ($763.25 million) totaling $3,597.77 million. (The Kathmandu Post)

Another article published on Himalayan times on NRB to issue foreign employment bonds. The government has planned to issue foreign employment bonds of Rs 5 billion this year. It had failed to attract an adequate number of subscribers last year. It sold only Rs 4 million worth of bonds out of the Rs 1 billion issued.

The bonds pay an annual interest of 9.75 percent and have a maturity period of five years. The government had announced issuing bonds worth Rs 7 billion last year.

However, NRB officials are optimistic that subscription will increase this year. "The experience gained last year is also a plus point for our planning this year," said NRB spokesperson Gopal Kafle. "Further, we have recognized the hurdles; we can avoid them this year," he added. Last year, foreign employment bonds were issued in Qatar, Saudi Arabia, the UAE and Malaysia where a majority of migrant Nepali workers are based.NRB had planned to issue bonds in South Korea too but it did not happen. A senior NRB official said that issuing bonds in South Korea could not take place as the money transfer agencies facilitating remittance inflow from the country could not get recognition from the Korean government."The possibility of issuing bonds there is slim this year too," added the official.

International Finance Corporation (IFC) Vice-president and Treasurer Jingdong Hua on Thursday met top government officials, including Finance Minister Shanker Koirala, to discuss Nepali currency bonds, which the corporation is planning to issue in near future. During his one-day Nepal visit, Hua held discussions with the finance minister and Nepal Rastra Bank Deputy Governor Maha Prasad Adhikari.IFC had submitted a formal request to the government last year for issuing local currency bonds. “My visit was to meet government officials to discuss our plan to issue local currency bonds to support our priority projects in hydropower, agri-business and tourism,” Hua told the Post. According to the Finance Ministry, it is planning to issue a directive on issuance of such bonds within the next two weeks. “We expect to decide on the issue within the next two-three weeks,” said Baikuntha Aryal, joint secretary at the ministry. IFC supports local capital markets by issuing local currency bonds, often paving the way for other issuers. Issuance of such bonds will help attract both local and foreign investments in the country. “It helps in long-term financing at a time when commercial banks don’t have capacity to finance projects that need long-term financing such as big hydropower projects,” said Aryal. “It will also help promote the bond market.”However, both the government and the IFC did not divulge much about the size of the bond. According to Aryal, the size of the bond has not been finalized yet and discussions on the matter are underway. IFC resident representative in Nepal Valentino S Bagatsing said the corporation is ready to go anywhere between $100 million to $500 million. “However, it is subject to the government’s approval,” said Bagatsing.

2.16 Review form Thesis

Joshi (2006), had studied on "*Structure of Public Debt in Nepal*". He tried to sum up his views starting that the essential of internal borrowing as pictured the poor economic performance of the country because 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.

Paudel (2007), had studied on "*A Study on Government Securities Practices in Nepal*". He summarized that, government securities are issued to meet short-term and long- term financial requirement. The government expenditure through public debt is quite beneficial to the nation if used productively. But large public debt may create problems in the economy in future. He added that Nepal has been suffering capital shortage since the first budget speech. Most people use their idle funds on government securities rather than behaving as investors. Among them majority are service holders and very few of them are retired people. The people of rural areas are less aware to the government securities. Poor as well as rich, and educated as well as uneducated people are interested towards government securities. Lastly, he concluded that Nepalese investors are attracted towards government securities as most of Nepalese investors are risk averter and need less risky investment. He recommended that, people pride themselves on their financial contribution to nation; of there are suitable debt securities available for investment.

Khanal (2008), had studied on “*Debt Market Development in Nepal”.* His study was based on primary as well as secondary data for the period of 1984-2004. He concluded that non-securities market component (loan from banks) of financial market is developed more that debt securities market in Nepal. Only a few corporate debt securities have been issued prior or after the enactment of securities Exchange Act 1983. Government securities covered more than 98% of total securities market. Only less than 2% of total securities market is covered by corporate sector. Since the debt securities are issued by government and corporations. This

study includes studies on government debt securities market and corporate debt securities market.

Adhikari (2009), had studied on *"Problems and Prospects of debt market growth in Nepal"*. He summarized that, capital market of Nepal is in the infantile stage and debt securities market of corporate bodies is limited in existence. The government debt securities market is growing but not as expected. The heavy reliance of government in foreign debt has created hue problem in the growth of Nepalese capital market. He added that, investment made on impulse rather than through market study or credit rating, in Nepalese capital market. He came to the point that Nepalese investors preferred national saving bond and development bond rather than other government bond. He concluded that due to oversupply of deposits by customers; commercial banks do not issue debt securities. On the one hand big corporate bodies could get loan easily from banks at lower rate so they didn't need to issue debt instrument, but on the other hand small corporate firms have been facing the problem in raising the fund by issuing debt securities as well as from bank. Tedious and lengthy process of issuing the debt securities is another problem that hinders the growth of debt securities market.

Subedi (2010), has studied on "*Problems and Prospects of Bond Debt Market Growth in Nepal"*. This study is mainly concerned with the bond's investment in total securities market along with the trend analysis of government bonds. This study found that Nepalese investors are keen to invest in common stock rather than debentures. Tedious and lengthy process of issuing debt securities is another problem that hinders the growth of debt securities market. It also found that interest on deposit of commercial bank is lower than the coupon rate of debt securities. Therefore it suggests all the investors instead of depositing their saving in commercial bank they should invest in debt securities of Nepalese securities market so that they may earn much more than that. This study concluded that government securities market is slightly at the maturity stage as compared to corporate debt securities. It recommended to the government to bring new rules and regulations regarding debt securities.

Baral (2011), in his research entitled "*A Study on Problems and prospects of Public debt in Nepal*", has found that there had 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 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 greater problems.

Adhikari (2012) has studied on *"Problems, prospects and importance of corporate bond market in Nepal"*. In his research he found that Nepalese corporate bond is still in developing stage. Majority of the Nepalese investor prefers common stock rather than corporate bond and government bond. Insufficient supply of quality bonds, lack of investor's awareness towards corporate bond, lack of systematic market and various risks associate with bonds are the major problems hindering the development of bond market in Nepal. He recommended government to bring flexible government policies, digitalization and upgrading of trading mechanism and procedures, investors to create positive attitude towards bonds. Establishment of corporate bond rating institution can play significant role for the development of bond

market in Nepal and was found that government of Nepal should take leadership role to develop Nepalese bond market.

2.17 Research Gap

Research means to investigate or to search again about phenomena under study. There are some studies conducted by different researcher, which are relating to this research topic. "Problem and Prospects of Government Bond Market in Nepal", But not single study has conducted similar to this topic. Some of the research was conducted regarding on topic "trend and problem of Bond market in Nepal" Problems and prospects of corporate bond market in Nepal" "problems of bond market in Nepal" .But very few research was conducted on topic "Problems and Prospects of Government Bond Market in Nepal". These researches have been conducted before few years ago. Therefore, at present, those problems and prospects which were addressed in previous research may be or may not be the problems and prospects of bond market in Nepal or may be more than that. So, problems and prospects of government bond is the major concern of this research. On the other hand, there is no any research on Topic "Problems and Prospects of Government Bond Market in Nepal". Therefore, this is the other major concern of this research.

CHAPTER 3

RESEARCH METHODOLOGY

Research Methodology is a way to systematically solve the research problem. It may be understood as a science of

studying low search is done scientifically (Kotharai 2004). It defines the reason why a research study has been undertaken, how the research problem has been defined in what way and why the hypothesis has been formulated, what data have been collected and what particular method has been adopted and also why particular technique of analysis data has been used. Thus, every research should describe the methodology. This chapter has been divided into 5 sections. Section one present the research design of the study while section two deals with the anther and source of data. Section three consists of the population and sample of the study, section four explains the method of analysis and section five explains the limitation of the study.

3.1 Research Design

The research design study attempts to analyze overall study of government bond market in Nepal .Research design refers to entire process which gives us an appropriate way to reach the goal. It is outline of a goal research for the investigation of the required result. Research design is a plan structure and strategy of investigation conceived so as to obtain answer to research question and to control variance. Research design stands in obtaining of information the availability of skills of the research staff and or agencies, a detailed explanation of the way in which selected means of obtaining information will be organized and the reasoning leading to the selection, and the time cost of the research.

This research study attempts to analyze the "Problems and potentials of government bond 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 as well as analytical and quantitative approach has been adopted. Descriptive approach has been mainly focused on prevailing current position and various problems associated with government bond market. Similarly analytical approach has been used mainly to analyze trend and ownership pattern of government bond market and other variables related to government bond markets. Various statistical tools such as time series analysis and chi-square test for testing hypothesis and to interpret and come to conclusion. This study has been applied the following research designs:

a) Descriptive Research

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

b) Analytical Research

In this type of research, researcher uses the facts and information already available and analysis that data to make critical evaluation.

c) Quantitative Research

In this type of research, the researcher analyzes the data with the help of statistics because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships. The researcher is hoping the numbers will yield an unbiased result that can be generalized to some larger population.

3.2 Population and Sample of the Study

This study is conducted to trace out the problem and prospect of government bond market in Nepal. So, it is concentrated with the Nepalese government bond market and its peripheries. This study is based on primary as well as secondary data .The primary data and information has been collected through the opinion survey. This survey deals with the opinion of respondents with respect to major aspects of Nepalese bond market. Respondents are classified into listed group, individual group, brokers group, experts group and other interest group related to bond market.

There are 216 Nepalese companies and 50 securities business persons (Brokers) listed in the NEPSE by the end of FY 2011/12. These are regarded as size of population for listed companies group and brokers group respectively. Likewise all the bondholders are considered as size of population for individual group and all the person who have knowledge of securities market such as staff of NRB, SEBON, NEPSE, Market makers, Security market researcher, Expert of financial sector, Professors of related subject, University students are considered as size of population of Expert Group.

15 listed companies, 3 issue managers, 5 brokers, 20 individual investors and 7 experts are taken as sample for the opinion survey. These selected fifteen listed companies are representative of banks, development banks, finance companies, Insurance Companies, hotels manufacturing and processing companies, trading companies and other shown in table. 3.1

Table 3.1
Classification of Respondents Form Listed Companies

S.N	Listed Companies (N)	Total Population (N)	Targeted Sample No. (n)	Sample%

1.	Commercial Bank	24	2	0.133
2.	Development Bank	68	3	0.20
3.	Finance Companies	71	4	0.267
4.	Insurance Companies	16	1	0.067
5.	Hotels	4	1	0.067
6.	Manufacturing and Processing Companies	18	2	0.133
7.	Trading Companies	4	1	0.067
8.	Others	6	1	0.067
Total		**216**	**15**	**100%**

Source: Current Microeconomic Situation, Research Department of NRB

For secondary data, governments bonds are issued from 1962 A.D. Therefore, to analyze the position of corporate bond market in the structure of Nepalese securities market, trend of government bond market, these all governments bonds from 1962 to 2013 A.D. are taken as population. And out of them, year from 2006 to 2013 are taken as sample for the study.

3.3 Sources of Data

The data is the fact, information, view etc. which are collected systematically and transferred into some recording system. So that it can be later examined and analyzed in order to reach to conclusion of research work. This research study is based on both primary and secondary data. The source of primary data is mainly questionnaire methods. A set of 8 questionnaires is developed for various respondents. These are allocated to them and collected after some time. The sources of primary sources of data are;

- Listed Companies
- Brokers and Market Makers
- Individual Investors
- Other experts, mainly staff of SEBON, NEPSE and University Professors

The main sources of Secondary Data are,

- Economic Survey published by Ministry of Finance
- Various Annual Report of Securities Board of Nepal

- Statistical Year Book and other publications of Department of Statistics
- Various Economic Reports
- Various reports published by Debt department of NRB.
- Quarterly Economic Bulletins published by NRB
- Other non -governmental publications,
- Various Abstracts published by Experts on related field.
- Websites, Journals, Dissertation Articles and Research

3.4 Research Methods

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

The main purpose of data analysis is to change it form as unprocessed form to and understandable Presentation. The analysis of data consists of Editing, organizing, tabulating, and performing statistical analysis and drawing inferences. Various 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. Empirical results have been estimated in this study by using data several hypotheses are formulated during the research. The statistical tools that are applied in this study are as follows;

1. Time series analysis

Time series analysis has been used to examine the trend of corporate bond. The forecasted amount of corporate bond /debenture is calculated for next five years, by the help of following equation:

$$Y= a+ bx$$

Where,

Y= Total forecasted Value
a= Minimum value
b= Change rate period
x= Difference between actual time and assumed time.

Testing of Hypotheses

The study is based on both primary as well as secondary data. The primary data has been collected by questionnaire. Using computer application programs especially Ms-Excel has done processing of these data. Some other statistical tools have been used for presentation and make raw data into organized forms and also for analysis and interpretation. In this research work some suggested solution called as hypothesis to suggest to new observation.

The chi -square test of hypothesis is useful to examine the problems and prospects of government bond market. The samples are taken to clarify the problems and prospects of government bonds in investment from various related sectors' persons and organizations. Groups of listed companies are using judgmental sampling. These companies are randomly selected according to their education, location, Position on various jobs etc. Another group is Brokers and market makers, which are also randomly selected and the last group is staff of SEBON, NRB and Professors of various campus.

With the available data some hypothesis are tested and given the decision accordingly. It may not be proved absolutely, but in practice it is accepted it has stood with a critical testing. While examine the hypothesis by the Chi-square test, the expected frequencies are calculated by applying the formula;

$$Expected\ Frequencies = \frac{Row\ Total * Column\ Total}{Grand\ Total}$$

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

And the calculated value of X^2 is calculated by the following formula

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

Where,

O= Observed Frequency
E= Expected frequency
X^2 = Chi- Square

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

3.5 Research Hypothesis

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, and experiment is conducted by using sample information and the hypothesis is rejected if the results obtained are doubtful under the 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.

CHAPTER 4

DATA PRESENTATION AND ANALYSIS

In this chapter the data collected are tabulated, analyzed and presented in a reasonable and wise manner. The data presentation and analysis are based on the primary and secondary sources of information. According to Devos (1998:334) "Data analysis in qualitative research is a challenging and highly creative process. It starts with data collection. The research is intimately involved with the respondents and the data are generated."

4.1 Government Bond issue in Nepal

Government bonds are debt securities issued by the government, having a maturity period of one year or longer. The primarily objectives are to finance the budget deficit in each fiscal year or when the expenditures exceed the revenue, to support social and economic development and to restructure public debt. Interest payments of government bonds are made at regular intervals throughout the life of the bonds, normally twice a year. Upon maturity, the principal of face value will be paid along with the last interest payment. The following table shows the total value of governments bonds issued from 2006 to 2013 with its growth rate is shown in table 4.1

Table 4.1

Total Amount of Various Governments Bonds

Year	T-Bills	Development Bonds	National Saving Bonds	Citizen Saving Bonds	Special Bonds	Total	Growth Rate%
2006	51383	19999	6576	1428	8176	87562	
2007	62970	17959	3876	1678	3469	89952	2.7%
2008	74445	19177	1516	1391	2773	99302	10%
2009	85033	21735	1116	3014	339	111237	12%
2010	86515	29478	216	4433	229	120871	8%
2011	102043	35519	0	5126	169	142857	18%
2012	120340	43519	10680	4630	158	179327	2.7%
2013	131624	57519	15680	4139	157	209119	
Total	714353	244905	39660	25839	15470	1040227	

Source: Economic Bulletin of NRB 2012/13

Note: * Growth rate is calculated by taking previous year as base year.

Governments bonds have been issued since 1962 in Nepal. The total outstanding issued amount is increasing year by year, this shows that the government of Nepal is heavily relaying on internal debt to perform various developments activities. In other words the portion of internal debt is increasing in yearly budget of the nation. For this study the researcher has taken 8 years i.e. 2006 to 2013 as a sample to reach the conclusion of this study. The trend of governments bonds is shown in figure 4.2

Figure 4.1

Trend of Government Bond

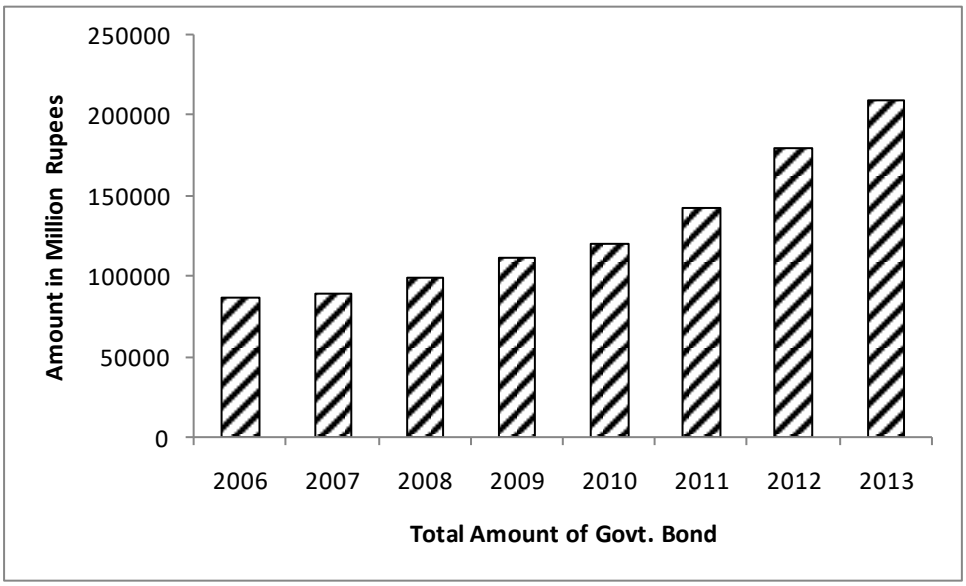


Table 4.1 and figure 4.2 shows the trend line of Government bond in Nepal. The trend line shows the increasing rate of government bond in Nepal. In 2006 the total amount of government bond issued is Rs. 87,562; it reached to Rs. 111,237 in the year 2008 and reached to Rs.209,119 for the year 2013. Within eight years duration the total amount of government bond issued increased more than 2.5 times. This can have both positive and negative impact on national economy.

4.2 Trend of Various Types of Governments bonds of Nepal.

Since 1961, Nepal has started to borrow from the internal sources to bridge the resource gap in the budget, by means of issuing various kings of securities. in the initial stage the government issued treasury for internal borrowing (Budget Speech 1961), but systematic borrowing by issuing Treasury ,Development bond, National bond, Citizenship Saving bond and Special bond. The government of Nepal has issued foreign employment bond last year. Here the researcher has tried to study the trend of various types of government bond. The trend line of various government bonds are presented in figure 4.3

Figure 4.2

Trend of Various Types of Governments bonds of Nepal

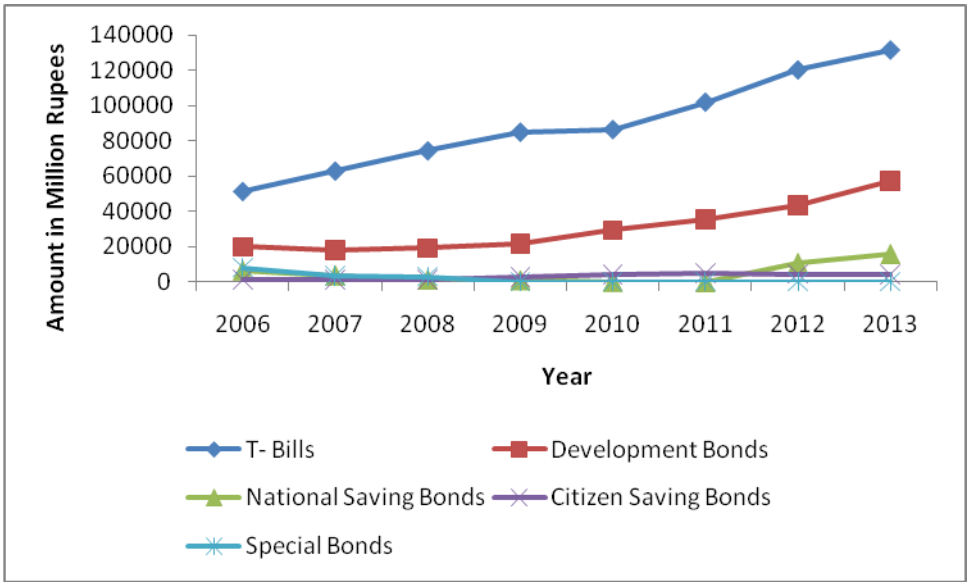


Table 4.1 and figure 4.3 shows the trend of various types of government bonds issued by Nepalese government from the year 2006 to 2013 as an internal borrowing to fulfill the deficit budget. Treasury bills were initially issued in the year 1961 the others in respective years. Treasury, Development bonds, National saving bond, Citizenship bond and Special bonds are in their respective positions. In the year 2006 the total amount of bond issued by government was Rs. 87,562 where Treasury bill was of Rs 51,383 where Citizenship saving bond was of Rs. 1,428. The total issue for the year 2013 was Rs. 209119 where Treasury bill was of Rs. 131624 and of special bond was Rs 157. National saving bond reached to zero in the year 2011. Treasury and government bond are in increasing trend. Where National bond was at Rs. 6576 in the year 2006 decreasing yearly it reached to zero in the year 2011 and is on increasing. The trend of Special saving bond is in decreasing rate. The total amount of special bond issued in the year 2006 was Rs. 8176 but at the last of 2013 it reached to Rs 157. The trend of Citizen saving bond is on fluctuating rate.

Figure4.3

Market share of various Government Bonds

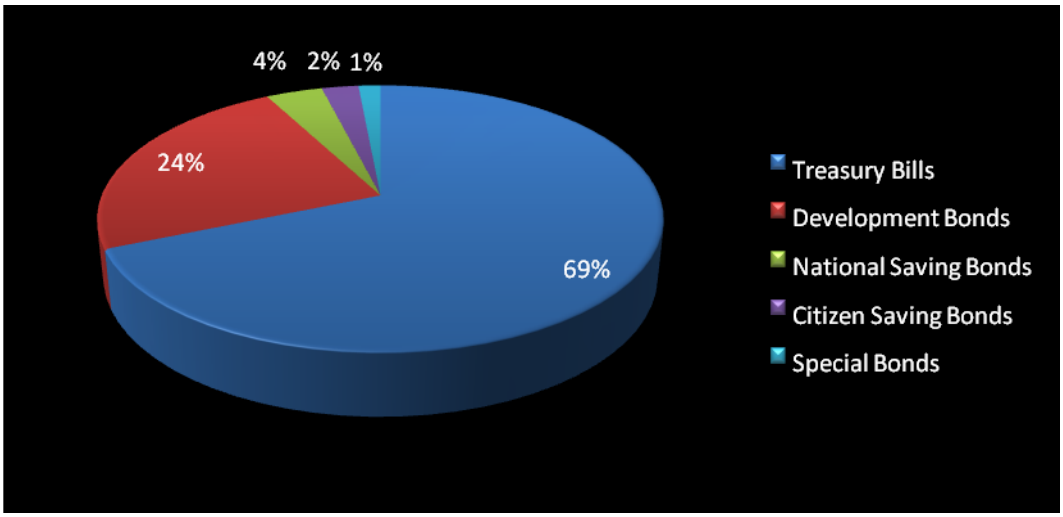


Figure 4.4 shows the total outstanding amount of various types of government bonds and their market share on overall Nepalese government bond market. About 70% of the total government bond market is occupied by Treasury bills 24% of the total market by development bond and remaining 7% of National saving bond, Citizenship saving bond and special bond from the year 2006 to 2013.

Figure 4.4

Growth Rate of Government Bond

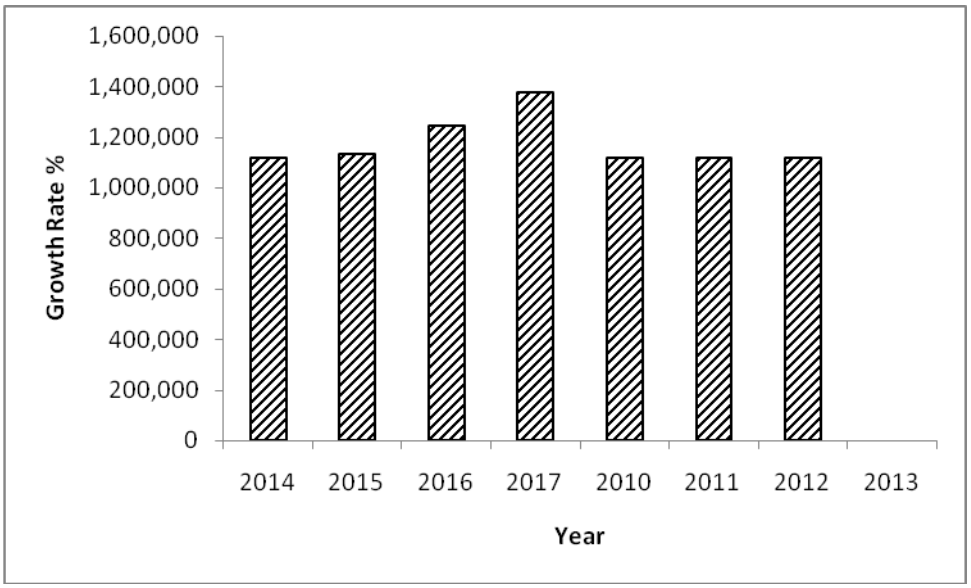


Table 4.1 and figure 4.4 shows the growth rate of Nepalese government bond market for eight years which is in a fluctuation rate. The growth rate was 27% for the year 2007. For the year 2012 the growth again reached to its initial

growth rate of 2.7%. For the growth as compared with the previous year, the minimum growth rate of debt is 8% in the year 2010. However, the growth rate shows the fluctuating trend of government debt. Here the growth rate has calculated by taking the previous year as the base year.

Forecasted Total Amount of Nepalese bonds Bonds from 2013-2016.

The total forecasted amount of government Bond for four year 2014, 2015, 2016 and 2017 is 1,117,263, 1,134,3825, 1,245,657 and 1,374,052 respectively and are shown in table 4.2 and figure 4.5

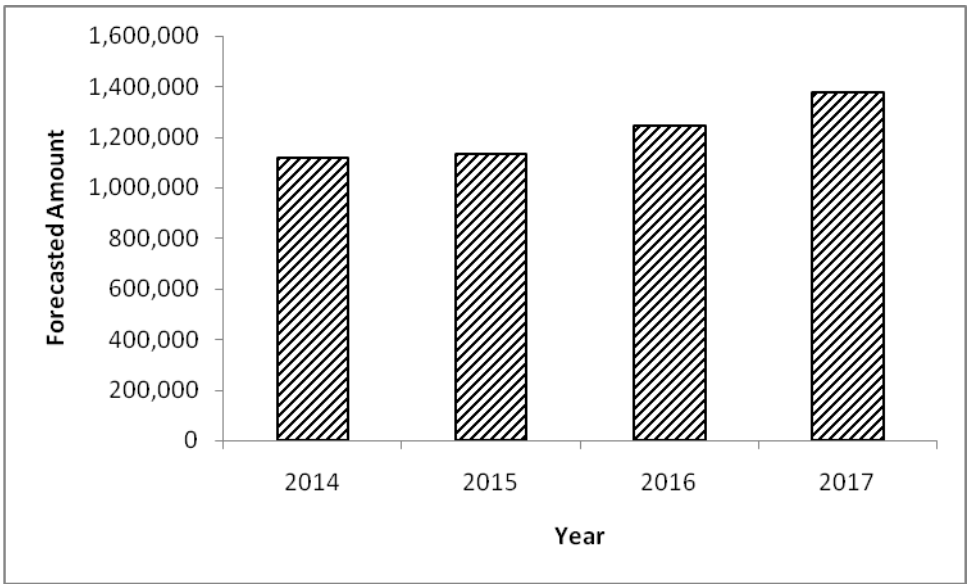
Table 4.2

Forecasted Total Amount of Nepalese Government Bonds from 2013-2016

Year	Forecasted Amount of Nepalese Government Bonds
2014	1,117,263
2015	1,134,382
2016	1,245,657
2017	1,374,052

Figure 4.5

Forecasted Total Amount of Nepalese Government Bonds from 2014-2017



4.3 Presentation and Analysis of Opinion survey

It includes background of opinion survey and respondents on major aspects of Nepalese corporate bond market.

4.3.1Background of Opinion Survey

The survey deals with the opinions of respondents with respect to major aspects of government bond market of Nepal. This study is mainly based on questionnaires survey of the opinion of 50 respondents. Out of the 15 respondents belong to listed companies, 8 respondents belong to issue managers/brokers, 20 belong to individual investors and 7 respondents belong to expert group in related field. The classification of the respondents into four groups (Listed companies, issue managers brokers, individual investors and experts) has been made to analyses the difference in their opinions with respect to aspects of Nepalese government bond market.

The questionnaire and details of respondents about making question are presented in appendix 2, 6 and 7 respectively.

In order to assess whether the difference in the opinion if the listed companies, issue managers/ brokers, individual investors and experts as to major aspect of Nepalese government bond market is significant, chi-square values are computed and the results are presented. Similarly, the response to each choice in ranking question 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 overall rank for each choice of the listed companies, issue manager/ brokers, individual investors and experts is calculated.

4.3.2Analysis Opinions of Respondents Government Bond Market of Nepal.

1. **Preference of Various types Government Bond.**

Respondents were asked for preference of various sectors government for investment by using various options T-Bills, National Saving Bond, Development Bond, and others. In their overall ranks majority the respondents gave first priority to option (a) T-Bills, second priority to option(c) development bond, third priority to option (b) National saving bonds and last fourth priority to others.

2. **Factors that Plays Vital Role to Attract Investors towards Purchasing Government Bond.**

Respondents were asked for factors that plays vital role to attract investor towards purchasing government bonds. In their overall ranks majority of the respondents gave first priority to option (a) Declining interest rate on bank deposit, second priority to option (b) lack of investment alternative, third priority to option (c) Fixed income and last priority to option (d) default risk.

Systematic Management of Nepalese Government Bond Market.

To study the opinion of respondents a question was asked, whether the Nepalese government bond market is systematic market or not. Out of 50 respondents, majority of the respondents from each group i.e. 37 respondents give their opinion to Unsystematic management, and rest of 13 respondents gave their opinion to Systematic management. The observed frequencies are presented in table 4.3 .

Table 4.3

Survey Results on systematic management of Nepalese Government Bond Market

	L.C	**B/I.M**	**I.I**	**O.E**	**Total**
Systematic	4	2	5	2	**13**
Unsystematic	11	6	15	5	**37**
Total	**15**	**8**	**20**	**7**	**50**

Source: Field Survey Conducted by Researcher

3. Preference of Maturity Period for Government Bond.

A question asked to the respondents about preference of maturity period for government bond by using four options. Out of 50 respondents, 23 respondents give their opinion to 4-6 years, 10 respondents gave their opinion to 2-4 years, 9respondens gave their opinion to 6 years & above, rest of 8 respondents gave to the Below 2 years. Majority of the respondents from each group gave first preference to 4-6 years. The observed frequencies are presented in table 4.4.

Table 4.4

Survey Results on preference of maturity period for Government Bond

	L.C	**B/I.M**	**I.I**	**O.E**	**Tota l**
Below 2 Years	4	1	2	1	**8**
2-4 years	2	2	5	1	**10**
4-6 years	7	3	9	4	**23**
6 years & above	2	2	4	1	**9**
Total	**15**	**8**	**20**	**7**	**50**

Source: Field Survey Conducted by Researcher

4. Sufficiency of Present Rule and Regulation for Growth of Nepalese Government Bond Market.

To know the respondents opinion regarding the sufficiency of present rule and regulation for growth of Government bond market a question using two options were used. . Out of 50 respondents, majority of the respondents from each group i.e. 31 respondents gave their opinion to insufficiency of present rules and regulation and rest 19 respondents give their opinion to sufficiency of present rules and regulation. The observed frequencies are presented in table 4.5.

Table 4.5

Survey result on sufficiency of present rule and regulation for growth of Nepalese Government bond market

	L.C	B/I.M	I.I	O.E	Total
Insufficient	9	5	13	4	**31**
Sufficient	6	3	7	3	**19**
Total	**15**	**8**	**20**	**7**	**50**

Source: Field Survey Conducted by Researcher

5. Preference of Government Bond Rather Than Corporate Bond.

A question asked to know the respondents opinion about preference of government bond rather than corporate bond. . Out of 50 respondents, 19 respondents give their opinion to tradability of government bond,17 respondents gave their opinion to secured return, 10 respondents gave their opinion to avoid risk and rest of 4 respondents to others reasons. The observed frequencies are presented in table 4.6.

Table 4.6

Survey result on preference of Government Bond rather than Corporate Bond

	L.C	B/I.M	I.I	O.E	Total
To avoid risk	3	2	3	2	**10**
Secured return	6	2	7	2	**17**
Tradability of Govt. Bond	6	3	8	2	**19**
Other	-	1	2	1	**4**
Total	**15**	**8**	**20**	**7**	**50**

Source: Field Survey Conducted by Researcher

6. Satisfaction with the present practices of Government bond in Nepal.

A question asked to all respondents about satisfaction with the present practices of government bond in Nepal. Out of 50 respondents majority of the respondents of each group i.e. 34 of the respondents gave their opinion to dissatisfaction and rest of 16 respondents gave their opinion to satisfaction with the present practices of government bond in Nepal. The observed frequencies are presented in table 4.7.

Table 4.7

Survey Results on satisfaction with the present practices of government bond in Nepal

	L.C	**B/I.M**	**I.I**	**O.E**	**Total**
Yes	5	3	4	4	**16**
No	10	5	16	3	**34**
Total	**15**	**8**	**20**	**7**	**50**

Source: Field Survey Conducted by Researcher

8. Leading Role of Concern Body to Enhance Government Bond Market.

Respondents were asked the question about the leading role of concern body to enhance Government bond market. Out of 50 respondents, majority of the respondents for each group i.e. 26 respondents give their opinion to Government, equally 10 respondents gave their opinion to securities board of Nepal and Nepal Rastra Bank and rest of 4 respondents to Nepal stock exchange. The observed frequencies are presented in table 4.8.

Table 4.8

Survey Result on lead role of concern body to enhance Corporate Bond Market.

	L.C	**B/I.M**	**I.I**	**O.E**	**Total**
Government	8	3	12	3	**26**
Securities Board Of Nepal	3	2	4	1	**10**
Nepal Rastra Bank	3	2	3	2	**10**
Nepal Stock Exchange	1	1	1	1	**4**
Total	**15**	**8**	**20**	**7**	**50**

Source: Field Survey Conducted by Researcher

4.4 Testing of Hypothesis

A quantitative statement about the population parameter, which may be true or false, is called a hypothesis In other words, a hypothesis is a statement capable of being tested and verified or rejected. The procedure of drawing conclusion based on sample information is known as testing of hypothesis. Hypotheses are tested for all Eight questions (Annex-2) and their calculations are shown on Annex-3. The relevant information regarding testing of hypothesis, level of significance, degree of freedom, calculated value, tabulated value and decision are presented in table 4.9.

Table 4.9

Calculation and Testing of Hypotheses

S. N	Hypothesis for Question	Level of significance	Degree of Freedom	Calculated Value	Tabulated Value	Decision (Accept)
1	1	5%	1	0.4783	3.84	Null
2	2	5%	2	12.281	5.99	Alternate
3	3	5%	1	0.145	3.84	Null
4	4	5%	2	2.2259	5.99	Null
5	5	5%	1	7.209	3.84	Alternate
6	6	5%	2	0.518	5.99	Null
7	7	5%	1	1.335	3.84	Null
8	8	5%	2	3.208	5.99	Null

4.5 Major Findings

Major Findings from the Analysis of Secondary Data

The history of government bond market in Nepal has passed its four decades. The issuance of T-Bills in the fiscal year 1962 was the first recorded government bond in Nepal. Since the volume of Government bonds have been growing and the outstanding amount of government bonds reached to Rs. 209119 till the end of year 2013.

The trend of T-Bills as a whole seems to be in increasing trend. Its trend in previous year was slightly increased but in recent years it increased rapidly. It is a prospect to the debt securities market. It indicates that this amount will further increase in coming year due to which the debt securities market will also be in wide range.

The trend of development bond was in decreasing trend in starting point of observation. In recent years of the observation it is on increasing trend and we can expect that it will further increase incoming year. The trend of National saving bond is decreasing and reached to zero in the year 2012 and again star to increasing in the recent year which

indicates its wide range in the coming years. Similarly Citizenship saving bond is in a fluctuating rate. Firstly it decreased and then increased and in recent years it is in decreasing rate. The trend of special bond is in decreasing rate. The government's budget for the development of various specified sector is also decreased due to which the amount of this bond is decreased.

As a whole, by observing the trend of government bonds, the amount of government securities is increase every year. The size of deficit budget is also increased ant the present trend is to reduce the external debt. So we can expect that it will further increase in future. By using the time series analysis, the forecasted amount in the coming year also show the increasing trend of amount of government securities every year. It is the sign of a good prospect of government bond market. We can estimate that more and more person and institutions will be involved to invest in government securities in future and government will fully rely on internal debt financing to fulfill the deficit budget rather than to depend on foreign debt financing.

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

The total volume of securities approved by SEBON for the year 2012/13 shows that Government bond has main dominant among the approved securities. About 60% of total amount was covered by government Bond and rest of 40% by other alternatives four alternatives common stock, right share, bonus share and corporate bond market. Corporate bond covers only 5% of total amount.

The percentage coverage of corporate bond is very less to government bond. Corporate bond covers only 18.3% of the total bond issue where as government bond covers nearly 81.7%. With respect to present pace of corporate sector's equity securities, the corporate bond market is very weak. The few issuances of corporate sector bonds have proved it.

Present Major Findings Primary Data

The T-Bills are highly popular among Nepalese investors in comparison to other types of government bonds for raising long term fund for government. Lack of investor's awareness about various government bonds, less priority to small investor in government bonds, and decreasing trend on investing except than T-Billsa or investors disinterest towards other government bonds, marketability of common stock most investors are familiar with T-Bills and common stock. It is a problem

of government bond market and is necessary to change the concept of public towards government debt securities other types of government bonds. Each and every bond is issued with their own objective set by the government. Investors disinterest towards the bonds can directly affect those objectives which can hinder the development of nation in many ways. Government should be able to communicate those objectives to the general public and attract investors in those bonds to fulfill the objectives timely.

Investors generally prefer T- Bills for investment rather than other types of government bond because T-bills have less maturity period than other types of government bond. Less the maturity period lesser will be the risk. So heavy issuance of T-bills by government indicates the prospect of Nepalese government bond market but heavily relying on T-bills cannot develop overall government bond market effectively. Preference should be given to other types of bonds also. In order to create preference on other types bond they government must create favorable investing environment such as high interest rate with minimal maturity periods.

With respect to the factor that play vital role to attract investor's towards investing in Government bond. Majority of the respondents of gave their preference in favor of declining interest rate on bank deposit, second priority to lack of investment alternative and fixed income and last priority to default risk. After analyzing the response, we can conclude that Nepalese investors want to earn higher by investing in government bond than depositing in commercial bank because of less risk.

Regarding to the Preference of Maturity Period for Governments Bond most of the investor prefer 4-6 years maturity period, second priority to 2-4 years, third priority to 6 years & above and last priority to below 2 years. This shows that Nepalese investor do not want to invest on very short term and very long term bond but want to invest in medium term bond between 4-6 years which shows prospects for medium term government bond market.

One of the questions asked to the respondents was whether the Nepalese Government bond market is systematic or not. Majority of the respondents did not agree that Nepalese government bond market is not systematic. Regarding this logic, they gave some reasons that trading system is not appropriate, present rule and regulations hinders for trading, lengthy and tedious process to issue, frequently changing government policies, lack of appropriate market size.

One of the questions asked to the respondents on sufficiency of present rule and regulations for growth of government bond market. Majority of the respondents most of the respondents agreed that the present rule and regulations regarding bond market are not sufficient to attract small investors. Investment should be made on bulky amount, not listing provision on NEPSE and poor regulation system. This shows the insufficiency of present rules and regulations for growth of Nepalese Government bond market.

With respect to the satisfaction with the present practices of government bond in Nepal majority of the respondents are not satisfied with the present practices, establishment of appropriate trading mechanism, separate trading rules and separate trading floor, increasing market size can be milestone for properly practicing government bond market in Nepal.

Tradability of government bond is the main reason for preference of government bond. As compared to government bond corporate bonds are less traded. As we conclude that Nepalese investors are risk averter. So to avoid risk they prefer government bond. The return from the government bond is secured where as corporate bond has high default risk.

Majorities of the respondents from each group agreed on leading role of government to enhance corporate bond market. Securities board of Nepal and Nepal Rastra bank on second preference and minimum role of Nepal stock. So in order to enhance Nepalese corporate bond market the government of Nepal must play lead role.

CHAPTER 5

SUMMARY, CONSOLATION AND RECOMMENDATION

This chapter presents the overall summary of the study and conclusion drawn from the analysis of the study. This chapter also includes the recommendations to correct some aspects need to develop government bond in Nepal.

5.1 Summary

The study of existing Government debt market of Nepal was accomplished by using secondary data for the period of FY 2006 to FY 2013. The trend of issuing government bonds is also increasing in nature. The position, trend , growth rate market share of various types of governments bonds and analysis through time series analysis and forecasted amount of government bonds were accomplished by suing the secondary data for the period of 2006 to 2013. The required secondary data are obtained mainly from various government publications; NEPSE, SEBON and other relate official websites. The study used time series analysis for trend analysis, Chi-square test to test the significant of hypotheses and weighted average method to analyze the secondary data and primary data.

This research study is also based on the field survey. It takes 50 samples of respondents of various categories. Out of 50 respondents, 15 were from listed companies, 8 were brokers/issue managers, and 20 were individual investors and remaining 7 were experts who include professors, official member of SEBON, NEPSE, and NRB. Respondents were selected using random sampling method. Respondent's opinion about various issues of the Nepalese Government bond market was observed. The questionnaire contains 8 different questions relating to Nepalese corporate bond market. Questionnaires were distributed to the members of bonds market society and other concern society such as listed companies, brokers and issue managers, individual investors and other experts who include professors, official member of SEBON, NEPSE, and NRB through various medium. Some questions were filled by the respondents in the presence of researcher and some questions were sent and collected through electronic media.

The data obtained from questionnaire were analyzed by using weighted average method and non parametric statistical test chi-square test and result was employed at 5% level of significance.

From this research study, the researcher found many problems and prospects government bond market. Common stock has the first preference for Nepalese investors where as corporate bond holds the second preference. Lengthy and tedious process

of issuance, improper legal provisions, lack of market size, unstable market interest rate, unstable political situation, no clear provision to protect creditor's right, high cost of trading, unfriendly corporate laws and insufficient supply of quality bonds from issuing corporations are the major problem faced by Nepalese corporate bond market. Increased awareness of investors about risk and bond safety, establishment of corporate bond rating institution, declining interest rate on deposit of commercial banks and financial institutions, investor's preference for long-term bond, bond as a source of fixed income and tax saving on capital gain can be the major reasons for Nepalese investors to investing in corporate debenture/bond. It shows the growth prospects of Nepalese corporate bond market.

From the opinion of respondents, it can be summarized that investors are gradually interested in investing government bond than common stock, appropriate environment should be provided for investors such as political stability, systematic management, increased market size, availability of quality bond, disclosure of accurate information by issuing corporation, stability in market interest rate and inflation rate, proper planning and implementation of securities act, flexible legal provisions and positive efforts from concern bodies.

5.2 Conclusion

Nepalese government bond market passed its four decades but is still on its development stage. Some prospects have been concluded by the researcher about government bond market. Investor's attraction towards government securities because of default risk, increased awareness of investors about risk and bond safety, establishment of bond rating institution, declining interest rate on deposit of commercial banks and financial institutions, investor's preference for medium-term government bond, increasing number of various types of government bond issue, bond as a source of fixed income, government heavy relying on internal debt to fulfill the budget deficit and to decrease foreign debt and tax saving on capital gain indicates the prospects of government bond market. Likewise the trend of issuing corporate bond and the forecasted amount of bond is positive and increasing. It also shows the growth prospect of Nepalese corporate bond market.

From this research study, the researcher comes to conclusion that the major problems than affects the smooth growth of Nepalese government bond market are lengthy and tedious process of issuance, improper legal provisions, lack of market size, unstable market interest rate, unstable political situation, no clear provision to protect creditor's right, high cost of trading, lack of large business organizations, lack of infrastructure facilities, unfriendly laws and insufficient supply of quality bonds .

Proactive measures to face and capture the challenges, proper planning and implementation, developing competitive strength for the development and systematic growth of government bond market are the major issues which have to be diagnosed properly and timely for the development of Nepalese government bond market.

Recommendations

The overall system, procedures process, mechanism and all other area that are directly of indirectly related to Nepalese government bond market is in miserable condition. To enhance the government debt market, the researcher tried to find the major problems and prospects of government sector of Nepal. Standing on limitation of the study, the researcher would like to give some recommendation to concern stakeholders who are directly or indirectly related to government sector of Nepal which are drawn through the study.

Huge portion of issued bond should be subscribed through public offering rather than private placement. So, that more and more investors can purchase it.

Minimum number of debenture to be purchased should be eliminating, so that small investor can invest on it.

Bond markets are more complicated than equity market. Therefore, some efforts need to be taken to distinguish it from equity market.

Political instability is another factor that is hindering the growth of Nepalese government bond market. Political stability should be maintained.

Supervision, monitoring and implementation should make effective and efficient regarding bond market.

Most of the respondents preferred T- Bills bond. Therefore debt market growth is possible if it is initiated by other sector. Similarly, potentiality of debt market growth is higher if it is started form top- tier private companies and government corporations.

Most of the respondents of questionnaire agree that the major factor due to which Nepalese bond market cannot grow smoothly is lack of public awareness towards debt securities. So researcher would like to recommend to the investors to change in existing perception and attitude on debenture on bond. So, investors should invest some of their time to study about bond market, their rights and duties.

Establishment of corporate bond rating institution has brought positive attitude towards corporate bond in Nepalese investors. It should identify its objectives to develop the Nepalese bond market.

From the field survey, most of the related parties to the bond market of Nepal gave their opinion that the existing rules and regulations for the growth of bond market are insufficient.

Necessary amendments should be done on various acts that affect the development of bond market.

Government of Nepal, Securities board of Nepal, Nepal Rastra bank and Nepal stock exchange should cooperate with each other for the development of debt securities such as digitalization of trading system(online mechanism), expansion in market size, reward and punishment system, Issuing and listing process should be simplified, priority for infrastructure development, and protection of investor's right.

Government should provide tax exemption in income from bond .By which investors will be attracted towards bond purchase. Researcher would like to recommend the brokers and securities dealers to do more efforts to make a smooth transaction of debt securities in the secondary market and to create positive concept to the investors about debentures and bonds.

Company Registrar Office 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 issuing corporation.

Government should make legal provisions to protect right of investors and provide safety of investment of the investors. Similarly lengthy process of issuing as well as ineffective rules and regulations should be revised. Legislation and control mechanism should be made more effective.

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Appendix-1

S.N	2005-2008.5	X	Y	XY	X^2
1	2005	-3.5	87562	-306467	12.25
2	2006	-2.5	89952	-224880	6.25
3	2007	-1.5	99302	-148953	2.25
4	2008	-0.5	111237	-55618.5	0.25
5	2009	0.5	120871	60435.5	0.25
6	2010	1.5	142857	214285.5	2.25
7	2011	2.5	179327	448317.5	6.25
8	2012	3.5	209119	731916.5	12.25
	Total	0	1040227	719036.5	42

$\sum Y = \sum a + \sum bX$…… (1)
$\sum XY = \sum ax + \sum bX^2$…… (2)

1040227 = a
719036 = 42b
Solving equation (1) and (2) i.e. Multiply equation (1) by 4 we get,
b= 719036/42
b= 17119

$$Y = 1040227 + 17119 \times X$$

The forecasted amount of government securities for 2013 (X=4.5)
We have,

$$Y = 1040227 + 17119 \times X$$
$$Y = 1040227 + 17119 \times 4.5$$
$$Y = 1040227 + 77035$$
$$Y = 1117263$$

The forecasted amount of government securities for 2014 (X=5.5)
We have,

$$Y = 1040227 + 17119 \times X$$
$$Y = 1040227 + 17119 \times 5.5$$
$$Y = 1040227 + 94155$$
$$Y = 1134382$$

The forecasted amount of government securities for 2015 (X=6.5)
We have,

$$Y = 1040227 + 17119 \times X$$
$$Y = 1040227 + 17119 \times 6.5$$
$$Y = 1040227 + 111275.3$$

$$Y = 1{,}245{,}657$$

The forecasted amount of government securities for 2016 (X=7.5)
We have,

$$Y = 1040227 + 17119 \times X$$
$$Y = 1040227 + 17119 \times 7.5$$
$$Y = 1040227 + 128395.3$$
$$Y = 1374052$$

Forecasted outstanding Amount of Nepalese government Bonds from 2013 to 2016

Year	Forecasted Amount of Nepalese Government Bonds
2013	1,117,263
2014	1,134,382
2015	1,245,657
2016	1,374,052
S.D	118682
Mean	1,217,839

Appendix-2

Tabulation of Response to Field Survey Based on Questionnaire

S.N	Listed Companies	Broker and Issue manager	Individual investor	Other Experts	Total
6a.	4	1	2	1	8
b.	2	2	5	1	10
c.	7	3	9	4	23
d.	2	2	4	1	9
Total	**15**	**8**	**20**	**7**	**50**
7 a.	4	2	5	2	13
b.	11	6	15	5	37
Total	**15**	**8**	**20**	**7**	**50**
9 a.	9	5	13	4	31
b.	6	3	7	3	19
Total	**15**	**8**	**20**	**7**	**50**
12 a.	5	3	4	4	16
b.	10	5	16	3	34
Total	**15**	**8**	**20**	**7**	**50**
13a.	3	2	3	2	10
b.	6	2	7	2	17
c.	6	3	8	2	19
d.	-	1	2	1	4
Total	**15**	**8**	**20**	**7**	**50**
15 a.	8	3	12	3	26
b.	3	2	4	1	10
c.	3	2	3	2	10

d.	1	1	1	1	4
Total	**15**	**8**	**20**	**7**	**50**

Appendix-3

Rank wise Number of Respondents to field survey based on Ranking Question (Q No.1 and 2)

		Rank wise No of Response					Total		Value	Rank
1		1	2	3	4	5				
	LC	6	3	4	2	-	15	32		
	IM/B	3	2	2	1	-	8	19		
	Ind. Investor	9	5	4	2	-	20	39		
	Experts	3	1	2	1	-	7	15		
Total		21	11	13	6		50	105	2.1	1
2.		1	2	3	4	5				
	LC	4	4	3	4	-	15	37		
	IM/B	2	3	2	1	-	8	20		
	Ind. Investor	8	3	6	3	-	20	44		
	Experts	3	2	1	1	-	7	14		
Total		17	12	12	9		50	115	2.3	2

Tools used:

Weighted Value = $(Value_1 \times Weight_1) + (Value_2 \times Weight_2) + (Value_3 \times Weight_3) +\ldots\ldots\ldots\ldots\ldots\ldots\ldots + (Value_n \times Weight_n)$

Where,

Value = No of Responses

Weight= Rank

$$Mean\ Weight = \frac{Total\ Weighted\ Value}{Total\ Responses}$$

Note: Assign overall rank '1'to lowest mean weight; rank '2' to next lowest weight.

1. **Hypotheses Testing for Question No.1**

Null Hypotheses (H_0): There is no significant difference between observed and expected opinion regarding preference for investing in government Bond.

Alternative Hypotheses (H_1): There is significant difference between observed and expected opinion regarding preference for investing in government Bond..

Test statistic under H_0, the test statistic is $\boldsymbol{X^2} = \frac{\sum(O-E)^2}{E}$

Calculation of Expected Frequencies (E)

Expected frequency of R1C1= $\frac{Row\ Total * Column\ Total}{Grand\ Total}$

$E = \frac{21*15}{50}$

= 6.3

R1C1	6.3	R2C1	3.36	R3C1	8.4	R4C1	3
R1C2	3.3	R2C2	1.76	R3C2	4.4	R4C2	1.54
R1C3	4	R2C3	2.08	R3C3	5.2	R4C3	1.82
R1C4	1.8	R2C4	1	R3C4	2.4	R4C4	0.82

Calculation of X^2

Observed Frequency(O)		**Expected Frequency(E)**		**(O-E)**	**$(O-E)^2$**	**$(O-E)^2/(E)$**
6		6.3		-0.3	0.09	0.0143
3		3.3		-0.3	0.09	0.0273
4		4		0	0	0
2		1.8				
3		3.36				
2	10	1.76	10	0	0	0
2		2.08				
1		1				
9		8.4		0.6	0.36	0.0429
5		4.4		0.6	0.36	0.0818
4		5.2		-1.2	1.44	0.2769
2		2.4				
3		3				
1	9	1.54	9.58	-0.58	0.3364	0.0351
2		1.82				
1		0.82				
Total						0.4783

Hence, X^2 tabulated at 5% level of significance for (4-1) (4-1)-8 d.f. 1 is 3.84.

Interpretation: As per table .., it can be clearly seen that the calculated value of X^2 at 5% level of significance for 1 d.f is 0.4783and tabulated value of X^2 is 3.84. Since tabulate value of X^2 at 5% level of significance for 1 d.f is greater than the calculated value (i.e.) the null is accepted. Therefore we can conclude that there is no significant difference between observed and expected opinion regarding preference of various sectors Government Bond.

1. **Hypotheses Testing for Question No.2**

Null Hypotheses (H_0): There is no significant relation between observed and expected opinion regarding factors that plays vital role to attract investors towards purchasing Government Bond.

Alternative Hypotheses (H_1): There is significant relation between observed and expected opinion regarding factors that plays vital role to attract investors towards purchasing Government Bond.

Test statistic under H_0, the test statistic is $X^2 = \frac{\sum(O-E)^2}{E}$

Calculation of Expected Frequencies (E)

Expected frequency of R1C1= $\frac{Row\ Total * Column\ Total}{Grand\ Total}$

$E = \frac{17*15}{50}$

= 5.1

R1C1	5.1	R2C1	2.72	R3C1	2.8	R4C1	2.38
R1C2	3.6	R2C2	1.92	R3C2	4.8	R4C2	1.68
R1C3	3.6	R2C3	1.92	R3C3	4.8	R4C3	1.68
R1C4	2.7	R2C4	1.44	R3C4	3.6	R4C4	1.26

Calculation of X^2

Observed Frequency(O)		**Expected Frequency(E)**		**(O-E)**	**$(O-E)^2$**	**$(O-E)^2/(E)$**
4		5.1		-1.1	1.21	0.2373
4		3.6		0.4	0.16	0.0444
3		3.6		-0.6	0.36	0.1
4		2.7		1.3	1.69	0.6259
2		2.72				
3	8	1.92	8	1.08	1.1664	0.6075
2		1.92				
1		1.44				
8		2.8		5.2	27.04	9.6571
3		4.8		-1.8	3.24	0.675
6		4.8		1.2	1.44	0.3
3		3.6				
3		2.38				
2	10	1.68	10.6	0.6	0.36	0.034
1		1.68				
1		1.26				

						12.281

Hence, X^2 tabulated at 5% level of significance for (4-1) (4-1)-7 d.f is 2 is 5.99.
Interpretation: As per table .., it can be clearly seen that the calculated value of X^2 at 5% level of significance for 2 d.f is 12.281and tabulated value of X^2 is 5.99. Since tabulate value of X^2 at 5% level of significance for 2 d.f. is greater than the calculated value (i.e.) the alternative is accepted. Therefore we can conclude that there is significant relation between observed and expected opinion regarding factors that plays vital role to attract investors towards purchasing Government Bond.

2. Hypotheses Testing for Question No.3

Null Hypotheses (H_0): There is no significant difference between observed and expected opinion regarding systematic management of Nepalese Government Bond Market.
Alternative Hypotheses (H_1): There is significant difference between observed and expected opinion regarding systematic management of Nepalese Government Bond Market.

Test statistic under H_0, the test statistic is $\boldsymbol{X^2 = \frac{\sum(O-E)^2}{E}}$

Calculation of Expected Frequencies (E)

Expected frequency of R1C1= $\frac{Row\ Total * Column\ Total}{Grand\ Total}$

$E = \frac{13*15}{50}$

= 3.9

R1C1	3.9	R2C1	11
R1C2	2	R2C2	5.9
R1C3	5.2	R2C3	14
R1C4	1.80	R2C4	5

Calculation of X^2

Observed Frequency(O)		**Expected Frequency(E)**		**(O-E)**	**$(O-E)^2$**	**$(O-E)^2/(E)$**
4		3.5		0.5	0.25	0.0714
2		2				
5	9	5.2	9	0	0	0
2		1.8				
11		11		0	0	0
6		5.9		0.1	0.01	0.0017
15		14		1	1	0.0714
5		5		0	0	0
Total						0.145

Hence, X^2 tabulated at 5% level of significance for (4-1) (2-1)-2 d.f. 1 is 3.84.

Interpretation: As per table .., it can be clearly seen that the calculated value of X^2 at 5% level of significance for 1 d.f is 0.145 and tabulated value of X^2 is 3.84. Since tabulate value of X^2 at 5% level of significance for 1 is greater than the calculated value (i.e.) the null is accepted. Therefore we can conclude that there is no significant difference between observed and expected opinion regarding systematic management of Nepalese Government Bond Market.

3. Hypotheses Testing for Question No.4

Null Hypotheses (H_0): There is no significant relation between observed and expected opinion regarding preference of maturity period for Government Bond.
Alternative Hypotheses (H_1): There is significant relation between observed and expected opinion regarding preference of maturity period for Government Bond.

Test statistic under H_0, the test statistic is $\boldsymbol{X^2 = \frac{\sum(O-E)^2}{E}}$

Calculation of Expected Frequencies (E)

Expected frequency of R1C1= $\frac{Row\ Total * Column\ Total}{Grand\ Total}$

$E = \frac{8*15}{50}$

= 2.4

R1C1	2.4	R2C1	3	R3C1	6.9	R4C1	2.7
R1C2	1.28	R2C2	1.6	R3C2	3.68	R4C2	1.44
R1C3	3.2	R2C3	4	R3C3	9.2	R4C3	3.6
R1C4	1.12	R2C4	1.4	R3C4	3.22	R4C4	1.26

Calculation of X^2

Observed Frequency(O)		**Expected Frequency(E)**		**(O-E)**	**$(O-E)^2$**	**$(O-E)^2/(E)$**
4		2.4		1.6	2.56	1.0667
1		1.28				
2		3.2				
1	8	1.12	10.2	-2.2	4.84	0.4745
2		3				
2		1.6				
5		4		1	1	0.25
1		1.4		-0.4	0.16	0.1143
7		6.9		0.1	0.01	0.0014
3		3.68		-0.68	0.4624	0.1257
9		9.2		-0.2	0.04	0.0043
4		3.22		0.78	0.6084	0.1889
2		2.7				
2	9	1.44	9	0	0	0
4		3.6				

1		1.26				
Total						2.2259

Hence, X^2 tabulated at 5% level of significance for (4-1) (4-1)-7 d.f 2 is 5.99.

Interpretation: As per table .., it can be clearly seen that the calculated value of X^2 at 5% level of significance for 2 d.f. is 2.2259 and tabulated value of X^2 is 5.99. Since tabulate value of X^2 at 5% level of significance for 2 d.f. is greater than the calculated value (i.e.) the null is accepted. Therefore we can conclude that there is no significant relation between observed and expected opinion regarding preference of maturity period for Government Bond.

4. Hypotheses Testing for Question No.5

Null Hypotheses (H_0): There is no significant difference between observed and expected opinion regarding sufficiency of present rule and regulation for growth of Nepalese Government Bond Market.

Alternative Hypotheses (H_1): There is significant difference between observed and expected opinion regarding sufficiency of present rule and regulation for growth of Nepalese Government Bond Market.

Test statistic under H_0, the test statistic is $\boldsymbol{X^2 = \frac{\sum(O-E)^2}{E}}$

Calculation of Expected Frequencies (E)

Expected frequency of R1C1= $\frac{Row\ Total * Column\ Total}{Grand\ Total}$

$E = \frac{31*15}{50}$

= 9.3

R1C1	9.3	R2C1	5.7
R1C2	4.9	R2C2	1.44
R1C3	12.4	R2C3	3.6
R1C4	4.34	R2C4	1.26

Calculation of X^2

Observed Frequency(O)		**Expected Frequency(E)**		**(O-E)**	**$(O-E)^2$**	**$(O-E)^2/(E)$**
9		9.3		-0.3	0.09	0.0097
5		4.9		0.1	0.01	0.002
13		12.4		0.6	0.36	0.029
4		4.34		-0.34	0.1156	0.0266

6		5.7		0.3	0.09	0.0158
3		1.44				
7	13	3.6	6.3	6.7	44.89	7.1254
3		1.26				
Total						7.2086

Hence, X^2 tabulated at 5% level of significance for (4-1) (2-1)-2 d.f. 1 is 3.84.
Interpretation: As per table .., it can be clearly seen that the calculated value of X^2 at 5% level of significance for 1 d.f is 7.2086 and tabulated value of X^2 is 3.84. Since tabulate value of X^2 at 5% level of significance for 1 d.f is greater than the calculated value (i.e.) the alternate is accepted. Therefore we can conclude that there is significant difference between observed and expected opinion regarding sufficiency of present rule and regulation for growth of Nepalese Government Bond Market.

5. Hypotheses Testing for Question No.6

Null Hypotheses (H_0): There is no significant difference between observed and expected opinion regarding preference of Government Bond rather than Corporate Bond.
Alternative Hypotheses (H_1): There is significant difference between observed and expected opinion regarding preference of Government Bond rather than Corporate Bond.

Test statistic under H_0, the test statistic is $\boldsymbol{X^2} = \frac{\sum(O-E)^2}{E}$

Calculation of Expected Frequencies

Expected frequency of R1C1= $\frac{Row\ Total * Column\ Total}{Grand\ Total}$

$E = \frac{10*15}{50}$

= 3

R1C1	3	R2C1	5.1	R3C1	5.7	R4C1	1.2
R1C2	1.5	R2C2	2.72	R3C2	3	R4C2	0.64
R1C3	4	R2C3	6.8	R3C3	7.6	R4C3	1.6
R1C4	1.4	R2C4	2.38	R3C4	2.66	R4C4	0.56

Calculation of X^2

Observed Frequency(O)		**Expected Frequency(E)**		**(O-E)**	**$(O-E)^2$**	**$(O-E)^2/(E)$**
3		3				
2	10	1.5	10	0	0	0
3		4				
2		1.4				
6		5.1		0.9	0.81	0.1588
2		2.72		-0.72	0.5184	0.1906

7		6.8		0.2	0.04	0.0059
2		2.38		-0.38	0.1444	0.0607
6		5.7		0.3	0.09	0.0158
3		3		0.4	0.16	0
8		7.6		0.4	0.16	0.0211
2		2.66				
0		1.2				
1	6	0.64	6.66	-0.66	0.4356	0.0654
2		1.6				
1		0.56				
Total						0.518

Hence, X^2 tabulated at 5% level of significance for (4-1) (4-1)-7 d.f. 2 is 5.99.
Interpretation: As per table .., it can be clearly seen that the calculated value of X^2 at 5% level of significance for 2 d.f. is 0.518 and tabulated value of X^2 is 5.99. Since tabulate value of X^2 at 5% level of significance for 2 d.f. is greater than the calculated value (i.e.) the null is accepted. Therefore we can conclude that there is no significant difference between observed and expected opinion regarding preference of Government Bond rather than Corporate Bond.

6. Hypotheses Testing for Question No.7

Null Hypotheses (H_0): There is no significant relation between observed and expected opinion regarding satisfaction with the present practices of government bond market in Nepal.
Alternative Hypotheses (H_1): There is significant relation between observed and expected opinion regarding satisfaction with the present practices of government bond market in Nepal.

Test statistic under H_0, the test statistic is $\boldsymbol{X^2} = \frac{\sum(O-E)^2}{E}$

Calculation of Expected Frequencies

Expected frequency of R1C1= $\frac{Row\ Total * Column\ Total}{Grand\ Total}$

$E = \frac{16*15}{50}$

= 4.8

R1C1	4.8	R2C1	10
R1C2	2.56	R2C2	5.44
R1C3	6.4	R2C3	13.6
R1C4	2.24	R2C4	4.76

Calculation of X^2

Observed Frequency(O)		**Expected Frequency(E)**		**(O-E)**	**(O-E)**	**(O-E)/(E)**

5		4.8				
3	12	2.56	13.76	-1.76	3.0976	0.2251
4		6.4				
4		2.24		1.76		
10		10		0	0	0
5		5.44		-0.44	0.1936	0.0356
16		13.6		2.4	5.76	0.4235
3		4.76		-1.76	3.0976	0.6508
						1.335

Hence, X^2 tabulated at 5% level of significance for (4-1) (2-1)-2 d.f 1 is 3.84.
Interpretation: As per table .., it can be clearly seen that the calculated value of X^2 at 5% level of significance for 1 d.f is 1.335 and tabulated value of X^2 is 3.84. Since tabulate value of X^2 at 5% level of significance for 1 d.f is greater than the calculated value (i.e.) the null is accepted. Therefore we can conclude that there is no satisfaction with the present practices of government bond market in Nepal.

7. Hypotheses Testing for Question No.8

Null Hypotheses (H_0): There is no significant difference between observed and expected opinion regarding leading role of concern body to enhance Government Bond Market.
Hypotheses (H_1): There is significant difference between observed and expected opinion regarding leading role of concern body to enhance Government Bond Market.

Test statistic under H_0, the test statistic is $\boldsymbol{X^2} = \frac{\sum(O-E)^2}{E}$

Calculation of Expected Frequencies

Expected frequency of R1C1= $\frac{Row\ Total * Column\ Total}{Grand\ Total}$

$E = \frac{26*15}{50}$

= 7.8

R1C1	7.8	R2C1	3	R3C1	3	R4C1	1.2
R1C2	4.16	R2C2	1.6	R3C2	1.6	R4C2	0.64
R1C3	10.4	R2C3	4	R3C3	4	R4C3	1.6
R1C4	3.64	R2C4	1.4	R3C4	1.4	R4C4	0.56

Calculation of X^2

Observed Frequency(O)		**Expected Frequency(E)**		**(O-E)**	**$(O-E)^2$**	**$(O-E)^2/E$**
8		7.8		0.2	0.04	0.0051
3		4.16		-1.16	1.3456	0.3235

12		10.4		1.6	2.56	0.2462
3		3.64				
3		3				
2	8	1.6	8.24	-0.24	0.0576	0.0192
4		4		0	0	0
1		1.4		-0.4	0.16	0.1143
3		3		0	0	0
2		1.6		0.4	0.16	0.1
3		4				
2		1.4				
1	9	1.2	5.4	3.6	12.96	2.4
1		0.64				
1		1.6				
1		0.56				
Total						3.208

Hence, X^2 tabulated at 5% level of significance for (4-1) (4-1)-7 d.f 2 is 5.99.
Interpretation: As per table .., it can be clearly seen that the calculated value of X^2 at 5% level of significance for 2 d.f. is 3.208 and tabulated value of X^2 is 5.99. Since tabulate value of X^2 at 5% level of significance for 2 d.f. is greater than the calculated value (i.e.) the null is accepted. Therefore we can conclude that there is no significant difference between observed and expected opinion regarding leading role of concern body to enhance Government Bond Market.