CHAPTER 1

INTRODUCTION

1. 1 Background of the study

Governments or other corporation issues fixed income security which is called bond (Karki, 2010). Bond fair value is determined by primary market, in initial issue, and secondary market, for further trading (Greenwood, 2004). Bond market is important source for firms and governments seeking the long term debt in terms of local currency and tends to reduce currency mismatch which raises by foreign currency bond (Dickie & Fan, 2005). Domestic bond market increases efficiency allocates surplus fund, retain domestic capital and diversify funding resources (Greenwood, 2004).

Falling in the interest rate is suitable for bond market financial instrument because consequently, it increases the value of bond (Longei & Ali, 2017). Consistent decrease in interest rate continues to attract the number of tourists in the corporate bond market (International Organization of Securities Commissions (IOSCO), 2019). Varma and Rgunathan (2000) found that clear empirical evidence of long-range and multifractality by sample including almost all the interest rates in China bond market. Real interest rate is major factor in yield of the bond (Campbell & Ammer, 1991).

Burger et al. (2015) suggests that high inflation volatility form a serious obstacle to development of bond market. And evidences show that local currency bond perform better than foreign currency bond in terms of performance by including the inflation factor. Longei and Ali (2017) concluded that when the rate of inflation decreases the value of bond increases, which means favorable for bond market. Bond holders are exposed to losses due to inflation and potential anti-inflationary force (Rose & Spiegel, 2015). Zhu (2013) emphasize that to promote the development of bond market, credit rating plays an important role by diversifying and efficiency in disclosing the risk. Credit rating consider financial and business risk for credit rating of firm or institution. Government bonds are subject only to interest rate risk while corporate bonds are subjected to credit risk in addition to interest rate risk (Varma & Rghunathan, 2000). Zulkiply and Miras (2016) found that changes in ratings significantly influence the bond market and credit rating act as spillover effect.

Dickie and Fan (2005) support that banking industry in developed nations is compliment

to bond market and overall development for each other's sector. Sharma (2000) suggests that corporate and banking must be reformed in order to develop the bond market. Developing economies have realized the value of bond market and banking industry importance of relation for development (Aman et al., 2019).

By studying the 10 Asian countries from 1990 to 2016, necessity of bond market development is imminent for development of economy of a country. And policy market should provide more attention to bond market in order to increment the growth of the economy (Hue & Tram, 2019). Further, Japan, Finland & Italy have interdependence of bond market capitalization and economic growth (Fink et al., 2003). There is a relationship between economic growth and bond market capitalization (Kapingura & Makhetha-Kosi, 2014). Said (2013) found that the public and private debt, which is related to bond market, significantly contribute to the economic growth of the region. And recommended to enhance the monitory policy for assisting the improvement of economic policy. Ultimately, leads to growth of bond market (Malkiel, 1962). Bond market and gross domestic product are related with each other even in an underdeveloped country. So, growth of economic is vital for development of bond market in Kenya (Wanjiru, 2015). Greenwood (2004) provides the reasons for bond market development, which are local investment by Asian countries, assistance to corporate debt restructuring, fostering of world economy and proposals on bond market development. Bond market is still under developed and yet to significant contribute to GDP Comparatively with other economic determinants such as inters rates and exchange rates (Wanjiru, 2015). In recent years, Chinese government emphasizes the development of macro economy which ultimately develop the bond market (Zhu, 2013).

Nepal is a developing country whose financial market is also at the developing stage for the development of ever try the financial market as well as the capital market plays a vital role.The history of capital market in Nepal dates bank to1936 in which year the share of biratngar jute mills were floatef in 1937 Tejarth was set up to facilities loans to government employee and was converted into Nepal Bank.Ltd. Bhattarai (2013) found that lower economic growth, slow economic growth and higher inflation rate result is unfavorable for debt market in the context of Nepalese environment. His Majesty's Government (HMG) introduced the Company Act in 1964, and issue the first government bond whose coupon rate was 6 percent and five-year maturity (Gurung, 2004). Most important financial

instrument, debenture, has not been able to be attractive financial market in Nepal. And concluded that it will have positive effect on the economy (Manadhar and Shah, 2019). Nepal stock exchange is the only trading floor for bond market. Lots of works needs to form to develop bond market in Nepal. Involvement of government in trading encourages public to invest (Karki, 2010).

Economic growth is pursuable in positive direction by expanding monetary and fiscal policies in favorable and facilitate by reducing interest rate through monetary policy and increase in government spending through fiscal policy. Investors consider these factors while investing in bonds (Ngaruiya & Njuguna, 2016). This study is based on development of bond market in Nepal by determining the influencing variables. The determining variables which are considered for this study are inflation, interest rate, banking industry, credit rating, economic growth, bond market.

1.2 Problem statement

Banks are key factor in development of corporate bond market and corporate bond can be viewed as a loan substitute. And highly concentrated banking industrys can result in depriving bonds market development (Dickie & Fan, 2005). Institution issues new bond in market, either to pay bank loan or to fund new projects. Strong growth of bonds in market which is a reflection of temporary deficiency of banking crisis (Astrauskaite & Paškevicius, 2014). High inflation volatility is obstacle to bond market development (Burger et al., 2015). In order to development the bond market in China, official must pay more attention to credit rating (Zhu, 2013). Bond holders are affected by inflation and potential inflationary force (Rose & Spiegel, 2015). Bond Market is still under developed in the underdeveloped countries and yet to contribute significantly in market (Wanjiru, 2015).

After the Asian region crisis in 1997/98, different agencies have been promoting debt market. Even though, it seems high amount contribution in the market but rather it is relatively insufficient in comparison to advanced countries. During economic richness and recession period, bond market and stock market moves in same direction. During recovery period market moves opposite direction (Patoda & Jain, 2012). Development of bond market is influence by the amount of debt which is referring to the economic growth (Said, 2013).

The low growth of economy, high inflation rate and high interest rate is unfavorable to

Debt market in Nepal (Bhattarai, 2013). Nepalese bond market is comparatively small in size and does not have effective work in the security market for years. Nepal Stock Exchange (NEPSE) is sole trading floor and there are relatively low numbers of development bonds in the country. There is proactive involvement of government in Nepal, which means, government reacts after something happens (Karki, 2010).

Above evidences show the problem related with bond market development in international market and Nepalese market. For deeper understanding in the context of Nepalese market, the following issues are studies for this study:

(i)   Does interest rate volatility affect the bond market capitalization in Nepal?

(ii) What is the relationship of bond market with inflation and credit rating in context of Nepal?

(iii) How does banking industry influence the movement of bond market capitalization in Nepal?

(iv) What is the relationship between economic growth and bond market in Nepal?

1.3 Objectives of the study

The major objective of the study is to evaluate the determinants of bond market development in Nepal. So, the specific objectives that are used in this study are as follows.

(i)   To examine the affect of interest rate volatility in the bond market of Nepal.

(ii) To determine the relationship of bond market with inflation and credit rating in context of Nepal.

(iii) To analyze the influence of banking industry on bond market.

(iv) To assess the relationship between economic growth and bond market in Nepal.

1.4 Significance of the study

Bond market of Nepal is still underdeveloped, and need a lot of reformation and rectification. Thus, this study "The perceived bond market development in Nepal" determines the factors or variables that should be closely looked and its value for a nation by its stakeholders. There are three party involved in bond market development; issuers, investors and government. This study shows the role and value of each party for bond market development. Further, there are very few research literatures which are conducted on bond market topic in context of Nepal, and this study will become foundation for future study.

The value of this study is organized into three groups; government, investors and issuers. In Nepal, Bond market does not have sufficient rules and regulation. It is still in early stage comparatively to other part of the world. This research will assist the law makers of the government to amend and rectify. Moreover, assist government to forecast future needs to issue of debt instruments on the basis of economic situation. This study highlights the importance of bond market to business organization as well as public also. Both borrower and lender plays a vital role in development of bond market, and without the existence of each party it is not possible. So, this research acts as the information to persuade for involvement in the bond market. This research identifies the different variables that impact the bond market. They are interest rate, inflation, credit rating, banking industry and economic growth. More importantly, this research identifies the value to the development of overall economy of the country and for borrower point of view, debt instrument is another alternative to raise the fund for long time. Lastly, this study covers the attitude towards bond market in Nepal from point of view of three parities.

1.5 Limitations of the study

The limitations of this research are as follows.

(i) The data available in published annual reports have been assumed to be correct and true for secondary data analysis.

(ii) Real gross domestic product and listed value of bond were collected from time period 2001/02 to 2017/18.

(iii) Primary data are collected by only using five-point Likert scale questionnaire.

(iv) This study used linear regression and neglected non-linear regression approach.

(v) Only six independent variables are used in this study.

(vi) This study consists of the respondents from within one geographical which is Kathmandu valley.

(vii) Primary data are analyzed by using quantitative data analysis method.

CHAPTER 2

LITERATURE REVIEW

Previous chapter, i.e. introduction, explain about the objectives and rationale behind conducting a study on the topic "The determinants of bond market development in Nepal". Moreover, it specifies the problem which are existed within this topic, and needed to be raised and solved. Before conducting introduction chapter, it is important to review various empirical and theoretical literatures. Such that, this chapter is divided into three sub headings: Theoretical review, review of recent articles and reports, and research gap. Theoretical review provides basic background and history of bond market, while next heading provides the review of relevant articles and reports in short gist form.

2.1 Theoretical review

Each year the global bond market worth keep rising. The issuance of bond in 2017 was $21 trillion. The global bond market is dominated by US and issue approximately $7 trillion in 2017. Australia, Canada, France, Germany, Italy, Japan, Netherlands, Singapore and United Kingdom issued the value of 252 billion, 579 billion, 538 billion, 613 billion, 463 billion, 1845 billion, 147 billion, 48 billion and 458 billion bond in 2017 respectively ((Security Industry and Financial Markets Association (SFIMA), 2018). China ranked third in 2018 in the value of bond market and it is expected to triple in next three years. China heavily depends upon the domestic funding (Manyapu, 2018). As of 2011, the global bond market worth was $82.5 trillion and more than 87% of bonds are issued in local currency for both, advanced and emerging economic countries. Advanced economies comparatively have larger bond market than emerging market economies which is 164% of GDP. The total public bonds are worth 26% and total private bonds are worth 20% of GDP. Underdeveloped financial industry country has neither bond market, financing in Central Asia and Pacific comes largely through the banking industry. In Asia, China and Republic of Korea is dominant countries to have higher value bond market (Burger et al., 2015).

The government issued bond in 1964 for the first time in Nepal which carried 6 percent coupon rate and maturity period of 5 years (Shrestha, 1981). During the liquidity crisis in 1991 in Nepal, Nepal Rastra Bank (NRB) issued "NRB Bond" for the first time. And after the liquidity was controlled, NRB completely phased out the issued bond (Pant, 2013). In Nepal, bond market is divided into two categories; government bond and corporate bond. Government bond holds 97 percent of debt securities in Nepal (Karki, 2010). And the

average growth public growth rate is 18.86 percent while the average share of external debt is greater than internal debt (Bhattarai, 2013).

There are 23 types of bonds issued by government and 20 corporate bonds are listed in NEPSE. Both the debt instruments are still not traded in NEPSE (Khanal, 2019). The issue amount of bond in 1996 was 3.4 million. There is not much change in trend of issuance of bond until 2003. After that, the issue of bond kept rising and total worth of issued bond in 2018 is 503.85 million (SEBON, 2018). The development of bond market in Nepal is gradual, rather than radical, in the context of Nepalese environment.

2.2 Review of recent articles and reports

This section presents the thorough review of previous works related with the determinants of bond market development in Nepal. It is divided into two subsections i.e. review of articles in the journal and review of previous theses.

2.2.1 Review of articles in the journal

This subsection is categorized into two categories and organized as under:

2.2.1.1 Review of articles during 1990 to 2010.

2.2.1.2 Review of articles during 2011 to 2015.

2.2.1.3 Review of articles during 2016 to 2019.

2.2.1.1 Review of articles during 1990 to 2010.

Review of determinants of bond market development are listed in table 2.1

Sharma (2000) conducted a study to identify the weakness of corporate bond market in Southeast Asia on the basis of three countries; Thailand, Malaysia and Indonesia. This study presented the constraints in terms of problems on the demand side of the market, the likely effect of the crisis and the underlying conditions for developing corporate bond markets. So, findings of this study which are related to problems are limited levels of issuance of bond, predominance of banking finance, limited transparency and legal rights for creditors, and quality of figures and release of information are still suspect. Moreover, investors expect higher risk premium due to the nature of higher risk accepted by institution

Table 2.1: Review of articles during 1990 to 2010

Studies	Findings
Sharma (2000)	Predominance of banking finance is constraint to bond market.
Varma and Raghunathan (2000)	Government bonds are associated with interest rate risk, while corporate bonds are associated with both credit risk and interest rate risk.
Fink et al. (2003)	The study finds the evidence of interdependence between bond market growth and economic growth
Greenwood (2004)	Banks are likely to resist development of bond market development.
Dickie and Fan (2005)	Banks are opposed to bond market development.
Burger and Warnock (2006)	Countries with better inflation performance have heavily relied on local currency bond market.

Varma and Rghunathan (2000) analyze the credit rating to understand the credit risk associated with the bond market. The study finds Government bonds are exposed to interest rate risk while corporate bonds are exposed to credit and interest rate risk. Moreover, higher credit ratings should never have high default probability. Both interest rate and credit rating influence the bond market attractiveness. Fink et al. (2003) examined GDP and bond aggregate bond market of 13 highly developed economies. And finds the strong interdependence between bond market growth and real output growth.

Greenwood (2004) concluded the importance for Asian economies to grow by the development of bond market development. Domestic bond market increases efficiency allocates surplus fund, retain domestic capital and diversify funding resources. The study found that Asian countries must create proper rules and regulation so that bond market will survive and prosper. Otherwise, banking industry continue to have strong hold on market, which may lead region to crisis.

Dickie and Fan (2005) provides the evidence that banks are oppose to the development of bond market and more likely to resist its development due to competition of providing alternative source of debt. The debt can be in form of long term bond and short term commercial paper debt. Even-though banks are essential institution for development of bond market, but bank keep unfavorable attitude due to completion of providing external financing.

Burger and Warnock (2006) analyzes the factor associated with local currency bond market development and finds that countries with better historical inflation performance have heavily relied on local currency bond market while less reliable to foreign currency bond market. And more importantly necessary condition to develop bond market development is similar to develop the banking industry.

2.2.1.2 Review of articles during 2011 to 2015.

Review of determinants of bond market development are listed in table 2.2

Table 2.2: Review of articles during 2011 to 2015

Studies	Findings
Goswami and Sharma (2011)	Credit rating is negatively associated with local debt market and historically, corporation depend on bank finance.
Rai (2011)	Higher interest spread rate is associated with smaller bond financing.
Cornaggia and Cornaggia (2011)	Regulated investors absolve benefit from Moody's sluggish action.
Bhattacharyay (2013)	Bond market development act as alternative to source of financing by the dependence on the banking industry
Said (2013)	Public and private debts contribute significantly to the growth of the region.
Patoda and Jain (2012)	Relationship between stock and bond return during different stage of pre-recession, and recession and post-recession period.
Zhu (2013)	Credit rating significantly influence the investors and ultimately stimulate development of bond market.
Kapingura and Makhetha-Kosi (2014)	Bond market development and economic growth is positively related with each other
Astrauskaite and Paškevicius (2014)	There is a strong growth of bonds in market due to temporary deficiency of banking crisis.
Singdha (2015)	Bond market has negative relationship with interest rate volatility and higher interest rate.
Burger et al. (2015)	Higher inflation volatility is obstacle to bond market development
Rose and Spiegel (2015)	The bond holders are expose to capital losses by rise in inflation rate.
Le et al. (2015)	Company tend to borrow money from other international financial institution due to openness of economy.

Goswami and Sharma (2011) assess the development of local debt market in emerging countries in Asia. The study found that, significant portion of Asian corporation have relatively low credit rating below industry standard. Which means, credit rating is negatively related with local debt market. Further, historical dependence on bank finance, high costs of bond issuance, and lack of tapping of involved in fixed income debt instruments are hurdle for development of local debt market development in emerging Asian countries.

Rai (2011) investigated the bond market development in Asia by a case study of India and South East Asian countries. This study used the data over the period of time from 1990 to 2010 was collected from Hong Kong, Singapore, Indonesia, Malaysia, Philippines, Thailand and India. The inclusion of nominal and real interest rates of these these countries are compared with United States, Japan and Germany. During the period of Asian crisis, the value of well-developed bond market was recognized. Moreover, this study found the weakness for lack of developed bond market such as a lack of common market infrastructure, lack of coordination in trading industry, clearing and settlement industry bankruptcy codes, lack of standardized credit ratings for regional companies and so on. These problems needed to be solved for well-developed bond market in Asian financial market. Cornaggia and Cornaggia (2011) suggest traditional credit rating are slow and market investors want quick information for investing in bond market instruments. Due to this factor banks and insurance gets benefit, and high return return.

Bhattacharyay (2013) investigated on the determinants of bond market development in Asian economies. This study is based on the secondary data collected over the time period from 1998 to 2008 from Asiabondsonline, ADB's website (2010), world development indicators of the World Bank (2010) and IMF International Financial Statistics (2010). The regression analysis results show that size of the economy is significantly and positively related with government bonds. Further, there is negative and significant relationship between interest spread rate with the bond market. The negative coefficient shows that higher interest spread rate is associated with smaller bond financing size, as accept this hypothesis. And, size of banking industry is positively and significantly related with bond market development. This study suggested that the bond market development which act as alternative to source of financing by the dependence on the banking industry. These determinants significantly impact the development of bond market in Asian countries.

Said (2013) studied China, Hong Kong, Japan, South Korea, and Thailand from 2002 -

2009 and found that there is positive relationship between debt and growth of economy. There is positive impact between debt market and GDP in South Korea. However, China and Hong Kong does not show any impact between each other.

Raghavan and Sarwono (2012) investigated on the factors that are influencing the corporate bond market in India and importantly, to trace the reasons for corporate bond market in other countries. And statistical tools which is used in this research is multivariate regression analysis. The study found that banking industry influence the bond market development in India. Due to the lending execution by bank slowed the development of corporate bond market development in India. Institution borrow from banks instead of issuing the bond in the financial market. Moreover, growth of governmental bond is also important factor for corporate bond market development and it act as complimentary factor for corporate bond market. Contradictory to this, impact seems to be negative if stock market and bond market compete with each in financial market. Author suggested by introducing new instruments such as credit default swaps and corporate repos to attract the investors in corporate bond market.

Zhu (2013) shows the important bond market in China where reforms in banking industry and national economy is needed. China still heavy relies on bank for financing whereas bond market provides alternative source of financing. Such that Credit rating plays a vital role for stimulating the investors to develop bond market. Kapingura and Makhetha-Kosi (2014) examine the causal relationship between the bond market development and economic growth in Africa over a period from 1995 to 2012 on the basis of quarterly data. Engle Granger cointegration method and the pairwise grange casualty test was used for this study to test the data. The study supports the hypothesis that the real economic activity is measured by GDP is influenced by development of the bond market. Such that, researcher suggested that, African countries should put measures on the development of their bond markets.

Astrauskaite and Paškevicius (2014) investigated on the topic, Competition between banks and bond markets: hardly impacted or softly complemented. This study examines the factors of banking which impact on bond markets, with respect to underdeveloped bond markets and dependence on banking industry by using instruments of comparative analysis. In essence, study conclude that there are three reasons for issuance of corporate bond by European companies. First, due to weaker performance of banking sector. Secondly, due

to constraints of government bond sector and thirdly, due to economic education by relevant party. Further more, institution issues new bond in market, either to pay bank loan or to fund new projects which appears to be profitable. Sometimes, there is strong growth of bonds in market which is a reflection of temporary deficiency of banking crisis. Constant involvement of banking performance in bond market is for two reasons, a source of supplementation and securitization. So, there seems to be no growth of bond market in future perspective and market players play as temporarily move the corporate bond market.

Singdha (2015) assess an overall view of bond market in the context of Indian market by categorizing the variables into broad and specific group. The main objective of this study is to get insights about determinants of long tern debt market. Such that, the study used proposed the relationship with bond market as negative with higher interest rates, positive with size and development of banking industry, negative with high interest rate volatility and weak positive with larger size. And this study suggested that radical change is necessary for making bond markets favorable for investment by easing the pressure from banking industry of the country as long term debt act as alternate financing option for corporations. Burger et al. (2015) suggested presence of higher inflation volatility is obstacle to bond market development in smaller developing countries. There are positive externalities to economic growth in relation to bond markets. The study shows evidence that better inflation containment by countries are dominated by local currency bond in comparison to foreign currency bond. Moreover, countries which have larger bond market tend to have larger banking industry.

Rose and Spiegel (2015) explore the relationship between inflation and local currency bond market. The study found that bond holders are expose to capital losses by rise in inflation. It is essential to have stable inflation to develop the bond market. The influence of inflation in local currency bond and foreign currency bond may or may not have similar effect.

Le et al. (2015) used a cross-country analysis to investigate the development of corporate bond markets. This study used data over a period of time from 1970 to 2013 of 90 developed countries' corporate bonds. The study found that the openness of economy is negatively affected the corporate bond market, this leads to easiness for a company to raise fund instead of issuing debt securities. Such that, they borrow from banks and issuing shares in international market. Moreover, investors will find attract by these phenomena. Shows the negative impact caused by economic growth with respect to corporate bond market.

2.2.1.3 Review of articles during 2016 to 2019.

Review of determinants of bond market development are listed in table 2.3

Table 2.3: Review of articles during 2016 to 2019

Studies	Findings
Nkwede et al. (2016)	Inflation rate and banking sector development are significantly and negatively associated with bond market capitalization.
Wang et al. (2016)	Banking sector development and inflation rate are significantly and negatively related with bond market capitalization.
Ngaruiya and Njuguna (2016)	Rise in GDP by 1 percent leads to increase in bond price up to 1.802 percent.
Longei and Ali (2017)	Interest rate and inflation rate have inverse relationship with bond price.
Smaoui et al. (2017)	Economic size, concentrated banking sector and higher foreign exchange rate are positively correlated with bond market.
Masood et al. (2017)	There is negative correlation between sovereign ratings and bond yield in Ireland and Greece.
Rehman and Khilji (2017)	Interest rate has negative correlation with bond market, development of interest rate swap instrument is recommended.
Mahara (2018)	Higher economic growth signal the further advancement of size of bond markets.
Hue and Tram (2019)	The economic growth and bond market are positively related with each other.
Aman et al. (2019)	Bond market is limited relatively to stock market.
Taguchi and Bolormaa (2019)	Banking industry and interest have negative relationship with bond market, whereas, GDP has positive.
Manadhar and Shah (2019)	Regulatory and rating is significantly and positively correlated with investment in debenture market.

Nkwede et al. (2016) studied the macroeconomic determinants of corporate bond market development in context of Nigerian bond market. Study used the time series data data from

time period of 1980 to 2013 which 33 years by using descriptive statistics, while ordinary least square method techniques involving multiple regression to test the significance of the variables or determinants. Such that macroeconomic variables used in this study are exchange rate savings, inflation rate, banking sector, development, interest rate, fiscal balance, bond yield and foreign direct investment are vital for impact of development of corporate bond market development in Nigeria. The results show, about 65 % of the fluctuations in Nigerian corporate bond market is caused by these variables, were R-squared is 0.64492. Moreover, regression analysis presents that Banking sector development and inflation rate are significantly and negatively associated bond market capitalization. This means that a unit change in inflation rate and banking sector development brings about development of the Nigerian corporate bond market.

Ngaruiya and Njuguna (2016) measured the effect of economic growth on bonds prices by using explanatory research design. This study used secondary data collected from Nairobi Securities Exchange and Kenya National Bureau of Statistics by using a sample of 10 bonds from January 2008 to December 2012. Statistical tools used for this study are correlation and regression analysis where bond prices are measured against gross domestic product growth rate. But the study found that there is positive and insignificant relationship between GDP and the bond price, which is confirmed by regression results and correlation. A rise in GDP by 1 percent leads to increase in bond price up to 1.802 percent. Such that, author recommended that in order to enhance the economic growth, government should pursuit suitable fiscal and monetary policy which stimulate the investors to invest into bonds. Wang et al. (2016) investigated on the multifractal properties of interest rate in bond market. Such that, this study used data over a period of time from January 2002 to January 2016 gathered from China Central Depository and Clearing Company, both in terms of short-term and long-terms rates. By using correlation and multifractality as a tools for analysis, and concluded that the dynamic features of interest rates help to discover the potential motion of bond market.

Smaoui et al. (2017) study is based on the data over the period 1990-2013 of 22 emerging and developing countries to determines the determinants of bond market development. It used secondary data and found that economic size, higher bureaucracy quality, larger concentrated banking sector and higher foreign exchange volatility is positively correlated with development of bond market. Furthermore, higher interest rate volatility and better

fiscal balance are negatively associated with bond market development. More importantly, development of bond market development is affected by economic size in developed countries.

Longei and Ali (2017) investigate on the determinants of bond market index on the basis of Nairobi Securities Exchange in Kenya. The variables used in this study are interest rate, inflation and exchange rate and its effect are determined with respect to bond index. This study used correlation and simple linear regression method for analysis of data by collecting from 96 respondents. Results shows that interest rate and bond market index were negatively and significantly related as regression shows that beta coefficient of interest rate is -0.216 which p-value of 0.0006. Moreover, regression results also show that inflation and bond market index were negatively related with beta coefficient of -0.146 and p-value of 0.030. This results are also supported by trend analysis which indicate that inflation and interest are inversely related with bond market index, and determines that inflation, interest rates and exchange rate are the determinants which significantly affect the bond market index. Such that, study recommended that there should be identification of policy intervention where it is needed by Central Bank.

Masood et al. (2017) examine the impact of sovereign credit rating during debt crisis period on financial market which is bond market. This study used the data of two countries, i.e. Greece and Ireland, over the period from March 2008 to December 2015, and used regression analysis and Pearson correlation as statistical tools for data analysis. Thus, finding of this study shows that there is negative correlation between sovereign ratings and bond yield in both countries. This means, if sovereign credit ratings downgrades then the bond yield moves up. And recommended that, financial market did not have the power to absorb the time period of crisis and showed instability by observing Ireland economy

Rehman and Khilji (2017) investigated on the reason for bond which could not thrive on Pakistan. This study used the data from time period of 1995 to 2011, from Karachi stock exchange and state bank of Pakistan. The study concluded that, due to virtual monopoly of banks in Pakistan, banks play a major role in development of bond market. Further, banks can benefit from bond market by issuing subordinated bond for raising the fund. Since, interest rate is negatively related with bond market, issuer can provide interest rate swaps for investors for their risk management.

Mahara (2018) investigated the relationship between bond market development and economic growth. The variables used in this study are per capita income, composite index of bond, domestic credit provided by financial sector, domestic credit to private sector and stock traded. This study used regression method and granger causality test for data analysis. The results show that economic growth causes bond market development and in return, bond. Further, with positive association between financial market development and economic growth, signals higher economic growth and leads to further advancement of size of bond markets.

Hue and Tram (2019) investigate ten countries from 1990 to 2016 in order to find the impact of bond market. The study find economic growth boost the development of bond market. Furthermore, study reveals the stock market development and bank development to promote the economic growth. Aman et al. (2019) concluded that bond market did not get attention unlike the banking and equity markets. Bond financing allows sovereign and corporate entities for diversification in financial portfolio. The study concluded that to reduce the reliance on the banking industry for development economies important must be given to bond market.

Taguchi and Bolormaa (2019) investigated the determinants of bond market development by focusing on Asian economies and identifies the factors that prevented in the development of bond market in Mongolian economy. Determinants which is used in this study are banking sectors, bureaucracy quality, level of interest rate, public and private bond market. In doing show, study corporate gross domestic product for analysis and found that gross domestic product has positive effect in both public and private bond market development. Further more, there is negative relationship between level of interest rate and bond market development. Level of interest must be decrease in order to develop the bond market. And there is evidence that level of banking concentration have negative effect on both public and private bond market development in Asia and suggested Mongolia that these are the major variables that determines the bond market development.

Manadhar and Shah (2019) studied to find out the factors that affects the decision of both investors and issuers towards debenture which aim to find out the reason for low trading of debenture in Nepal. This study used primary data consisting of 160 respondents with unstructured interviews, where 120 respondents are investors and 40 respondents are executives, which used embedded research design. As of now, there are 40 debentures

listed in NEPSE including both government and corporate debentures. In essence, regulatory and rating is significantly and positively correlated with investment environment of debenture market. This means, with increase in regulatory and rating, there will be increase in investment in debenture market in Nepal.

2.2.2 Review of previous theses

Theses which review for the study of the determinants of bond market development in Nepal are as follows:

Karki (2010) studied the present status of debt securities market in context of Nepalese market. The study found the large amount of issuance of bond by commercial bank and investor prefer their debt instrument in comparison to other sector. With primary data, investor has positive attitude towards the credit rating agency, and respondent gave the least priority to debenture providing higher coupon rate than market interest rate.

Poudel (2011) analyzed the problems associated bond market in Nepal and through primary data, it is found that bank compete in some way with bond market. Bank provides easily availability of loan in comparison to bond. Most of bond are issued by banks and still there is no evidence of prosper development of bond market in Nepal. The study found two important elements that is constraint for bond market development i.e. law and Credit rating. Lack of credit rating agency (CRA) is making the debt instrument unattractive.

Chataut (2013) found the decreasing trend of interest rate of commercial bank leads to brighter prospects of debenture securities market in Nepal. And, investor prefer banking sector's debenture in comparison to other sector's debenture.

Table 2.4: Review of theses

Studies	Findings
Karki (2010)	Investors prefer issuance of the banking sector bond.
Poudel (2011)	Financial market is dominated by banks and, law and lack of credit rating is making debt instrument unattractive.
Chataut (2013)	Due to decreasing trend of commercial bank, is making brighter prospects of debentures.
Kaur (2016)	There is positive relation between ratings and sectoral pattern for issues of corporate bond.
Ahwireng-obeng (2016)	In underdeveloped economy, bond issuer tend to borrow bond from banks rather that issue of bonds.
Manyapu (2018)	Since, there is potential growth in economy and infrastructure of China, the expected growth of bond market expected to be triple.

Kaur (2016) studied the relationship between between bond rating and subscription of corporate bond during the period from 2006 to 2015 in context of Indian market. Hypothesis which is used for the study is analysis of variance (ANOVA) and multivariate analysis of variance (MANOVA), and found that there is significant relationship between ratings and sectoral pattern for issues rated by credit rating agency.

Manyapu (2018) analyzed the evolution of the Chinese bond market from its conception to present day in relation to economic reform. The study indicated the percent of foreigners to hold the Chinese domestic debt is only 2 percent. The government facilitate for the issue of domestic debt to domestic companies. And with new liberalization policy, there is potential growth of economy and infrastructure in china. As a consequence, it is expected to triple the onshore bond market in next three years.

Ahwireng-obeng (2016) studied the financial market of 26 African countries. The study found that GDP, inflation, fiscal balance, macroeconomic prospective and banks significantly influence the development of bond market. In the underdeveloped economy, bond issuers are more likely to borrow from bank rather than issue of bonds. The reason for these activities is, firms does not have strong position to absolve the relevant risk. And suggest that there is dominance of Banking sector. The major parties which issues the corporate bond in the market are banks, and they themselves sells those debt instruments with each other's with association with investors.

2.3 Research gap

There are various research articles related to bond market in international research study. But in context of Nepal, there are only limited number of research articles regarding bond market. Before this research, only few studies was conduct on topic called "The perceived bond market development in Nepal", instead research was only based on two or three variables. Such that, this study explored five independent variables at one study by placing bond market as dependent variables. In international study, most of the study were based on the secondary data and researcher felt that qualitative data is also important to analyze the value of variables to bond market. So, researcher used quantitative data as well as qualitative data. Moreover, no previous researcher used interest rate and credit rating as variable for comparing with bond market in Nepal. similarly this study has latest data. Thus, this research filled those gap.

CHAPTER 3

METHODOLOGY

This chapter provides the overall plans and approach which are used in this research activity. Hence, this chapter, i.e. methodology, is divided into five sub headings or sections. They are (1) Research design, (2) Population and sample, and sampling design, (3) Nature and sources of data, and the instrument of data collection, (4) Methods of analysis, and (5) Research framework and definition of variables.

3.1 Research design

This study adopted descriptive and casual-comparative research design for determining the variables for developing the bond market. Moreover, it follows the scientific research method. Descriptive research design is used to find the relevant historical and present information about the variables which are selected for study i.e. interest rate, inflation, banking industry, bond market and economic growth. And those information provides clearer picture of present bond market environment.

3.2 Population and sample, and sampling design

According to Nepal Rastra Bank, the total number of reported annual GDP is 54 years, and it is the population for economic growth variable. SEBON has the data of recent 17 years of annual issue of debentures. Such that, 100 respondents are sample size for five variables and recent 17 years' data is the sample size for secondary data from 2001 to 2018. All the respondents are from one geographical area, which is Kathmandu Valley. For this study, convenience sampling method is selected as sampling method.

3.3 Nature and sources of data, and the instrument of data collection

Sources of data collecting used in this study are both, primary and secondary sources. Data regarding economic growth variable, is collected from secondary sources i.e. Nepal Rastra Bank reports, and SEBON reports. Whereas, data for other variables i.e. interest rate, inflation, banking industry and credit rating are collected from primary sources. Five-point Likert scale questionnaire is used for primary data collection.

Since, sources of data are based on primary as well as secondary. Such that, data collection procedure is divided into two categories i.e. collecting primary data and collecting secondary data. First of all, structured questionnaire has been used to collect the primary data from and within the Kathmandu valley respondents. Initially, researcher consulted

with his supervisor and took the reference from previous literatures before developing 5-point Likert scale questionnaire, from 1 being strongly disagree to 5 being strongly agree. Structured questionnaire where personally developed by researcher with the help of supervisor and review of literatures. 5-point Likert scale questionnaire was segmented into their category. In first segment, researcher presented a short letter regarding the topic of study. In second segment, personal data of respondents, and followed by third section which consist of questions and choices for respondents to mark it. Pilot study was conducted to five lecturers and their reference was taken into consideration for further rectification of structured questionnaire. After that, five groups of respondents were segregated for data collecting; academic, professor, investors, bankers and others. Researcher used two approach to collect data from those group through either online form i.e. google docs or personal visit. Respondents where provided with structured questionnaire and follow up by researcher every four to five days for collection. It took researcher one and half month for collecting primary data. For secondary data, researcher collected data from reports published in NRB and SEBON reports. Annual real gross domestic product was collected from NRB reports and annual listed value of bond were collected from SEBON reports.

3.4 Method of analysis

The researcher converted all the data into quantitative form. So, statistical tools are used for the analysis of data. Such that, researcher segment the data into two categories for analysis. First researcher uses table and graphs to describe the variables into the current context within Nepalese environment.

Secondly, this study used statistical tools or instrument for analyzing and predicting the relationship between variables. Interest rate, inflation, credit ratings and banking industry relied on primary data, while gross domestic product relied on secondary data for data analysis in relation with the bond market. Both statistical tools, i.e. descriptive and inferential tools, were used for analyzing the data, and they are as follows,

 (i) Pearson's correlation coefficient
 (ii) Regression analysis
 (iii) Standard deviation
 (iv) Arithmetic mean

3.4.1 Model Specification

The regression model is used in this study to examine the determinants of bond market development in Nepal.

In Model 1:

Bond Market = f (decrease in interest rate, decrease in inflation rate, credit ratings, stock market, banking industry)

$BM = \beta_0 + \beta_1 DIR + \beta_2 DIN + \beta_3 CR + \beta_4 BI + e$

In above regression model, bond market is dependent variable and impact of dependent variables, i.e. interest rate as decrease in interest rate, inflation as decrease in inflation rate, credit ratings, and banking industry, on it are tested.

In Model 2:

Listed value of bond = f (real gross domestic product)

$LVB = \beta_0 + \beta_5 RGDP + e$

In above regression model, dependent variable is bond market as listed value of bond and impact of independent variable, economic growth as real gross domestic product, on it are tested.

Where, DIR = Decrease in interest rate

DIN = Decrease in inflation rate

CR = Credit rating

BI = Banking industry

RGDP = Real gross domestic product

BM = Bond market

LVB = Listed value of bond

β_0 = constant term & e = error term

β_1 = beta coefficient of decrease in interest rate

β_2 = beta coefficient of decrease in inflation rate

β_3 = beta coefficient of credit rating

β_4 = beta coefficient of banking industry

β_5 = beta coefficient of real gross domestic product

3.5 Research framework and definition of variables

This section provides variables which are used for determination of bond market development in Nepal, in terms of dependent and independent variables. So, the conceptual

framework describes the bond market as dependent variables, where as inflation, interest rate, economic growth, banking industry, stock market and credit rating as independent variables. The conceptual framework for this study is presented in figure 2.1.

Figure 3.1: Conceptual framework
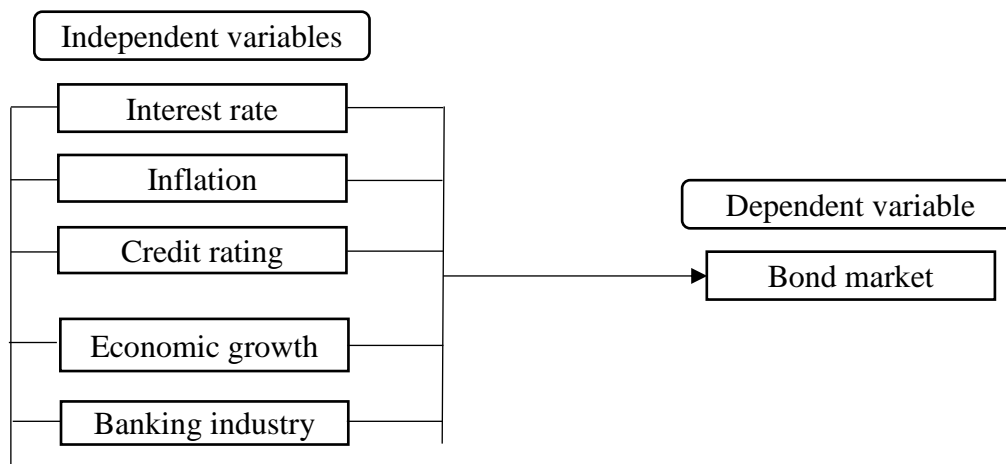
3.5.1 Operational definition and hypothesis formulation

The variables which are used for this study and their relationship with dependent variable, i.e. bond market, and independent variables, i.e. interest rate, inflation, credit rating, bond market, banking industry and economic growth, are as follows:

Bond market (Dependent variables)

Bond market, also known as debt market, is a financial market where debtors' issues debt financial instruments to creditors for long term financing. It is a platform where creditors and debtors meet their needs through the exchange of debt financial instruments (Snigha, 2015). Governments or other corporation issues fixed income security which is called bond (Karki, 2018). Bond fair value is determined by primary market, in initial issue, and secondary market, for further trading (Greenwood, 2004). Bond market is important source for firms and governments seeking the long term debt in terms of local currency and tends to reduce currency mismatch which raises by foreign currency bond (Dickie & Fan, 2005). Economic size, banking concentration, interest volatility and spreads (Smaoui et al., 2017), economic growth, stock market (Pradhan et al., 2018), inflation (Longei & Ali, 2017) and Credit rating (Masood et al., 2017) significantly impact the development of bond market. Their impact depends on the nature of a specific country.

Interest rate

Generally, interest rate can be called as the cost of capital that means, price paid for using money for a certain time. Borrower view interest rate as borrowing rate whereas lender view it as lending rate (Alma, 2009). Continuous low-interest-rate in the financial crisis in United states lead to increase the number of tourists in corporate bond market (IOSCO, 2019). Longei and Ali (2017) analyze the inverse relationship between interest rate and bond market and found to be true. Falling in interest rate causes to rise in the price of bond. Interest rate show negative significant with bond market in Nigeria (Nkwede, 2016). Government bonds are exposed to interest rate risk while corporate bonds are exposed to credit and interest rate risk (Varma & Rghunathan, 2000). So, the hypothesis which is formed for this study are as follows.

H_0: There is negative correlation between interest rate and bond market.

Inflation

Labonte (2011) defined inflation in two ways, first, sustained or continuous rise in the general price level, and secondly, sustained or continuous fall in the value of money. Inflation can be called as the movement in the general level of prices.

High volatility of inflation leads to serious obstacle to bond market development (Burger et al.). Longei and Ali (2017) concluded that there is inverse relationship between inflation and bond market index. If inflation is lower, bond prices goes up and if inflation is high, bond prices goes down. Bond holders are exposed to capital losses in relation to inflation (Rose & Speigel, 2015). Based on this, the hypothesis can be made for the study

H_0: There is a negative correlation between inflation and bond market.

Credit rating

Kaur and Kaur (2011) defined credit rating as the symbolic indicator of the current opinion of rating agency with respect to capacity of debt issuer to fulfill the debt obligation as per contract. Credit rating agency categorized the issuer based on their ability to pay creditors (Cantor & Packer, 1996).

Credit rating refers to as investor's service and rating agency is expected to have high level of analytical competence. A credit rating evaluates the specific types of debt such as a corporation or a government by using credit worthiness (Kumar & Rao, 2012). Zhu (2013) informs that credit rating usually consider financial and business risk for analyzing firms

or corporations. Mateev (2012) found that there is occurrence of spillover effect when rating changes in both bond and stock market returns. Credit rating can significantly influence the investors and ultimately stimulate the development of bond market (Zhu, 2013). Credit rating brings better understanding in Indian corporate bond market in terms of credit risk. Higher credit rating has low default profitability (Varma & Raghunathan, 2000). Regulatory and rating is significantly and positively correlated with the investment of debenture market. Thus, increment in regulatory and rating leads to increment in investment in debenture market in Nepal (Manandhar & Shah, 2019). Some base on these evidence following hypothesis are made as follows,

H_0: There is positive correlation between credit rating and bond market.

Banking Industry

Dickie and Fan (2005) provide evidences that banks oppose the development of corporate bond market. The reason behind this is due to competition in terms of financing of loan to firm or institutions. Highly concentrated may deprive the development of bond market development. European banks issues new bond in the market due to weaker performance of banking industry in the market. Such that, the main reason for strong growth of bonds in the market due to the reflection of temporary deficiency of banking industry (Astrauskaite & Paškevicious, 2014). Greenwood (2004) found that Asian countries must create proper rules and regulations in order to create and survive bond market. With little option for investors, banking industry continue to have strong hold on market. Sophisticated banking industry leads to depriving the bond market where as, well developed banking industry leads to development of bond market liquidity (Smaoui et al., 2017). Based on this paragraph, the hypothesis can be formed.

H_0: There is a negative correlation between banking industry and bond market.

Economic Growth

Economic growth is the process of increasing the sizes of national economies especially the GDP per capita and increasing the standard of life of society (Haller, 2012).

Hue and Tram (2019) found evidence that bond market development does promote economic growth, which means positive correlation between them. Fink et al. (2003) found the evidence of the interdependence of bond market capitalization growth and real output growth. This study is based on 13 developed countries. Wanjiru (2015) proves that even in

underdeveloped country, bond market development has significant positive effect on economic growth. There is a positive and insignificant relationship between GDP and bond price. Ngaruiya and Njuguna (2016) concluded that a rise in GDP by 1 percent leads to increase in bond price up to 1.802 percent, government fiscal and monitory policy stimulate the investors to invest into bonds. As follows hypothesis are made for study,

H_0: There is positive correlation between economic growth and bond market.

CHAPTER 4

RESULTS

This chapter provides systematic presentation and analysis of primary and secondary data. Different statistical tools or instruments which are described in previous chapter are used in this chapter for presenting and analysis purpose. Thus, this chapter is divided into two categories results and discussion. First sub heading, i.e. results, deals with identifying the major finding from data, and second sub heading, i.e. discussion, deals with comparing the findings with reviewed literatures.

4.1 Results

In this sub heading or section, collected data are systematically arranged, presented and analyzed to form as information and knowledge from that data. In other words, this section is for the presentation and analysis of primary and secondary data that are taken the factors that influence the bond market development in Nepal. Independent variables selected for primary data analysis are interest rate as decrease in interest rate, inflation as decrease in inflation rate, credit ratings and banking industry. Whereas, independent variables for secondary data analysis is economic growth as real gross domestic product and dependent variable bond market as listed value of bond in NEPSE at nominal year. This section is further divided into two segments. In first segment, the data which are collected from structured questionnaire are presented into demographic form of respondents. In second segment, both primary and secondary data are analyzed by descriptive analysis and statistical analysis tools, such as Karl Pearson's correlation, regression analysis, arithmetic mean and standard deviation. Cronbach's Alpha test is used to test reliability and validity of primary data.

4.1.1 Demographic characteristics of the respondents

In this study, demographic characteristics of respondents' reveal their personal characteristics in term of their gender, age, academic's qualification, length of experience on bond market related activities and associate field in relation to bond market. These demographic characteristics are structured from data collected from structured questionnaire that are distributed within Kathmandu Valley. It provides reference to the reliability of qualitative data which are later converted into quantitative data for analysis.

Demographic characteristics are of 100 respondents on the basis of their category are shown in figure 4.1

Table 4.1 Demographic characteristics of respondents

Respondents' details	Number of respondents	Percentage (%)
Gender		
Male	75	75
Female	25	24
Total	100	100
Age		
Below 25	18	18
26-30	56	56
31-35	8	8
36-40	15	15
41 & above	3	3
Total	100	100
Academic Qualification		
Intermediate	2	2
Bachelor	28	28
Master	63	63
Above	7	7
Total	100	100
Length of experience on bond market related activities (years)		
Below 1	40	40
1-4	38	38
5-9	19	19
10 and more	3	3
Total	100	100
Associate field in relation to bond market		
Banker	30	30
Professor	14	14
Academic student	25	25
Investor	20	20
Others	11	11
Total	100	100

Gender

The classification of the respondents by gender category is presented in the Figure 4.1.

Figure 4.1: Respondents classified by gender
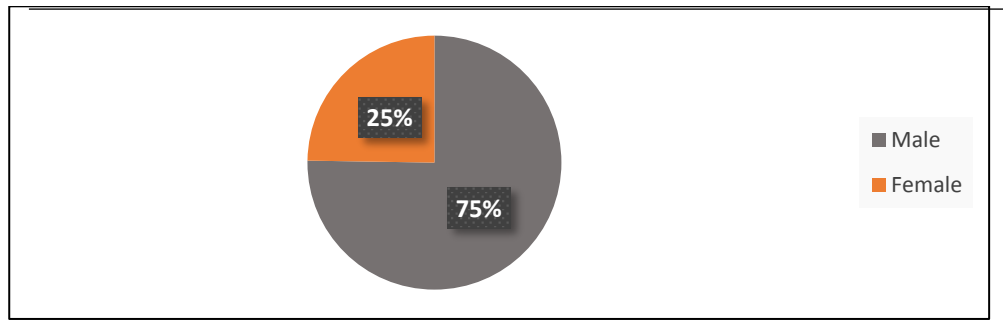
The figure shows that the majority of respondents in terms of gender are male respondents (75 percent) in comparison to female respondents (25 percent).

Age

Age is one of the important demographic element regarding to this study. Hence, the age group of the respondents is categorized into five groups i.e. below 25 years, 26-30 year, 31-35 year, 36-40 year and 41 & above. The classification of the respondents by age is presented in figure 4.2.

Figure 4.2: Respondent classified by age
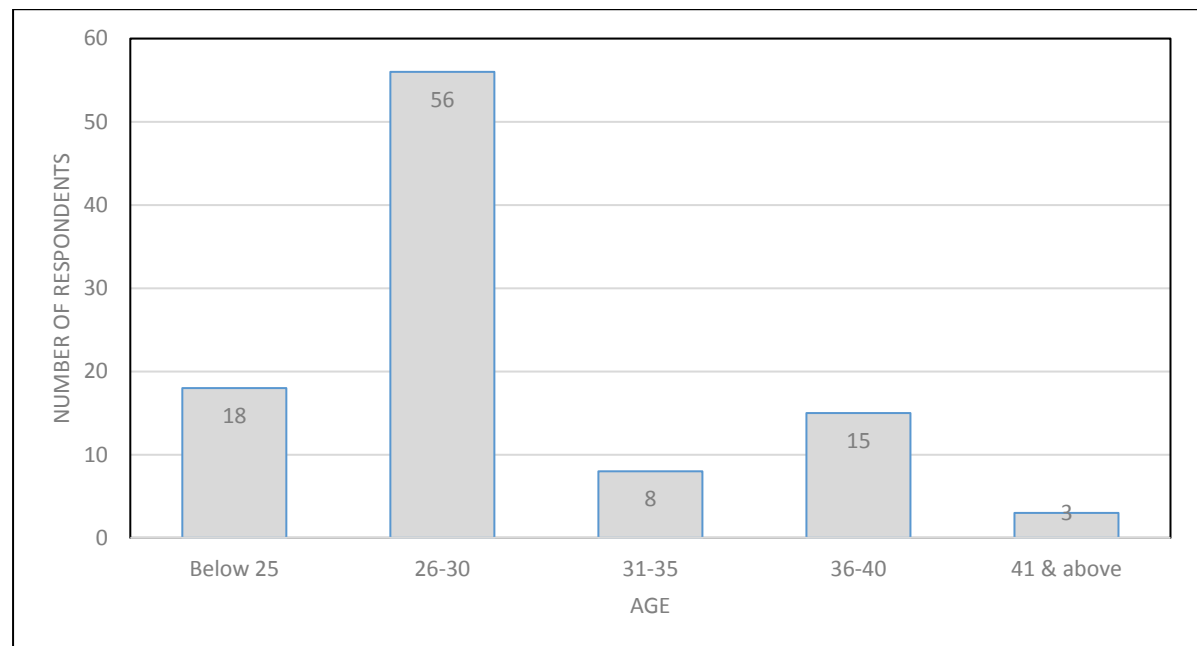
In figure number 4.2, majority of respondents are from age group of 26-30 years (56 respondents), followed by age group below 25 years (28 respondents), 15 respondents from 36 - 40 years and 41& above years (3 respondents).

Academic Qualification

Academic qualification is another demographic characteristic of respondents. It is categorized into four groups, i.e. Intermediate's degree, Bachelor degree, Master's degree and above. The classification of the in terms of their academic qualification is shown in figure 4.3. Figure 4.3 shows that the majority of respondents are master's degree holders (63 respondents) followed by bachelor's degree holders (28 respondents), intermediate's degree (2 respondents) and above (7 respondents).

Figure 4.3: Respondents classified by academic qualification
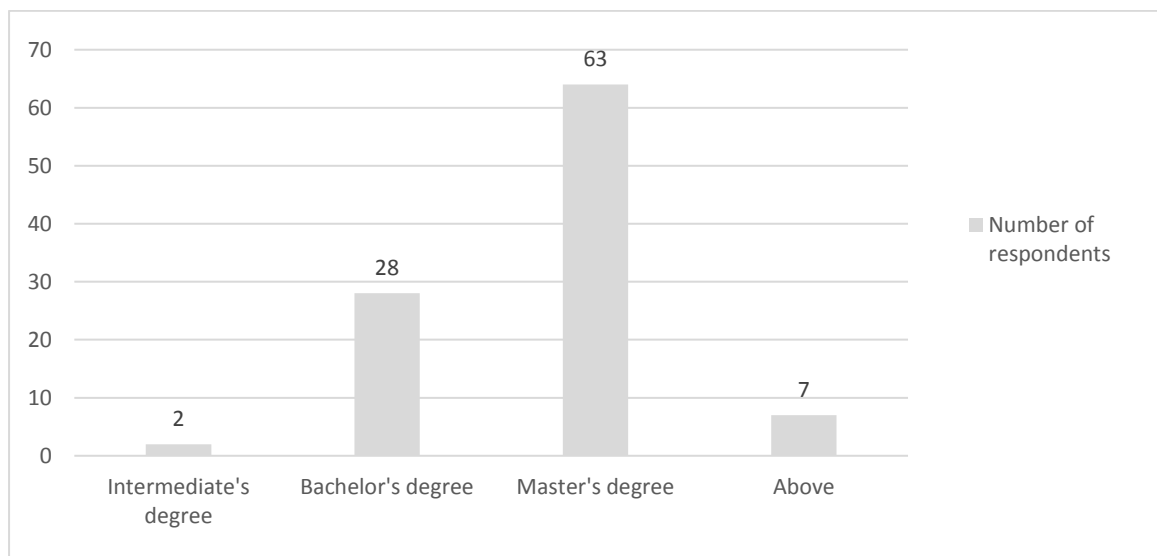
Length of experience on bond market related activities

Experience is key factor of respondents for fulfilment of this study. Such that, length of experience on bond market related activities are categorized in to four groups i.e. Below 1 year, 1-4 year, 5-9 year and 10&above years. The classification of the respondents in terms of their length of experience on bond market related activities is shown in figure 4.4. Figure 4.4 shows that the majority of respondents who have length of experience on bond market related activities are below 1 year (40 respondents) followed by 1-4 years (38 respondents), 5-9 years (19 respondents) and 10 & above (3 respondents).

Figure 4.4 Respondents classified by the length of experience on bond market related activities.
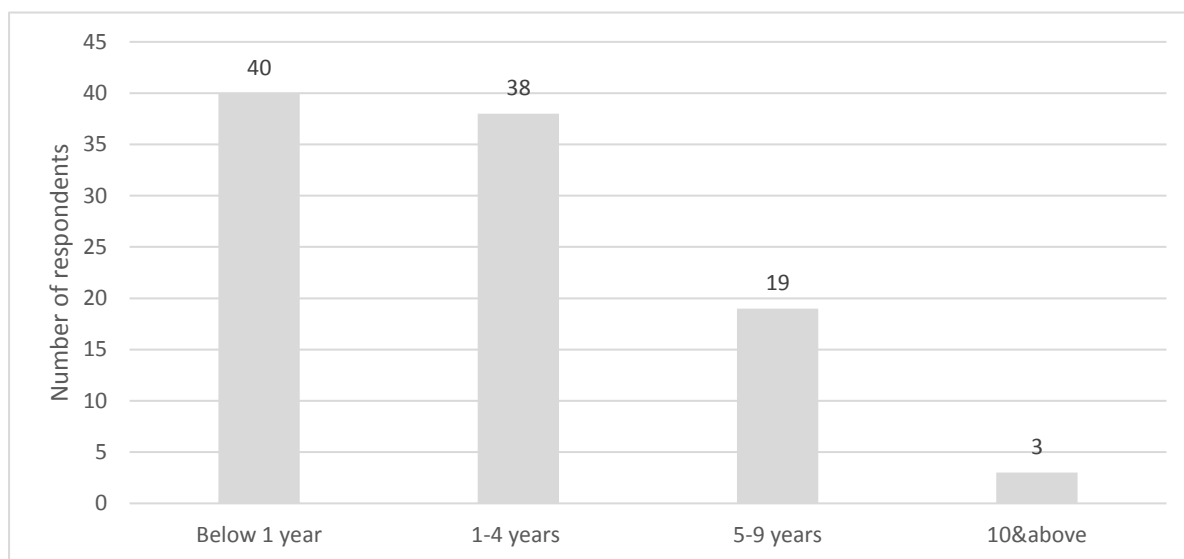
Associate field in relation to bond market

Associate field is important characteristics of respondents for the study of bond market development in Nepal. Such that, it is categorized into five groups i.e. banker, professor, academic student, investors and other profession. The classification of respondents in terms of associate field in relation to bond market is shown in figure 4.5.

Figure 4.5: Respondents classified by associate field in relation to bond market
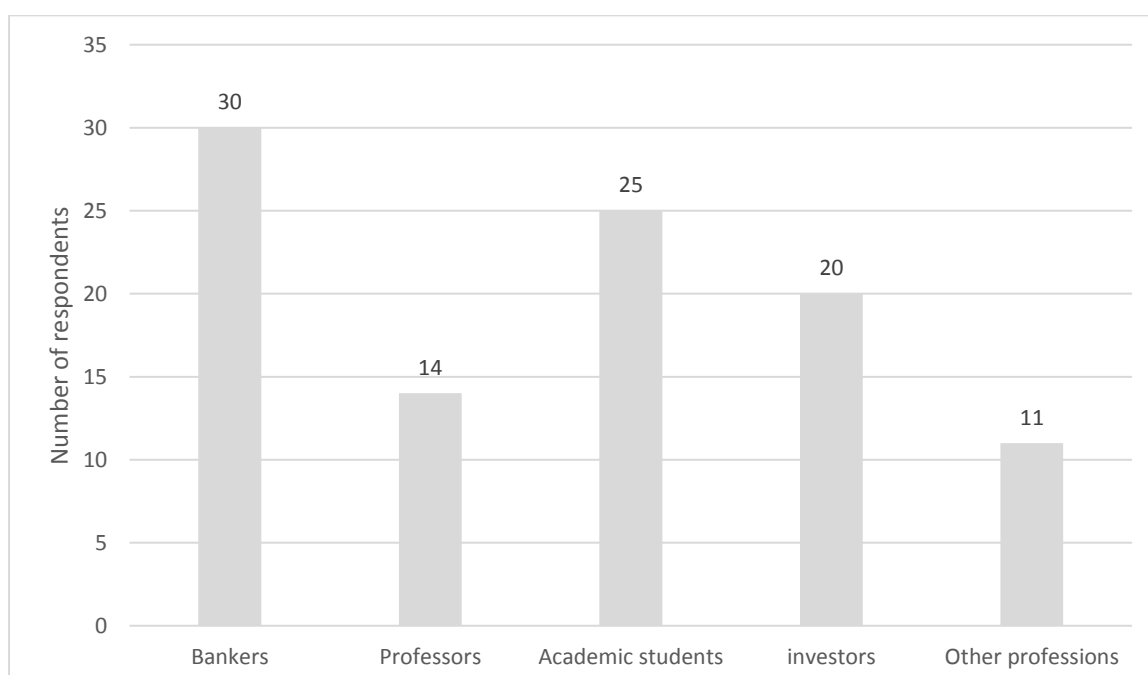
Figure 4.5 shows that the majority of respondents are bankers (30 respondents) followed by academic students (25 respondents), investors (20 respondents), professor (14 respondents) and other profession (11 respondents).

4.1.2 Reliability

It is important to measure validity and reliability of the primary data collected for this study in determining the determinants for bond market development in Nepal. Cronbach's Alpha reliability test is used to identify the validity of items used in survey. Thus, five-point Likert questionnaire collected from 100 respondents are considered for reliability test. Table 4.2 shows the validity and reliability of the questions of the study by using SPSS.

The table 4.2 shows that calculated value of Cronbach's Alpha for variables interest rate as decrease in interest rate, inflation as inflation rate, credit rating, banking industry and bond market are 0.786, 0.706, 0.746, 0.878 and 0.737 respectively. While, overall Cronbach's value is 1.011. Since, all the value of Cronbach's value is above 0.70, it indicates that data gathered for primary data are reliable and valid.

Table 4.2: Coefficient of Cronbach's Alpha

Variable	Cronbach's Alpha	No. of Items
Interest rate as decrease in interest rate (DIR)	0.786	5
Inflation as decrease in inflation rate (DIN)	0.706	5
Credit rating (CR)	0.746	5
Banking industry (BI)	0.878	5
Bond market (BM)	0.737	4
Overall	1.011	24

This table shows the reliability of the question under the study

4.1.3 Descriptive analysis of determinants

This sub-section provides the information on the respondents' perceptions towards the determinants of bond market development in Nepal. Such that, researcher used decrease in interest rate for interest rate, decrease in inflation rate for inflation and minimum concentration of banking industry for banking industry are used as substitute for independent variable. Whereas, other independent variables are used as it is, i.e. credit rating. The respondents were presented with 5-Likert scale questionnaire to present their views and their responses are described as follows,

In table 4.3, the majority of respondents (64 percent) agreed that market price of bond increase above par value if market interest rate fall below coupon rate where some of the respondents (19 percent) does not agree with this relationship. However, rest of respondents (17 percent) are neutral and average mean is 3.540. For second statement, there is inverse relationship between market interest rate and coupon rate. Most of the respondents (62 percent) agreed while some respondents (18 percent) disagreed with this statement. And rest of the other respondents (20 percent) are neutral in their opinion. The mean value is 3.480 and indicates that most of respondents agree with this statement. For third statement, majority of respondents (56 percent) agreed with that if interest decreases, the bond market tend to be active for investment while some respondents (21 percent) disagree and rest of the respondents (23 percent) are neutral.

Table 4.3 Respondent's opinions regarding decrease in interest rate

Statement		Strongly dis agree	Disagree	Neutral	Agree	Strongly agree	N	Mean
Market price of bond increases above par value, if market interest rate fall below coupon rate	F	5	14	17	50	14	100	3.540
	%	5	14	17	50	14	100	
	A%	19		17	64			
There is inverse relationship between market interest rate and coupon rate	F	4	14	20	54	8	100	3.480
	%	4	14	20	54	8	100	
	A%	18		20	62			
If interest rate decreases, the bond market tend to be active for investment	F	2	19	23	37	19	100	3.520
	%	2	19	23	37	19	100	
	A%	21		23	56			
Institution activate callable option, if market interest fall below coupon rate	F	4	12	31	38	15	100	3.480
	%	4	12	31	38	15	100	
	A%	16		31	53			
Rise in short term interest rate is unfavorable for long term debt	F	4	14	19	49	14	100	3.550
	%	4	14	19	49	14	100	
	A%	18		19	63			
Weighted average mean								3.514

(*This table shows the number of responses, percent and mean on the five-point Likert scale 1 as strongly disagreed, 2 as disagreed, 3 as neutral, 4 as agreed and 5 as strongly agreed and it is calculated on the basis of respondents' opinion regarding decrease in interest rate as per statement-wise*)

The average mean 3.520 indicates that bond market will be active for investment if interest rate decreases. In fourth statement, the majority of respondents (53 percent) agree with the statement that institution activate callable price if market interest fall below coupon rate and some respondents (16 percent) disagree with this statement. But rest of the other respondents (31 percent) are neutral with this statement. The average mean value is 3.480 which means, higher number of respondents agree with this statement. In fifth statement, "rise in short-term interest rate is unfavorable for long term debt". Majority of respondents (63 percent) agree with this statement while some disagree (18 percent) and some are neutral (19 percent) to this statement. The mean value of opinion is 3.550 and can be concluded that increase in short-term rate is unfavorable for long term debt. The least mean value is 3.480 while the greatest value of mean is 3.550 and weighted average mean is 3.514. This indicate that interest rate is influencing factor for bond market development.

In table 4.4, from first statement which is "Stable inflation rate leads to issue of large number of domestic currency bond", most of the respondents (69 percent) agree with the statement while 12 percent of respondents disagree and 19 percent respondents are neutral. The mean value response by respondents is 3.610, which is good enough to accept the statement. In second statement, majority of respondents (68 percent) agree with the statement that inflation volatility is serious obstacle in bond market development while 12 percent respondents agree and rest of respondents (20 percent) are neutral with this relationship in statement. The average mean value of this statement is 3.750 and accept that inflation volatility is serious obstacle. In third statement, only 46 percent of respondents agree with this statement while 26 percent of respondents disagreed and rest of respondents are neutral which is 28 percent.

Table 4.4 Respondent's opinions regarding decrease in inflation rate

Statement		Strongly disagree	Disagree	Neutral	Agree	Strongly agree	N	Mean
Stable inflation rate leads to issue of large number of domestic currency bond	F	2	10	19	63	6	100	3.610
	%	2	10	19	63	6	100	
	A%	12		19	69			
Inflation volatility is serious obstacle in bond market development	F	2	10	20	47	21	100	3.750
	%	2	10	20	47	21	100	
	A%	12		20	68			
Rise in inflation cause to fall in price of bond	F	8	18	28	32	14	100	3.260
	%	8	18	28	32	14	100	
	A%	26		28	46			
Investors are exposed to losses due to inflation	F	2	16	24	46	12	100	3.500
	%	2	16	24	46	12	100	
	A%	18		24	58			
Inflation deteriorate the purchasing power of bond's future cash flows	F	4	14	26	49	7	100	3.410
	%	4	14	26	49	7	100	
	A%	18		26	56			
Weighted average mean								3.506

(*This table shows the number of responses, percent and mean on the five-point Likert scale 1 as strongly disagreed, 2 as disagreed, 3 as neutral, 4 as agreed and 5 as strongly agreed and it is calculated on the basis of respondents' opinion regarding decrease in inflation rate as per statement-wise*)

The mean value of this statement is 3.260. In fourth statement, "Investors are exposed to losses due to inflation", majority of respondents (58 percent) agree with this statement while some disagree (18 percent) with it. The rest of other respondents (24 percent) are neutral and mean value of this statement is 3.500. In fifth statement, majority of respondents agreed that inflation deteriorate the purchasing power of bond's future cash flows. 18

percent and 26 percent of respondents disagreed and neutral to this statement, while 56 percent respondents agree. The average mean value of this statement is 3.410. The least mean value is 3.260, while highest mean value is 3.750 and weighted average mean value is 3.506. This indicate that inflation rate have major impact on bond market development.

Table 4.5 presents the perception of the respondents regarding the credit rating and bond market development.

Table 4.5 Respondent's opinions regarding Credit rating

Statement		Strongly dis agree	Disagree	Neutral	Agree	Strongly agree	N	Mean
Credit rating is important for bond market development	F	2	6	17	62	13	100	
	%	2	6	17	62	13	100	
	A%	8		17	75			3.780
Institutions must pay more attention to credit rating of bond before issuing	F	2	5	24	54	15	100	
	%	2	5	24	54	15	100	
	A%	7		24	69			3.750
Credit rating provide factual financial position of the issuer to potential investors	F	1	15	20	59	5	100	
	%	1	15	20	59	5	100	
	A%	16		20	64			3.520
Higher credit rating of bonds leads to high demand among investors	F	2	3	23	50	22	101	
	%	2	3	23	50	22	100	
	A%	5		23	72			3.870
Credit rating agency can destroy bond by downgrading them	F	2	20	32	43	3	101	
	%	2	20	32	43	3	100	
	A%	22		32	46			3.250
Weighted average mean								3.634

(*This table shows the number of responses, percent and mean on the five-point Likert scale 1 as strongly disagreed, 2 as disagreed, 3 as neutral, 4 as agreed and 5 as strongly agreed*

and it is calculated on the basis of respondents' opinion regarding credit rating as per statement-wise)

In table 4.5, with reference to first statement, most of the respondents (75 percent) agree that credit rating is important for bond market development, while 17 percent of respondents are neutral and only 8 percent of the respondents disagree with this statement. The mean value of this statement is 3.780. In second statement, "Institution must pay more attention to credit rating of bond before issuing", majority of respondents (69 percent) agree with the statement while 24 percent of the respondents and 7 percent of the respondents are neutral and disagree with the statement respectively. In third statement, majority of respondents (64 percent) agree with the statement that credit rating provide factual financial position of the issuer to potential investors. Moreover, some respondents disagree (16 percent) and rest respondents is neutral (20 percent) to this statement. The mean value of this statement is 3.520. In fourth statement, almost three quarter of respondents (72 percent) agree that higher credit rating of bond leads to high demand among investors while some respondents disagree (5 percent) and other are neutral (23 percent). The mean value is 3.870, which very high in terms of accepting the statement. In fifth statement, most of respondents agree with the statement that credit rating agency can destroy bond by downgrading them while 22 percent and 32 percent of respondents disagree and neutral to this statement respectively. The mean value is 3.250, which is lowest among other statement and the highest mean value is 3.780. Hence, weighted mean value is 3.634, and good enough to say that credit rating impact the bond market development.

In table 4.6, for first statement, "Investors can form portfolio for risk diversification from bond market and stock market", majority of respondents (66 percent agree with the statement. But some of the respondents disagree (18 percent) and other rest is neutral (16 percent) with the statement. The mean value of the statement is 3.620. In second statement, majority of respondents (49 percent) agree with the statement that there is co movement of bond and stock

Table 4.6 presents the perception of the respondents regarding the minimum concentration bond market development.

Table 4.6 Respondent's opinions regarding banking industry

Statement		Strongly dis agree	Disagree	Neutral	Agree	Strongly agree	N	Mean
Larger banking industry tend to have a less bond market	F	2	35	30	33	0	100	2.940
	%	2	35	30	33	0	100	
	A%	37		30	33			
Sophisticated banking industry in financial market have less developed bond market	F	3	31	30	33	3	100	3.020
	%	3	31	30	33	3	100	
	A%	34		30	36			
Bond and bank compete with each other for financing in same market	F	7	22	31	33	7	100	3.110
	%	7	22	31	33	7	100	
	A%	29		31	40			
Banks return will decrease with the influence of bond	F	0	16	27	50	7	100	3.480
	%	0	16	27	50	7	100	
	A%	16		27	57			
Crisis in banking leads to growth of bond market	F	3	28	29	30	10	100	3.160
	%	3	28	29	30	10	100	
	A%	31		29	40			
Weighted average mean								3.142

(*This table shows the number of responses, percent and mean on the five-point Likert scale 1 as strongly disagreed, 2 as disagreed, 3 as neutral, 4 as agreed and 5 as strongly agreed and it is calculated on the basis of respondents' opinion regarding banking industry as per statement-wise*)

In figure 4.6, majority of the respondents (37 percent) disagree that the larger banking industry tend to have a less bond market while some agree (33 percent) and rest of the other are neutral (30 percent). The mean value of this statement is 2.940. In second statement, "Sophisticated banking industry in financial market have less developed market", only 36

percent of the respondents agree with the statement. However, 34 percent and 30 percent of respondents disagree and neutral to the statement respectively. The mean value of the statement is 3.020. In third statement, 40 percent of respondents agree with the statement while 29 percent and 31 percent of respondents disagree and neutral with the statement respectively. The mean value of the statement is 3.110. In fourth statement, majority of the respondents (57 percent) agree with the statement that banks return will decrease with the influence of bond while 16 percent of respondents disagree and rest of the respondents (3.480) are neutral. The mean value of statement is 3.480. In fifth statement, 40 percent of respondents agree, 31 percent of respondents disagree and 29 percent of respondents are neutral to the statement that crisis in banking leads to growth of bond market. The mean value is 3.1600. Such that, least value of mean is 2.940 while greatest value of mean is 3.480, and weighted average mean is 3.142, which does not have enough positive response that increase in banking industry negatively affect bond market development.

In table 4.7, for first statement, majority of respondents (56 percent) agree with the statement that decrease in market interest leads to bond market development while some respondents (25 percent) are neutral. However, rest of other respondents (19 percent) disagree and mean value of the statement is 3.380. In second statement, "Rise in inflation does not develop the bond market", 38 percent of respondents agree, 40 percent of respondents are neutral and 22 percent disagree with the statement. The mean value is 3.250. In third statement, majority of the respondents (66 percent) agree with the statements that credit rating help to develop bond market. While some respondents are neutral (24 percent) and others disagree (10 percent). The mean value of this statement is 3.630. In fourth statement, majority of respondents (62 percent) agree that development of stick market leads to development of bond market while 19 percent of the respondents disagree and 19 percent of the respondent neutral with the statement. The mean value of the statement is 3.550. In fifth statement, 36 percent of respondent agree, 36 percent of respondent neutral and 28 percent of respondent disagree with the statement that banking industry of underdeveloped countries reduces the development of bond market. The least mean value is 3.160 while greatest mean value is 3.630, and weighted average mean is 3.394.

Table 4.7 Respondent's opinions regarding bond market

Statement		Strongly dis agree	Disagree	Neutral	Agree	Strongly agree	N	Mean
Decrease in market interest leads to bond market development	F	7	12	25	48	8	100	3.380
	%	7	12	25	48	8	100	
	A%	19		25	56			
Rise in inflation does not develop the bond market	F	0	22	40	29	9	100	3.250
	%	0	22	40	29	9	100	
	A%	22		40	38			
Credit rating help to develop bond market	F	2	8	24	57	9	100	3.630
	%	2	8	24	57	9	100	
	A%	10		24	66			
Banking industry of underdeveloped countries reduces the development of bond market	F	3	25	36	25	11	100	3.160
	%	3	25	36	25	11	100	
	A%	28		36	36			
Weighted average mean								3.394

(*This table shows the number of responses, percent and mean on the five-point Likert scale 1 as strongly disagreed, 2 as disagreed, 3 as neutral, 4 as agreed and 5 as strongly agreed and it is calculated on the basis of respondents' opinion regarding bond market as per statement-wise*)

4.1.3 Correlation analysis

Pearson's correlation is used to analyze the relationship between decrease in interest rate, decrease in inflation rate, credit rating, banking industry and real gross domestic product with bond market in context of Nepal. Correlation measure the strength and direction of a linear relationship between those dependent variable and independent variables. Table 4.8 and Table 4.9 shows the correlation coefficients among the variables.

Table 4.8: Pearson's Correlation Matrix of primary data

Variables	Mean	Std. Deviation	IR	IN	CR	BS	BM
DIR	3.5089	.58551	1				
DIN	3.4911	.52576	.514**	1			
CR	3.6436	.48133	.413**	.373**	1		
BI	3.1406	.56536	-.002	.000	-.082	1	
BM	3.3762	.53238	.159*	.465**	.438**	.209*	1

(*This table shows the Pearson's correlation coefficients between dependent variables i.e. bond market and independent variables i.e. decrease in interest rate (DIR), decrease in inflation rate (DIN), credit rating (CR) and banking industry (BI)*)

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

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

Table 4.8 shows that the average value of bond market is 3.3762. Likewise, the average value of decrease in interest rate is 3.5089 and decrease in inflation rate is 3.4911. Similarly, the average value credit rating and banking industry are 3.6436 and .3.1406 respectively. The results show that there is a positive relationship of decrease in interest rate and bond market which indicate that continuous decrease in the interest rate leads to increase in bond market. Likewise, the same relationship could be observed with decrease in inflation rate. There is positive relationship between decrease in inflation rate and bond market, indicating that continuous decrease in inflation rate leads to increase in bond market. Similarly, there is positive relationship between credit rating and bond market which indicates that increase in credit rating leads to increase in bond market. Similarly, there is a positive relationship between banking industry and bond market. This indicate that, larger banking industry is necessary for bond market development.

Table 4.9: Pearson's Correlation coefficients of secondary data

		LVB	GDP
LVB	Pearson Correlation	1	.607**
	Sig. (2-tailed)		.010
	N	17	17
GDP	Pearson Correlation	.607**	1
	Sig. (2-tailed)	.010	
	N	17	17

(*This table shows the Pearson's correlation coefficients between dependent variables i.e. bond market as listed bond value in NEPSE and independent variable is gross domestic product*)

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

Results in table 4.9 revealed that there is a positive and significant relationship between Gross domestic product and listed value of bond. This implies that an increase in gross domestic product is associated with an increase in the value of listed bond. In addition, increase the bond market with the increase in economic growth.

4.1.4 Regression analysis

The estimated regression result shows the relationship between the dependent variable i.e. bond market and independent variables i.e. interest rate, inflation, credit rating, banking industry and gross domestic product are presented in table 4.10 & 4.11.

Table 4.10 shows that the beta coefficient is positive and significant for decrease in interest rate. This finding is similar to the finding of Longei and Ali (2017). It indicates that the decrease in interest rate has positive impact on the bond market. Similarly, the beta coefficient is positive and significant for decrease in inflation rate, which indicates that decrease in inflation rate has positive change in bond market. In addition, finding of this relationship is consistent with the finding of Rose and Spiegel (2015); Burger et al. (2015). Likewise, the beta coefficient of credit rating is positive and significant which means that credit rating has positive impact on bond

Table 4.10: Regression result of the determinants on the basis of primary data

Models	Intercept	IR	IN	CR	BI	Adjusted R square	SEE	F
1	1.605	0.090				0.015	0.0264	2.552
	(14.352)**	(0.144)*						
2	1.590		0.090			0.208	0.0236	27.329
	(8.660)**		(0.471)**					
3	1.836			0.10		0.184	0.0241	23.504
	(8.055)**			(0.484)**				
4	0.0148				0.093	0.034	0.02616	4.532
	(13.787)**				(.197)*			
5	1.741	0.094	0.105			0.209	0.0237	14.242
	(9.414)**	(0.10)*	(0.528)**					
6	1.98	0.092	0.10	0.103		0.310	0.0221	15.942
	(5.234)**	(0.199)*	(0.448)**	(0.402)**				
7	1.965	0.030	0.107	0.104		0.346	0.0212	14.248
	(3.921)*	(0.173)*	(0.335)**	(0.335)**				
8	2.247	0.088	0.104	0.102	0.076	0.381	0.0209	13.234
	(0.932)*	(0.184)*	(0.355)**	(0.373)**	(0.193)*			

(The results are based on 100 respondents in Kathmandu Valley by using linear regression model. The model is BM = $\beta_0+\beta_1DIR+\beta_2DIN+\beta_3CR+\beta_4BI+e$, where, bond market (BM) as dependent variable and independent variables are interest rate as decrease in interest rate (DIR), inflation as decrease in inflation rate (DIN), credit rating (CR) and banking industry(BI).)

* indicates that coefficient is significant at 5 percent level of significance.
** indicates that coefficient is significant at 1 percent level of significance.

Similarly, the beta coefficient is positive and significant for banking industry, which indicates that banking industry has positive impact on bond market. The finding is consistent with the findings of Smaoui et al. (2017) but inconsistent with the findings of Greenwood (2004); Dickie and Fan (2005). Inconsistent findings show that increase in banking concentration leads to decrease in bond market development.

Table 4.11 regression result of determinant on the basis of secondary data

Estimate	Value	T-statistic	P value
(Constant)	-2970974928.1231	1447238257.206619	0.057958
GDP	0.006668	0.002253	0.009727
F	8.763547		0.009727
Adjusted R square	0.326700		

(*The results are based on 17 years' observation using linear regression model. The model is LVB = $\beta_0+\beta_5$+GDP+e, where dependent variable is bond market as listed value in NEPSE and independent value is GDP as real gross domestic product*)

Result in table 4.11 indicated that the model is satisfactory and shows that gross domestic product is positively and significantly related with the listed bond value. The findings of this regression is supported by Hue and Tram (2019); Fink et al. (2003).

4.1.5 Major Findings

The major findings of this study are as follows:

(i)   Among 100 respondents, majority of respondents were male (75 percent) and remaining respondents were female (25 percent).

(ii)   Maximum number of respondents fall into the group of 26-30 years of age (56 percent) while minimum number of respondents fall into the group of 41 & above (3 percent).

(iii)   In terms of academic qualification, most of the respondents holds a master's degree which is 63 percent while least number of respondents holds intermediate degree which is 2 percent.

(iv)   Among 100 respondents, maximum number of respondents who possess the length of experience on bond market related activities are from below 1-year group (40 percent) while minimum number of respondents where from group of 10 and more years (3 percent).

(v)   Out of 100 respondents, on the basis of associate field in relation to bond market, highest number of respondents where from banker group (30 percent) while lowest number of respondents where from other (11 percent).

(vi)   Weighted average mean value for interest rate is 3.514 and it is satisfactory, which indicate that decrease in interest rate impact the development of bond market in context of Nepal.

(vii)   Weighted average value of inflation rate is 3.506 and it is satisfactory for finding that inflation rate impacts the development of bond market.

(viii)   Weighted average value of credit rating is 3.634. The generated value found that credit rating affects the development of bond market.

(ix)   Weighted average value of banking industry is 3.142, which indicate that the respondents are almost neutral to the statement and it larger will negatively affect the hypothesis.

(x)   The beta coefficients are positive and significant at 5 percent level of significance for decrease in interest rate with bond market, which means continuous decrease in

Interest rate leads to increase in bond market.

(xi)   The beta coefficients are positive and significant at 1 percent level of significance for decrease in inflation rate with bond market, which means continuous decrease in inflation rate leads to increase in bond market.

(xii)   The beta coefficients are positive and significant at 1 percent level of significance for credit rating with bond market, which means increase in credit rating leads to increase in bond market.

(xiii)   Beta coefficient of real gross domestic product is highly insignificant (p-value = 0.97 percent) and positive with respect to listed value of bond, i.e. value of annual issue bond increase with the increase of gross domestic product. Thus, increase in economic growth leads to increase in bond market.

CHAPTER 5

CONCLUSIONS

This chapter presents the overview of the study in summarized form and highlight the major findings of this study. Such that, it is divided into three sub headings or sections; summary, conclusion and implications. Summary sub section briefly provides the overview of the study, conclusions are made according to the data obtain from analysis whereas, implications are the recommendations for future research activities.

5.1 Discussion

This study is undertaken to assess the various determinants that significantly impact the development of bond market in Nepal. And determinants are interest rate, inflation, credit rating, banking industry and economic growth.

Decrement of interest rate is favorable for debt instrument and leads to increase the value of bond (Longei & Ali, 2017), and (Campell, 1991) further supported that real interest rate is major factor for yield of the bond. Such that, this study found there is positive and significant correlation between decrease in interest rate and increase in bond market, which accept the null hypothesis. While, this study accepts the hypothesis that there is negative correlation between inflation and bond market development. And it is supported by Bureger et al. (2015) who found that higher inflation is serious obstacle for bond market by using secondary data of different countries. Furthermore, Longei and Ali (2017) used correlation and regression analysis to found the negative relationship between inflation and interest rate with bond market index. This tells that in order for increment of bond market those two variables need to be stable and decrease in some level. In addition, Burger and Warnock (2006) conclude countries with better inflation performance have heavily relied on local currency bond.

Credit rating evaluates the debt instrument either of a corporation or a government by using credit worthiness in terms of grade, which ultimately stimulate potential investors (Kumar & Rao, 2012). This statement is more descriptively supported by Zhu (2013) that credit rating significantly influence and stimulate in the development of bond market. Which means, higher credit rating has low default probability and satisfies the creditors (Varma & Rghunathan, 2000). Moreover, higher credit rated institutions are prone to be like by investors. This study also accepts the hypothesis that there is positive correlation between

credit rating and bond market. Which means for development of bond market in Nepal, there must be a better rated companies or institution while issuing debt instruments. From traditional exercise of credit rating, relatively uninformative and equivalent information provided by credit rating agency will be beneficial for banks, insurance companies, and pension by holding risker bonds i.e. issuer. And investors are exposed to unassociated risk due to sluggish of credit rating agency (Cornaggia & Cornaggia, 2011).Countries which has larger banking industry have larger bond market but there is not-tradeoff between them (Burger & Warnock, 2006). This statement is partially supported by Smaoui (2016) stating that concentrated banking industry are positively correlated with bond market. And this is support the findings of this study, banking industry leads to bond market development. In doing that, researcher had to reject the null hypothesis. Relatively, Greenwood (2004); Dickie and Fan (2005) are opposed with this statement, banks are opposed to bond market development and likely to resist because it brings competition in market for funding. Strong hold on market by banking industry may lead to crisis in bond market. Aman et al. (2019) further state that in order to reduce the reliance on the banking industry for economic development importance must be given to the bond market development and partially supports that the banking sector does not support development of bond market.

There is strong interdependence between bond market growth and real output growth, i.e. gross domestic product (Fink et al., 2003) through examination of GDP and aggregate bond market by the developed economies. And moreover, Hue and Tram (2019) further supports that economic growth and bond market are positively related with each other. In addition, this study accepts the null hypothesis, that there is positive correlation between economic growth and bond market. Further, Smoui et al. (2017) states that economic size and banking industry are positively related with bond market.

Hence, interest rate and inflation are inversely related while economic growth, banking industry and credit rating are positively related with bond market development in Nepal.

5.2 Conclusions

This study is conducted to determine the determinates for development of bond market in Nepal by using simple linear regression and Pearson's correlation. According to Pearson's correlation, decrease in interest rate and inflation leads to development of bond market, while increase in credit rating to bond instruments and increase in banking industry leads to bond market development. Moreover, there is weak by significant enough between

banking industry and bond market development. For least country like Nepal, banking industry plays influential role for development of bond market. Economic growth is positively related with bond market and it is evident that with the gradual increment of real gross domestic product, contemporarily listing value of bond instrument tend to be increasing. In terms of regression analysis results, all the beta coefficients are positive and significant. This shows that, decrease in interest rate and inflation rate, banking industry, gross domestic product, credit rating and stock market are positively related. Certain rise in their number leads to increase in bond market value. It is the responsibility of issuer of debt instrument which has higher credit rating for making it attractive to investors and constant increment of economic growth which is favorable for bond market. So, with present scenario investigation by researcher confirms that these variables i.e. interest rate, inflation, credit rating, banking industry and economic growth significantly impact the development of bond market in context of Nepal.

5.3 Implications

Implications of this research can be divided into two group, pros to present environment and scope for future researchers. During volatility period, interest rate and inflation keeps changing, investor should hold their investable money for certain before the volatility period ends. Investor can alter their investment to stock market where security move against volatility period. At the same time, issuers are suggested to not issue the long term debt security. Moreover, issuers of long term debt are suggested to maintain better credit rating before issuing. In this way, greater number of potential investors are attracted and does not go under subscription. Likewise, governments need to look at the value of bond market in context of Nepalese. With sound inflation, government and Private Corporation are able to issue local currency bond and raise the long term from within the country. In this way, country does not have to rely on foreign debt and gradually minimize those debts. Since, long term debt is still not tradable at secondary market, government must make flexible and sound policy for initiation of those activities. In this way, mainly four actors will be benefited; investors, issuers, government and country.

Some scopes for future researchers while conducting a topic related to bond market are as follows,

(i)   There are only five determinants for measuring the development of bond market. Future researchers can conduct study by including other variables like policy of government, exchange rate, Fiscal Balance, business cycle and so on.

(ii)   Future researcher can include more than 101 sample size which is use in this study. Moreover, sample size can be included from secondary data for greater number of variables.

(iii)   Longitudinal research could be conducted in future research

(iv)   This study only adopted linear regression model, such that, future study could include non-linear regression model. And could include more advanced statistical tools.

(v)   Primary data are only from within the Kathmandu Valley. Future study could include from other province to know their opinions. In addition, interview method could be adopted which is missing in this study.

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Appendix -I

Real Gross domestic product and Value of listed bond

Year	Value of listed bond in NEPSE in rupees	Value of real Gross Domestic Product (GDP) in rupees
2001/02	36,000,000	442,049,000,000
2002/02	0	459,488,000,000
2003/04	30,000,000	481,488,000,000
2004/05	30,000,000	497,739,000,000
2005/06	850,000,000	514,486,000,000
2006/07	250,000,000	532,038,000,000
2007/08	2,950,000,000	564,517,000,000
2008/09	750,000,000	590,107,000,000
2009/10	0	618,529,000,000
2010/11	300,000,000	639,694,000,000
2011/12	1,200,000,000	670,279,000,000
2012/13	3,550,000,000	697,954,000,000
2013/14	1,450,000,000	739,754,000,000
2014/15	2,900,000,000	764,336,000,000
2015/16	1,700,000,000	768,835,000,000
2016/17	0	829,617,000,000
2017/18	4,800,000,000	881,798,000,000
Sum	20,799,000,000	10,692,708,000,000
Mean	1,223,294,117.647059	628,982,823,529.411700
Standard deviation (SD)	1,482,996,787.113254	135,053,871,134.926800

(Source NRB and SEBON)

Appendix –II

5 point Likert questionnaire used for primary data collection

Dear respondent,

I am pleased to inform you that I am undertaking a study on "**The PERCEIVED of Bond Market Development in Nepa**l". This study is undertaken in partial fulfillment of the requirement for my MBS degree.

Please read each question thoroughly and answer the best of your knowledge and experience. There are no right or wrong answer. I also assure you that all the information will be kept confidential and used only at aggregate level.

I would be grateful if you could take a few minutes to respond to this survey. I really need and value your opinion.

Faithfully yours,

Devi Khadka
Central department of management
Cell: 9840063619

Section A: Respondent' Profile (optional)

Name of institution: ....

a. Age (Years):

☐ Below 25   ☐ 26-30   ☐31-35   ☐ 36-40   ☐ 41 and above

b. Gender:

☐ Male   ☐Female   ☐ Other

c. Academic qualification:

Intermediate's degree	Bachelor's degree	Master's degree	Above
☐	☐	☐	☐

d. Length of experience on bond market related activities (Years):

☐ Below 1   ☐ 1-4   ☐ 5-9   ☐ 10 and above

e. Associate field in relation to bond market:

Banker	Professor	Academic student	Investors	If **other**, Please mention profession.
☐	☐	☐	☐	....

Section B: Likert scale questions

Please indicate (√) to show the degree to which you agree or disagree on the following statement.

1: Interest rate as decrease in interest rate (DIR) *(In relation with bond/debenture*

S. N	Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1.1	Market price of bond increase is above par value, if market interest rate fall below coupon rate.	☐	☐	☐	☐	☐
1.2	There is inverse relationship between market interest rate and coupon rate.	☐	☐	☐	☐	☐
1.3	If interest rate decreases, the bond market tend to be active for investment.	☐	☐	☐	☐	☐
1.4	Institution activate callable option, if market interest fall below coupon rate.	☐	☐	☐	☐	☐
1.5	Rise in short term interest rate is unfavorable for long term debt.	☐	☐	☐	☐	☐

market)

2. Inflation as decrease in inflation rate (DIN) (*In relation with bond/debenture market)*

S. N	Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
2.1	Stable inflation rate leads to issue of large number of domestic currency bond.	☐	☐	☐	☐	☐
2.2	Inflation volatility is serious obstacle in bond market development	☐	☐	☐	☐	☐
2.3	Rise in inflation cause to fall price of bond	☐	☐	☐	☐	☐
2.4	Investors are exposed to losses due to inflation	☐	☐	☐	☐	☐
2.5	Inflation deteriorate the purchasing power of bond's future cash flow.	☐	☐	☐	☐	☐

3. Credit Rating (CR) *(In relation with bond/debenture market)*

S. N	Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
3.1	Credit rating is important for bond market development.	☐	☐	☐	☐	☐
3.2	Institutions must pay more attention to credit rating of bond before issuing.	☐	☐	☐	☐	☐
3.3	Credit rating provide factual financial position of the issuer to potential investors.	☐	☐	☐	☐	☐
3.4	Higher credit rating of bonds leads to high demand among investors.	☐	☐	☐	☐	☐
3.5	Credit rating agency can destroy bond by downgrading them.	☐	☐	☐	☐	☐

4. Banking Industry (BI) *(In relation with bond/debenture market)*

S. N	Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
5.1	Larger banking industry tend to have less bond market.	☐	☐	☐	☐	☐
5.2	Sophisticated banking industry in financial market, have less developed bond market	☐	☐	☐	☐	☐
5.3	Bond and bank compete with each other for financing in same market.	☐	☐	☐	☐	☐
5.4	Banks return will decrease with the influence of bond.	☐	☐	☐	☐	☐
5.5	Crisis in banking leads to growth of bond market.	☐	☐	☐	☐	☐

5. Bond Market (BM) *(In relation with independent variables)*

S. N	Statement	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
6.1	Decrease in market interest rate leads to bond market development	☐	☐	☐	☐	☐
6.2	Rise in inflation does not develop the bond market	☐	☐	☐	☐	☐
6.3	Credit rating help to develop bond market	☐	☐	☐	☐	☐
6.4	Banking industry of underdeveloped countries reduces the development of bond market	☐	☐	☐	☐	☐

Thank You for Your Kind Cooperation!

Appendix –III

Correlation between decrease in interest rate, decrease in inflation rate, credit rating, banking industry and bond market by using SPSS.

Correlation

		DIR	DIN	CR	BS	BM
DIR	Pearson Correlation	1	.514**	.413**	-.002	.159
	Sig. (2-tailed)		.000	.000	.984	.047*
	N	100	100	100	100	100
DIN	Pearson Correlation	.514**	1	.373**	.000	.465**
	Sig. (2-tailed)	.000		.000	.996	.000
	N	100	10	100	100	100
CR	Pearson Correlation	.413**	.373**	1	-.082	.438**
	Sig. (2-tailed)	.000	.000		.418	.000
	N	100	100	100	100	100
BI	Pearson Correlation	-.002	.000	-.082	1	.209*
	Sig. (2-tailed)	.984	.996	.418		.036
	N	100	100	100	100	100
BM	Pearson Correlation	.159*	.465**	.438**	.209*	1
	Sig. (2-tailed)	.047	.000	.000	.036	
	N	100	100	100	100	100

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Appendix -IV

Calculation of linear equation with independent variables as BM and independent variable as DIR by using SPSS application.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.159[a]	.025	.015	2.64149
a. Predictors: (Constant), DIR				

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.806	1	17.806	2.552	.030[b]
	Residual	690.768	98	6.977		
	Total	708.574	99			
a. Dependent Variable: BM						
b. Predictors: (Constant), DIR						

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	14.352	1.605		8.944	.000
	DIR	.144	.090	.159	1.597	.045
a. Dependent Variable: BM						

Appendix - V

Calculation of linear equation with independent variables as BM and independent variable as DIN by using SPSS application.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.465[a]	.216	.208	2.36833

a. Predictors: (Constant), DIN

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	153.285	1	153.285	27.329	.000[b]
	Residual	555.289	98	5.609		
	Total	708.574	99			

a. Dependent Variable: BM

b. Predictors: (Constant), DIN

Coefficients'

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	8.660	1.590		5.446	.000
	DIN	.471	.090	.465	5.228	.000

a. Dependent Variable: BM

Appendix - VI

Calculation of linear equation with independent variables as BM and independent variable as CR by using SPSS application.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3	.438[a]	.192	.184	2.40501

a. Predictors: (Constant), CR

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
3	Regression	135.951	1	135.951	23.504	.000[b]
	Residual	572.623	98	5.784		
	Total	708.574	99			

a. Dependent Variable: BM

b. Predictors: (Constant), CR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	8.055	1.836		4.387	.000
	CR	.484	.100	.438	4.848	.000

a. Dependent Variable: BM

Appendix - VII

Calculation of linear equation with independent variables as BM and independent variable as BS by using SPSS application.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
5	.209[a]	.044	.034	2.61610

a. Predictors: (Constant), BI

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
5	Regression	31.018	1	31.018	4.532	.036[b]
	Residual	677.556	98	6.844		
	Total	708.574	99			

a. Dependent Variable: BM

b. Predictors: (Constant), BI

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
5	(Constant)	13.787	1.476		9.339	.000
	BM	.197	.093	.209	2.129	.036

a. Dependent Variable: BM

Appendix - VIII

Calculation of linear equation with independent variables as BM and independent variable as DIN AND DIR by using SPSS application.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
6	.475[a]	.225	.209	2.36687

a. Predictors: (Constant), DIN, DIR

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
6	Regression	159.573	2	79.786	14.242	.000[b]
	Residual	549.001	97	5.602		
	Total	708.574	99			

a. Dependent Variable: BM

b. Predictors: (Constant), DIN,DIR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
6	(Constant)	9.414	1.741		5.407	.000
	DIR	.100	.094	.110	1.059	.039
	DIN	.528	.105	.522	5.031	.000

a. Dependent Variable: BM

Appendix - IX

Calculation of linear equation with independent variables as BM and independent variable as DIN, DIR and CR by using SPSS application.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
7	.575[a]	.330	.310	2.21193

a. Predictors: (Constant), CR, DIN, DIR

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
7	Regression	233.988	3	77.996	15.942	.000[b]
	Residual	474.586	96	4.893		
	Total	708.574	99			

a. Dependent Variable: BM

b. Predictors: (Constant), CR, DIN, DIR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
7	(Constant)	5.234	1.948		2.687	.008
	DIR	.199	.092	.219	2.173	.032
	DIN	.448	.100	.442	4.467	.000
	CR	.402	.103	.364	3.900	.000

a. Dependent Variable: BM

Appendix - X

Calculation of linear equation with independent variables as BM and independent variable as DIN, DIN and CR by using SPSS application.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
8	.610[a]	.373	.346	2.15208

a. Predictors: (Constant) DIR, CR, DIN

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
8	Regression	263.957	4	65.989	14.248	.000[b]
	Residual	444.617	9	4.631		
	Total	708.574	99			

a. Dependent Variable: BM

b. Predictors: (Constant) DIR, CR, DIN

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
8	(Constant)	3.921	1.965		1.996	.049
	DIR	.173	.090	.190	1.921	.046
	DIN	.335	.107	.331	3.133	.002
	CR	.335	.104	.303	3.235	.002

a. Dependent Variable: BM

Appendix - XI

Calculation of linear equation with independent variables as BM and independent variable as DIN, DIN, CR and BI by using SPSS application.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
9	.642[a]	.412	.381	2.09386

a. Predictors: (Constant), BI, DIN, CR, SM, DIR

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
9	Regression	292.071	5	58.414	13.324	.000[b]
	Residual	416.503	94	4.384		
	Total	708.574	99			

a. Dependent Variable: BM

b. Predictors: (Constant), BI, DIN, CR, DIR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
9	(Constant)	.932	2.247		.415	.679
	DIR	.184	.088	.202	2.099	.038
	DIN	.355	.104	.351	3.401	.001
	CR	.373	.102	.337	3.659	.000
	BI	.193	.076	.205	2.532	.013

a. Dependent Variable: BM