CHAPTER-I
INTRODUCTION

1.1 Background of the Study

Nepal is an economically weak and under-developing country situated between two huge developed country of India and China. As being developing country, Nepal is striving to develop desired footings. But the structure of the economic has still remained primarily agriculture with very narrow manufacturing base, not developed in productive large industry. So it is essential to divert and modify agro-based economy. Nepal has adopted mixed and liberal economy policy with the implicit objective to help the state and the private sectors, on the ground of open and liberal economic system.

Especially after restoration of the democracy, the concept of the liberalization policies has been incorporated as directive principle and state policies. To continue, develop the nation has helped in establishing many banks, financial institutions and manufacturing industries. This helps the country for development in some level but for actual economic development, capital formation and utilization are the major things that should be essential for the investment in a country. The formation and utilization of capital are shaped by many factors like property of country, lending-deposit pattern and interest rate and so on. In present economy, banks and financial institutions play the major role for capital generation and utilization. In other words, they take part actively in funds mobilization and keeping other factors constant, interest rate also plays the dominant role in borrowing and lending.

Bank and Financial Institutions are considered as the backbone in the development of the national economy. It is financial institution, which act as a transaction of money by accepting various type of deposit, disbursing loans and rendering other financial services sectors. So, among the various function to provide loan; the investors and determine the interest rate for institutions. Through the interest rate, there will be increase in the environment of the investment and the bank has major in creating such as environment.

Financial Institution acts as catalyst in the process of the economic growth of the nation. A bank is a financial institution, which can play a significant role in the development of the economic situation of the developing country like Nepal. Bank plays a vital role to encourage

thrift and discourage hoarding by mobilizing the sources and removing the habit of hoarding. They purpose economic growth rapidly, developing the banking habit among the people by collecting the small scattered resources in one bulk, using them in the further productive purposes, and rendering other valuable service to the country. Thus, this gives the individual an opportunity to borrow funds against future income, which may improve the economic well being of the borrower. Bank deals with the offer of collected deposit and loan and provides the interest rate for commercial purpose.

Financial Institution collects funds mainly from deposits (time and saving deposits) which are ultimately used as a part of capital investment in country. Thus the problem of inadequate of capital formulation is somehow wiping out by collecting more deposits from the savers (households, business and government). More precisely personal saving is the part of disposable income, which is not consumed. Saving is equal to income save than people having less income expand or do. In general, Household saves more than that of business and government. For household, saving is equal to current income minus current expenditure. For business sector, Savings are including current earnings retained inside business firms after payment of taxes, stockholders' dividend and other expenses. For Government Saving; arise where there is a surplus of current revenue over expenditure. To induce more saving, financial institution can play important role by providing attractive interest rate and other offer a different scheme. The people of the least developed countries are not much concerned about saving as most parts of earnings are spent in hand to mouth consumption. Even if some people are able to save their money, they show their invested to invest such surplus funds on non-productive sectors like gold, silver, vehicles, land and so on. Banks and financial companies as intermediaries can attract savers to save more by providing them attractive interest rate and accept the deposit.

Interest rate is one of the important tools for shaping economy. It plays the dominant role in borrowing and lending. Simply, interest rate is defined as price a borrower must pay to secure scarce loanable funds from lender for an agreed-upon period. It is the price of credit. But unlike other prices in the economy, the rate of interest is really a ratio or two quantities: the money cost of borrowing divided by the amount of money actually borrowed, usually expressed on an annual percentage basis. The cost of borrowing money, measured in rupee per year borrowed, is the interest rate *(Samuelson and Nordhus, 2003: 469).* When we examine how money affects economic activity, we will focus on the interest rate, which is often called "the price of money". Interest is rent paid for the use of money. In other words,

people must pay for opportunity to borrow money. Financial institutions, as financial intermediaries, collect funds from savers in the form of deposit and provide that for business sector in the form of loan. These institutions pay the interest to the depositors for the money borrowed from and charge interest from the borrower for money lend to them. As any price is determined, theoretically, by the interplay of demand and supply in a market economy, the price of money-the interest rate-plays a vital role in the allocation of resources and in the decision making of consumers and business. For example, an increase in the interest rate provides additional incentives to individuals and others to postpone current consumption (save) and thereby free resources for investment. Interest rates send price signals to borrowers, lenders and savers. Higher interests rates generally bring forth a greater volume of savings and stimulate the lending of fund i.e. Substitution effect**.** Lower rate of interest, on the other hand, tends to reduce the volume of borrowing and capital investment and lower rates stimulate borrowing and investment spending *(Rose, 1997).* Investment is function of interest rate. The impact of interest rate is on both the saving and investment in the economy. Further the borrowings and savings are always influenced by the interest rates. The cost of production, which depends upon the function, is influenced by the interest rate. Since the credit is also one of the components of production process. The incomes and expenditures of the variable sectors of the economy result in excess savings or excess investment in each of the sectors *(Baidhya, 1990:17).*

Before studying relationship between interest rate and other factors, it is better to know average structure of interest rate that were prevailed in the country during the past previous year. Though the detail about this are analyzed in chapter four and describe it there in detail of the lending rate and deposit rate of different financial institutions.

1.2 Profile of the Sample Banks

1.2.1 Rastriya Banijya Bank (RBB)

Government owned bank in Nepalese market is Rastra Banijaya Bank(NRB). During this dissertation, this bank is also running by outsider foreign management. This bank was established in 10 Magh,2022 B.S. on the ground of "*Commercial Bank Act-2021 B.S."* This bank played a great role to uplift the agriculture, industrial and commercial sector of the country since its establishment. This is the largest commercial bank among all thirty one

commercial bank in Nepal. It has 141 Branches scattered all over the country side in today's day. This bank has highest amount of deposit as well as granted highest amount of loan till this study. So bank is important sample for this study.

1.2.2 Nepal Bank Limited (NBL)

Nepal Bank Limited is the first bank to commence its business in Nepalese economy. After the enactment of *"Nepal Bank law"* in 1994 B.S., this bank was established in 30 Kartik, 1994 B.S. Most of the banking functions in Nepalese market are on track after the establishment of this bank. At the time of establishment, beside commercial functions, this bank performed all the other functions that should be done by central bank of the country expect issuing notes (money). But after the establishment of central bank, Nepal Rastra Bank, this bank transformed itself as a pure commercial bank. The government of Nepal, HMG, has 41% share and general public have 59% shares on this bank. Now this bank is passing with many twists and turns in present competition market. This bank is also one of the government owned having 144 branches (NRB Bulletin 2013, Mid July) all over the country. With the foreign management team, this bank is now in the process of recovery.

1.2.3 Nabil Bank Limited (NABIL)

NABIL Bank Limited commenced its operation on 29 ashad, 2041 (12 July, 1984) as the first Joint venture bank of Nepal. Dubai Bank Limited, Dubai (DBL) was the initial foreign joint venture partner with 50% investment. Later, it was acquired by Emirates Bank International Limited, Dubai (EBIL).

NABIL Bank limited had the official name Nepal Arab Limited till 16 poush, 2058 (31st December 2001). NABIL Bank Limited is the pioneer in introducing much innovative banking service is banking sector of Nepal with 49 branches and counters in all major cities. Also the number of outlasts in the country is the highest among the joint venture and private banks operating in Nepal. Success of NABIL is a milestone in the banking history of Nepal as it paved the way for establishment of many commercial banks and financial institutions.

NABIL Bank provides a full range of commercial banking services though its outlets spread across the nation and reputed corresponding banks across the globe. Moreover NABIL has a good name in the market for its highly personalized services to customers. SO, NABIL bank received as **"***Bank of the Year-2060".*

The share subscription of NABIL is divided in 5 parts. NB International Limited has taken 50%, Nepalese Public has taken 30%, Nepal Industrial Development Corporation has taken 6.15%, Rastriya Beema Samsthan has taken 9.67% and remaining 0.33% of share is taken by Nepal Stock Exchange.

1.2.4 Himalayan Bank Limited (HBL)

Himalayan Bank Limited was established in 2048 B.S. by the distinguished business personalities of Nepal in partnership with Habib Bank Limited, on the largest commercial bank of Pakistan. Bank operations were commenced from Poush 2049 B.S. It is the first commercial bank of Nepal with maximum shareholding by Nepalese private sector. Besides commercial activities the bank also offers industrial and merchant banking facilities. The bank at present has 39 branches of all over the Nepal and number of ATM are 74. The bank is also operating a counter in the premise of the Royal Palace. The bank has a very aggressive plan of establishing more branches in different parts of the kingdom in near future. The bank's policy is to extend quality and personalized service to its customers as promptly as possible. The bank, as for as possible, offers tailor made facilities to its clients, based on the unique needs and requirement, to extend more efficient services to its customers. HBL has been adopting innovative and latest banking technology. This has not only helped the bank to constantly improve its service level but has also kept it prepared for future adoption of new technology. HBL has listed on Nepal Stock Exchange in 21 Ashad, 2050. The share participation of bank is 51% Nepalese promoters, 14% employment provident fund, 15% general public and 20% Habib Bank of Pakistan. HBL is committed to be a "*Banking with a difference"* which was awarded during 2059 B.S. as "*National Excellent Award"* by FNCCI. It also received Nepal's number one Bank Award from the banker's Almanac for the year 2059 and 2062, and Best Presented Accounts Award 2064.

1.2.5 Kumari Bank Limited (KBL)

Kumari Bank Limited, came into existence as the fifteenth commercial bank of Nepal by starting its banking operations from Chaitra 21, 2057 B.S. (April 03, 2001) with an objective of providing competitive and modern banking service in the Nepalese market. The bank has paid up capital of Rs. 1603800000 of which 70% is contributed from promoters and remaining from public.

KBL has been providing wide-range of modern banking service through 29 points of representations located in various urban and semi-urban parts of the country, 20 outsides and 9 inside the valley. The bank is pioneer in providing some of the latest/ Iucrative banking services Like- E-banking and SMS Banking Services in Nepal. The bank always focus on building sound technology driven internal system to cater the changing needs of the customers that enhance high comfort and value. The adoption of modern Globus Software, developed by Temenos NV, Switzerland and arrangement of centralized data base system enables customer to make highly secured transactions in any branch regardless of having account with particular branch. Similarly the bank has been providing 365 days banking facilities, extend banking hours till 7 PM in the evening, Utility Bill Payment Services, Inward and Outward Remittance Services, Online Remit Services and various other banking services. Vice Electron Debt Card, which is accessible in entire VISA linked ATM (including 38 own ATMs) and POS (Point Of Sale) terminals both in Nepal and India, has also added convenience to the customers. The bank has been able to get recognition as an innovation and fast management, corporate governance and total quality management as the organization mission.

The key focus of the bank is always center on serving unfulfilled needs of all classes of customers located in various parts of the country by offering modern and competitive banking products and services in their door step. The bank always prioritizes the priorities of the valued customers.

Kumari Bank at a Glance

Capital

Authorized Capital	Rs. 2,000,000,000.
Issue & Paid-up-Capital	Rs. 1,603,800,000.

Branches: - 20 Outside valley and - 9 inside valley

ATM: - total 39

1.3 Focus of the Study

The observed and the most focusable part of the study is the effect of interest rate on lending and the deposit, as we know that there is a reverse relation between lending and deposit in the

case of interest rate, when the interest rate is increase deposit will increase and when the interest rate is decrease lending will increase and vice versa. Interest rates send price signals to borrowers, lenders, savers and investor. For example, higher interest rates generally bring forth a greater volume of savings and stimulate the lending of funds. Lower rates of interest on the other hand, tend to dampen the flow of savings and reduce lending activity but increase the demand for loan. Higher rates tend to reduce the volume of borrowing and capital investment and lower rates stimulate borrowing and investment spending *(Rose, 1997, P.124)*. Hence economic growth depends upon circulation of money and financial system facilitates it.

We know that inflation is also another important factor in the financial market. All countries in the world have some magnitude of inflation. While this study is being conducted, the existing inflation rate in our country is around 7%. According to Irving Fisher, inflation rate is added to real rate of return to determine the market interest rate. So higher the inflation, higher will be the interest rate.

In real situation, the aforementioned theory may not come true, especially for developing country like Nepal because, most of the theories of financial countries like USA, Great Britain and so on. So it is quite necessary to develop some ideas about the interest rate and its impact upon deposits, credit and inflation in the Nepalese context. By doing so, more knowledge can be achieved about the true pictures of Nepalese market. This study is also considered to be useful to various parties such as further researchers, students, teachers, financial institutions, general individuals etc.

1.4 Statement of the Problem

Interest has direct relation with economic growth and development. According to economic theory (other things remain constant), low interest is impetus for high investment. And this high investment leads to high production, high employment, more income and ultimately growth in economy. So by this study it is going to explore: Does decline in interest rate increases the lending activities? What is the actual condition on this regard in Nepalese financial market place? If the condition is not as per theory then-what are the possible causes for such effects? Focusing on the Nepalese context, the investment is low in productive sectors due to unavailability of sufficient finance, security and other factors. Nepal's main

export is basically raw materials. It means that Nepal is exporting raw materials instead of producing goods and services from these. If cheap financing is available, many factories could be established to reap benefits from utilization of resources, which would increase the employment, standard of living and status of country economy.

In same manner, market interest rate is the sum of real rate plus inflation premium. But this may or may not occur in real practice. So this study is going to identify: Is there any positive relation of interest rate and inflation as per theory? Similarly, high interest rate is stimulus for high savings (deposits) but this may not the case in real world as people use to deposit more even in less interest rate due to security, convenience and other reasons. Thus through this thesis, it is going to discover: what is the relation of deposit and interest rate? Or does substitution effect is truly applicable in Nepalese context. More specifically, this study seeks to solve the answer for following questions:

a) What are the interest rate structures of commercial banks in Nepal?
b) What is the relationship between interest rate with deposit amount and lending amount of commercial banks?
c) Is the interest rate on deposit of commercial banks can attract to the depositors?
d) Is the interest rate of commercial banks can attract to the investor (or Borrower)?

1.5 Objectives of the Study

To major objectives of the study would be investigated the relation of the interest rate with other two variables; Deposit (Borrowing), and Credit (Lending) that will currently prevailing in Nepalese market. Similarly, this study also aims to identify whether the theories in regard of this are applicable or not in our Nepalese context. At overall to fulfill this main objectives have been formulated as follows:

a) To analyze the interest rate structure of commercial banks.
b) To explore the relation of interest rate with deposit amount in sample banks (or to find out the deposit amount i.e. saving increases with increases interest rate or not).
c) To identify the sensitivity of interest rate to the lending amount.
d) To indentify the sensitivity of interest rate to the investment (borrowing).
e) To suggest for the improvement on the basis of overall finding of the study.

1.6 Research Hypothesis

Testing of hypothesis is one of the most important aspects of the research study. It is the quantitative statement about the population parameter. In other words, it is an assumption that is made about the population parameter and then its validity is tested. By testing the hypothesis, we can find out whether it deserves the acceptance or rejection of the hypothesis. The acceptance of hypothesis means there is no any sufficient evidence provided by the sample to reject it and does not necessarily imply that it is true. The main goal of testing hypothesis is to know the characteristics of hypothesized population parameter based on sample information as such that whether the difference between the population parameter and sample statistic is significant or not *(Sharma. and Chaudhary, 1998:229).*

The testing of hypothesis can be made through different types. The sample size which we performed is less than 30 we have T- test method and if the sample size is more than 30 we have Z- test method. For identifying the quality of sample we use Chi–square test. The hypotheses formulated for this study are as follows:

Hypothesis I

Hypothesis between Deposit Interest Rate and Deposit Amounts

Null hypothesis H_0: $\rho = 0$. That is, population correlation coefficient is zero. In other words, the variables (deposit interest rate and deposit amounts) are uncorrelated in Nepalese financial market.

Alternative hypothesis H_1: $\rho \neq 0$. That is, population correlation coefficient is not equal to zero. In other words, the variables (deposit interest rate and deposit amounts) are correlated.

Hypothesis II

Hypothesis between Credit Interest Rate and Loan (Borrowing) Amounts

Null hypothesis H_0: $\rho = 0$. That is, population correlation coefficient is zero. In other words, the variables (Credit interest rate and credit or loan amounts) are not correlated in Nepalese financial market.

Alternative hypothesis H_1: $\rho \neq 0$. That is population correlation coefficient is not equal to zero. In other words, the credit interest rate and credit or loan amounts are correlated.

Hypothesis III

Hypothesis between Interest Rate on Deposit and Interest Rate on Lending

Null hypothesis H_0: $\rho = 0$. That is, population correlation coefficient is zero. In other words, there does not exist any correlation between interest rate on deposit and interest rate on lending.

Alternative hypothesis H_1: $\rho \neq 0$. That is population correlation coefficient is not equal to zero. In other words, there exist correlation between interest rate on deposit and interest rate on lending.

1.7 Limitations of the Study

This study is based on the following limitations:

a) This study includes only five commercial banks (i.e. RBB, NBL, NABIL, HBL and KBL) as a sample for the study.
b) Reliability of this study depends upon the information provided by related commercial banks and published data.
c) The samples are taken only from commercial banks, other financial intermediaries and institutions are not included in the study.
d) Most of the data used in study are of secondary type.
e) Only one factors – interest rate is taken for the study. Impact of other aspects (factors) besides interest rate has been ignored.
f) This study is based on data from fiscal year 2007 to 2012.

1.8 Organization of the Study

This study is divided in mainly five chapters. Prior to the body of the thesis several pages of preliminary materials such as title page, approval sheet, vive sheet, acknowledgement, table of contents, list of table, list of figure, abbreviations used etc. have been presented.

Chapter one: Introduction

This chapter consists of the background/profile of sample banks/objectives/limitation of the study with a brief description of Nepal and interest rate policy, statement of problems and hypothesis.

Chapter Two: Review of Literature

This chapter provides an understanding of the subject matter and gives on insight of past studies until data. It chapter consists with the knowledge of interest rate, factor affecting/theories of interest rate.

Chapter Three: **Research Methodology**

This chapter consists with research design, study of population and sample, presentation and analysis of tools and methods and the procedure for data collection.

Chapter Four: Data Presentation and Analysis

This chapter deals with presentation and analysis of data collected from primary and secondary sources and also explores the major findings of the study.

Chapter Five: Summary, Conclusion and Recommendation

This chapter is the final part of the study which consists summary of the study, conclusion drawn thereof and necessary recommendation for further improvement and study.

Also, bibliography, appendixes and other related materials are presented at the last of the thesis report.

CHAPTER-II

CONCPTUAL FRAMEWORK AND REVIEW OF LITERATURE

Another step is to develop concepts and ideas about the selected topic by reviewing all the relevant materials regarding the study. In fact, review of literature begins with a search for a suitable topic and continues throughout the duration of the research work. It deals with a literature survey of the existing volumes of similar related subjects. Review of literature means reviewing research studies or other relevant propositions in the related area of the study so that all the past studies, their conclusions and deficiencies may be known and further research can be conducted. It is an integral and mandatory process in research works. The main reason for a full review of research in past is to know the outcomes of those investigations in areas where similar concepts and methodologies had been used successfully.

2.1 Conceptual Framework

Interest rate is one of the important variables in economics and financial system of the country. In common parlance interest is a payment made by a borrower to the lender for the money borrowed and is expressed as a rate percentage per year. But in economics widely different views have been put forth from the time of Aristotle to the present day. Aristotle recognized only animal husbandry and stock rising as two legitimate industries whose products could be lent and interest earned on them. In economics interest has been defined in a variety of ways. Commonly interest is regarded as the payment for the use or service of capital. If retained by owner, it can be used by him for further production and the additional product he gets through the employment of this capital includes interest. If he had lent his capital to someone else, he would have received interest in returns. Since to abstain from consumption is disagreeable and painful, the lender is paid a reward in the form of interest. When people abstain from consumption they save and thus interest becomes the reward for saving. Saving however, does not involve any sacrifice of abstinence on the part of rich. People prefer present to the future and hence they attach more importance to present goods. In order to induce them to postpone enjoyment of goods in the present to the future, they must be compensated in the form of interest. Interest is thus the difference between the present enjoyment and future enjoyment of some goods. The neo-classical economists however defined it as the price for the use of loan able funds. But the modern economists in their effort to avoid these divergent and controversial views about the nature of interest, have

explained it in terms of productivity, saving, liquidity preference and money.

In economics interest has been defined in a variety of ways. Commonly interest is regarded as the payment for the use or service of capital. If retained by owner, it can be used by him for further production and the additional product he gets through the employment of this capital includes interest. If he had lent his capital to someone else, he would have received interest in returns. As *Carver (1983)* said," Interest is the income which goes to the owner of capital." According to classical economists "it is only by postponing consumption that capital can be created *(Cooper & Fraser ,1983:152)."* Since to abstain from consumption is disagreeable and painful, the lender is paid a reward in the form of interest. When people abstain from consumption they save and thus interest becomes the reward for saving. Saving however, does not involve any sacrifice of abstinence on the part of rich. To avoid this fallacy, Marshall substituted the word "waiting" for abstinence and interest is then the reward for waiting. The Austrians led by Rae and Bawerk and followed by *Fisher (1930)* in America considered interest to be the "agio" or the premium for time preference. People prefer present to the future and hence they attach more importance to present goods. In order to induce them to postpone enjoyment of goods in the present to the future, they must be compensated in the form of interest. Interest is thus the difference between the present enjoyment and future enjoyment of some goods. The neo-classical economists however defined it as the price for the use of loan able funds. But the modern economists in their effort to avoid these divergent and controversial views about the nature of interest, have explained it in terms of productivity, saving, liquidity preference and money. In other words, interest is simultaneously the reward for the pure yield of capital, of saving for the forgoing of liquidity and the supply of money.

The rate of interest, according to *Keynes (1936)*, is a purely monetary phenomenon, a rewarded for parting with liquidity, which is determined in the money market by the demand and supply of money. In Keynes' monetary theory he has presented a proposition that the rate of interest influences the level of economic activity by first influencing the rate of real investment in the economy. According to him the real investment is in fixed capital or durable machines. And the demand for credit goes on increasing being affected by the cheap loan rates. Hence it can be concluded that changes in interest rate structure produces either positive or negative impact upon the growth of developing economy such as ours. When such amendments are introduced without thinking seriously, there spread more negative effects

than positive. There are different interest rates in the financial system. Even securities issued by the borrower often carry a variety of interest rates. Some common types of interest rate are as follows:

a. Risk free rate of interest

It is a component of all interest rates. Pure interest rate is what remains with the lender after deducting the reward for risk taking from gross interest. The pure or risk free rate of interest exists only in theory, the closest real world approximation to this pure rate of return is the market interest rate on government bonds less inflation.

b. Gross interest

The payment which the borrower makes to lender excluding the principal is gross interest. Net interest is the payment for the use or capital or money only. It is normally the same, during a period of time even different markets.

c. Reward for risk taking

The lender exposes to risk when he/she lends money. Gross interest includes the reward for the risk taking. The greater the risk element the higher will be the rate of gross interest. Unsecured loans are more risky than secured loans and they carry high premium rate i.e. interest rate.

d. Reward for inconvenience

When a lender loans money he/she forgoes its use for the duration of the loan. His/her money is locked up and cannot be used for money profitable purpose of, if he/she needs this amount for his personal use, he/she will have to undergo the inconvenience of arranging it from some other sources. In fixing the lender includes in it the reward for such inconvenience.

e. Reward for management

The lender has to incur expenditure in keeping proper accounts of the borrowers. He/she buys account books and even maintains staffs. He/she has to remind the borrowers and sometimes has to file a suit for the recovery of loans. The payment that the lender receives from the borrower also includes the expenses for management.

2.2 Theories of Interest Rate

Various interest rate theories have been propounded by various economists, which describe how interest rate is determined in various situations. Some well known theories of interest rates are as follows: *(Samuelson, P.A & Nordhus, William D 2002 Economics)*

2.2.1 The Classical Theories of Interest Rates

One of the oldest theories concerning the determinants of the pure or risk-free interest rate is the classical theory of interest rates, developed during 18th and 19th centuries by a number of British economists and elaborated by *Irving Fisher (1930)* earlier in this century. The classical theory argues that the interest is determined by two forces: first is supply of savings, derived mainly from households, and second the demand for investment capital, coming mainly from the business sector.

a. Savings by households

Individuals and families carry out Most of the saving in modern industrialized economics. For these households, saving is simply abstinence from consumption spending. Current savings therefore are equal to the difference between current income and current consumption expenditures. In making the decision on the timing and amount of saving to be done, households typically consider several factors: the size of current and long-term income, the desired savings target, and the desired proportion of income to be set aside in the form of savings (i.e., the propensity to save). Generally the volume of household savings rises with income. Higher income families and individuals tend to save more and consume less relative to their total income than families with lower incomes. Although income levels probably dominate saving decisions, interest rates also play an important role. Interest rates affect an individual's choice between current consumption and saving for future consumption.

The classical theory of interest assumes that individuals have a definite time preference for current enjoyment of goods and services over future enjoyment. Therefore the only way to encourage an individual or family to consume less now and save more is to offer a higher rate of interest current savings. If more were saved in the current period at a higher rate of return, future consumption and future enjoyment would be increased. Higher interest rates increase the attractiveness of saving relative to consumption spending, encouraging more individuals

to substitute current saving (and future consumption) for some quantity between interest rates and the volume of savings. Higher interest rates bring forth a greater current volume of savings.

b. Savings by business firms

Not only households, but also businesses, save and direct a portion of their savings into the financial markets to purchase securities and make loans. Most business hold savings balances n the form of retained earnings. In fact, the increase in retained earnings reported by businesses each year is a key measure of the volume of current business saving. And these retained earnings supply most of the capital for annual investment spending by business firms. Saving depends on two key factors; the levels of business profits and the dividend policies of corporations. These two factors are summarized in the retention rate, the ratio of retained earnings to net income after taxes. This ratio indicates the proportion of business profits retained in the business for investment purposes rather than paid out as dividends to the owners.

The critical element in determining the amount of business savings is then, the level of business profits or retained earnings. If profits are expected to rise, businesses will be able to draw more heavily on earnings retained in the firm and less heavily on the money and capital markets for funds. The result is a reduction in the demand for credit and a tendency toward lower interest rates. On the other hand, when profits fall but firms do not cut back on their investment funds. The demand for credit rises, and interest rates may rise as well. Although the principal determinant of business saving is profits, interest rates also play role in the decision of what proportion of current operating costs and long-term investment expenditures should be financed internally and what proportion externally. Higher interest rates in the money and capital markets typically encourage firms to use internally generated funds more heavily in financing projects. Conversely, lower interest rates encourage greater use of external funds form the money and capital markets.

c. Savings by government

Government also saves, though less frequently than households and businesses. In fact, most government receipts unexpectedly exceeds actual amount of expenditures. Income flows in the economy (out of which government tax revenues arise) and the pacing of government spending programs are the dominant factors affecting government savings. It increases the

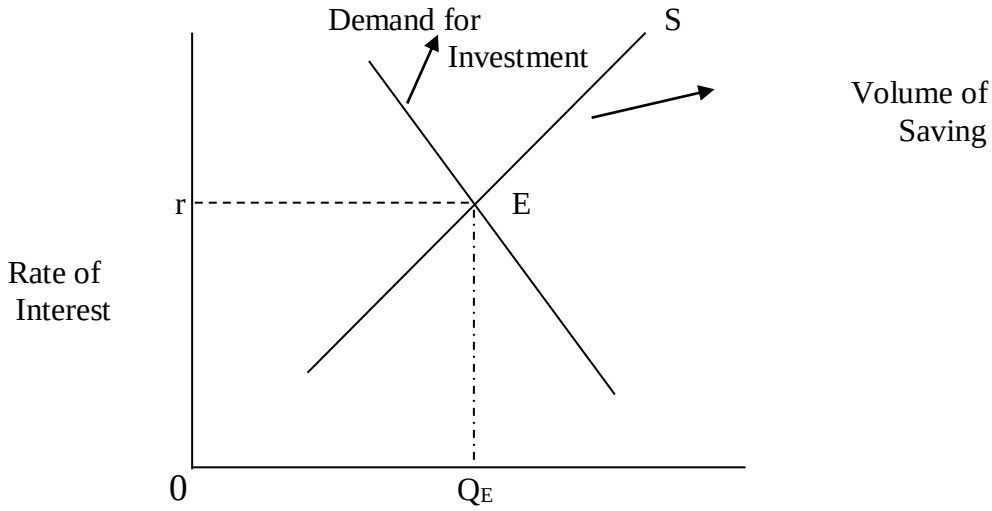
supply of funds (*Rose Peterson(2003) Money & Capital Markets*).

The demand for investment funds: Business, household and government savings are important determinants of interest rates according to the classical theory of interest, but not the only ones. The other critical rate determining factor is investment spending by business firms. The majority of business expenditures for these purposes consist of what economists call replacement investment, i.e. expenditure to replace equipment and facilities that are wearing out or are technologically obsolete.

From the view of the Classical Economist interest rates in the financial markets are determined by the interplay of the supply of saving and demand for investment. Especially; the equilibrium rate of interest is determined at the point where the quantity of savings supplied to the market is exactly equal to quantity of funds demanded for investment. As shown in the figure below this occurs at point E, where the equilibrium rate of interest is IE and the equilibrium quantity of capital funds traded in the financial markets QE.

Figure 2.1

Equilibrium Rate of Interest in the Classical Theory of Interest Rate



Volume of Savings and Investment

In this figure, the demand and supply curve intersects at point E, so, r is the equilibrium interest rate. The market rate at interest movies towards its equilibrium level increases supply and demand forces charge so fast that the interest rate rarely has an opportunity to settle in at a specific equilibrium level. At any given time, the rate is probably above or below its true

equilibrium level but moving toward that equilibrium. If the market rate is temporarily above equilibrium the volume of saving exceeds the demand for investment capital creating an excess supply of savings saver will offer fund at lower and lower rates until the market interest rate approaches equilibrium. Similarly, if the market rate is temporarily bellow equilibrium, investment demand exceeds the quantity at saving available. Business firm will bid up until it approaches the level at which the quantity saved equals to quantity of funds demanded for investment purpose.*(Thapa,2066)*

2.2.2 The Liquidity Preference Theory of Interest Rate

The classical theory of interest has been called a long-term explanation of interest rates because it focuses on public's thrift habits and productivity of capital-factors that tend to change slowly. During the 1930s, British economist *Keynes (1936*) developed a short-term theory of the rate of interest that, he argued, was more relevant for policy makers and for explaining near-term changes in interest rates. This theory is known as
liquidity preference theory of interest. In this theory interest is the interplay of demand for liquidity and supply of money *(Ibid, 2001:121).*

Keynes argued that the rate of interest is really a payment for the use of scarce resources, money. Businesses and individuals prefer to hold money for carrying out daily transactions and also as a precaution against future cash needs even though its yield is low or nonexistent. Investors in fixed-income securities, such as corporate and government bonds, frequently desire to hold money as a haven against declining security prices. Interest rates therefore are the price that must be paid to induce money holders to surrender prices. In the theory of liquidity preference, only two outlets for investor funds are considered; bonds and money (including bank deposit). If interest rates raise, the market value of bonds paying a fixed rate of interest falls; the investor would suffer a capital loss if those bonds were converted into cash. To the classical theorists, it is irrational to hold money because it provides little or no return.

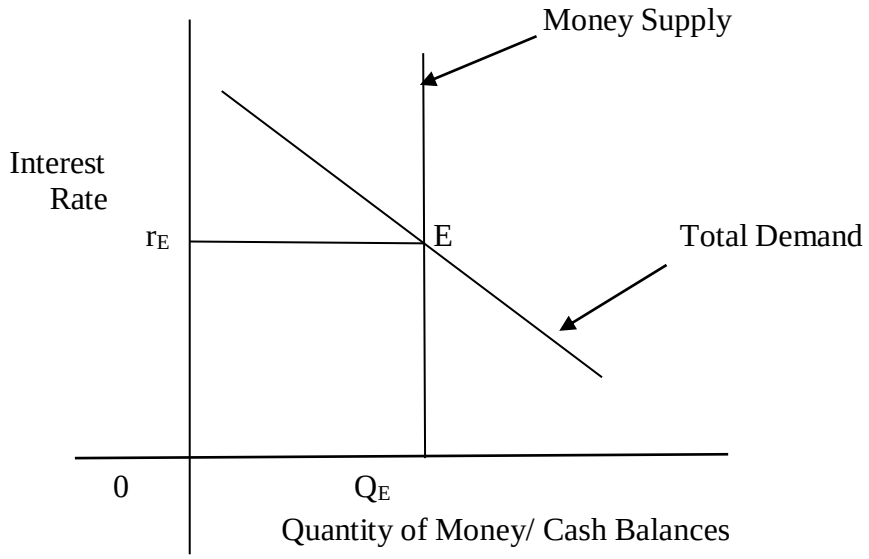
Another major element determining interest rates in liquidity preference theory is the supply of money. In modern economies, the supply is controlled, or at least closely regulated, by government decisions concerning the size of money supply presumably are guided by the

public welfare, not by the level of interest rates; we assume that the supply of money is inelastic with respect to the rate of interest.

The interplay of the total demand for and the supply of money determine the equilibrium rate of interest in the short run. As shown in the figure 2.2, the equilibrium rate is found at point E, where the quantity money demanded by the public equals the quantity of money supplied.

Figure 2.2

The Equilibrium Interest Rate in the Liquidity Preference Theory



In this figure, the equilibrium rate is found at point rE, where the total quantity of money demanded by public (DT) equals the quantity of money supplied (Ms). Above equilibrium rate, the supply of money exceeds the quantity demanded, and some businesses, households, and units of government will try to dispose of their unwanted cash balances by purchasing bonds. The prices of bonds will rise, driving interest rates down toward equilibrium at rE. On the other hand, at rates bellow equilibrium, the quantity of money demanded exceeds the supply. Some decision makers in the economy will sell their bonds to raise additional cash, driving bond prices down and interest rates up toward equilibrium.*(Thapa,2066)*

2.2.3 The Loanable Fund Theory of Interest Rate

A view that overcomes many of the limitations of earlier theory is the loan able funds theory of interest rates. This view argues that the risk-free rate is determined by the interplay of two

forces: the demand for and supply of credit (loan able funds). The demand for loan able funds consists of credit demands from domestic businesses, consumers and governments and also borrowing in the domestic market by foreigners.

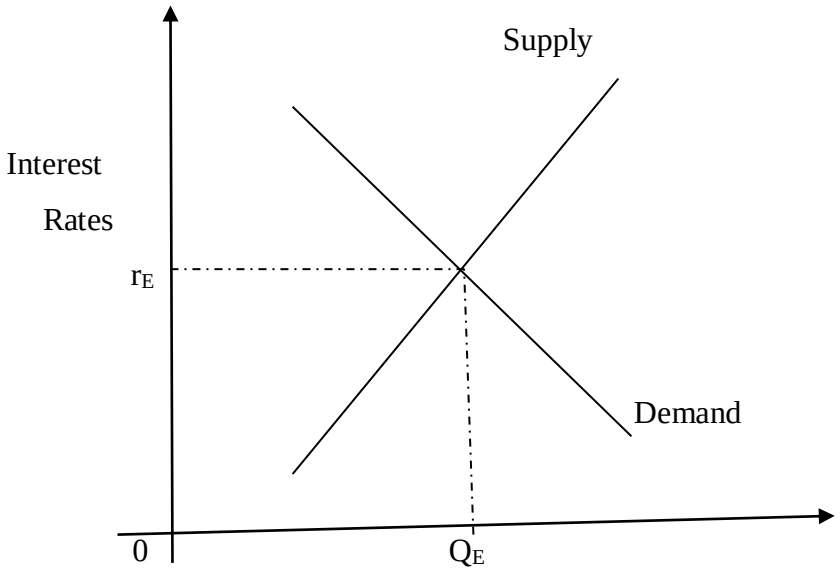
The total demand for loan able funds is the sum of domestic consumer, business and government credit demands plus foreign credit demands. Domestic consumers demand loan able funds to purchase as wide variety of goods and services on credit. Recent research indicates that consumers are not particularly responsive to the rate of interest when they seek credit but focus instead principally on the non-price terms of loan, such as the down payment, maturity, and the size of installment payments. This implies that consumer demand for credit is relatively business attempt to increase their cash balances at the expense of others. Hoarding reduces the volume of loan able funds available in the financial markets.

On the other hand, when the public's demand for money is less than the supply available, negative hoarding occurs. Some individuals and businesses will dispose of their excess cash holdings, increasing the supply of loan able funds available in the financial system. Credit created by the domestic banking system represents an additional source of loan able funds, which must be added to the amount of savings and the disordering of money balances to derive the total supply of loan able funds in the economy. Finally foreign lenders provide large amounts of credit to domestic borrowers in the United States. If domestic rates rise relative to interest rates offered abroad, the supply of foreign funds to domestic markets will tend to rise. At the same time domestic borrowers will turn more to foreign markets for loan able funds as domestic interest rates climb relative to foreign rates *(Ibid, 2001,p. 129).* The two forces of supply and demand for loan able funds determine not only the volume of lending and borrowing going on in the economy but also the rate of interest.

The interest rate tends toward the equilibrium point at which the supply of loanable funds equals the demand for loanable funds. Only when the economy, the money market, the loanable funds market, and the foreign currency markets are simultaneously in equilibrium will interest rates remain stable. A stable equilibrium is characterized as the following figure:

Figure 2.3

The Equilibrium Interest Rate in the Lonable Funds Theory



Above the figure shown **at the equilibrium** as:

Planned saving = Planned investment across the whole economic system.

Money Supply = Money Demand

Supply of loanable funds = Demand for loanable funds

Net Foreign demand for loanable funds = Net exports

The simple demand-supply framework is useful for analyzing broad movement in interest rates.

2.2.4 Rational Expectancy Theory

The rational expectancy theory assumes that equilibrium interest rate depends upon the changes in investor's expectation regarding future security prices and return. Investor's decision towards the borrowing and lending funds come from the availability of new information. When new information appears about investment, saving or the money supply, investors begin immediately to translate that new information into decisions to borrow and lend funds. So repid is the process of the market digesting new information that security prices and interest rates presumably impound the new data from virtually, the moment they appear. In absence of new information, next period interest rate. In other words the

knowledge of past interest rate will not be a reliable foresaid of future interest rate. In a perfectly efficient market, it is impossible to win excess returns continuously by trading on publicly available information *(Joshi, 2006)*

The important assumptions and conclusions of the rational expectation theory are that:

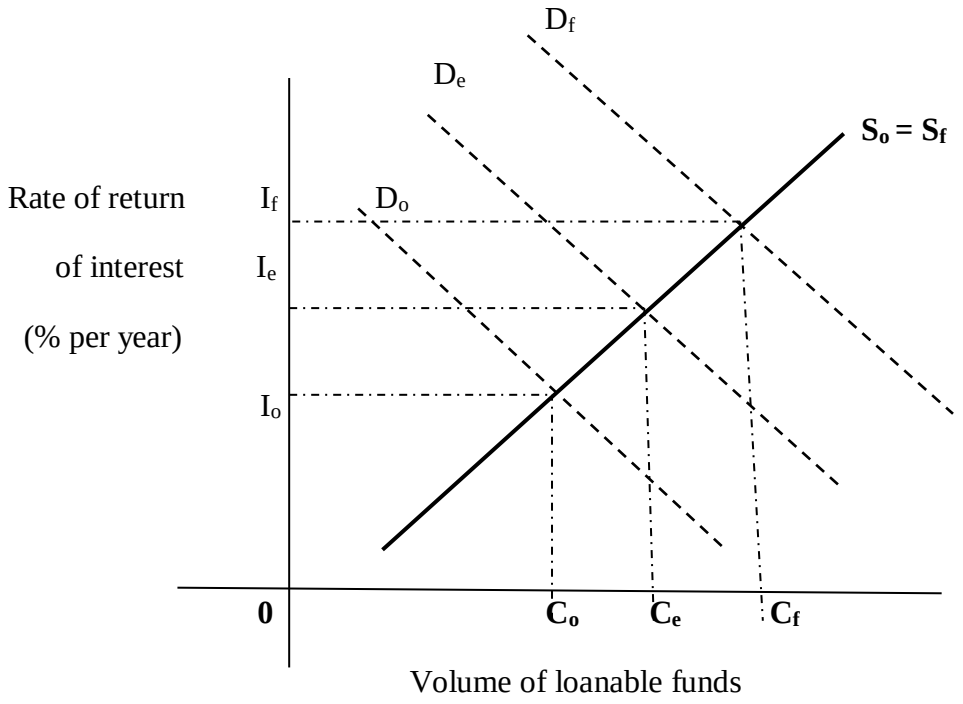
- The price of securities and interest rates should reflect all this available information and the market uses all this information to establish a probability distribution expected future prices and interest rates.
- Changes in rates and security prices are correlated only with unanticipated, not anticipated information.
- The correlation between rates of return in successive time period is zero.
- No exploited opportunities for profit (above a normal return) can be found securities' market.
- Transaction and storage costs for securities are negligible and information costs small relative to the value of securities traded.
- Expectation concerning future security prices and interest rates are formed rationally and efficiently.

If the money and capital markets are highly efficient in the way we have described, this implies that interest rate will always be at or very near their equilibrium levels. Any deviations from the equilibrium rate dictated by demand and supply forces will be almost instantly eliminates security trader who hope to consistently earn windfall profit firm, correctly guessing whether interest rates are two high (and therefore will probably rise) are unlikely to be successful in the long run. Interest rates fluctuations around equilibrium are likely to be random and momentary. If market participants were expecting increased demand implies lower interest rates in the future. Similarly a market expectation of less credit demands in the future (with supply unchanged), a market expectation of less credit demands in the future (with supply unchanged); implies that interest rate will rise. We can illustrate the foregoing points about the rational expectation theory of interest by modifying the loanable funds theory of interest. So that it's demand and supply schedules reflect not just actual demand and supply but also the expected demand and supply of loanable funds. The following figure depicts the equilibrium rate of interest under rational expectation theory. 'Do' and 'So' reflect the actual demand for loanable funds in current period while 'Df'

reflects the actual demand for loanable funds that will prevail in the next (future) time period. The supply of loanable funds is assumed to be the same in both time periods ($S_o = S_f$). This is shown as follows figure:

Figure 2.4

Equilibrium Interest Rates Under Rational Expectation Theory



In above figure, now imagine that the current period; the government makes an unexpected announcement of its increased need to more money in future period 'F' but due to a usually large budget deficit. The result is a new expected demand for loanable funds curve 'D_e', projected to prevail in the next future period 'F' but as viewed by borrowers and lenders today in time period '0'. In this case, the equilibrium interest rate in the current period will not be 'I_0', but rather 'I_e', where the expected demand curve 'D_e' intercepts the actual the supply curve. 'S_0', the equilibrium quantity of loanable funds traded in the current period than will be 'C_e' not 'C_0'. This is because, according to the rational expectation theory, borrowers and lenders will act as rational agents, using all the information, they posses (including expected events) to price financial assets today. When the future periods arrives the equilibrium interest rate will rise to rate 'I_f' and the quantity of loanable funds traded then will be 'D_f'. The equilibrium rate moves upward because the demanded for loanable funds in period 'F' is more than expected future. Loanable funds demanded as seen by market participants in period '0'.

Suppose, on the other hand, that actual loanable funds demanded in period 'F' increases upward and beyond 'D_0' but by a smaller amount than was anticipated by investors in the market in the market period '0'. Demand schedule 'D_f' would then fall somewhere between 'D_0' and 'D_e'. The equilibrium interest rate (with supply curve unchanged) would be lower than i.e. laying somewhere between 'I_0' and 'I_e'.

2.3 Economic Factors Affecting Interest Rate

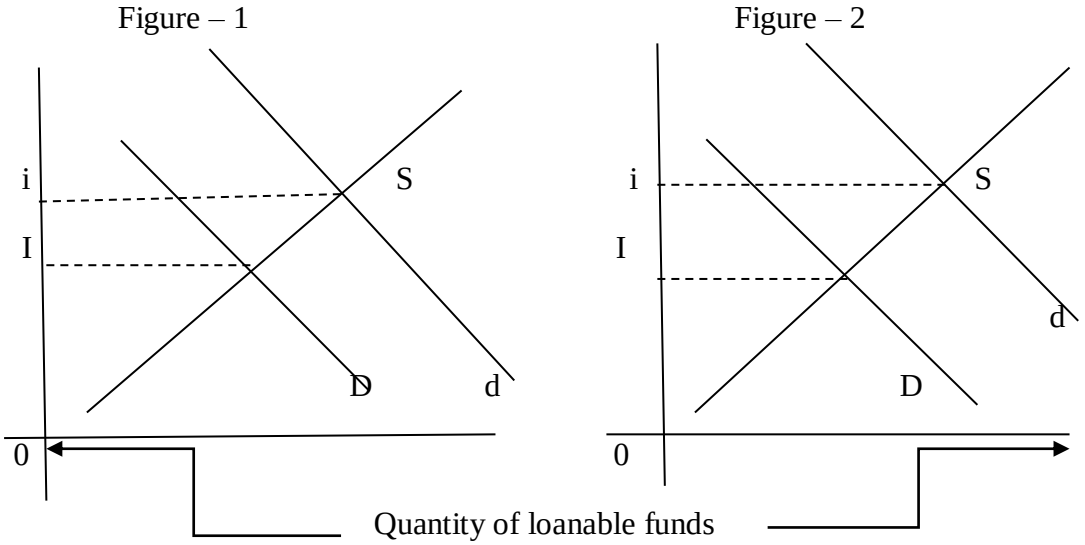
Although it is useful to identify those who supply or demand loan able funds, it is also necessary to recognize the underlying economic forces that cause a change in the supply of or the demand for loan able funds. The following economic factors influence interest rates.

2.3.1 Impact of Economic Growth on Interest Rates

A result of more optimistic economic projections, most business increases their planned expenditures for expansion, which translates into additional borrowing. The aggregate demand schedule would shift upward (to the right). The supply of loan able funds schedule may also shift. It is possible that the increased expansion by businesses could lead to more income for construction crews and others, who service the expansion. Thus, the quantity of savings and therefore of loan able funds supplied at any possible interest rate could increase, causing an upward shift in the supply schedule. Yet, there is no assurance that the volume of savings will truly increase. Even if a shift were to occur it would likely to be of a smaller magnitude than the shift in the demand schedule. Overall, the expected impact of the increased expansion by businesses is an upward shift in the demand schedule as no obvious change in the supply schedule (figure "1"). The shift in the aggregate demand schedule to DA_2 in the exhibit causes an increase in equilibrium interest rate to 'I'.

Figure 2.5

Quantity of Loanable Fund according to Demand and Supply



Above the figures, it is considered that how a slowdown in the economy would affect the demand and supply schedule. The demand schedule would shift inward to the left reflecting less demand for loan able funds at any possible interest rate. The supply schedule could possibly shift a little, but it is questionable which way it would shift. One could argue that a slowdown should cause increased saving at any possible interest rate as households prepared for the possibility of being laid off. Yet, the gradual reduction in labor income that occurs during an economic slowdown could reduce household's ability to save. Any shift that did occur would likely to be minor relative to the shift in the demand schedule. Therefore, the equilibrium interest rate is expected to decrease as shown in (figure '2').

2.3.2 Impact of Money Supply of Interest Rates

The government can affect the supply of loan able funds by increasing or reducing the total amount of deposits held at commercial banks or other depository institutions. When the government increases the money supply it increases the supply of loan able funds, which places downward pressure in interest rate. However if the government's actions affect inflationary expectations this would also increase the demand for loan able funds, which could offset the effect of the increase in the supply of funds. If government reduces the money supply it reduces the supply of loan able funds. Assuming no change in demand, this action places upward pressure on interest rates. *(Ibid, 2001, p. 31)*

2.3.3 Impact of Budget Deficit on Interest Rates

When the government enact fiscal policies that results in more expenditures than tax revenue,

the budget deficit is increased. Considering how an increase in government deficit would affect the interest rates, assuming no other changes in habits by consumers and firms occur. A higher government deficit increases the quantity of loanable funds demanded at any prevailing interest rate, causing an upward shift in the demand schedule. Assuming no offsetting increase in the supply schedule, interest rate will rise. Given the certain amount of lonable funds supplied to the market (through savings), excessive government demand for these funds tends to crowd out the private demand (by consumers and corporations) for funds. The government may be willing to pay whatever is necessary to borrow these funds, while the private sector may not. This impact is known as "crowding out effect". *(Ibid, 2001 p. 32)*

There is a counter argument that the supply schedule might shift outward if the government creates more jobs by spreading more funds than it collects from the public (this is what causes the deficit in the first place). If this were to occur, the deficit might necessarily place upward pressure on interest rate. Much research has investigated this issue and, in general has shown that higher deficits place upward pressure on interest rates.

2.3.4 Impact of Inflation on Interest Rate

One of the most serious problems has confronting economies around the globe in recent years in inflation. The relationship between interest rates and expected inflation is often referred to as the Fisher effect. Inflation is defined as a rise in the average level of prices for all goods and services. To explore the relationship between interest rate and inflation it is better to distinguish nominal and real interest rates. The nominal rate is the published or quoted interest rate on a security or loan. In contrast real interest rate is the return to the lender or investor measured in terms of its actual purchasing power. An increase in expected inflation automatically increases nominal interest rates. But expected real rate of return tends to be relatively stable over time because it depends on such long term factors as the productivity of capital is likely to influence only the nominal interest rate, at least in the short run. *(Rose, 2003: 165)*

2.3.5. Impact of Deflation on Interest Rate

For the past fifty years and more inflation-a rising level of prices of goods and services has been a key economic and financial problem. However as the twentieth century began there

was growing concern that deflation-a fulfilling average level of prices might soon replace inflation as one of the key problems. Indeed Japan for much of the past decade has experienced falling prices to go along with rising unemployment and nominal interest rates lowering close to zero. Deflation can lead to falling interest rates. We can think so because deflation can damage to production and people's well being. For one thing deflation tends to force real interest rates higher even as nominal rate drop downward to zero. These elevated real interest rates tend to slow investment spending and decrease the development of new jobs. Real economic output will decline as factories come to produce less and business profits fall. At the same time lenders gain at an expense of borrowers because the formers purchasing power rises and business trying to borrow money have to struggle to raise the capital they require to grow and put people back to work. *(Ibid 2001, p. 274)*

2.3.6 Impact of Default Risk

Another important factor causing interest rate to differ one from another is the degree of default risk carried by individual securities. Investor's securities face many different kinds of risk, but one of the most important is default risk. The risk that a borrower will not make all promised payments at the agreed- upon times. All securities expect government securities are subject to varying degree of default risk. The yield on a risky security is positively related to the risk of borrower default as perceived by investor's yield on risky securities.

Yield on Risky Security = Risk Free Rate of Interest + Default Risk Premium

The higher the default risk associated with a risky security, the higher the default risk premium on that security and greater the required rate of return (yield) that must be attached to the security as demanded by investors in the market place. Any adverse development such as a downturn in the economy or serious financial difficulties that makes a borrower appear riskier will lead the market to assign a higher default risk premium to his security. And if risk-free rate remains unchanged, the security's risky yield must rise and its price must decline.

2.3.7 Marketability and Liquidity

Marketability and liquidity feature of financial assets closely influences rate of interest or yield. A liquid financial asset is readily marketable. Marketability is the capability of being sold quickly at low transaction costs. Even if an asset is marketable it is not liquid if selling immediately rather than waiting to sell, involves an expected loss. In addition its price tends

to be stable over time and it is irreversible. Because the liquidity feature of financial assets lowers their risk. So, liquid and marketable assets carry lower interest rates than illiquid and less marketable assets.

Marketability is positively related to size (total sale or total assets) and reputation of the institution issuing the securities and to the number of similar securities purchaser (lender of funds). In contrast, the issuer of securities is not particularly concerned about any difficulties, the purchaser may encounter in the resale (secondary) market unless lack of marketability significantly influences securities sales in the primary market.

2.3.8 Reinvestment Risk

The reinvestment risk is also one of the factors which affect interest rate. The reinvestment risk appears generally to all investor that generate cash flows for the investors prior to the maturity of the investment. The internal rate of return calculation found in any text book of business finance shows that one of the limitation of internal rate of return calculation for the investment is the assumption that all the cash flow received before the end of maturity investment period are reinvested at the IRR. The reinvestment problems create reinvestment risk for investors. This is the risk that the cash flow received before the maturity of the investment cannot be reinvestment at the yield to maturity of the investment. *(Thygerson, 1992, p. 36)*

2.4 Effect of Open Market Operation on Interest Rate

Even though interest rate are market determined the government can have strong influence on these rate by controlling the supply of loanable funds, when the government used open market operation to increase bank funds, then more funds can be loaned out. First the government funds are (interest rate on loan between banks) may decline some bank have larger supply of excess fund to lead out in the government funds market. Second bank with excess funds may offer new loan at lower interest rate in order to make use of these funds. Thus these banks may be also lower interest rate offered on deposited because they have more than adequate funds to conduct existing operations.

As banks deposit rate decline household with available funds may search for the alternative

investment such as treasury securities or other debt securities. As more funds are invested in these securities the yields will decline. Thus open market operation use to increase bank funds influences not only bank deposits and loan rates but the yields on other debt securities as well. The reduction in yields on debt securities lowers the cost of borrowing for the issuers of new debt securities. This can encourage potential borrowers (including corporations and individuals) to borrow and make expenditures that they might not have made if interest rates are higher. If open market operations are used to reduce banks funds, the opposite effect occurs. More banks have deficiency of funds and fewer bans have any excess funds. Thus, there is upward pressure of the government fund rate, on the loan rate charged to individuals or firms and on the rates offered to bank depositors. As bank deposit rates rises some investors may be encouraged to create bank depositors rather than invest in other debt securities. This activity reduces the amount of funds available for these debt securities, thereby increasing the yield offered on the instruments. *(Ibid, 2000 p. 81)*

2.5 Term Structure of Interest Rates

The term structure of interest rates refers to the relationship between market rates of interest on short-term and long-term securities. Long term rates tend to change gradually over time while short term interest rates are highly volatile and often move over wide ranges. It is the interest rate difference on fixed income securities due to differences in time of maturity. It is also known as time structure or maturity structure of interest rates, which explain the relationship between yields and maturities of the same type of securities. Short-term interest rate varies per day, per week, per month, per year and to the maximum numbers of year for which it may be considered is three years .*(Shakespeare, 1997:31).* However, three years is usually too long for short-term purpose. The short term rates may be defined as interest rate of the bank, the Treasury bill rate, the call money rate, the short term deposit rate and the commercial bank rate or any other rates applies by commercial banks and organizations.

The gap between the short-term interest rates and long-term interest rates has been termed as a distortion in the structure of interest rates. Many business enterprises always suggested that the short term interest rates should be reduced to establish a proper alignment between the two kinds of interest rates.

2.6 Concept of Deposit

Deposit is the sum of money loge with banks, discount house or other financial institutions. Deposit is nothing more than the assets of an individual that is given to the bank for safekeeping with an obligation to get something (interest) from it. To a bank, these deposits are liabilities. Commercial Bank Act 2031 defines "deposits" as the amount deposited in a current, saving or fixed accounts of a bank or financial institution. The deposits are subject to withdrawals by mean of cheque on a short notice by customers. There are considered more as investment and hence they earn some interest. The rate of interest varies according to the nature of deposits. The bank attracts deposits from customers by offering difference rates of interest and different kinds of facilities. Though the bank plays an important role in influencing the customer to part with his funds and open deposit accounts with it, it is ultimately the customer who decides whether she/he should deposit his surplus funds in current deposit A/c, saving a/c or fixed deposit all. Bank deposits arise in two ways. When the banker receives cash, it is known as primary or a simple deposit. People deposit cash in the banking system and there by convert one from of money, cash, into another form, bank money. They prefer to keep their money in deposit prime accounts and issue cheques against them to their creditors. Deposits also arise when customers are granted accommodation in the form of loans when a back grain a loan to a customer it doesn't usually pay cash but simply credits the customer's account with the amount of loan (*Shrestha and Bhandari,2001)*

2.6.1 Types of Deposit

There are different types of deposits. But for this study, major three types of deposit are taken. They are:

a. Current Deposit

A current deposit is a running account in the banking heritage offering various flexible payment methods to allow customers to distribute money directly to others. Most current accounts have a cheque books; offer the facility to arrange standing orders, direct debits and payment via a debt card. Current accounts are also called demand deposit or demand liabilities. Since a deposits account held at a bank or other financial institution is the fund

deposited in which are payable on demand. The primary purpose of demand accounts is to facilitate cashless payments by means of check, bank overdraft, direct debit, electronic fund transfer etc. These accounts are generally opened by business houses, corporate bodies, public institutions and other organizations whose banking transactions are numerous and frequent so that the amount is being paid into and drawn out of the account continuously. As these deposit are payable on demand, banker is obliged to keep larger cash reserves than are needed in the case of fixed and saving deposits. These types of account are just a facility offered by the bank to its customers. So, such deposit doesn't yield an interest return.

b. Saving Deposit

According to Commercial Bank Act 2013 saving account means "An account of amount deposited in a bank for saving purposes". Saving deposits are accounts maintained by commercial bank, savings and loan associations, credit unions and mutual savings banks that pay interest but cannot be used directly as money (by; for example, writing a check). Saving accounts are maintained by a customer with a depositary institution for the purpose of accumulating funds over a period of time. Funds deposited in a savings account may be withdrawn only by the account owner or a duly authorized agent, or on the owner's non-transferable order. The bank fixes the minimum and maximum amount to be withdrawn through a cheque from the deposit. The account may be owned by one or more persons. Some accounts require funds to be kept on deposit for a minimum length of time, while other permits unlimited access to funds. Funds can be deposited or withdrawn at will, and most savings accounts pay interest from day of deposit to day of withdrawal. The account holding financial institution may require up to seven days notice before approving withdrawals, most, however, have waved this right.

c. Fixed Deposit

A fixed deposit is a money deposit at a bank that cannot be withdrawn for a certain "term" or period of time. When the term is over it can be withdrawn or it can be held for another term. Generally speaking, the longer term the better the yield on the money. A deposit of funds in a savings institution under an agreement stipulating that (i) the funds must be kept on deposit for a stated period of time, or (ii) the institution may require a minimum period of notification before a withdrawal is made. They are different from saving account in that the fixed deposit has a specific, fixed term-often three months, or one to five years and, usually a fixed interest rate. It is intended that the fixed deposit be held until maturity, at which time the money may

be withdrawn together with the accrued interest. Usually, the person or institution who wants to gain more interest opens such type of account. In exchange for keeping the money on deposit for the agreed-on term institutions. Usually grant higher interest rate than they do on accounts from which money may be withdrawn on saving account.

2.6.2 Important of Deposit

The income on individual is divided into consumption and saving. Deposit arises from saving. S/he deposits that saved part of income in the bank and gets interest from it. Banks in turn lend this money and earn profit by charging high interest rates. The borrowers from banks, invests this fund in the productive sectors yielding more return than the interest on borrowed fund. This investment leads to create new employment opportunity in the economy. Ultimately, due to the new employment the purchasing power of the economy increases and finally GDP and growth of the country occurs. It means that the deposit has very important role in the economy. There is a direct relationship between deposit of banks and the investment in the economy. If the volume of deposit is low, the investment in the economy also lags behind due to lack of resources. The deposit of banks is the accumulated capital which can directly be invested. There is a great need of such deposit in the developing countries. Deposit includes the idle money of the public, bank being the mediator to accept this sort of money and help to channelize this in productive sector. So, the importance of banks and financial intermediaries is larger in present context.

2.7 Lending (Credit)

2.7.1 Concept of Lending (Credit)

Credit is the provision of resources (such as granting a loan) by one party to another party where that second party does not reimburse the first party immediately, thereby generating a debt, and interest arranges either to repay or return those resources (or material(s) of equal value) at a later date. Any movement of financial capital is normally quite dependent in credit, which in turn is dependent on the reputation or creditworthiness of the entity that takes responsibility for the funds. In credit transaction, the lender (or banks) must have confidence in the borrower that s/he will be able to repay an equivalent amount usually money in the future plus an added sum called interest. In other words, the commercial bank earns profit by lending the amount in terms of loan or credit and in return, it gets interests. Bank loans are

classified as: (a) Loans and Advances, (b) Overdrafts, (c) Cash Credit, (d) Discounting of bills and so on(*Shrestha & Bhandari,2008;255).*

If credit is made to the government, the credit is known as public credit and if the private transacts credit for his own purpose, the credit becomes private. There are certain distinctions between public and private credit. Bank credit refers to the credit taken by the bank take credit. There is another type of credit knows investment credit and commercial credit which can be divided according to the purpose of using credit. The former refers to the credit, which is purpose; similarly, another classification is consumers' credit and producers' credit.

If credit is made to the government, the credit is known as public credit and if the private transacts credit for his own purpose, the credit becomes private. There are certain distinctions between public and private credit. Bank credit refers to the credit taken by the banks. Bank is the major sources of credit to both private and public debtors, some time bank take credit. There is another types of credit known investment credit and commercial credit which can be divided according to the purposes of using credit. The farmer refers to the credit, which is purpose; similarly, another classification is consumer's credit and producer's credit.

2.7.2 Factors Affecting the Volume of Lending

The volume of credit with in a country depends upon different factors. Some of the factors the volumes of credit are as follows:

1) Credit (Lending) Rate

If the bank credit rate is very high then, the volume of credit expansion is less and vice versa. It means that the volume of credit and interest rate of credit has inverse relation. People invest very leftie in productive sectors when the interest rate is high in the market economy.

2) Rate of Return

If the rate of return is high, people inclined to invest more people earn more profit and they become able to afford higher rate of interest along with timely repayment of loan.

3) Investment Opportunity

If the investment opportunity with in the country is high, the volume of credit becomes

higher. The basic thing for investment stimulation is easy and cheap credit etc.

4) Pace of Financial Development

If there, are enough banking facilities to provide loans in easy terms, the volume of credits may be high? It is due to the lack of cheap money lenders that rural people are deprived of loan. If the banking facility with in the nation is expanded, the volume of credit rises.

5) Basic Infrastructure

Like transportation marketability, availability of raw materials plays an important role in raising the volume of credit in the country.

6) Political Situation

Political situation, especially political instability, is also one of the major causes of low volume of credit. In such a case no one would like to risk his capital in new ventures. The present condition of the country is the glaring example of this. In addition to aforementioned point, other factors like trade condition, currently condition are also the factors affecting the volume of credit.

2.8 Review of Previous Theory

In the preparation of this thesis, there are some research papers and thesis related this study, which contribute some idea and help in the presentation of this study regarding to this study regarding to this thesis, there are very few thesis and research papers submitted to libraries of Tribhuwan University and its wing colleges on the same topics. Nevertheless, beside this, there are some other theses that are related to this study to some intent. The review and the extract from them are presented in this section.

Bhatta(2004) in the topic, *"Interest Rate and Its Effect on Depositing and Lending".* In this study the disseminator tries to portrait the relation of interest rate with deposit and lending amount. Her findings and the findings made are seems to be different all the relation matches the theory. The conclusion drawn is as follows:

a. Deposits rates of all sample banks under study are in decreasing trend, meaning that every year deposit rates of samples banks under study have decreased.
b. Lending rates of all sample banks under study are also in decreasing trend, means

that every year lending rates of sample banks under study have decreased.

c. Analysis shows that interest rate on lending are far higher than deposit rates of sample banks. The correlation coefficient between these two variables, (deposit rate and lending rate) of sample banks comes highly positive.
d. The simple correlation coefficient between deposit rate and deposit amount of sample banks are highly negative. However, out of them, correlation coefficient analysis of one sample bank is found to be negative.
e. The correlation analysis between lending rate and lending amount of all sample banks under study comes highly negative. This relation between two variable of banks matches with the theory which says with the increase in lending rate, lending amount decreases and vice versa.

Finally her conclusion about her own words, as follows:
"There is significant relationship between deposit rate and deposit amount and lending rate and lending amount of almost all commercial banks except one. Test of significant for correlation coefficient between inflation rate and deposit and lending rate shown that, these variables are not correlated.

Neupane (2006), the topic, *"Interest Rate and Its Relationship with Deposit, Lending and Inflation in Nepal".* His main objectives at the study were as follows:

- To explore the relation of interest rate with deposit amounts (existence of substitution effect) in Nepalese Market.
- To identify the sensitivity of interest rate to the investment (borrowing).
- To findout the relationship of interest rate with inflation in Nepalese Markets.

According to the researcher the interest rate on both deposit and lending of all sample banks are found to be in decreasing trend. Theoretical there is positive relationship between saving amount and saving interest rate but here negative relationship has found. It states that there is no substitution has found. It states that there is no substitution effect in Nepalese financial market. Analysis of fixed deposit amount and fixed interest rate shows negative relationship except RBB and NBL. Theoretically there is negative relationship between lending interest rate and lending amount. In this study for the 5 sample banks, it is found that all sample banks except NBL have negative correlation these two variables. The relationship between

interest rate deposit and inflation rate is positive. Similarly the correlation between interest rate and lending and inflation rate is found to moderately positive. He also concluded that the spread between deposit interest rate and lending interest rate is in decreasing trend.

Dangol(2007), entitled "*Impact of Interest Rate on Financial Performance of Commercial Banks"* concludes that most of the commercial banks contradict the general financing theories. The relation between amount of deposit and interest rate on deposit, in general concept must be positive. But deposits are increasing despite the decrease in the general level of interest. The result of such phenomenon is that there are fewer investment opportunities for the banking sector as well as general investors. The relation between total amount of loan and the lending rate is negative and significant. However, the change in the total amount of loan flow is not proportionate with the change in the lending rate.

Correlation between interest rate and inflation is not significant. Not only interest rate is responsible to shape the profitability of banks but also the operating efficiency also has major influence on it.

Shrestha (2008) on the *"Interest Rate Structure and Its Influence on Deposit and Lending of Joint Venture Banks in Nepal"* concludes:

a. The interest rate on both deposit and lending of all sample banks are in decreasing trend.
b. The saving deposit amount and saving interest rate have negative relationship.
c. Fixed deposit amount and fixed interest rate shows negative relationship.
d. One of variables that affect the demand of fund (lending activity) is lending interest rate.
e. Interest rate on deposit does not attractive for the depositors; as every year deposit rate of sample, banks are seen decreasing. So, it may also be concluded that commercial banks are not conceived in collecting deposit as interest rate on deposit is too less.
f. Lending rate of sample banks it can be concluded that interest rate on lending attract borrowers investors as lending rate of sample banks have decreased every year to provide better opportunities for the borrowers investors.

Koirala (2009) entitles *"Interest Rate Behavior of Commercial Banks and Finance Company in Nepal"*. Has concluded Rate of commercial Banks have been fluctuating. Deposit and Lending rates were increased immediately after liberalization of the interest rate on August 31, 2007 but, however, started to decline which have helped in increasing the credit flow. Interest rate structure has direct influence on profitability of commercial banks. Decreasing lending rate helps to increase the profitability through increase the credit. Deposits are more interest rate conscious and positively co-related. Loans and advances of commercial banks have been found to be continuously increasing with the decline in interest rate.

Pathak S. (2010), was conducted a study titled "*Interest Rate Structure and Its Influence on Deposit and Lending of commercial Banks in Nepal"*. The objectives of his main study were the relationship between interest rate and its effect to other economic variables like inflation, credit flow etc. The analysis concludes that period; there does exist the high spread between deposit rate, interest rate and lending interest rate.

Lending interest rate of the productive sector loan such as commercial loan, industrial loan such as commercial loan, industrial loan, trade credit, working capital laon are decreasing lesser in magnitude in comparison to the non-productive sector loan. In case of lending people, use more money when interest rate on lending is low. Almost all banks have lent more money by lowering interest rate on lending. Nevertheless, borrowing has increased on non-productive sectors. Interest rate on deposit does not attractive for the depositors; as every year deposit rate of sample banks are seen decreasing to 2007 but the sample bank has interest rate due to computation of commercial banks are not conceived in collecting deposit as interest rate on deposit is too less.

Lending rate of sample banks it is founded that interest rate on lending attract borrowers investors as lending attract borrowers investors as lending rate of sample banks have decreased every year to provide better opportunities for the borrowers investors. The commercial banks have increased the interest rate until 2008 and 2009. It shows that the bank has promoted the depositors as well as borrower.

Aryal (2011) in the topic entitle, *"Interest Rate Structure and Its relationship with deposit and lending of commercial banks".* In this study the researcher tries to portrait the relationship of interest rate with deposit and lending amount. From the analysis of relevant

data of sample banks are finding to be in decreasing trend in 2008, 2009 and 2010. There is negative relationship between saving deposit amount and saving interest rate. So this case is come against the theory of substitution effect. Analysis of fixed deposit amount and fixed interest rate shows positive relationship. According to correlation coefficient, the substitution effects occur for all sample banks in case of fixed deposit decrease/ increases. One of variables that affect the demand of fund (lending activity) is lending interest rate. Theoretically, there is negative relationship between lending interest rate and lending amount shows that t-value for all sample banks is insignificant which means that though the correlation coefficient shows that moderate relationship but their relationship is not strong i.e. not significant relationship. Therefore increase in lending amount is not due to the decrease in lending interest rate but to other reasons.

It is also finding that lending interest rate of the productive sector loan such as commercial loan, industrial loan, trade credit, working capital loan were decreased lesser in magnitude in comparison to the non-productive loan. So that from the analysis of lending rate of sample banks, it can be concluded that interest rate on lending attract borrowers investors as lending rate of sample banks have decreased every year to provide better opportunities for the borrowers' investors. The commercial banks have increased the interest rate until 2008-2010. It shows that the bank has promoted the depositor as well as borrower.

Paudel (2013) conducted a study on "*Interest Rate Structure and Its Relationship with It's Relationship with Deposit & Lending in Joint Venture Commercial Banks of Nepal".* The objectives of his study was to show the relationship between interest rate and other economic variables like deposit, inflation and credit flow, interest spread. The study concludes the following, according to that thesis, the objectives were:

- To present and analyze the interest rate structure of various commercial joint venture banks in Nepal.
- To examine and analyze the influence (i.e. relationship) of interest rate on deposit amount and lending amount of commercial joint venture banks.
- To examine and analyze the position of interest rate and loan and advance ratio of commercial banks.

With the above mentioned objectives, he was of the view that deposit depends upon

numerous factors besides income, inflation and interest rates and he concluded his study as:

- If other variables are kept constraint, institutional interest rate is important explanatory variable to influences the volume of deposit in Nepal.
- People accumulated most of their fund on saving accounts though they don't get appropriate interest on it, it may be just because of unavailability of other acceptable investment opportunity, in which a separate study can be made. Similarly, the convenience of using saving accounts provokes the investor deposit on saving account. Similarly, the excess supply of saving deposit reduces interest rate of saving account.
- Interest rate on deposit doesn't attract the depositors as every year deposit interest rate of sample banks are in decreasing trend but the sample banks are in decreasing trend but the amount of deposit was not in the same line so that it can be concluded the commercial banks are not conceived in collecting deposit as interest rate on deposit is too less.
- According to him, the fixation of attractive interest rates on deposit has been responsible for the substantial growth in the volume of deposits in recent years.

2.9 Review of Articles

In this section an attempt has been made to review some journals and articles of interest rate, which helps to study make better and easy. Thus it deals with the effect on interest rate and so on.

John Hull (1990), title is *"Pricing Interest-Rate-Derivative Securities."* This articles shows that the one-state-variable interest rate models can be extended. So that it consistent with both the current term structure of interest rates and either the current volatilities of all spot interest rates or the current volatilities of all forward interest rates. In recent years, interest-rate-contingent claims such as caps, swaptions, bond options, captions, and mortgage backed securities have become increasingly popular. Practitioners have tended to use different models for valuing different interest-rate-derivatives securities.

It is difficult aggregate exposures across different interest-rate-dependent securities. For example, it is difficult to determine the extent to which the volatility exposure of a swaption can be offset by a position in caps. Similarly in this article, we present two one-state variable models of the short-term interest rate. Both are consistent with both the current term structure

of interest rates and the current volatility of all interest rates. In addition, the volatility of the short term interest rate can be a function of time. The user of the models can specify either the current volatilities of spot interest rates (which will be referred to as the term structure of spot rate volatilities) or the current volatilities of forward interest rate (which will be referred to as the term structure of forward rate volatilities).

Dauglas W. Elmendorf (June 1996), in his article "*The Effect of Interest Rate Changes on Household Saving and Consumption: A Survey"* includes direct estimates of the interest elasticity of saving suffer from several serious problems. As an alternative, this survey uses on indirect approach that combines models of individuals' preferences. This pooper examines the effect of interest rate changes on the consumption and saving of people who follow the lifecycle model, plan to leave bequests, who save to research a fixed target, and who have short planning horizons. The analysis yields the main conclusions of this study are as follows:

- Economists' understanding of the response of saving to changes in interest rates is quite limited, despite a large volume of research on the topic. Different models of consumer behavior imply different magnitudes for the interest elasticity of saving, and even different signs. Each model probably describes the behavior of some people, and it is not clear which model best characterizes the behavior of the "average saver". Thus, it is simply not possible to provider a precise estimate of the interest elasticity of saving with any confidence.
- Thus, the paper's second conclusion is that the short-run interest elasticity of saving is probably positive. It is explains the relationship between interest rates and consumption and saving that is predicted by the lifecycle model.
- The effect of interest rate changes on the consumption and saving of people who plan to leave bequests, who save to horizons, respectively. The eight section reviews other evidence on the interest elasticity of saving, and the ninth section briefly concludes.

Paudel(2012), in his article, *"The Interest Rate Corridor Approaches in the Operating of Monetary Policy"* has given some effect insight in the interest rate after various studies on it which as follows:

- The three major types of indirect instruments are bank rate (central bank lending facilities or discount windows), reserve requirement and open market operations. So, Bank rate can be used to signal the market about a change in monetary policy.

- The central bank can affect the supply of money by setting reserve requirement ratio under which depository institutions require to hold a prescribed fraction of deposit liabilities in the form of deposits with the central bank.
- Under the interest rate operating framework, the central bank seeks to control the money stock by controlling short-term interest rates and it requires close control over short-term interest rates. So, setting the interest rates on standing facilities is critical.
- Commercial banks short borrowing from the central bank rather than borrowing from the market when market rates are above the rate of the standing lending facilities. Conversely, commercial banks lend to the central bank when market rates are below the rate of standing deposit facility.
- In practice, the deposit and lending rates have very little impact rate corridor makes it profitable for the banks to borrow from each other and partly because the central bank is prepared to carry out so called fine tuning transactions every day.

Jagjit Schandha (2013), according to B/S Working Papers No 415 entitles *"The Interest Rate Effects of Government Debt Maturity"* has concluded that focuses on the macroeconomic implications of changes in the curve of interest rate. This paper has shown that, if government debt issuance policies can be treated as exogenous with respect to current and expected interest rate developments, central bank purchases of government bonds have had a large impact on the long-term interest rate. But if government debt managers in fact respond endogenously to interest rates, the estimates of the maturity effect may have an upward bias. More research is needed to learn about the reactions of debt managers to interest rates.

Another important aspect that deserves further research is the extent to which any empirical estimates of the interest rate effects of maturity is a good guide to the future. Indeed, the link between average debt maturity and long-term rates or term premium will depend on how fiscal policy is expected consolidation paths may mean that the same change in debt maturity could have a different impact on long-term rates. In addition, inflation expectations could be established by radical change in debt management policy. All these issues merit further reflection.

2.10 Research Gap

After reviewing those related literature, we have approached to following points, which certainly provide guideline to present study.

Interest rate refers to a rate which is charged or paid for the use of money. Interest is the amount paid by a borrower to a lender above the amount (the principal) that has been borrowed.

In finance literature, there is different from of theory of interest. They are classical theory, loanable fund theory, liquidity preference theory and rational expectation theory. The term structures of interest rate are pure expectation theory, liquidity premium view of yield curve, segmented marketed or hedging-pressure argument and preferred habitat theory.

Interest rate of deposit and lending is playing important role for bank and financial institution. Deposit is an arrangement whereby an individual or organization may place cash for safekeeping in a bank discount house or financial institution. The type of deposits is current, saving and fixed deposit.

In credit transactions, the creditor turns over to the debtors to repay an equivalent amount usually money in future plus an added sum called interest. In other words, the banks earn profit by lending the amount in terms of loan or credit and in return it gets interest. Banks loan are classified as (a) Loan advances, (b) Overdraft, (c) Cash credit, (d) Discounting of bills and so on. But besides this, the other forms of credit are: Bills Exchange; Cheques, Drafts, Promissory Note, Travelers' Cheque, Treasury Bills (T-Bills), Letter of Credit (LC), Book Credit etc.

This study includes the variables like deposit amount, interest rate on deposit, amount of loan, lending rate and their relationship of five banks, i.e. RBB, NBL, NABIL, HBL and KBL. This has covered the latest data, which cover the information from 2007 to 1012 that makes it the last version on this study with these banks. I want to prove that this research is original and one should be the foundation for the future researchers to know about the "*Interest Rate and Its effect on Deposit and Lending of Banks."* Future researchers are requested to research about the different factors influencing interest rate like maturity period, open border with India, political instability, foreign invest etc.

CHAPTER-III
RESEARH METHODOLOGY

Research methodology is a systematic is way to solve the research problem. In other words, research methodology describes the methods and process applied in the entire aspect of the study. Research methodology refers to the various sequential step (along with a rational of each steps) to be adopted by researcher in studying a problem with certain objectives in view. To achieve the stated objectives certain methodology should have to be followed which is discussed in this chapter. Thus the overall approach to the research is presented in this chapter consists of research design, sample size and selection process, data collection procedure and data processing techniques and tools. Therefore, suitable research methodology according to the demand of the study is presented below.

3.1 Research Design

A research design is a specification of methods and producers for acquiring the information needed. It is overall operational pattern of framework for the project that stipulates what information is to be collected, from which sources and by what procedures *(Paul and Donald, 1999:134*). Thus, a research designs in a plan for the collection and analysis of data. For research there exist different types of research design like historical research, descriptive research, case study, field study, analytical research, true experimental research and so on. This study mainly concerned with historical research. If applicable, sometime descriptive and analytical approach may also be used. But generally, to show the relationship of interest rate with deposit amount and inflation rate, past historical data are used. Selection of both types of research decision views that the quality and quantity of information are to be verified. The relevant and needed data has been collected from various publications of various commercial banks and Nepal Rastra Bank (NRB).

3.2 Population and Sampling

The term population or universe for research means the universal of research study in which the research study in which the research is based *(Wolf & Pant,2000:75*).Since the research topic is about interest rate, all lending and depository institution of Nepal are the member of population study. Among the total population only some selected institutions are taken as sample or randomly basis similarly due to unavailability of data from all the sectors, only

commercial banks are chosen for this study. So precisely saying, all 31 commercial banks are the population of the study and among them, only 5 commercial banks are chosen as samples from total population for selecting the samples. Simple random sampling method is used here among different methods. The following are the banks that are considered as the sample banks for the study are as follows:-

1. Rastra Banijya Bank
2. Nepal Bank Limited
3. Nabil Bank Limited
4. Himalayan Bank Limited
5. Kumari Bank Limited

This study will try to explore the objectives set in the previous section and it is also expected that this study will help in analyzing the interest rate structure regarding deposit and lending.

3.3 Data Collection Procedure and Sources of Data

Basically secondary data are used for the requirement of this study. These data are collected from the published source like annual reports, Prospectus, internet search, Balance sheet, newspaper, journal and other sources. Beside this some of the data are collected from direct interview and observation. Some o f the data published on annual report like, interest rate, amount as well as organization profiles are collected from their web sites. Some secondary data are comparatively studies and inflation rates are collected from Nepal Rastra Bank and NRB website.

Sources of Data

Data may be obedient from several sources; it is easily to list them in detail. Each research project has its own data needs and data sources. However, the general classification of data sources has two dimensions: primary and secondary sources. Primary data are original data gathered by the researcher for the research project at hand. Thus this data are collected for meeting the specific objectives of the study. Primary data are collected through interviews, questionnaires, observations or experiments. Secondary sources refer to those for already gathered by others. The sources of secondary data can be divided into two groups: internal and external. The internal secondary data are found with in the banks. Sources of such data include financial activities information, accounting data and internally generated research reports. External secondary data are collected from sources outside the company. Such

sources may include books, periodicals, published reports, data services, and computer data banks.

The research work is based on both primary and secondary data. However, secondary data are used to higher extend due to time constraint and most important unreachable factor. Questionnaires form will be developed to collect view regarding investment decision while annual report of the Rastriya Banijya Bank, Nepal Bank Limited, Nabil Bank Limited, Himalayan Bank Limited and Kumari Bank Limited bulletin will be used as secondary source.

According to the need and objectives, all the secondary data are complied, processed and tabulated in the time series. Formal and informal talks to the concern member of department of the bank with a set of questionnaires will be used to obtain addition information of the related problem.

Similarly, various data and information are collected from the periodicals, economic journals, managerial magazines and other published and unpublished reports and documents from various sources will also be used.

3.4 Data and Information Collection Procedure

The data or information obtained from the different sources is in raw form. From that information, direct presentation is not possible. So it is necessary to process data and converts it into required form. After then only the data is presented for this study. This process is called data processing. For this study only required data are taken from secondary source (bank's publication) and presented in this study. For presentation, different tables are using. Similarly, in some case graphical presentation is also made. So far as the computation must be concerned, it is done with the help of scientific calculator and computer software program.

3.5 Data Analysis Procedure

The collected data must be classified tabulated and analyzed in descriptive and analytical way as per the subject matter. Likewise, the required accounting principle mathematical approaches and legal provision of ITA 2058 are taken into consideration in data analysis procedure.

Data of this study mainly have collected from two sources. Primary data sources are collecting by using questionnaire. First of all questionnaire are developed and distribution to be through personally field visit. Sources of secondary data would be collected from published reports of various spots.

3.6 Presentation and Analytical Tools

In order to get the concrete result from this study, data are analyzed by using different types of tools. As per requirements emphasis is given on statistical tools rather than financial tools. While conducting this study which is table, percentage, charts and diagrams, correlation, time series analysis etc. So for this study following statistical tools are going to use:

3.6.1 Arithmetic Mean

It is the sum of all the observations divided by the number of observations. Or the most popular and widely used measure of representing the entire data by one value is called Arithmetic Mean. As arithmetic mean is the most common and popular tools for data analysis, so here in this study also is used to arithmetic mean. It is computed by using following formula:

$$Arithmetic\ Mean\ (\bar{X}) = \frac{\sum X}{N}$$

Where, $\bar{X}$ = Mean

$\sum X$ = Sum of variable X

n = Total variable involved

3.6.2 Standard Deviation

The standard deviation is a statistic used as measure of the dispersion or variation in a as a measure of the dispersion or variation in a distribution, equal to the square root of arithmetic mean of the squares of the deviations from the arithmetic mean. It is the best tools to study fluctuation in any data. It is usually denoted by the letter sigma (ϭ). It is also known as "Root Mean-Square Deviation" and is computed by using following formula:

$$Standard\ deviation(\sigma) = \sqrt{\frac{\sum(X - \bar{X})^2}{n}}$$

Greater the magnitude of standard deviation higher will be the fluctuation and vice versa.

3.6.3 Coefficient of Correlation

By this statistical tool, the degree of relationship between two variables is identified. In other words this tool is used to describe the degree to which one variable is linearly related to other variables. Two or more variables are said to be correlated if change in the correlation analysis refers the closeness of the relationship between the variables. Correlation may be positive or negative and ranges from -1 to +1. Simple correlation between interest rate and credit or lending amount and interest rate (both deposit rate and lending rate) and inflation is computed in this thesis. For example, let us say that the correlation between interest rate and inflation is positive. It indicates that when inflation increases, interest rate also increases in same direction and vice-versa.

The simple correlation coefficient (r) is calculated by using following formula:

$$Simple\ Correlation\ Coefficient\ (r) = \frac{Cov(X_1,X_2)}{\sigma(X_1)\sigma(X_2)}$$

Where, $Cov(X_1,X_2)$ = Covariance (X_1,X_2)

$$= \frac{1}{n}\{\sum(X_1 - \overline{X_1})(X_2 - \bar{X}_2)\}$$

n=Total number of observation

X_1 and X_2= two variables, correlation between them are calculated

$$Multiple\ Correlation\ Coefficient\ (R_{1.23}) = \sqrt{\frac{r_{12}^2 - r_{13}^2 - 2r_{12}r_{13}r_{23}}{1 - r_{23}^2}}$$

Where, r_{12} = Correlation Coefficient between variables 1 and 2

r_{23} = Correlation coefficient between variables 2 and 3

r_{13} = Correlation coefficient between variables 1 and 3

Multiple correlation is used for the measure of degree of association between one variables as the independent variable. It lies between 0 and 1. The close it is to '1', better linear relationship between the variables.

3.5.4 Coefficient of Multiple Determinations

The square of the multiple correlation coefficients is called coefficient of multiple determination. It is very useful tools to interpret the value of multiple correlation coefficients. The main significance of the coefficient of multiple determinations is to present the portion of total variation due to the dependent variable which is explained by the variations in the two independent variables.

$$Coefficient\ of\ Determinanation\ (r_{12}^2)\ =\ (r_{12})^2$$

Where, r_{12} = Simple correlation Coefficient between variable 1 and 2

t-test for Signification for Correlation Coefficient

If 'r' is the observed sample correlation coefficient of 'n' pairs of observations from bivariate normal population, the test statistics for significance of correlation under null hypothesis is given by as follows:

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

Where, n-2 = degree of freedom (d.f.)

n = sample

t= t-distribution i.e. follow t-distribution with n-2 degree of freedom (d.f.), 'n' being the sample.

If the calculated value of the 't' exceed to 0.5 for (n-2) d.f.: the value of 'r' is significant at 5% level. If 't' $\leq$ 0.05, the data are consistent with the hypothesis of uncorrelated population.

CHAPTER-IV

PRESENTATION AND ANALYSIS OF DATA

4.1 Introduction

This is an important section where calculated data are presented and analyzed. This is the one of the major chapter in this study because it includes detail analysis and interpretation of data from which concrete result of Nepalese market can be obtained. Without this part the study becomes incomplete. In this chapter, the relevant data and information necessary for the study are presented and analyzed keeping the objectives set in mind. This chapter consists of various calculation made for the analysis of interest rate and its effects on deposit amount, lending amount and inflation rate for the sample bank. To make our study effective and precise as well as easily understandable, this chapter is categorized in three parts; presentation, analysis and interpretation section and data is presented in terms of table, graph, chart of figure, according to need. The presented data are then analyzed using different statistical tools mentioned in chapter three. At last the results of analysis are interpreted. Though there is no distinct line of demarcation for each section (like presentation section, analysis section and interpretation section) but arrangement of writing is made by aforementioned wary.

Similarly it is also noted that almost all data used for analysis are of secondary type. In order to find out from the study the presented data are in chart from according to the need of the study and they are analysis with suitable statistical tools, then after fully analysis interpretation is made in order to develop effective suggestion for the study. Similarly, presentation analysis and interpretation of data are made according to the nature. In other words, at first relationship of deposit and interest rate and credit (lending) amount is made. Lastly the relationship between interest rate and inflation is presented. While analyzing, different statistical tools like correlation coefficient, coefficient of determination, t- statistics for significance are employed.

4.2 Analysis of Lending, Deposit and Interest Rate

In this section, deposit study is made about deposit amount and interest rate of various banks. For this study only saving and fixed deposits are considered because current deposit doesn't earn any interest. Lending is second element of the analysis where mainly the relationship between lending interest rate and its effect upon lending amount measured. Generally, when there is higher interest rate (especially lending or credit rate) in the economy people normally borrow lesser amount then the period when lending interest rate is low. According to the theory, when there is low lending rate, then there should be higher amount of borrowing. Higher amount of borrowing indicates higher investment in the country or higher transaction in trade. This is necessary for the growth of the economic. So this study tries to explore the relationship between lending rate amounts in Nepalese context.

4.2.1 Interest Rate and Its Effect of Deposit on RBB

Prior to entering into the main topics, it is preferable to take glance on the interest rate structure on different types of deposits. This is essential because the interest rates are generally different in magnitude for every sample banks. These differences are due to the numerous factors like maturity period, policy of banks, and goodwill of organization and so on. In real word government owned bank and banks with high reputation and goodwill have lower deposit rates. Similarly, finance companies, co-operative and development bank quotes higher interest rate on deposits them on deposits then commercial banks do.

Table 4.1

Interest Rate Structure on Deposit of RBB as on Mid-July

Deposit	2007	2008	2009	2010	2011	2012
Saving (%)	2.00	2.00	2.00	4.50	4.08	3.35
Fixed (%)						
7 Days	-	-	-	-	-	-
14 Days	-	-	-	-	-	-
1 Month	-	-	-	-	-	-
3 Months	2.25	2.25	-	5.50	5.50	5.00
6 Months	2.25	2.25	-	6.00	6.00	5.50
1 Year	3.25	3.25	5.00	7.00	8.00	6.50
2 Years	-	-	6.00	8.00	8.25	6.50
Above 2 Years	-	-	7.00	9.00	8.50	6.50
Whole Mean (%)	**2.44**	**2.44**	**5.00**	**6.67**	**6.72**	**5.56**
Fixed Deposit Mean (%)	**2.58**	**2.58**	**6.00**	**7.10**	**7.25**	**6.00**
Standard Deviation	**1.777%**					

Sources: - Banking and Financial Statistics, NRB – 58, Annual Report of RBB.

Table no. 4.1 shows the deposit interest rate of RBB last six years. For this study 2007 is taken as initial year and 2012 as final year. Table shows the interest rates which prevailed in the Nepalese financial markets during last past six years. Data shows the interest rate on saving was equal 2% in the year 2007, 2008 and 2009. Thereafter the saving interest rate is increasing in year 2010 i.e. 4.5%. But it was down for the year 2011 and 2012 were 4.08% and 3.35% respectively. So, saving deposit rate shows moderately increasing-decreasing trend. In same manner, bank used to quote the interest rate of fixed deposit in different short term period like 7 days, 14 days, 1 month, 2 months, 3 months and so on. The interest rate of fixed deposit is increasing trend during the six fiscal years except for the year 2012 and witnessed highest increase in the year 2011. Table shows the average interest rate on fixed deposit were same 2.58% for the year 2007 and 2008, 6% for the year 2009, 7.1% for the year 2010, 7.25% for the year 2011 and 6% for the year 2012. Similarly, average interest rate for the deposit were 2.44%,2.44%, 5%, 6.67%, 6.72% and 5.56% for the year 2007, 2008, 2009, 2010, 2011 and 2012 respectively. It main reason is lack of liquidity is more till deposit collection. In others are inflation rate, principal of time period, risk premium etc are caused of this condition. The average figure also shows the increasing tendency in interest until 2011 and then decreasing for the year 2012. The standard deviation of whole mean is 1.777%

shows that the scatterdness among the average interest rate on all deposit from the mean of whole is 1.777% within six year time period. All the above described matters can be shows as figure 4.2 as follows.

Table 4.2

Correlation Coefficient of Determination and t-statistics of RBB

Relationship between Interest Rate and Deposit amount of RBB

Year (1)	Saving Deposit Interest Rate in % (2)	Saving Deposit Amount (in Rs million) (3)	Fixed Deposit Interest Rate in % (4)	Fixed Deposit Amount (in Rs million) (5)
2007	2.00	33046.06	2.58	7030.43
2008	2.00	40275.75	2.58	4511.21
2009	2.00	46164.26	6.00	3212.4
2010	4.50	42809.49	7.10	6539.21
2011	4.08	38590.02	7.25	14266.85
2012	3.35	44106.77	6.00	17984.35
Correlation	**r_{23}=0.1707**		**r_{45} =0.4091**	
Coefficient of Determination	**r^2_{23} =0.0291**		**r^2_{45} =0.1674**	
t-statistic	**t_{cal} = 0.346 t_{tab} = 2.571**	Insignificant	**t_{cal} = 0.897 t_{tab} = 2.571**	Insignificant

Source: - Banking & Financial Statistics, NRB – 58.

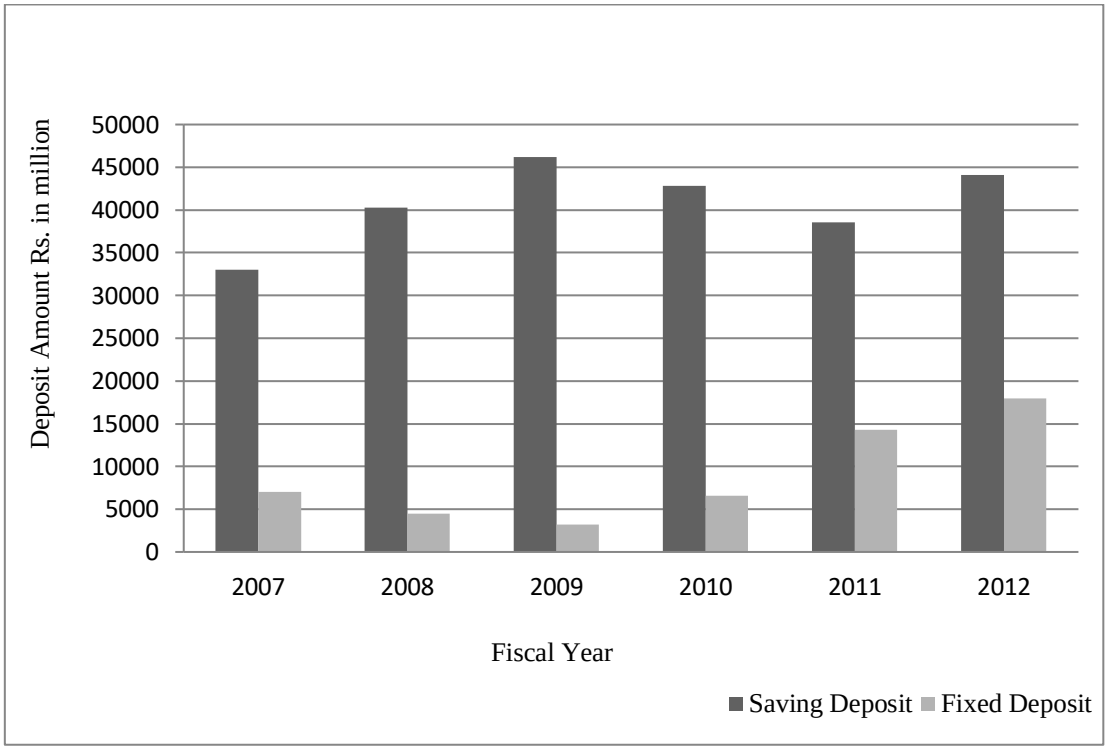
Table 4.2 shows that total amount of saving deposit and fixed deposit and interest rates offered on such deposits by RBB on six fiscal years starting from 2007 to 2012. The table portrays that the saving interest rate is 2% the deposit amount Rs. 33,046.06 million has been collected as a saving deposit and likewise same interest rate on FYs 2008 and 2009 are Rs. 40,275.75 million and Rs. 46,164.26 million respectively. Saving deposit has been collected in 4.5% and 4.08% interest rate Rs. 42,809.49 million and Rs. 38,590.02 million for the year 2010 and 2011 respectively. But this current year 2012, RBB has been collected Rs. 44,106.77 million in 3.35% saving deposit interest rate.

Likewise 2.58% average fixed deposit interest rate has been applied for Rs. 7,030.43 million deposit amount in year 2007. 2.58% rate has been applied for Rs. 4,511.21 million in year 2008. Similarly, 6% interest rate provide for Rs. 3,212.40 million, 7.10% interest rate provide for Rs. 6,539.21 million and 7.25% interest rate provide for Rs. 14,266.85 million in the year 2009, 2010 and 2011 respectively. At last the current year 2012, total fixed deposit amount

has shown Rs. 17,984.35 million in 6% average deposit interest rate. The table portrays that the both interest rate has been by calculating correlation coefficient between them. This relationship can be shown also in figures 4.1 and 4.2., decreased by greater magnitude. RBB's total deposit amount has been shown increasely during the study period. It means they move in opposite direction i.e. decrease in interest rate than increase the amount of deposit and vice-versa. Therefore they should have negative relationship. It can be quantified as follows figure.

Figure 4.1

Deposit Amount of RBB during different FYs

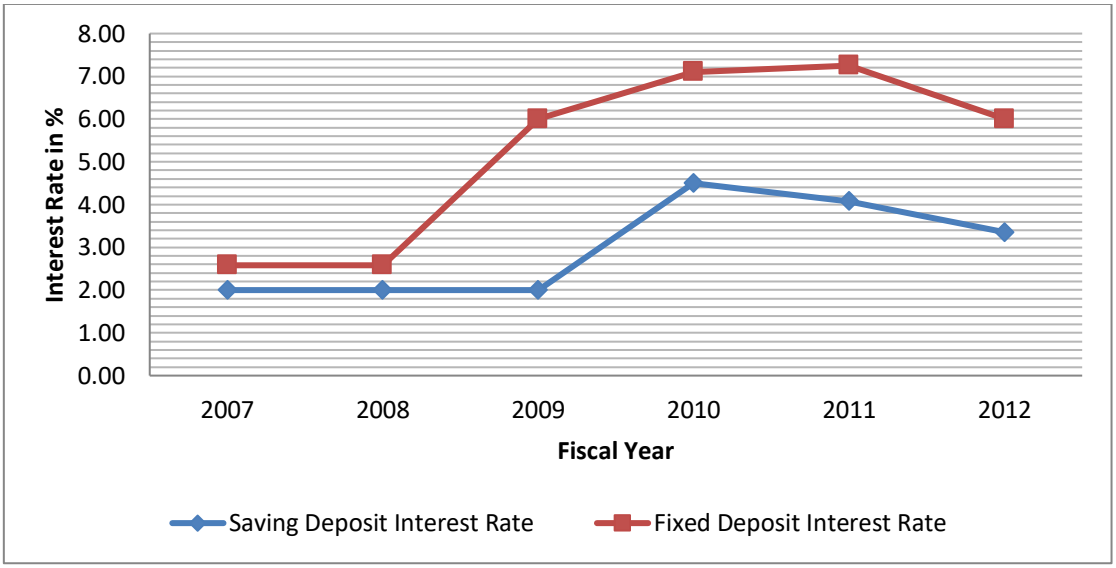


According to figure 4.1, for fixed deposit amount shows the clear picture of saving deposit amount and fixed deposit amount in different year of study period. In initial period of the study the saving deposit amount has been in higher side but the fixed deposit is lies under lower side. In year 2007, 2008, 2009 and year 2011 fixed deposit amount has been collected less than in year 2011 and 2012, then after they have collected more saving amount in year 2009. Saving deposit amount becomes fifth comparing to fixed deposit amount in initial year 2007. So, overall the saving deposit amount is collected more than four times and becomes Rs. 44,106.77 million. So, it is clear that RBB collects few funds from fixed deposit in

comparison of saving deposit but bank cannot able to collect satisfactory collection is done on saving deposit but bank cannot able to collect satisfactory amount of fixed deposit, which is helpful to invest as a long term debt.

Figure 4.2

Interest Rates of RBB on Saving and Fixed Deposit during different FYs



Similarly, It referring to the above graph fixed deposit interest rate graph line is same from year 2007 and 2008, and same figure in year 2009 fixed deposit rate has been offered is in increasing trend year by year till 2011 and become 7.25% but this year 2012, fixed deposit shows decreasing and got 6%. Similarly, interest rate on saving deposit has been same as year 2007, 2008 and 2009 i.e. 2% and year 2010 is increase it 4.5%, then after period it has decreasing to 4.08% and 3.35% for the year 2011 and 2012 respectively. In this regards, the substitution effect holds true in case of fixed deposit.

Correlation Coefficient, Coefficient of Determination and t – Statistics of RBB

To verify the above trend, it is necessary to calculate the correlation coefficient and t-statistics. If correlation coefficient is calculated for saving deposit and deposit amount, then it is ($\mathbf{r_{23}}$) = 0.1707. This low positive correlation coefficient indicates that they have low positive relationship among each other. Increase in interest rate is followed by an increase in saving deposit and vice-versa. This shows that the substitution effect in case of RBB for saving account is applicable. The coefficient of determination between these two variables is

r^2_{23} = 0.0291, which means that total variation in dependent variable (saving deposit amount) has been explained by independent variable (interest rate) to the extent of 2.91% and remaining is the effect of other factors. The t – value for testing the significance of the correlation coefficient between variable is 0.346 (t_{cal} = 0.346). Since the tabulated t – value at 5% level of significance for 5 degree of freedom is 2.571 (t_{tab} = 2.571) which is more than calculated value (t_{cal} =0.346), the correlation coefficient is no significant. This means the variables mentioned (interest rate on saving deposit and amount of saving deposit) for RBB are not significantly correlated and increase in the amount of deposit brings an increment in interest rate on saving deposit and vice versa.

In the same manner, the correlation coefficient between interest rate on fixed deposit and fixed deposit amount (r_{45}) is 0.4091. This means that these two variables are co-correlated when interest rate on fixed deposit decreases (increases) the deposit amount also decreases (increases). This is exactly the matter what the theory (substitution effects) says. The coefficient of determination between these two variables is r^2_{45} = 0.1674, which means 16.74% of total variables in dependent variables (deposit unit) is explained by the independent variable (deposit rate) and remaining is due to the effect of other factors. Similarly, test of significance of correlation coefficient between deposit rate and deposit amount gives the value of t is 0.897 (t_{cal} =0.897). The tabulated value at 5% significant level with degree of freedom 5 is 2.571 (t_{tab} = 2.571). Here $t_{cal} < t_{tab}$, so H_0 is accepted i.e. there is no significant relation between two variables. Though the correlation coefficient indicates that the both variables have moderate level of relationship but t – statistics clearifies that their relationship is not so significant.

4.2.2 Interest Rate and Its Effect of Lending on RBB

The sector where RBB grant its credit during last six FYs and their corresponding interest rate, average rate and lending amount are presented in the table number 4.1 as bellow:

Table 4.3
Lending Rate on RBB on Different Sectors during Six FYs

Sectors	2007	2008	2009	2010	2011	2012
	%	%	%	%	%	%
Overdraft	11.00	11.00	12.50	13.75	13.75	12.50
Hypothecation	10.00	10.00	12.50	13.75	13.75	12.50
Loan against Gold and Silver	10.00	11.00	12.00	15.00	15.50	13.50
Loan against Govt. Bonds	7.00	10.00	11.00	12.00	9.00	13.50
Loan against RBB's Fixed Deposit	6.00	6.00	8.00	10.00	10.00	10.00
Loan against FCBG	7.00	7.00	11.00	12.00	12.00	11.00
Pledge Loan	11.00	11.00	13.00	14.00	13.50	12.50
Priority Sector Loan	11.50	11.50	11.50	11.50	11.00	11.00
Deprived Sector Loan	8.50	8.50	10.00	11.00	9.50	11.50
Trust receipt / Import Loan	8.00	7.75	9.50	11.50	10.50	9.50
Export Loan	8.00	8.00	9.50	10.50	10.00	9.50
Hire Purchase Loan	9.00	9.50	12.50	14.50	14.50	13.50
Term Loan	11.00	11.00	13.00	13.50	13.50	13.00
Housing Loan	8.00	8.25	11.00	14.50	14.50	13.00
Refinancing	7.00	7.00	12.00	14.00	14.00	11.00
Auto Loan	7.50	8.50	11.50	14.50	13.00	12.50
Education Loan	8.00	8.00	11.00	12.00	12.00	12.00
Equipment Loan	8.00	8.50	-	-	-	-
Loan against shares	9.00	9.00	13.00	14.50	12.50	12.00
Personal Loan	10.00	10.00	13.00	14.50	14.50	13.50
Average Interest rate	**8.78**	**9.08**	**11.45**	**13.00**	**12.47**	**11.97**
Lending Am*ount (Rs. In million)*	**24775.73**	**27570.73**	**31606.73**	**35692.51**	**36866.10**	**40488.86**
Correlation	**0.8789**					
Coefficient of Determination	**0.7725**					
t- Statistic	**t_{cal} = 3.685**		**t_{tab} = 2.571**		**Significant**	
Standard Deviation	**1.78%**					

Source: - Banking & Financial Statistics, NRB – 58, Annual Report of RBB.

Lending activity of commercial banks can be diversified into different sectors. But according to the publication of NRB- Banking & Financial Statistics- the loan of commercial banks are classified in different sub-sectors like Overdraft, Hypothecation, Export Credit, Import LC, and Commercial Loan and so on. So, RBB has determined the different sectors own their lending interest rate. According to the table 4.3, it shows that interest rate on lending on different area are increasing stage. The table shows that the maximum interest rate is 15.5% in FY 2011 and minimum rate is 6% on during the FYs 2007 and 2008. This shows that the interest rate was increasing drastically during the six FYs periods. Generally, the productive

sector loan rate (like Commercial Loan, Industrial Loan, Priority Sector Loan, Working Capital rate and so on) comparatively decline more in magnitude than non-productive sector loan (like Overdraft, Hypothecation, Loan against government bond, Loan against RBB's Deposit etc). For example, during the last six FYs incrementation of loan Gold & Silver interest rate was by 13.5%. In same manner, the incremental magnitudes were 12.5%, 12.5%, 13.5% and 10.0% for overdraft, Hypothecation, Loan against Govt. Bonds and Loan against RBB's Fixed Deposit respectively. According to theory, in order to induce the investment in the country or expansion of trade, the productive sector loan should be available at chapter rate. But the figure shows that these sectors loan were somewhat costlier than other non-productive loan. If the average of each fiscal year is taken, then it shows average interest rate was 8.78% (2007), 9.08% (2008), 11.45% (2009), 13% (2010), 12.47% (2011) and 11.97% (2012). The standard deviation for average interest rate was 1.78%, which shows the deviation from mean return. There also shows, the average rate are increasing one certain period then after decreasing smoothly. It means the rate increment and decline each year with different rate. In preceding year the declination was quite fast where as the declining tendency was little in latter year. This concludes that interest rate on lending is also in moderate tendency for past few years. With harmony to interest rate, the lending amount of RBB is seen to be in increasing tendency of each FY. These can also be presented in figure number 4.3 and 4.4.

Figure 4.3

Lending Amount of RBB during different FYs

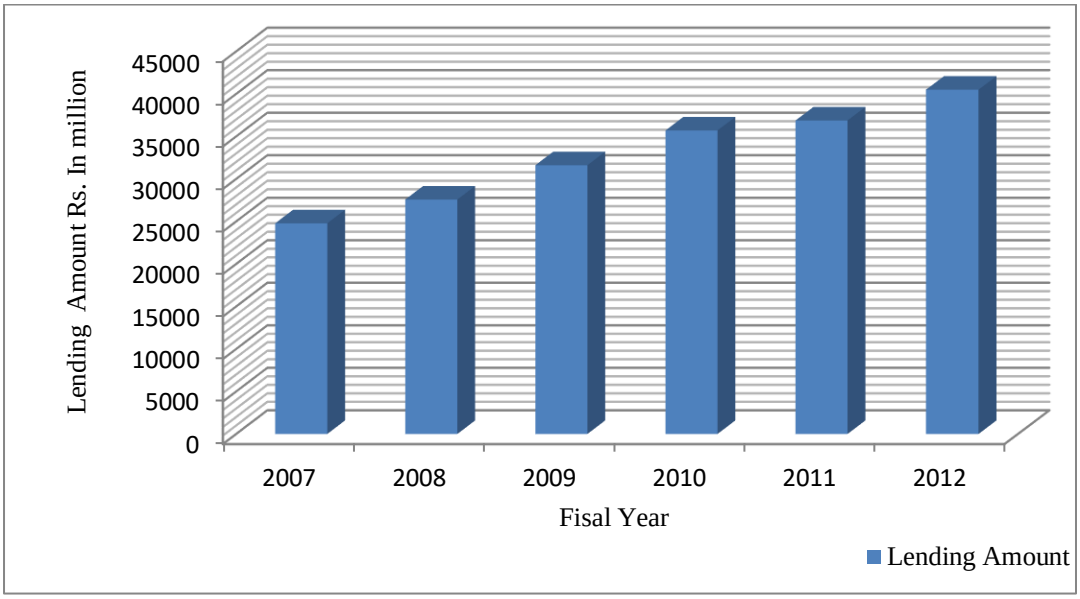


Figure 4.4

Average Lending Rate of RBB during different FYs

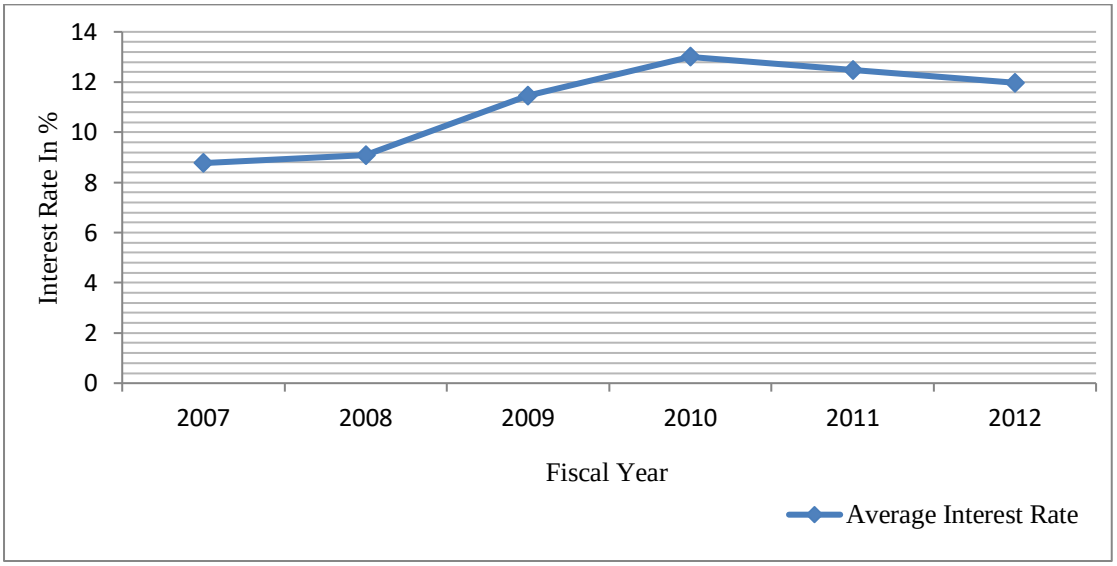


Figure no.4.3 shows that every year lending amount position is increasing trend. For year 2007, 2008, 2009, 2010, 2011 and 2012; lending amount are Rs. 24775.73 million, Rs. 27570.73 million, Rs. 31606.73 million, Rs. 35692.51 million, Rs. 36866.10 million and 40488.86 million respectively. Similarly figure 4.4 shows average lending interest rate of RBB is seems to increase in year 2007, 2008, 2009 and 2010 but it falls down in year 2011 and 2012 which are 12.47% and 11.97% respectively.

Correlation Coefficient, Coefficient of Determination and t-Statistics of RBB

From table 4.3, the correlation coefficient (simple correlation) between lending rate and lending amount (r_{12}) is 0.8789. According to our classification, this positive correlation is "highly degree" correlation. In this case it is clear that interest rate on lending and lending amount has positive relationship. It means they move in same direction i.e. increase in lending rate result increase in total lending amount. This situation matches with the actual theory. According to the theoretical concept of lending rate and lending amount people prefer or use more money when the market interest rate is low in the market. So, the case is true for RBB also. The simple determination of correlation coefficient (r_{12}^2) is equal to 0.7725. When total lending amount is taken as dependent variable and lending rate as independent variables, then 77.25% of total variation in dependent variable is explained by lending rate and remaining percentage is due to the effect of other variables in the economy. Test of signification of correlation calculated value of t-Statistics is 3.685 (t_{cal} = 3.685). This value is higher than tabulated value, t_{tab} = 2.571 with level of significance 5% and d.f. is 5. In this condition, H_0 is accepted. It means that there is no significant correlation between the two variables. In other words their relation is insignificant. Though the correlation coefficient shows that these two variables have moderate level of correlation, but t-Statistics verify that their relation is no significant. In conclusion, the inverse relationship between lending rate and lending amount is not exactly applicable for RBB.

4.2.3 Interest Rate and Its Effect on Deposit on NBL

The general structure of deposit interest rate of Nepal Bank Limited (NBL) is shown below on table no. 4.4. The table shows the interest rate of NBL during the last six FYs. The trend of interest rate shows that it is both decreasing and increasing trend. It is similar with that of RBB. The interest rate shows that it was 2.25% during the period of 2007 and same as 2008, then after year 2009 it was increased i.e. 2.5%. Again interest rate on saving deposit is same in year 2010 and 2011 i.e. 3% which is increased but at year 2012 it was falling by 0.5%. Similarly the interest rate on fixed deposit also fluctuated during the six FYs by up-down. The interest rate was felt little during the current years than previous periods, which is showing as below table.

Table 4.4

Interest Rate Structure on Deposit of NBL on Mid – July

	Year					
Deposit	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Saving Deposit (Normal Saving in %)	2.25	2.25	2.50	3.00	3.00	2.50
Fixed Deposit in %						
1 month	2.50	3.00	3.25	3.50	4.00	4.00
2 months	3.50	2.75	2.50	-	-	-
3 months	3.00	3.50	3.50	4.00	4.50	4.50
6 months	3.00	4.25	3.75	4.00	5.00	5.00
1 year	3.75	4.00	5.00	5.25	5.60	6.00
2 year & above 2 years	-	6.25	7.00	7.00	6.00	6.50
Whole Mean (%)	3.00	3.71	3.93	4.46	4.68	4.75
Fixed Deposit Mean (%)	3.15	3.96	4.17	4.75	5.02	5.20
Standard Deviation	0.616%					

Source: - Banking & Financial Statistics, NRB – 58, Annual Report of NBL.

In table no.4.4, It is also clear that the increasing gap for long term fixed deposit is greater where as for short term deposit the increasing gap is little. In other words, both long term and short term interest rate falling rate is similar in later year but in previous year the interest rate is fast for long term fixed deposit where as falling rate was slow for short term fixed deposit. Here interest on average fixed deposit are 3.15%, 3.96%, 4.17%, 4.75%, 4.75%, 5.02% and 5.20% in the year 2007, 2008, 2009, 2010, 2011 and 2012 respectively. So these tendencies can also be shown in graph no. 4.5 as follows.

Table 4.5

Relationship between Interest Rate and Deposit Amount of NBL

[Correlation Coefficient, Coefficient of Determination & t – Statistics]

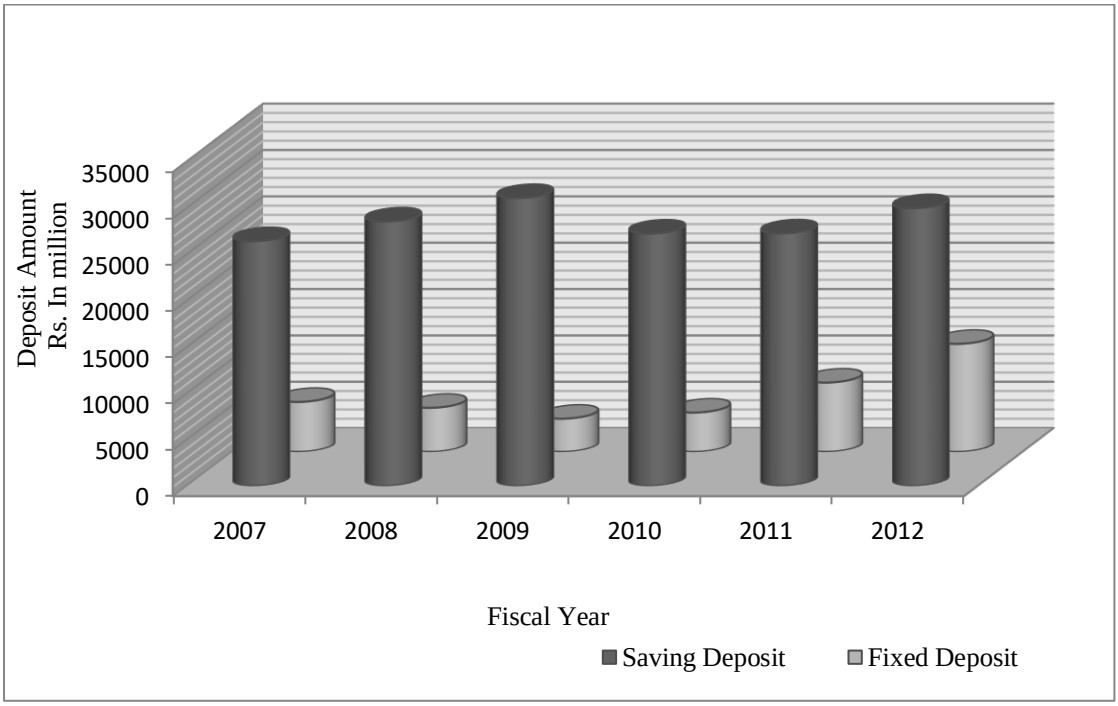
Year (1)	Saving Deposit Interest Rate in %(2)	Saving Deposit Amount Rs. In million (3)	Fixed Deposit Interest Rate in % (4)	Fixed Deposit Amount Rs. In million (5)
2007	2.25	26425.40	3.15	5393.20
2008	2.25	28545.10	3.96	4757.90
2009	2.50	31074.00	4.17	3579.40
2010	3.00	27241.30	4.75	4241.10
2011	3.00	27255.80	5.02	7482.30
2012	2.50	29980.60	5.20	11664.60
Correlation Coefficient	**r_{23} = -0.2290**		**r_{45} = 0.5838**	
Coefficient of Determination	**r^2_{23} = 0.0524**		**r^2_{45} = 0.3408**	
t – Statistics	**t_{cal} = 0.470, t_{tab} = 2.571 (Insignificant)**		**t_{cal} = 1.438, t_{tab} = 2.571 (Insignificant)**	

Source: - Banking & Financial Statistics, NRB – 58.

In table no. 4.5, saving amount and deposit rates are arranged in systematic order. The outlook of the table shows that the interest has been increasing in year 2007 to year 2010 then decrease in year 2012 but fixed deposit interest rate has been increasing little – little every FY and this year, it is 5.20%. The amount of saving deposit has been also increasing in curtained period and decreasing trend also. So, overall it is seen increasing every year except year 2009. This indicates that the condition for NBL is opposite to the substitution theory. The case is same for fixed deposit too. But the pictures for fixed deposit are somewhat different. After 2007, the deposit amount had been decreasing trend till 2009 but after 2009 it has been increasing trend with little amount. It indicates that with increase in interest rate, fixed deposit amount also increases. But the increment speed of interest rate is quite higher than that of declining speed of deposit amount. This suggest that they may have positive relationship but determine the magnitude of relation, correlation coefficient should be calculated and to identify the strongeness or weakness of relationship and it is necessary to calculate the t – test. But prior to all, it is clear if we show these relations on graph no. 4.5 and 4.6.

Figure 4.5

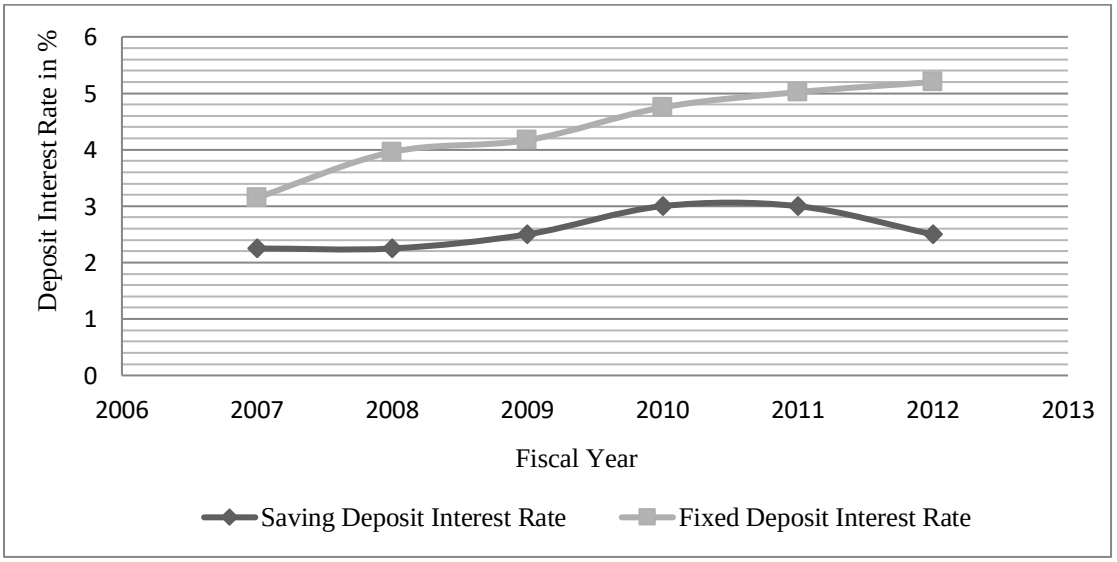
Deposit Amount of NBL during Different FYs



Above the figure no. 4.5, the saving deposit amount has been in higher than fixed deposit amount in each fiscal year from 2007 to 2012. In year 2007, 2008 and 2009 saving deposit amount is increasing than after year 2010 decreases but remain year it is going to increase slowly. Similarly fixed deposit amount position is decreasing till 2007 than after it is recovered to increasing position becomes to year 2012 and makes amounted Rs.11664.60 million.

Figure 4.6

Interest Rate of NBL on Saving and Fixed Deposit



In the figure no.4.6, it referring Saving deposit interest rate graph line is same fiscal year 2007 and 2008, and same figure in year 2009 offered is in increasing trend year by year till 2011 and becomes 3% than year 2012 is decreasing becomes 2.5%. Similarly interest rate on fixed deposit has been increasing trend in each every year i.e. 3.15% in year 2007, 3.96% in year 2008, 4.17% in year 2009, 4.75% in year 2010, 5.02% in year 2011 and 5.20% in year 2012. In this case, the substitution effect holds true in case of fixed deposit.

Correlation Coefficient, Coefficient of Determination and t – Statistics of NBL

The correlation coefficient for saving deposit interest rate and deposit amount, r_{23} is found to be negative of = -0.2290. This value indicates that they two have low negative or inverse relationship. Increase in one variables lead to decrease in other variables. This is extremely against the theory suggested by "substitution effect". Similarly, the coefficient of determination between two variables, r_{23}, is 0.0524 which means that total variation in interest rate on deposit has been explained by supply of deposits to the extent of 5.24% and remaining high percentage is the effect of other factors. The t – value for testing the significance of the correlation coefficient between variables is 0.470 (t_{cal} =0.470), which is significantly lesser than tabulated t – value (t_{tab} = 2.571) at 5% level of significance with 5 degree of freedom. Since the calculated value is significantly lesser than tabulated value, the conclusion is drawn that correlation coefficient between variable is insignificant. This means that the interest rate on saving deposit and deposit amount of NBL are not significantly correlated and increase in the supply of fund (deposit) brings the increase in interest rate on deposit. That is the substitution theory is applicable for the saving deposit of NBL.

Similarly, correlation coefficient for fixed deposit interest rate and fixed deposit amount, r_{45}, is found to be 0.5838. This shows that they have positive correlation. It means that the increase in deposit interest rate stimulates saving on fixed deposit. This relation can be clearly explained by the coefficient of determination, which is 0.3408, means that total variation in interest rate on fixed deposit has been explained by supply of deposits to the extent of 34.08% and remaining 65.92% is the effect of other variables. The t – value for testing the significance of the correlation coefficient between variables is 1.438 (t_{cal} = 1.438), which is significantly lesser than tabulated t – value is 2.571 (t_{tab} = 2.571) at 5% level of significance with 5 degree of freedom. Since, the calculated value is significantly less than

tabulated value, the conclusion can be drawn that correlation coefficient between variable is insignificant. This means that though the correlation between interest rate on fixed deposit and deposit amount of NBL shows the very less positive correlation, the t – test indicates that there is no significant correlation between them.

4.2.4 Interest Rate and Its Effect of Lending on NBL

The sector where NBL grant its credit during last six FYs and their corresponding interest rate, average interest rate and lending amount are presented in table no. 4.6 below.

Table 4.6

Lending Rate on NBL on Different Sectors during Six FYs

	Year					
Sectors (in %)	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Hypothecation	-	-	-	-	11.75	12.25
Overdrafts	10.00	12.20	12.25	12.00	11.75	12.25
Import LC		8.00	8.50	-	-	-
Export Credit (Demand)	8.50	8.50	9.75	10.50	11.75	12.25
HMG Bond	7.00	7.00	8.00	8.50	9.50	9.50
BG/ CG	8.75	8.75	9.25	10.00	10.25	10.25
Pledge Loan	-	-	-	-	11.75	12.25
Structured Demand Loan	-	-	-	-	9.50	10.00
Priority Sector (Agriculture) Loan	10.50	10.50	10.75	11.00	11.00	12.00
Poorer Sector Loan	8.00	8.00	7.50	7.00	6.50	6.00
Working Capital	10.00	10.00	9.00	8.50	-	-
Hire Purchase Loan	12.00	12.00	12.00	12.25	12.50	12.50
Others	12.00	12.00	13.00	12.50	12.00	11.50
Average Lending Interest Rate in % (1)	**9.64**	**9.70**	**10.00**	**10.25**	**10.75**	**10.98**
Lending Amount Rs. In million (2)	**13,377. 50**	**15,480. 60**	**19,261. 00**	**25,074. 20**	**26,637. 80**	**29,551. 30**
Correlation (r_{12})	**0.9666**					
Coefficient of Determination	**0.9343**					
t - Statistics	**t_{cal} = 7.542**		**t_{tab} = 2.571**		**Significant**	
Standard Deviation	**0.551%**					

Source: - Banking & Financial Statistics, NRB – 58, Annual Report of NBL.

The table 4.6 shows the lending interest rate structure of NBL on different sectors. This interest rate is somewhat lower in value as compare to interest rate of RBB (table no. 4.3). It means that there was some difference in interest rate between the two government run banks. For example in overdraft the RBB quoted the interest rate 11% per annum on FY 2007 where as in same period the NBL quoted the interest rate of 10% per annum for overdrafts. The

lending interest rate of NBL on different sectors in different fiscal year has clear that above figure. It is also notable matter that for commercial purpose, NBL had granted credit only on certain sectors in past FYs. They are shown on the table 4.6 comparing the lending rate of two banks RBB and NBL; it is found that NBL had the lowest lending interest rate among all. Even though, the interest rate on lending of NBL is increasing trend in every six FY. Every year interest rate is increment by almost little percentage point. For the case of NBL almost in all sectors increasing rate was similar. It means that there was equal up-down in interest rate on each loan sectors. But this is not the case for RBB because in those banks, there was rapid fall on non-productive sector and less fall on productive sectors. In past six FYs the highest interest rate was 13% on others in year 2009. This is the maximum rate among all and minimum rate was 6% on poorer sector loan for current year 2012. So, overall see the position, it is better to give glance on average lending rate during last six FYs. The average interest rate was 9.64%, 9.70%, 10%, 10.25%, 10.75% and 10.98% in FY 2007, 2008, 2009, 2010, 2011 and 2012 respectively. The standard deviation for average interest rate is 0.551%, it indicates the deviation from mean return.

In effect of increment in interest rate, the lending amount of NBL is found to be increasing slowly during the six fiscal years. During the period of six years, the lending amount was among the doubled. This is what the theory says, but to know the exact relationship, it is necessary to compute the correlation coefficient. Prior to all it is rational if the data on table 4.6 are present on the graph no. 4.7 and 4.8 as follows.

Figure 4.7

Lending Amount of NBL during Different FYs

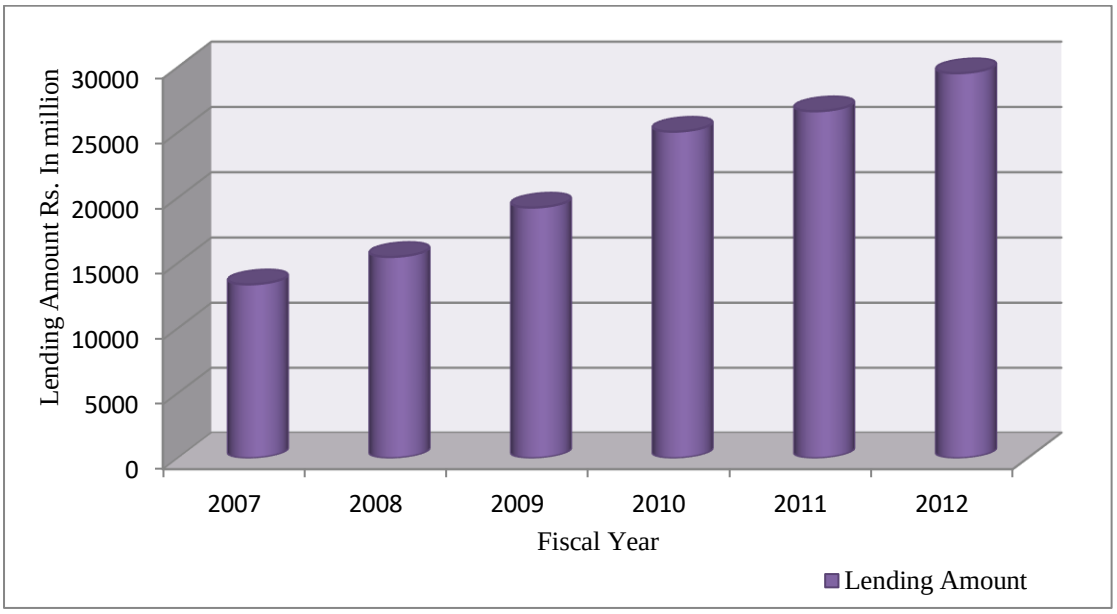
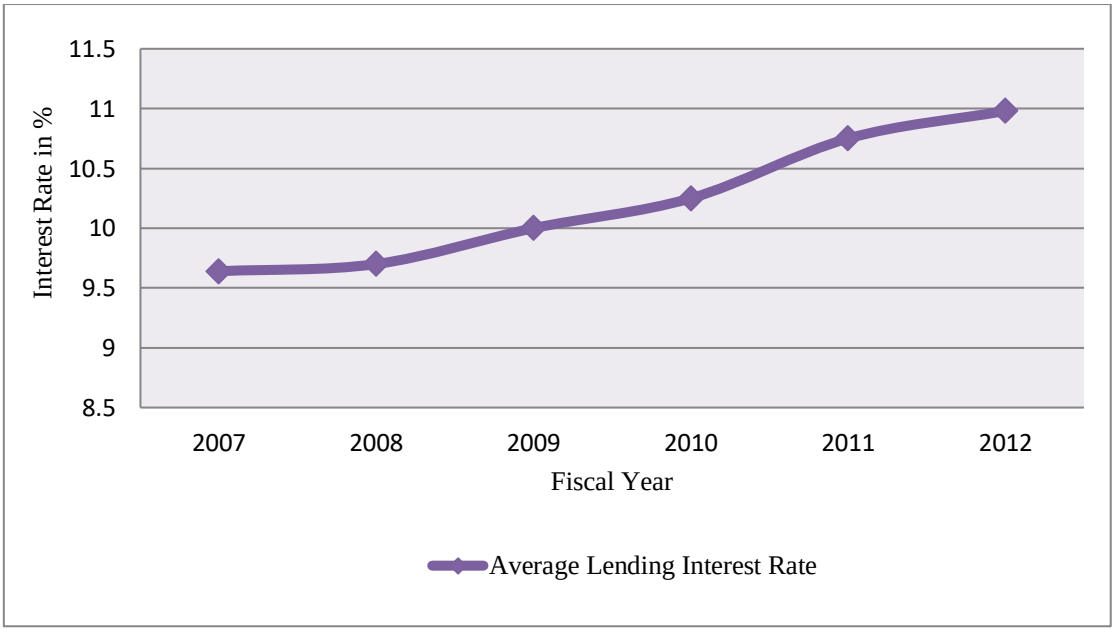


Figure 4.8

Average Lending Rate of NBL during Different FYs



In above figure no. 4.7 shows the amount of lending amount of NBL during the different six fiscal years. Initially to at last it is seems to increasing trend each every year. So, lending amount is Rs.13377.50 million in year 2007 and year 2012 it is Rs.29551.30 million which is highest amount. Similarly, figure no. 4.8 shows the trend of average lending rate of six fiscal year's period. Initially year 2007, it is 9.64% and after every year it takes some rise from

2012 and reach in 10.98%. So it figures show the average lending rate of NBL is increasing trend till year 2012.

Correlation Coefficient, Coefficient of Determination and t – Statistics of NBL

To find the exact relationship between the lending interest rate and lending amount, it is necessary to use some of the statistical tools like correlation coefficient, coefficient of determination. Similarly, to verify the correlation coefficient between NBL's average interest rate and lending amount is 0.9666 (r_{12} = 0.9666). It means that, according to our classification, this is high degree of positive correlation. Increase in one variable result the increase in other variable in high magnitude. In other words, if one variable increases by 100 percentages, then other variable increases by96.66%. The result of correlation is against the theory. Because according to theory, there should be negative correlation. In other word, decrease in interest rate should be followed by increase in lending amount. But this case doesn't happen for NBL. The coefficient of determination r^2_{12} = 0.9343, which means that the relationship between two variable (lending amount and interest rate) is defined up to 93.43% only. Or other words, total variation in interest rate on lending amount has been explained by supply of loan to extend of 93.43% and remaining 6.57% is the effect of other variables. Similarly, the calculation of t – statistics gives the value to t as 7.542 i.e. t_{cal} = 7.542. The tabulated value for t at 5 degree of freedom and 5% level of significance is 2.571 (t_{tab} = 2.571). Therefore, in case t – calculated value is greater than t – tabulated value. Hence, null hypothesis is rejected. It indicates that the relationship show by correlation coefficient is significant. In this way, the analysis of NBL also shows that substitution effect is not applicable.

4.2.5 Interest Rate and Its Effect on Deposit on NABIL

The general structure of deposit interest rate of Nabil Bank Limited (NABIL) is shown below on table no. 4.7. The table shows the interest rate of NABIL during the last six FYs.

Table 4.7

Interest Rate Structure on Deposit of NABIL

Deposits	Year					
	2007	**2008**	**2009**	**2010**	**2011**	**2012**
Saving Deposit (%)	2.00	2.00	2.00	2.00	3.00	4.00
Fixed Deposit (%)						
7 days	-	-	-	-	-	-
14 days	2.50	1.75		-	-	-
1 month	3.00	2.00	4.00	6.00	7.00	2.00
2 months	-	-	-	-	-	-
3 months	3.25	2.75	5.00	7.00	8.00	3.00
6 months	3.50	3.00	6.00	8.00	9.00	3.50
1 year	4.00	3.50	7.50	9.00	10.50	6.00
2 year & above	4.25	4.25	7.50	10.00	12.00	6.75
Whole Mean (%)	**3.21**	**2.75**	**5.33**	**7.00**	**8.25**	**4.21**
Fixed Deposit Mean (%)	**3.42**	**2.88**	**6.00**	**8.00**	**9.30**	**4.25**
Standard Deviation	**1.977%**					

Source: - Banking & Financial Statistics, NRB – 58, Annual Report of NABIL

The table 4.7 shows the interest rate structure of NABIL on saving deposits and fixed deposits. The deposit rates are increasing in certain period but last year in decreasing trends. For saving deposit, it is found that the interest rate has been increased during last two FYs i.e. 2011 and 2012 by 50% but in constant rate for other FYs i.e. 2%. During the declining, year 2008 from 2007 by 12.5%, then after increasing trend until 2011 and 2012, average rate of interest rate is decline and it is 6.75%. Similarly, the position of the average fixed deposit rate is 3.21%, 2.75%, 5.33%, 7%, 8.25% and 4.21% in FY 2007, 2008, 2009, 2010, 2011 and 2012 respectively. It means that increment speed of deposit interest rate of NABIL is highly until 2011 then slowed down after current FY 2012. The deviation is measured by standard deviation which is 1.977% each year interest rate.

Table 4.8

Relationship between Interest Rate and Deposit Amount of NABIL

Year (1)	Saving Deposit Interest Rate in % (2)	Saving Deposit Amount Rs. In million (3)	Fixed Deposit Interest Rate in % (4)	Fixed Deposit Amount Rs. In million (5)
2007	2.00	10,187.40	3.42	5,435.20
2008	2.00	12,160.00	2.88	8,464.10
2009	2.00	14,620.40	6.00	8,310.70
2010	2.00	13,783.60	8.00	14,711.10
2011	3.00	14,288.50	9.30	16,840.80
2012	4.00	17,994.50	4.25	14,044.90
Correlation Coefficient	**r_{23}=0.8003**		**r_{45}=0.7596**	
Coefficient of Determination	**r^2_{23} = 0.6404**		**r^2_{45} = 0.5770**	
t- Statistics	**t_{cal} = 2.669, t_{tab} = 2.571 (Significant)**		**t_{cal} = 2.336, t_{tab} = 2.571 (Insignificant)**	

Source: - Banking & Financial Statistics, NRB – 58.

Table no. 4-8, shows that interest rate and deposit amount are moving in opposite direction. The case is same for fixed deposit too. But the pictures for fixed deposit are somewhat different. Year 2007 the fixed deposit amount is Rs. 5435.20 million and year 2008 it had been increased but year 2008 had been decreased with little amount. But after 2010 this amount has been in increasing trend till 2011 and year 2012 this is getting decreased. So declining speed of interest rate is quite higher than that of declining speed of deposit amount. To get the exact relation it is necessary to calculate the correlation coefficient and t – test. Here the data shows that both saving and fixed deposits are out of substitution effect. To verify it, the value or correlation and t – statistics is necessary. But prior to this it is effective if tabular value can be shown on graph as figure 4.9 and 4.10.

Figure 4.9

Deposit Amount of NABIL during different FYs

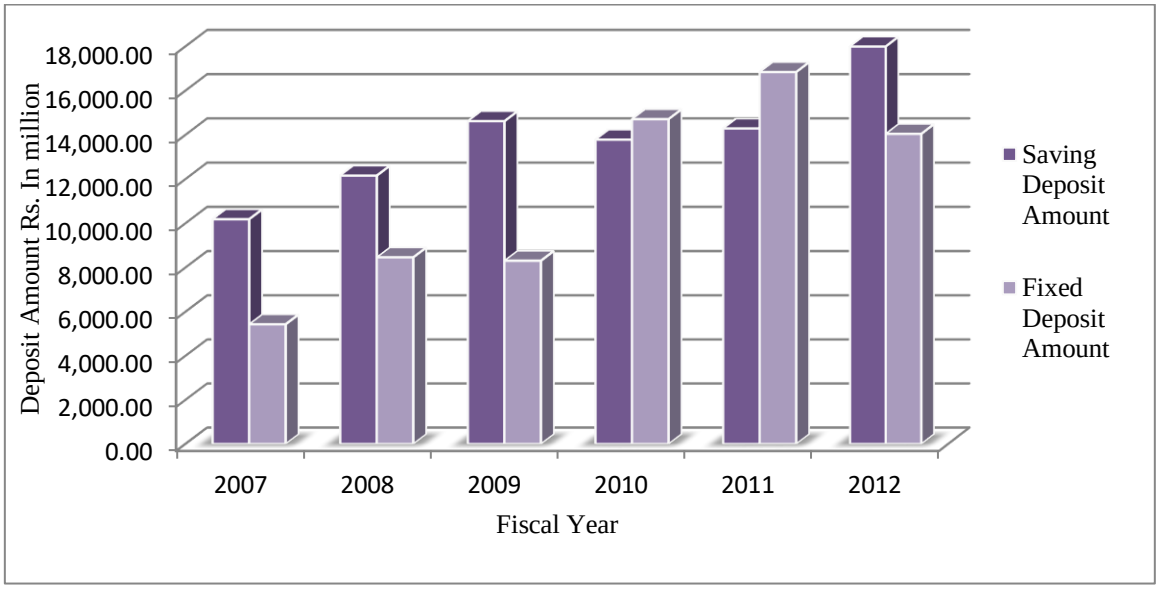
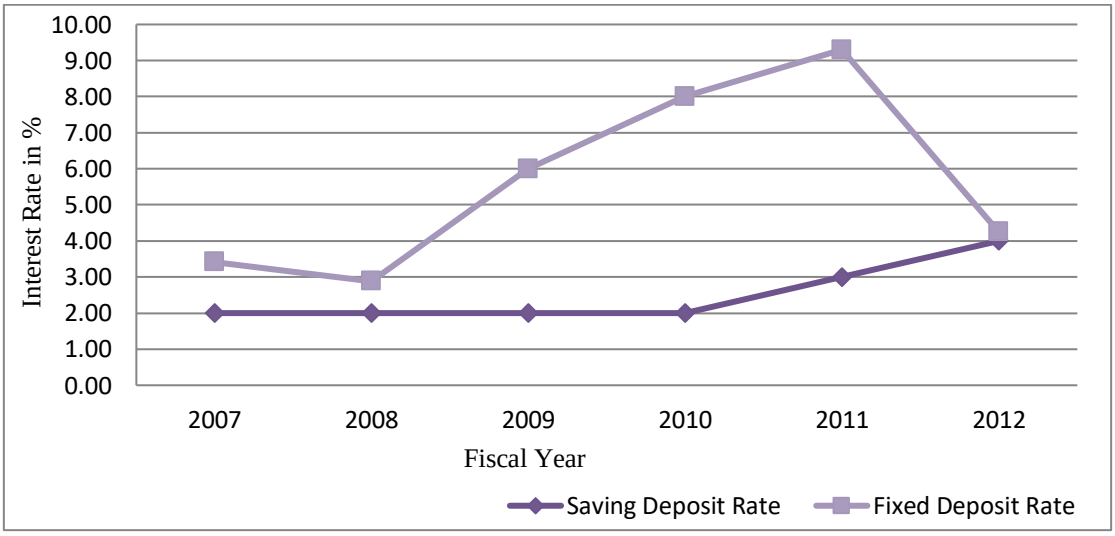


Figure 4.10

Interest Rate of NABIL on Saving and Fixed Deposit



In figure no. 4.9 shows the saving deposit amount and fixed deposit amount has been collected in different time period of NABIL. NABIL keeps its saving deposit amount is higher in year 2007, 2008, 2009 and 2012 but in year 2010 and 2011 it is inverse, that mean fixed deposit amount is higher. The highest saving deposit amount is Rs.16840.80 million collected in year 2011 while least amount is Rs.5435.20 million collected in year 2007. Similarly Rs.17994.50 million collected under saving deposit in year 2012 which is the

highest amount collected among analysis period and Rs.10187.40 million collected in year 2007 which is lowest amount among the period analysis.

Similarly, in figure no.4.10 shows the trend of fixed deposit interest rate and saving deposit interest rate of six year's period. Initially from 2007 is constant 2% till 2010 and it takes some rise from 2011 and 2012 reach in 3% and 4% respectively. Similarly the fixed deposit interest rate is seems in increasing when it was 2.88% in year 2008 and finally current year NABIL offered a 4.25% which is declined than other past FYs.

Correlation Coefficient, Coefficient of Determination and t – Statistics of NABIL

The correlation coefficient for saving interest rate and deposit amount, r_{23} is founded to be 0.8005.This value indicates that they two have very high positive relationship. Increase in one variables lead to increase in other variables. This is extremely the theory suggested by the "Substitution Effect". Similarly, the coefficient of determination between two variables, r^2_{23} is 0.6405 which means that total variation in interest rate on deposit has been explained by supply of deposits to the extent of 64.05 percent and remaining is the effect of other factors. The t – value for testing the significance of the correlation coefficient between variables is 2.664 (t_{cal} = 2.664), which is significantly more than tabulated t – value (t_{tab} = 2.571) at 5 percent level of significance with 5 degree of freedom. Since the calculated value is significantly greater than table value. This means that the interest rate on saving deposit and deposit amount of NABIL are significantly correlated and increase in the supply of fund (deposit) brings the decrease in interest rate on deposit. That is the substitution theory is applicable for the saving deposit of NABIL.

Similarly, correlation coefficient for fixed deposit interest rate and fixed deposit amount, r_{45} is founded to be 0.7596. This shows that they have positive correlation. It means that the increase in deposit interest rate stimulates saving on fixed deposit. This relation can be clearly explained by the coefficient of determination, which is 0.5770, means that total variation in interest rate on fixed deposit has been explained by supply of deposits to the extent of 57.70% and remaining 42.30% is effect of other variables. The t – value for testing the significance of the correlation coefficient between variables is 2.336 (t_{cal} = 2.336), which is significantly lesser than tabulated t – value (t_{tab} =2.571) at 5% level of significance with 5

degree of freedom. Since the calculated value is insignificantly more than tabulated value, the conclusion can be drawn that correlation coefficient between interest rate on saving deposit and deposit amount of NABIL shows the very less positive correlation, the t – test indicates that there is no significant correlation between them.

4.2.6 Interest Rate and Its Effect of Lending on NABIL

NABIL also grant credit on different area like commercial loan, priority sector loan, term loan, overdrafts, export credit, working capital and so on. These rates on the different fiscal years are as follows:

Table 4.9

Lending Rate of NABIL on Different Sectors during Six FYs

	Year					
Sectors in %	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Overdrafts	9.00	9.50	10.50	12.00	14.00	13.50
Export Credit	11.00	11.00	10.50	12.00	14.00	11.75
FDR	11.00	11.00	10.50	12.00	14.00	13.50
Import LC	7.00	7.00	8.00	10.00	11.30	11.75
HMG Bond	7.50	7.75	8.50	10.00	12.00	13.25
BG/ CG	9.00	9.00	8.50	10.00	16.00	12.25
Other Guarantee	10.00	10.00	9.50	11.00	-	12.00
Industrial Loan	-	-	-	-	-	-
Commercial Loan	-	-	10.00	-	-	13.00
Priority Sector Loan	12.00	12.00	11.00	-	-	9.08
Poorer Sector Loan	9.00	9.00	10.00	10.00	12.00	13.25
Term Loan	13.00	13.00	12.00	12.50	16.00	12.83
Working Capital	12.00	12.00	11.00	12.00	15.00	12.83
Hire Purchase	12.50	9.50	-	-	-	-
Others	13.00	13.00	12.00	13.00	17.00	14.00
Average Interest Rate in % (1)	**10.46**	**10.29**	**10.15**	**11.32**	**14.13**	**12.54**
Lending Amount Rs. In million (2)	**15,657.10**	**21,514.60**	**27816.60**	**32,902.80**	**38,765.60**	**42,731.70**
Standard Deviation	**1.44%**					
Correlation (r_{12})	**0.7882**					
Coefficient of Determination (r^2_{12})	**0.6213**					
t - Statistics	**t_{cal} = 2.562**		**t_{tab} = 2.571**		**Insignificant**	

Source: - Banking & Financial Statistics, NRB – 58, Annual Report of NABIL

The table 4.9 shows the lending interest rate structure of NABIL on six FYs on different sectors. From table it is clear that the interest rates of NABIL are in increasing stage till 2011 then after year 2012 are in falling. During the first phase of FY the interest increasing speed

was low and thenafter some FY is high but current FY 2012 interest rate is decreasing than past FYs. This phenomenon can be seen clearly with the study of average interest rate. The average interest rate for FYs 2007, 2008, 2009, 2010, 2011 and 2012 are 10.46%, 10.29%, 10.15%, 11.32%, 14.13% and 12.54% respectively. The average interest rate shows that the interest jump by high percentage gap and later on fell in year 2012 than year 2011. Here this is in interest of productive sector loan. In some manner, the lending amount of NABIL increased each year. During the last FY the lending amount rises 3 times and it outcomes Rs. 42,731.70 million in this year i.e. 2012. So it can be said that lending of NABIL was expanded rapidly within that six fiscal periods. These phenomenon shows that lending interest rate and lending amount have positive relationship. The figure for lending amount is given as figure no. 4.11 and figure no. 4.12.

Figure 4.11

Lending Amount of NABIL during the different FYs

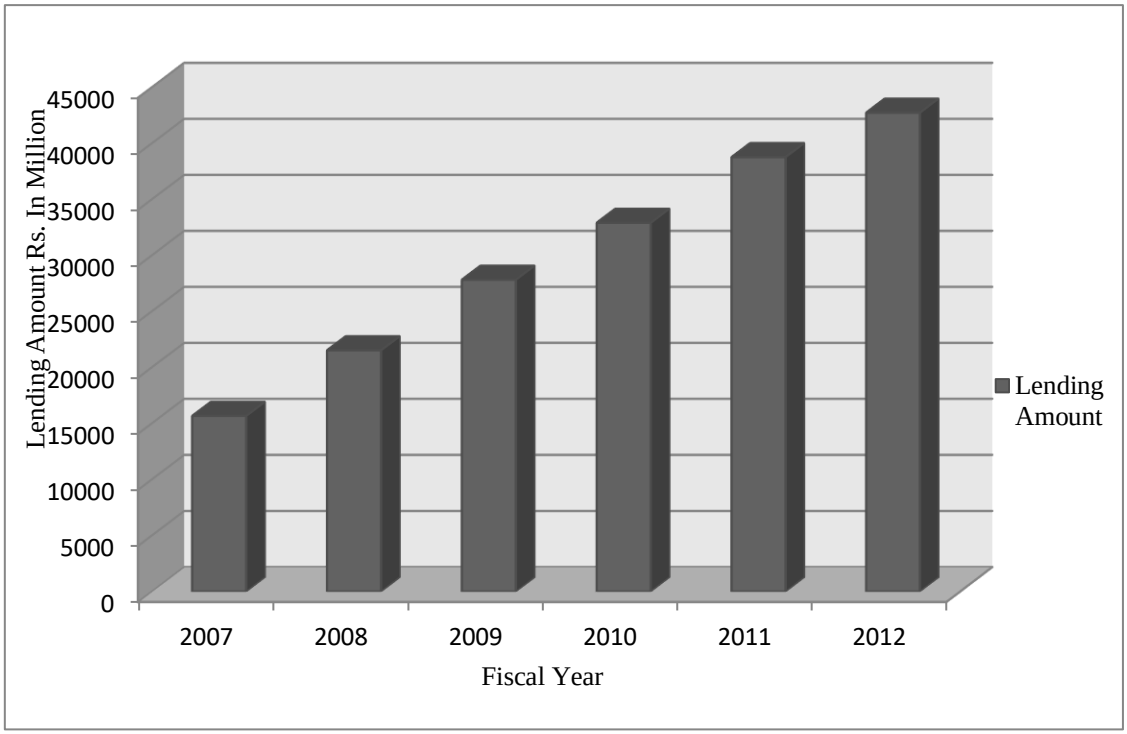
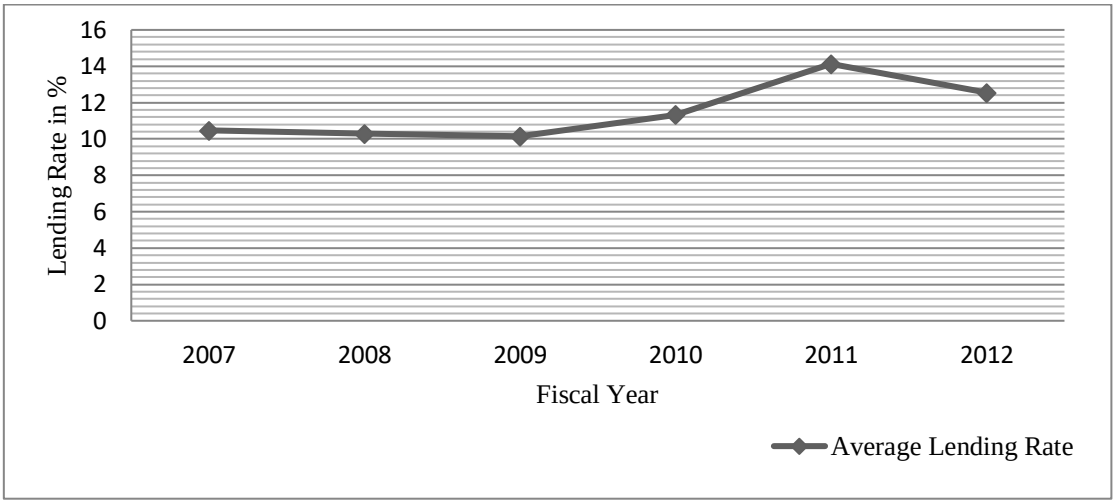


Figure 4.12

Average Lending Rate of NABIL during different FYs



In figure no.4.11, it shows the lending amount of NABIL of six fiscal years period. Lending amount is increasing trend in every each year. Here lending amount of year 2007, 2008, 2009, 2010, 2011 and 2012 are Rs.15657.10 million, Rs.21514.60 million, Rs.27816.60 million, Rs.32902.80 million, Rs.38765.60 million and Rs.42731.70 million respectively. Similarly, in figure no.4.12, It shows that interest rate of lending rate is initially from 2007 to 2009, takes some decrease by 10.46% to 10.15%. But after 2010, it takes some rise from 2010 and 2011 reach in 11.32% and 14.13% respectively and year 2012, it is reach in 12.54% which is decreasing than previous year.

Correlation Coefficient, Coefficient of Determination and t – Statistics of NABIL

By using excel spreadsheet, correlation coefficient, average, standard deviation and other necessary statistics can be calculated. The correlation between lending rate and lending amount for NABIL is 0.7882. This is high degree of correlation. The positive sign indicates that, the two variables have positive relationship, meaning increase in one variables leads to also increase in other variables. For this case, increase interest rate then also increase in the lending amount or vice versa. The coefficient of determination for correlation coefficient is 0.6213. In other words, the relationship between one variable is defined by another is up to level of 62.13%.

To verify the correlation coefficient statistically it is better if t – statistics is used. The calculated value for t – test is 2.562 i.e. t_{cal} = 2.562. Similarly the tabulated value for t at 5

degree of freedom with 5% level of significance is 2.571 i.e. t_{tab} = 2.571. Comparing t_{cal} and t_{tab}, it is found that $t_{cal} < t_{tab}$ so in such case null hypothesis is accepted meaning the relation shown by the correlation coefficient is highly insignificant. In other words, two variables are significantly correlated or the increase in lending amount is due to increase in lending rate. Lending rate is significant factor for that. From the analysis, it is verify that theory does not match with the lending case of Nabil Bank Limited.

4.2.7 Interest Rate and Its Effect on Deposit on HBL

The general interest rate structure of HBL for saving deposit and fixed deposits during past six fiscal year has been shown as bellow. From bellow table no.4.10, we can explain that saving deposit interest rate is in increasing trend and in year 2007 and 2008 are constant. From 2008 the interest rate is gradually increased to 2012. The whole average interest rate is 2.68% in year 2007, 2.71% in year 2008, 4% in year 2009, 4.68% in year 2010 and 6.75% in year 2011 which is increasing trend. While in year 2012, decrease in whole average mean, i.e. 5.59%. It means increasing speed of deposit interest rate of HBL has increased its interest rate to have a more deposit funds. The deviation is measured by standard deviation which is 1.61% each year interest rate.

Table 4.10

Interest Rate Structure on Deposit of HBL

Deposits	**Year**					
	2007	**2008**	**2009**	**2010**	**2011**	**2012**
Saving Deposit in %	2.00	2.00	2.25	2.75	3.00	3.80
Fixed Deposit in %						
7 days	-	-	-	-	-	-
14 days	1.75	1.75	2.50	2.75	3.00	-
1 month	2.00	2.00	3.00	3.50	4.00	-
2 months	-	-	-	-	-	-
3 months	2.50	2.50	3.50	4.25	4.75	5.00
6 months	3.00	3.00	4.25	5.00	10.00	5.50
1 year	3.75	3.75	6.00	7.00	11.00	6.63
2 year and above	3.75	4.00	6.50	7.50	11.50	7.00
Whole Mean in %	**2.68**	**2.71**	**4.00**	**4.68**	**6.75**	**5.59**
Fixed Deposit Mean	**2.79**	**2.83**	**4.29**	**5.00**	**7.38**	**6.03**
Standard Deviation	**1.61%**					

Source: - Banking & Financial Statistics, NRB – 58, Annual Report of HBL.

Table 4.11

Relation between Interest Rate and Deposit Amount of HBL

Year (1)	Saving Deposit Interest Rate in % (2)	Saving Deposit Amount Rs. In million (3)	Fixed Deposit Interest Rate in % (4)	Fixed Deposit Amount Rs. In million (5)
2007	2.00	15784.87	2.79	8201.10
2008	2.00	17935.00	2.83	6423.90
2009	2.25	20061.00	4.29	6377.10
2010	2.75	16294.70	5.00	11328.60
2011	3.00	15994.60	7.38	13507.40
2012	3.80	21915.60	6.03	11866.50
Correlation Coefficient	$r_{23} = 0.4879$		$r_{45} = 0.8744$	
Coefficient of Determination	$r^2_{23} = 0.2380$		$r^2_{45} = 0.7646$	
t – Statistics	$\mathbf{t_{cal}} = 1.118$, $\mathbf{t_{tab}} = \mathbf{2.571}$ (Insignificant)		$\mathbf{t_{cal}} = 3.604$, $\mathbf{t_{tab}} = \mathbf{2.571}$ (Significant)	

Source: - Banking & Financial Statistics, NRB – 58, Annual Report of HBL

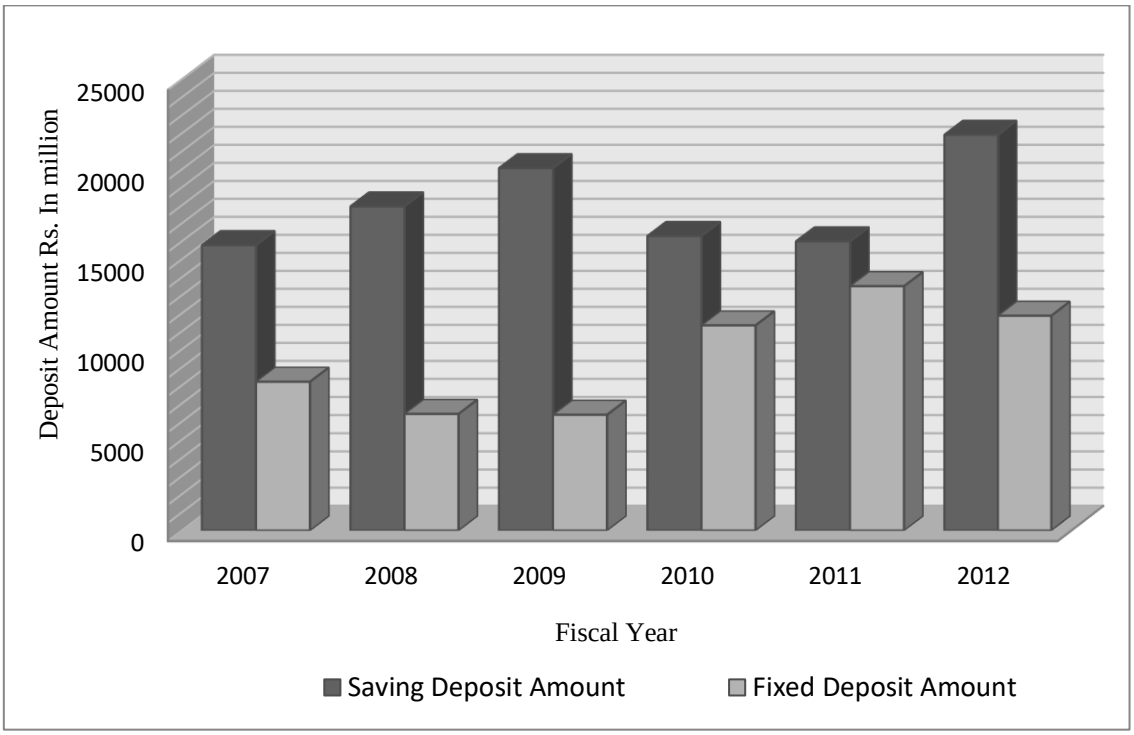
In the table no.4.11 shows that the saving deposit interest rate with its corresponding saving deposit amount and average amount and average fixed deposit interest rate with its corresponding fixed deposit amount. Also, this shows correlation between deposit interest rate and deposit amount of both saving and fixed, and t – statistics value. When 2% saving interest rate has been offered in year 2007 and 2008, then saving deposit amount was collected Rs. 15,784.87 million and Rs. 17,935 million respectively. 2.25%, 2.75% and 3% interest rate has offered and collected Rs. 20,061 million, Rs. 16,294.70 million and Rs. 15,994.60 million in year 2009, 2010 and 2011 respectively and finally collected Rs.21, 815.60 million offered 3% interest rate in year 2012. Expect in year 2011 when saving deposit rate increased the deposit amount has been collected in decrease, so we can say that interest rate can attract deposit amount.

Similarly, 2.79% offered and collected Rs. 8,201.10 million as a fixed deposit amount in year 2007. In year 2008, 2.83% average fixed deposit interest rate offered but deposit amount has decreasing comparing to year 2007 and i.e. Rs. 6,423.90 million again bank offered 4.29% average fixed deposit rate but HBL only able to collect Rs. 6,377.10 million in year 2009 which is less than comparing to previous year 2008. Rs. 11,328.60 million fixed deposit amount has been collected while offering a 5% average fixed deposit interest rate in year

2010, and 2011 is collected Rs. 13,507.40 million in 7.38% interest rate. But finally Rs. 11,866.70 million collected to offer 6.03% fixed deposit interest rate. So, this all transaction can be clearly showed in graph as figure in following ways.

Figure 4.13

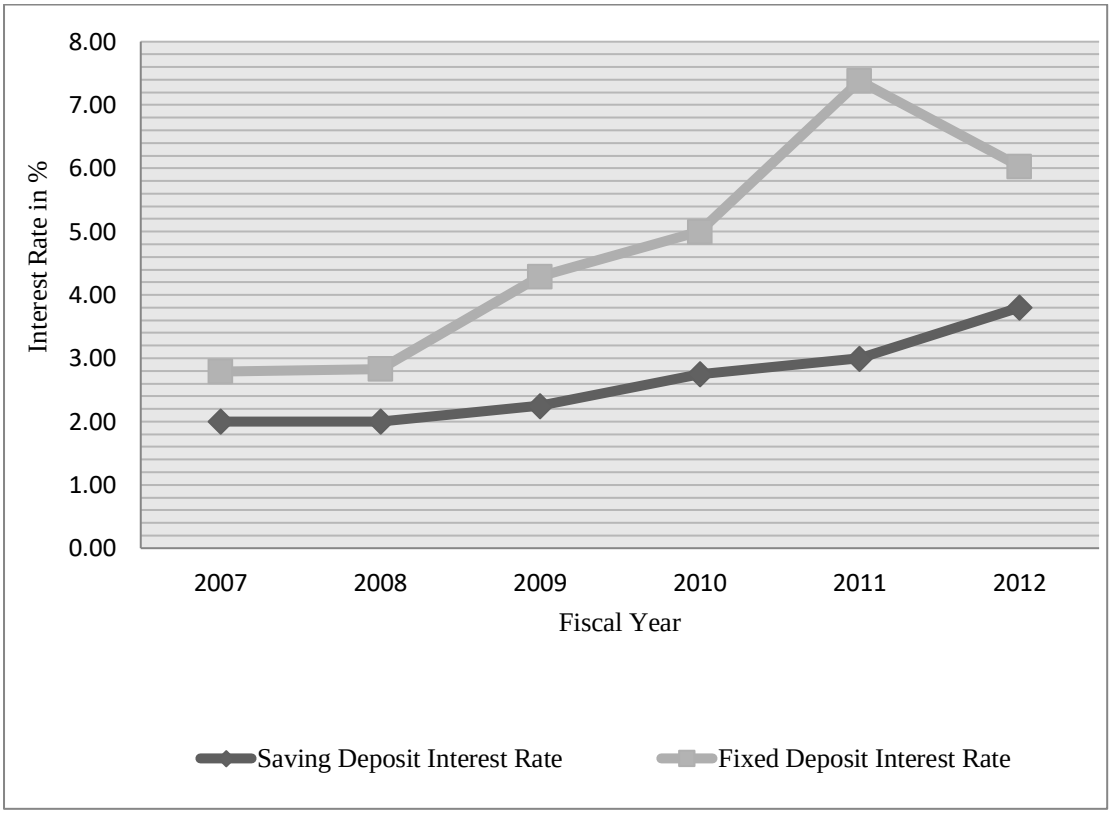
Deposit Amount of HBL during different FYs



Above the figure no. 4.13 is the saving deposit amount and fixed deposit amount has been collected in different FYs of HBL. HBL always keeps its saving deposit amount in higher side or in other words we can say that bank is not able to attract fixed depositors than they do in saving deposit. Saving deposit reaches to peak in year 2012 and fixed deposit in year 2009. Except year 2008 and 2009 ratio of saving to fixed deposit, fixed deposit ratio is very low. The highest fixed deposit is Rs. 13,507.40 million collected in year 2011 while least amount is Rs. 6,377.10 million collected in year 2009. Similarly, Rs. 21,915.60 million collected under saving deposit in year 2012 which is the highest deposit amount collected among analysis period and Rs. 15,784.87 million collected in year 2007 which is lowest amount among the year analyzed.

Figure 4.14

Interest Rates of HBL on Saving and Fixed Deposit



Similarly, above the figure no.4.14 shows the trend of fixed deposit interest rate and saving deposit interest rate of six FYs period. Initially, from year 2007 the rate is equal and till year 2008 at 2% and it takes some rise from year 2009 and reaches 3% in year 2011 and 3.80% in the year 2012. Similarly, the fixed deposit interest rate is also seems in same trend, it was 2.79% in year 2007 and peak of the its point is in year 2011 where interest rate is 7.38% and then finally HBL offered fixed deposit interest rate is 6.03% in the year 2012.

Correlation Coefficient, Coefficient of Determination and t – Statistics of HBL

To quantify the exact relationship between interest rate and deposit amount, it is necessary to calculate the correlation coefficient. The correlation coefficient of saving deposit amount and its interest rate (r_{23}) is 0.4879. It means that these two variables have positive correlation. It indicates that they have direct relationship among each other, which mean increase in interest rate is followed by on decreasing in saving deposit amount and vice versa. The coefficient of determination of correlation coefficient of saving deposit is 0.2380 (r^2_{23} = 0.2380), which means that total variation in independent variable (saving deposit amount) has been explained

by independent variables interest rate by 23.80% and remaining is by the effect of other factors. The value of t – statistics for saving deposit and saving interest rate is found to be 1.118 (t_{cal} = 1.118). The tabulated value for this condition at 5% level of significance with 5 degree of freedom is 2.571. It means that in this case calculated t – value is less than t – tabulated value i.e. 1.118 < 2.571. So, null hypothesis is accepted. There is insignificant relation between two variables or the variables are not correlated and there have substitution effect in the context of HBL case of saving deposit.

Similarly, the correlation between fixed deposit interest rate and fixed deposit amount, r_{45} is 0.8744 which is the high degree of positive correlation indicates that they have positive relationship among each other; i.e. increase in interest rate is followed by increase in saving deposit amount and vice versa. The coefficient of determination between two variables (fixed deposit amount and fixed deposit interest rate), r^2_{45} is 0.7646, it means that total variation in dependent variable (fixed deposit amount) has been explained by independent variables interest rate by 76.46% and remaining is by the effect of other factors. While testing of t – statistics of the correlation between two variables is t_{cal} = 3.604 and t_{tab} = 2.571, since the tabulated value at 5% level of significance with 5 degree of freedom is less than t_{cal} = 3.604. So, alternative hypothesis is accepted, i.e. there is significant relation between two variables or the variables are correlated. Thus in this case also the magnitude of correlation coefficient is highly significant.

4.2.8 Interest Rate and Its Effect of Lending on HBL

HBL also grant credit on different area like overdraft, HMG bond, guarantee, industrial loan, commercial loan, working capital and so on. These rates on the different fiscal years are as follows:

Table 4.12

Lending Rate of HBL on Different Sectors during Six FYs

Sectors in %	Year					
	2007	**2008**	**2009**	**2010**	**2011**	**2012**
Overdraft	13.25	10.00	10.00	11.50	-	12.42
Export Credit	9.50	8.75	9.75	11.50	11.00	12.42
Import LC	12.75	9.50	9.50	12.00	12.00	12.42
FDR	4.79	5.33	6.79	7.00	9.38	10.00
HMG Bond	8.00	6.50	7.00	8.00	12.00	12.50
BG/ CG	10.50	8.00	8.00	10.00	12.00	12.13
Other Guarantee	10.50	-	-	-	12.00	13.50
Industrial Loan	13.00	-	-	-	-	13.70
Commercial Loan	13.25	-	-	-	-	11.80
Priority Sector Loan	13.00	10.00	-	-	-	9.25
Poorer Sector Loan	5.00	8.25	8.75	8.75	8.00	-
Term Loan	13.00	10.50	10.50	13.00	14.00	12.70
Working Capital	13.00	-	-	-	12.00	12.56
Hire Purchase	13.00	9.00	9.50	12.50	-	12.56
Others	15.75	12.00	10.50	12.50	16.50	11.70
Average Interest Rate in % (1)	11.22	8.89	9.03	10.68	11.89	12.12
Lending Amount Rs. In million (2)	17,572.00	19,985.20	25,292.10	28,976.60	31,656.60	34,282.60
Standard Deviation	**1.40%**					
Correlation	**0.5703**					
Coefficient of Determination	**0.3252**					
t-Statistics	t_{cal} = 1.388, t_{tab} = 2.571 (Insignificant)					

Source: - Banking & Financial Statistics, NRB – 58, Annual Report of HBL.

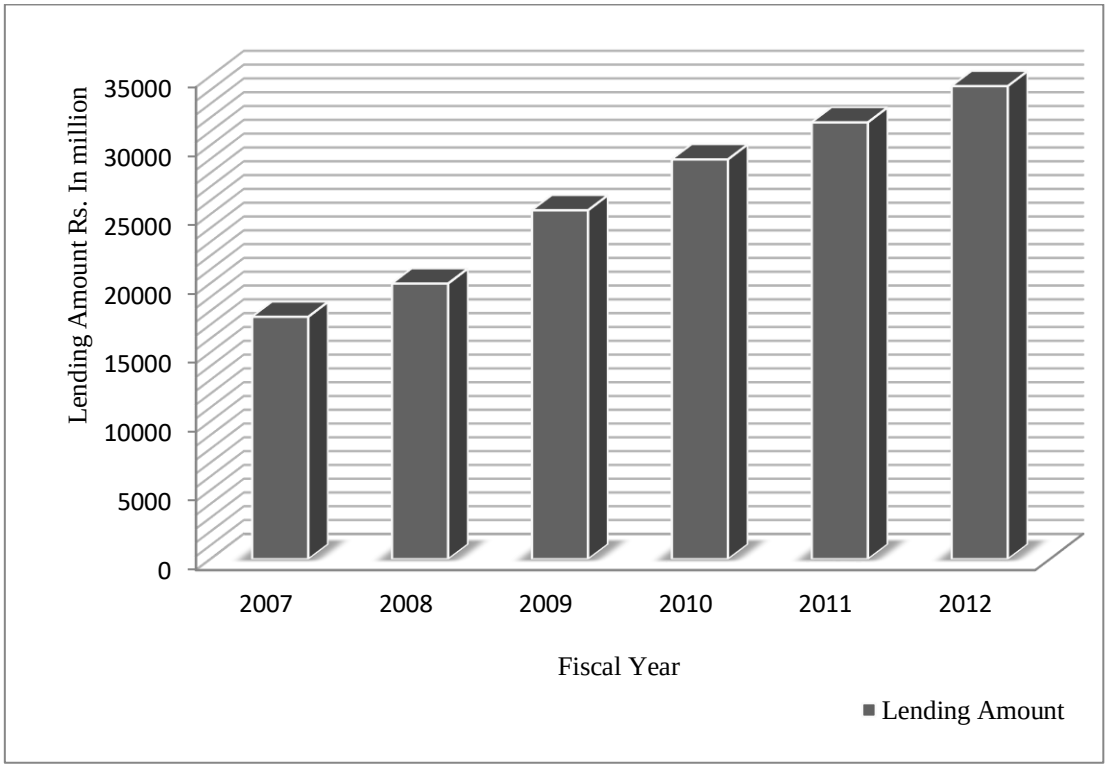
Above the table no. 4.12 shows the interest rate of HBL on lending on six fiscal years granted in different sectors. HBL lending rate is somewhat more than NABIL. The maximum interest rate quoted by the HBL is 16.5% on 'other' category. The interest rate of HBL is also increasing trend. If we go through the year by year and sector by sector, interest rate in on increasing trend after 2007 and in it goes up in 2008 to 2012 increasly. Average interest rate of HBL in 2007 is 11.22% and it falls down to 8.89% in 2008 as well and year 2009 increased and reached to 9.03%, slowly interest rate increases to 10.68% and 11.89% in year 2010 and 2011 respectively. Finally, in year 2012, average interest rate reached to 12.12%.

Conversely, the lending amount of HBL is seen to be in increasing trend. So it can be said that lending of HBL was expanded rapidly within that six fiscal periods these phenomenon show that lending interest rate and lending amount have inverse relationship.

To quantify this relationship, it is necessary to calculate correlation coefficient and t – statistics. But prior to this it is fruitful if the trend of lending interest rate and lending amount is shown in the figure as in figure no. 4.15.

Figure 4.15

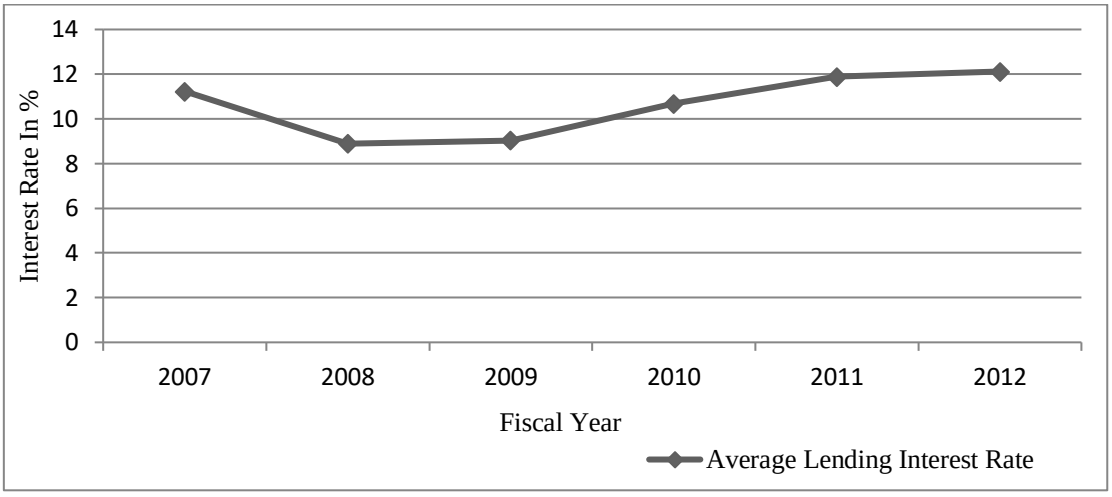
Lending Amount of HBL during Different Six FYs



In the figure no.4.15, it shows the lending amount of HBL during the different six fiscal years 2007 to 2012. Initially year to at the end of last year it seems to increasing trend. Thus, amount of lending is Rs.17572.00 million in initial year 2007 which is lowest amount of this analysis and year 2012 is highest lending amount of HBL, which is Rs.34282.60 million during the analysis time period.

Figure 4.16

Average Lending Rate of HBL during Different FYs



The figure no. 4.16 shows that interest rate of lending falls rapidly up to FY 2007. It falls from average 11.22% to average 8.89% in year 2008. But after FY 2008, the increasing speed was very slow motion. It means the interest rate increases only little decimal percentage point and it is come 12.12% in year 2012.

Correlation Coefficient, Coefficient of Determination and t – Statistics of HBL

The correlation coefficient of HBL between lending amount and lending interest rate (r_{12}) is 0.5703, which is positive correlation. It indicates that increment in one variables result the increment in other variables or vice versa. In this case decrease in lending interest rate decrease the lending amount also. People preferred more credit from the HBL when bank reduced the lending interest rate. Similarly, the coefficient of determination between two variables (r^2_{12}) is 0.3252. It means that the relationship between dependent variable and independent variable is defined up to the extent of 32.52%. In other words, the increase in lending amount by decrease in interest rate is defined up to the extent of 32.52% where as remaining percentage is due to other factor.

Similarly the t – statistics for HBL is 1.388 (i.e. $t_{cal} = 1.388$). The tabulated value at 5% level of significance with 5 d.f. is 2.571. Comparing the t_{tab} and t_{cal}, it is clear that $t_{cal} < t_{tab}$, so null hypothesis is accepted and alternative hypothesis is rejected. It means that the relation shown by two variables lending amount and lending rate is not strong. The increase in demand of lending amount is not only due to the decrease in lending rate. Therefore, according to t –

statistics, the lending rate is one of the factor affect the lending amount and among other factors like political situation, power supply and labor issues held within industries that shape the lending amount.

4.2.9 Interest Rate and Its Effect on Deposit on KBL

At last another bank for analysis is Kumari Bank Limited. As similar to previous part, it is better to present the general interest rate structure before entering to the main analysis. The interest rate structure for KBL on saving and fixed deposits for part six FYs are presented on below table.

Table 4.13

Interest Rate Structure on Deposit of KBL

Deposits	**Year**					
	2007	**2008**	**2009**	**2010**	**2011**	**2012**
Saving Deposit in %	1.75	2.00	2.00	2.50	3.00	4.84
Fixed Deposits in %						
7 days	-	-	-	-	-	-
14 days	1.00	1.00	1.00	1.50	1.50	-
1 month	1.25	1.50	1.50	1.50	1.75	-
2 months	1.50	1.50	1.50	1.75	1.75	-
3 months	1.50	1.50	1.50	1.75	2.00	-
6 months/ up to 6 months*	1.75	1.75	1.75	2.00	2.25	6.38*
1 year	2.25	2.25	3.00	3.50	5.75	7.50
2 year and above	2.50	2.50	3.50	4.50	6.50	8.50
Whole Mean in %	**1.69**	**1.75**	**1.97**	**2.38**	**3.06**	**6.80**
Fixed Deposit Mean in %	**1.68**	**1.71**	**1.96**	**2.36**	**3.07**	**7.46**
Standard Deviation	**1.96%**					

Source:- Banking & Financial Statistics, NRB – 58, Annual Report of KBL.

In the above table no.4.13 shows that the average interest rate on all deposits of KBL within six years' time period is almost stable. The average interest rate given in 2007 is 1.69% and increasing trend it rises to 1.75%, 1.97%, 2.38% and 3.06% in year 2008, 2009, 2010 and 2011 respectively, then after it reaches to 6.80% in year 2012. Fixed deposit mean is 1.68% in 2007, 1.71% in 2008, 1.96% in 2009, 2.36% in 2010, and 3.07% in 2011 and again increased its interest rate and reaches to the 7.46% in year 2012. So, it is also going to be

increasing trend. The standard deviation 1.96% shows that the spreaders among the average interest rate on all deposit from the mean of all average rate is 1.96% within these time period of six years.

Table 4.14

Relationship between Interest Rates & Deposit Amount of KBL

Year (1)	Saving Deposit Interest Rate in % (2)	Saving Deposit Amount Rs. In million (3)	Fixed Deposit Interest Rate in % (4)	Fixed Deposit Amount Rs. In million (5)
2007	1.75	4,469.00	1.68	2,772.60
2008	2.00	4,142.70	1.71	3,799.60
2009	2.00	4,150.00	1.96	4,527.00
2010	2.50	5,114.40	2.36	7,206.20
2011	3.00	6,551.40	3.07	6,654.70
2012	4.84	5,887.10	7.46	9,158.10
Correlation Coefficient	**$r_{23} = 0.7099$**		**$r_{34} = 0.8274$**	
Coefficient of Determination	**$r_{23} = 0.5040$**		**$r_{45} = 0.6846$**	
t - Statistics	**$t_{cal} = 2.016$, $t_{tab} = 2.571$ (Insignificant)**		**$t_{cal} = 2.947$, $t_{tab} = 2.571$ (Significant)**	

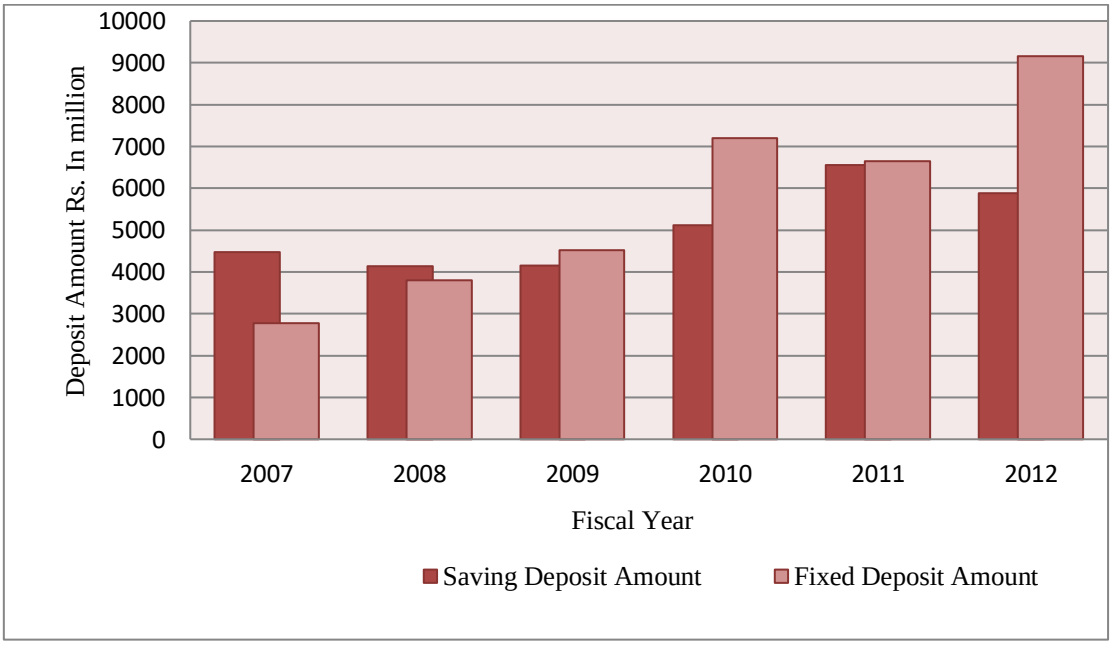
Source: - Banking & Financial Statistics, NRB – 58.

From the table no. 4.14, r_{23} is the correlation between saving deposit interest rate and saving deposit amount. The value of r_{23} is 0.7099, which means the high degree of positive correlation indicates that they have parallel relationship among each other; increase in interest rate is followed by an increase in saving deposit and vice versa. The coefficient of determination between two variables (saving deposit amount and saving deposit interest rate) r^2_{23} is 0.5040, which means that total variation in dependent variable (saving deposit amount) has been explained by independent variables interest rate by 50.40% and remaining is by the effect of other factors. While testing of t – statistics of the correlation between two variables is $t_{cal} = 2.016$ and $t_{tab} = 2.571$, since the tabulated value at 5% level of significance is more than $t_{cal} = 2.016$. So, null hypothesis is accepted, i.e. there is insignificance relation between two variables or the variables are not correlated.

Likewise r_{45} is the correlation between fixed deposit interest rate and fixed deposit amount. The value of r_{45} = 0.8274 also the high degree of positive correlation indicates that they have parallel relationship among each other, increase in interest rate followed by an increase in saving deposit amount and vice versa. The coefficient of determination between two variables (fixed deposit amount and fixed deposit interest rate) r^2_{45} = 0.6846, which means that total variation in independent variable (fixed deposit amount) has been explained by independent variables interest rate by 68.45% and remaining is by the effect of other factors. While testing of t – statistics of the correlation between two variables is t_{cal} = 2.947 and t_{tab} = 2.571, since the tabulated value at 5% level of significance and 5 degree of freedom is less than t_{cal} =2.947. So, null hypothesis is rejected, i.e. there is significant relation between two variables or the variables are correlated.

Figure 4.17

Deposit Amount of KBL in Different FYs

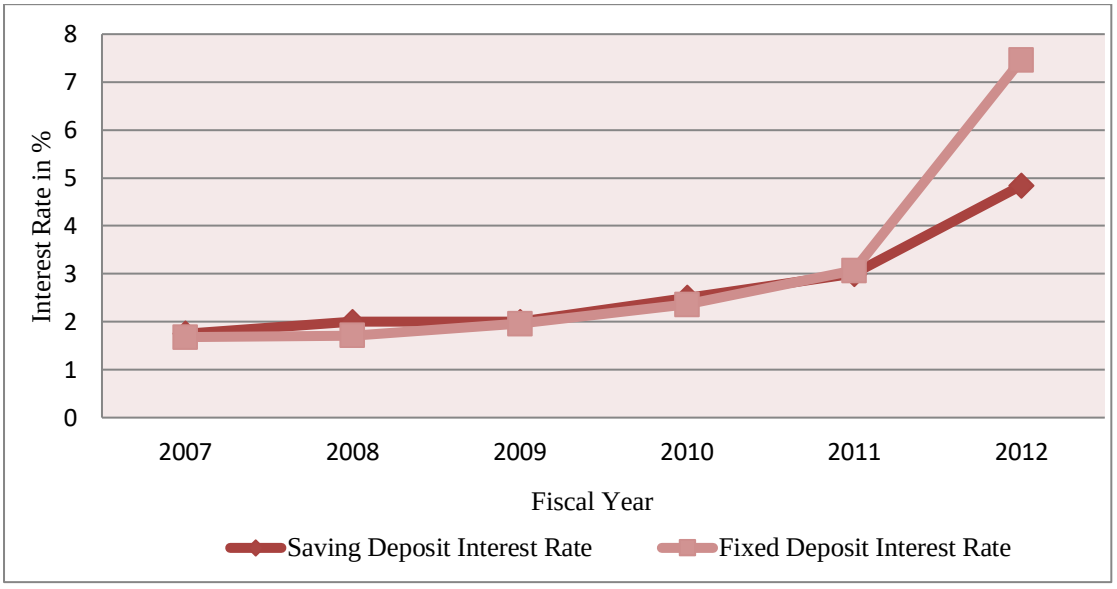


In the figure no.4.17 is the saving deposit amount and fixed deposit amount collected in different FYs of Kumari Bank Limited. KBL keeps its saving deposit amount is higher side in year 2007 and 2008, then after 2008 it has opposite that means, fixed deposit amount is higher than saving deposit amount or in other words can say that KBL is not attract saving depositors than they do in fixed deposit. Fixed deposit reaches to peak in year 2012 and saving deposit reaches to peak in year 2010. The highest fixed deposit is Rs. 9,158.10 million collected in year 2012 while least amount is Rs. 2,772.60 million collected in year 2007. Likewise amount Rs. 6,551.4 million collected under saving deposit in year 2011 which is the

highest deposit amount collected among analysis period and Rs. 4,142.70 million collected in year 2008 which is lowest amount among the year analyzed.

Figure 4.18

Interest Rates on Saving & Fixed Deposits of KBL in Different FYs



In the above figure no.4.18 shows the trend of fixed deposit interest rate and saving deposit interest rate of six year's period. Initially saving deposit interest rate from year 2007 is increased and remains stable rate till 2008 and 2009 at 2% and again it takes same rise from 2010 and reaches 4.84% in year 2012. Similarly the fixed deposit interest rate is also seems in same trend it was 1.68% in year 2007 and finally KBL offered a 7.46% in year 2012, which is shown highest rate.

4.2.10 Interest Rate and Its effect on Lending of KBL

The sector where KBL granted, its credit during last six FYs and their corresponding interest rate and lending amount are presented as following table. Also, to quantify this relationship it is necessary to analyze correlation and t – statistics. But prior to analyze the relationship it's better to check the trend of lending rate and lending amount. So, it is all showing as below table.

Table 4.15

Lending Rate of KBL on Different Sectors during Six FYs

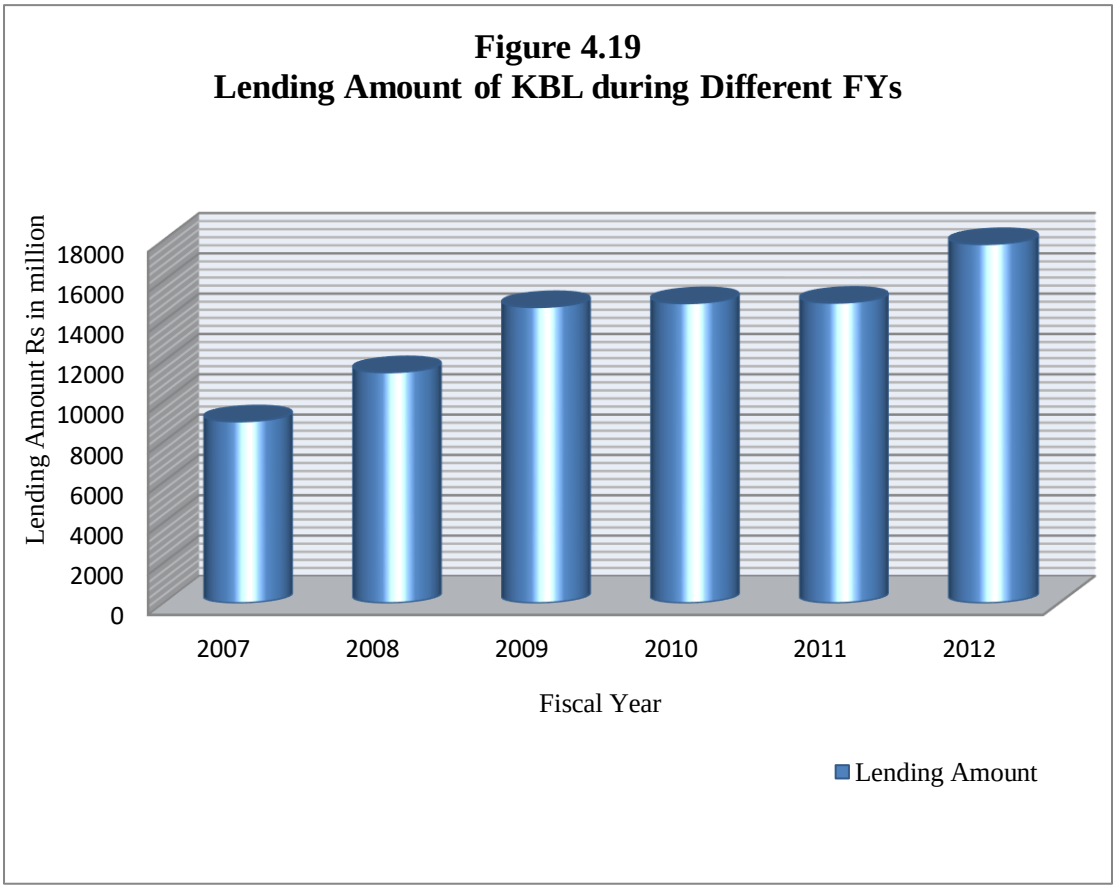
Sectors (%)	Year					
	2007	**2008**	**2009**	**2010**	**2011**	**2012**
Overdraft		10.00	10.50	11.50	12.00	12.50
Working Capital	11.00	10.00	10.00	10.50	10.50	12.33
TR/ Import LC	9.00	9.00	10.50	10.50	11.00	11.67
Term Loan	9.00	8.50	9.00	9.00	12.00	13.33
Export Credit	10.00	9.50	10.00	11.50	11.50	12.55
Deprived Sectors	-	-	-	10.00	10.50	10.75
Home Loan	-	12.00	11.50	11.50	12.50	13.50
Education Loan	-	-	-	-	13.50	13.50
Vehicle Loan (Private + Commercial)	-	-	13.00	13.50	13.50	13.75
Loan Against FCBG (BG/ CG)	10.50	9.50	10.50	9.00	9.00	12.00
Loan Against Marketable Securities	-	9.00	9.00	8.50	11.00	13.50
Loan Against Deposit of KBL	12.00	10.50	9.50	9.50	11.00	11.00
Loan Against Government (HMG) Bond	9.50	9.00	8.00	8.00	10.00	11.00
Hire Purchase	9.00	9.50	9.50	-	-	13.50
Other	14.50	13.00	14.00	13.00	13.00	14.00
Average Interest Rate in % (1)	**10.50**	**9.96**	**10.38**	**10.46**	**11.50**	**12.59**
Lending Amount Rs. In million (2)	**9,011.00**	**11,449.00**	**14,681.80**	**14,875.10**	**14,898.40**	**17,808.60**
Standard Deviation	**0.9724%**					
Correlation (r_{12})	**0.7091**					
Coefficient of Determination(r^2_{12})	**0.5028**					
t – Statistics	**t_{cal} = 2.011**		**t_{tab} = 2.571**		**Insignificant**	

Source: - Banking & Financial Statistics, NRB – 58, Annual Report of KBL.

According to the above table no.4.15, interest rates on lending on different area are in increasing trend since 2008 by year. The table shows that the maximum interest rate is 14% in year 2007 and minimum interest rate is 8% in year 2007 and 2010. This shows that interest rate is inclined drastically during the six years period. Generally the productive sector loan (like working capital, deprived sector loan, term loan) and non–productive loan (like home loan, vehicles loan, HMG bond, others) are increasing in similar ratios. According to the

theory, in order to introduce the investment in the country or expansion of trade, the productive sector loan should be available at cheaper rate. But table shows that these sectors loan were somewhat costlier than other non – productive sector loan. If the average of each fiscal year is taken, then it shows that average lending interest rate is 10.50% in year 2007, 9.96% in year 2008, 10.38% in year 2009, 10.46% in year 2010, 11.50% in year 2011 and 12.59% in year 2012. The standard deviation for average interest rate is 0.9714%, which shows the deviation from mean returns, the average rate is also in increasing trend expect in year 2007. The increasing tendency in lending rate seems smooth except increasing trend from year 2011 to 2012. Similarly, lending amount of KBL has been gradually increasing year by year although the interest rate on lending is also increasing trend. This might be the reason of longtime political instability (safety) in the country and good, and better economy system rule after 2010, so most of the people has been interesting to invest in industries and trades in their capacity. Therefore, increase in trend of lending amount and average interest rate shown as following figures.

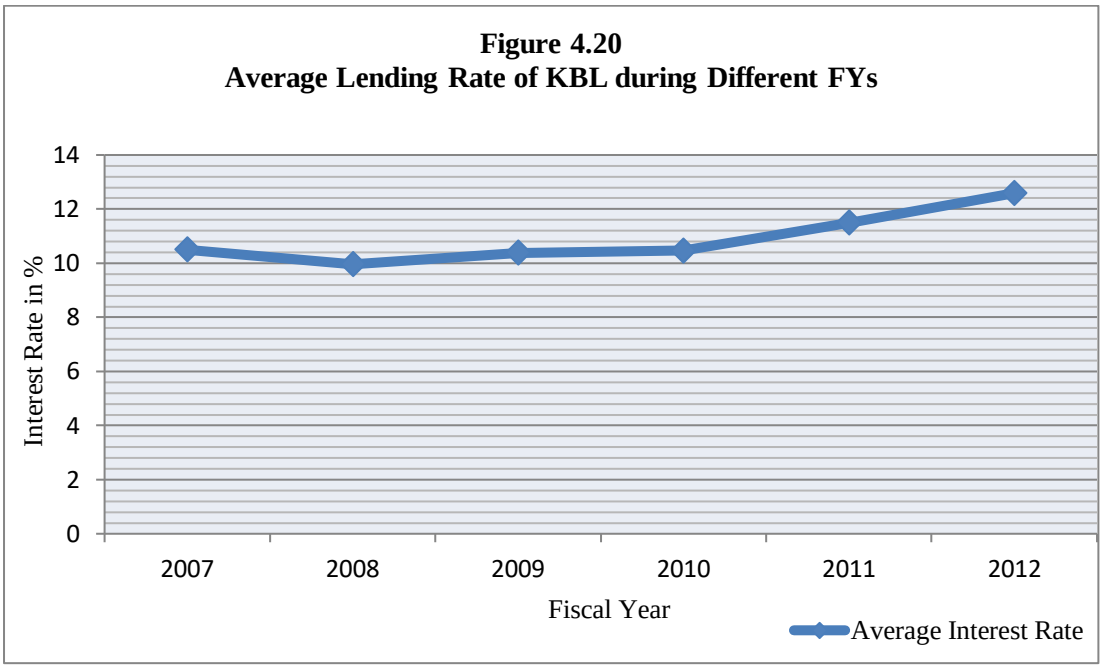
Figure 4.19
Lending Amount of KBL during Different FYs



In the figure no.4.19 shows the lending amount has been invested in different FYs of KBL. KBL always keeps its lending amount in increasing position in each year or in other words, we can say that bank is invested amount in more than year by year till year 2012. The highest

lending amount is Rs.17808.60 million invested in year 2012 while least amount is Rs.9011.00 million in year 2007 among the analyzed year.

Figure 4.20
Average Lending Rate of KBL during Different FYs



In figure no.4.20, the graph shows the clear picture of the average lending interest rate charged by the KBL in different six years period. Initially the average interest rate was 10.50% in year 2007 then it comes down to 9.96% in year 2008 again it up to 10.38% in year 2009, 10.46% in year 2010, 11.50% in year 2011 and then it continue goes up to 12.59% in year 2012.

Correlation Coefficient, Coefficient of Determination and t – Statistics of KBL

From the above table no. 4.12, the correlation coefficient (simple correlation) between lending rate and lending amount, r_{12} is 0.7091. It is positive correlation which indicates that increment in one variable result the increment in other variables or vice versa. Increment in lending interest rate increases the lending amount. Correlation between lending interest rate and lending amount doesn't match the theory in KBL's trend. Similarly, the coefficient of determination between two variables (r^2_{12}) is 0.5028. It means that the relationship between dependent variable (lending amount) and independent variable (lending interest rate) is defined up to the extent of 50.28% then remaining percentage is due to effect others factors.

Similarly, the calculated t – value for KBL is 2.011 (t_{cal} = 2.011). This value is less than the tabulated t – value (t_{tab} = 2.571), with 5% level of significance and 5 degree of freedom. In this condition null hypothesis (H_0) is accepted. It means that there is no significant correlation between two variables. In other words, their relation is insignificant. Though the correlation coefficient shows that these two variables have moderate level of correlation but t – statistics verify that their relation is insignificant. In conclusion the inverse relationship between lending rate and lending amount is not exactly applicable of KBL. Now it is clear that the increase in lending amount is not significantly due to decrease in lending rate.

4.3 Major Findings of the Study

After presentation and analysis of relevant data of sample banks under this study, using various analytical tools some findings can be drawn as bellow. The major findings of the study are summarized in bellow table.

Table 4.16

Summary of the Major Findings

Summary table of the Calculations						
Bank		**Correlation Coefficient**		**t - Calculated (t_{cal})**		**Result**
		Saving	**Fixed**	**Saving Interest Rate**	**Fixed Interest Rate**	
RBB	Deposit	0.1707	0.4091	0.387	1.003	Insignificant
	Lending	0.8789		4.13		Significant
NBL	Deposit	0.8789	0.5838	0.526	1.608	Insignificant
	Lending	-0.2290		8.432		Significant
NABIL	Deposit	0.8003	0.7596	2.984	2.612	Significant
	Lending	0.7882		2.864		Significant
HBL	Deposit	0.4879	0.8744	1.249	4.030	Insig/Significant
	Lending	0.5703		1.552		Insignificant
KBL	Deposit	0.7099	0.8274	2.254	3.294	Insig/Significant
	Lending	0.7091		2.248		Insignificant

Rastriya Banijaya Bank (RBB)

Relation between saving deposit amount and interest rate on saving deposit is positively correlated. Similarly fixed deposit amount and interest rate on fixed deposit is also having positively correlated. Amount of lending and interest rate applied for lending amount is positively correlated. Relation between interest rate with saving deposit is insignificant and relation between interest rate with fixed deposit is insignificant. Relationship between lending interest rate and lending amount is insignificant. It is found deposit rate and lending rate moved into same direction. Deposit amount and lending amount is found in increasing trend and bank has been utilized the collected deposit in terms of loan and advances (i.e. Lending) properly. RBB is able to utilize its deposit amount by 42.78% average to the different lending sector taking the figure of six years sample period of this study. The deposit amount has been increased by more than 3.338 times during the study.

Nepal Bank Limited (NBL)

Relationship between saving deposit amount and interest rate on saving deposit is negatively correlated and interest rate on fixed deposit is positively correlated. Amount of lending and lending interest rate is also highly positive correlated. Relation between interest rate and amounts with saving fixed deposit amount is insignificant and with lending amount is significant. The deposit rate and lending rate of NBL is moving in same direction. It is found that deposit amount and lending amount is in increasing order and total deposit amount is collected 1.605 times more than lending amount. So, it means that NBL is trying its best effort to utilize collected deposit will maintain its cost/ liability to the depositor and other liability to employee and government.

Nabil Bank Limited (NABIL)

The relation between saving deposit amount and interest rate on saving deposit is positively correlated. Amount of lending and interest rate applied for lending amount is also positively correlated. The relation between interest rate with saving deposit is significant and relation between interest rate with fixed deposit is insignificant. Relationship between lending interest rate and lending amount is insignificant. It is found deposit rate and lending interest rate moved into same direction. Deposit amount is found in increasing trend and bank has been utilized the collected deposit in terms of loan and advances (i.e. Lending) properly.

Himalayan Bank Limited (HBL)

The relationship between saving deposit amount and interest rate on saving deposit is positively correlated and also fixed deposit amount and interest rate on fixed deposit is highly positively correlated. Amount of lending and lending interest rate is also positively correlated. The relation between interest rate and amounts with saving and lending amount are insignificant but the relation with fixed deposit amount is significant. It is clarify, the deposit rate and lending rate of HBL is moving same direction. It is found that deposit amount and lending amount is in increasing order. So HBL is trying its best effort to utilized collected deposit will maintain its cost/ liability to the depositor and other liability to employee and government.

Kumari Bank Limited (KBL)

The correlation between saving deposit and saving interest rate on deposit is positively correlated. Amount of fixed deposit and interest rate on fixed deposit is highly positively correlated. The relation between interest rate and amounts with saving deposit is insignificant and with fixed lending amount is significant. So, interest rate and amount with saving deposit are moved into same direction but opposite for interest rate and fixed deposit amount. Similarly, the relation between interest rate on lending rate and lending amount is insignificant that's way it has moved into same direction. Here, deposit amount and lending amount are increasing trend but KBL is not able to utilize the deposit amount in term of loan & advances properly.

CHAPTER – V
SUMMARY, CONCLUSIONS & RECOMMENDATIONS

This is a least chapter for the study it include all the briefing of the whole study and extracts of all the previous chapters. This chapter is the important chapter for the research. This chapter consists of mainly three parts: Summary, Conclusion and Recommendation. In summary part, revision or summary of all four chapters are made. In conclusion part the result from the research is summed up and in recommendation part, suggestion and recommendation is made. Similarly by comparing and analysis the theoretical aspect conclusion is made and finally based on the result of the conclusion required suggestion and recommendation made for the improvement of the current situation of interest rate structure.

5.1 Summary

Nepal is an underdeveloped country so various resources are unutilized and remain unused due to lack of technical and financial crises. That's way for the utilizing and mobilization of these phenomena liberalization policy is playing a vital role, as a result various financial institutions are spread and functioning in the various parts of the country. Financial intermediaries transfer saving to the nearby investor which helps to utilization of educates funds among different productive sectors. This helps to the economic development and the rise the living standard of the peoples. The basic policy for the financial institution is to charge the higher interest in lending and lower interest for deposited funds. As a result various these types of organization are fit for investment in order to gain maximum profit from the deposit and lending. The thesis mainly summarized in four chapters. The first chapter consists of the background, profile of sample banks, objectives, significances, limitation of the study with brief description of NRB and interest rate policy, and statement of problem. The second chapter consists with the knowledge of interest rate, factor affecting/ theories of interest rate. As in topic of literature review consist with research design, study of population and sample, presentation analysis of tools and methods and the procedure for data collection. Similarly the fourth chapter consists with analysis and the procedure for data collection. Similarly the fourth chapter consists with analysis and interpretation of data with the help of different statistical tools and other financial tools.

Therefore profit position is directly or inversely affected by the interest rate charge on deposit and lending, if the combination on deposit and lending is not maintain its directly affect the economic policy of the country. If the interest rate is higher, depositors are attracted and large amount of the funds are out of used, which effect directly towards the investor for lending, due to high interest rates. Similarly, if the interest rate is lower its play a motive role for the investor, without any hesitation they invest large amount of funds, which force depositors to deposit little funds due to little interest rate. So the relationship between deposit, lending and interest are directly or inversely proportional to each other. Therefore this study represent weather some theories of economics and finance are applicable or in the Nepalese financial markets.

There is a substitution effect, fisher's effect and the inverse relationship between interest rate and lending amount. So to find out this studies introduction of Nepalese economy, interest rate, statement of problems, research hypothesis and so on are discussed first chapter. Similarly, second chapter consists of literature review, which include the study of the previous research and theories of interest rate, factor affecting the interest rate, marketability and liquidity, concept of deposit and lending and so on are discussed. Similarly for sample purpose five banks are chosen which include NRB. Usually analysis is made by the helps of the secondary data, in which the effect of interest on deposit and lending amount are presented by using statistical tools. Secondary data are collected from NRB and the various publications like interest, various publication, hands outs, advertisement etc. Also, asking to relevant banks employers when needed to research. The data are presented in tabular and graphical from which helps to easily and clearly to observe the required details. Which are showing that there is significant relationship between deposit rate and deposit amount, and lending rate and lending amount of the banks.

5.2 Conclusions

Particulars		RBB	NBL	NABIL	HBL	KBL
Substitution Effect (Deposit & Interest Rate)	**r** (Saving & deposit)	0.1707	-0.229	0.8003	0.4879	0.7099
	r (Fixed and deposit)	0.4091	0.5838	0.7596	0.8744	0.8274
	t-cal (Saving & deposit)	0.346	0.470	2.669	1.118	2.016
	t-cal (Fixed & deposit)	0.897	1.438	2.336	3.604	2.947
Interest Rate & Lending Rate	**r** (Lending)	0.8789	0.9666	0.7882	0.5703	0.7091
	t-cal (Lending)	3.685	7.542	2.562	1.388	2.011

After the study of different sample banks with the help of the various statistical tools like – mean, standard deviation, coefficient of correlation, t – statistics or using different statistical tools mentioned in chapter three and their finds conclusions has been pointed as different. Interest rate on both deposit and lending of all sample banks are found in decreasing trend from 2007 to 2009 but after 2010 rates are in increasing trend except year 2012. Similarly deposit amount and lending amount are also in increasing trend year by year but RBB is not able to increase it's fixed deposit amount till year 2011 then after it is increased. So, comparing to all as it seems an exceptional case for deposit analysis. Analysis shows interest rate on lending are higher than deposit rate of the sample banks. The correlation coefficient between two variables (deposit and lending rate) of sample banks comes highly positive. Saving deposit amount and saving interest rate have negative relationship i.e. -0.2290 of NBL. It means that they have inverse relationship with each other, if one variable in increases other variable decreases and vice versa. Other banks have positive relationship between saving deposit amount with its interest rate. Similarly, the convenience of using saving accounts provokes the investor deposit on saving account. Similarly the excess supply of saving deposit reduces interest rate of saving account. People accumulate most of their fund on saving accounts through they don't get appropriate interest on it, it may be just because of unavailability of other acceptable investment opportunity, in which a separate study can be made. Similarly there is a positive relationship between saving deposit amount and the saving interest rate. So the t – statistics of positive correlation between saving interest rate and saving deposit amount conclude that for saving deposit, there is substitution effect. But NBL has negative relationship between saving deposit amount and saving interest rate. So the t –

statistics of negative correlation between saving interest rate and saving deposit rate and saving deposit amount conclude that there is no substitution effect.

Analysis of fixed deposit amount and fixed deposit interest rate shows positive interest rate shows positive relationship of all sample banks. The correlation coefficient for RBB, NBL, NABIL, HBL and KBL are 0.4091, 0.5838, 0.7596, 0.8744 and 0.8274 respectively. According to correlation coefficient, there is substitution effect occur in case of fixed deposit that means fixed rate, when interest rate on fixed deposit decrease/ increase. t – Statistics between fixed deposit interest rate and fixed deposit amount is insignificant except HBL and KBL. It means that banks have negative relationship for fixed deposit amount and fixed deposit interest rate but HBL and KBL has positive relationship and their relationship has positively.

However one of the variables that affect the demand of fund and lending activity is lending activity is lending interest rate and lending amount. In this study for three sample banks, it is found that all three sample banks have positive correlations between lending amount and lending interest rate.

The t – test for correlation coefficient of each sample bank between lending interest rate and lending amount shows that the t – value for three sample banks; RBB, NBL & NABIL is significant which means that increase in lending amount is only due to the decrease in lending interest rate but due to other variable factors as well though the correlation coefficient is negative. But in same case is not for two sample banks; HBL & KBL, there is significant relation between lending amount and lending interest rate. Interest rate on deposit doesn't attract the depositors as every year deposit interest rate of sample banks are in decreasing trend but the amount of deposit was not in the same line so that it can be concluded that commercial banks are not conceived in collecting deposit as interest rate on deposit is too less. At last based on the study it can be concluded that lending rate of sample banks attract borrowers/ investors as lending rate of sample banks have decrease every year to provider better opportunities for the borrowers/ investors.

5.3 Recommendations

From the above analytical, interpretational and conclusion point of view following recommendation can be achieved which is useful for further researcher, academician, bankers

and the concerned authorized, to get insight on present topic of the present conditions. This research helps to improve the present condition and direct concerned authorities for taking effective decision making ability. According to this study, the major recommendations are as follows:-

- In order to developed the economy, financial institution have to collect more volume of the capital, so financial institutions are suggested to quoted higher deposit interest rate as for as possible. This situation force for the reduction of the profit opportunity but it will enhance the economics of the country.
- There is a higher spread between lending interest rate and deposit interest rate. So higher spread increase the profit figure of the banks, but it reduces the deposit collection and investment in the country. Therefore financial institution should conscious for the unusual spread of interest, and suggestion is made to minimize spread interest as possible.
- It is suggested to reduce more lending rate on production sector than that of non – productive sector. In practical it is hard matter to reduce more lending rate in production sector, in order to solve the problems bankers can reduce the rate of all sector proportionately.
- NRB has an authority to determine the range between lending rate and deposit rate. So, NRB is suggested to specify the whenever there is higher gap between two interest rate in the nation.
- The central bank of Nepal, NRB should pay special attention towards decreasing trend of interest rate on deposit. It may cause different bad effect in the country such as disintermediation, lack of saving and further saving may go outside of the country.
- There is always threaten from the depositors, weather they mobilize their fund on non – productive sector, so in order to convince them the concerned authorities who fixed the interest by interplay of demand and supply, are suggested to include the inflection premium as for as possible. If it is not consider real rate comes out be negative, which force depositor to mobilize the funds in non – productive sector.
- As the key to success for any organization and for good financial system in the country capital and investment is essential, this is possible only by proper decision making of interest. So all the commercial bank are supposed to set proper and practical interest rate policy.

- In order to promote more lending and borrowing, lending institution are suggested to invest on the new areas as well as to introduce competitive customer oriented schemes. It is also help in solving liquidity problems.
- Banks are not able to mobilize to its deposits in terms of loan due to lack of sufficient safe investment opportunities. Thus it is suggested to the government to improve the political situation of the country that all commercial banks can invest their deposit for country's economic development.
- For NRB, it is suggested to give serious attention to public overall information uniformly. And for the secondary data of NRB also have to pay attention on the publication of bulletins and other publication in a uniform time. So NRB and even individual banks are suggested to publish all necessary publication in time and in their publications respectively for the convenience of researcher and other interested people.
- This research focus on a particular value i.e. interest and deposit. So, further researcher is suggested to explain in detail to get maximum information.

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APPENDIX

Calculation of Mean for Different FYs of RBB

Deposit Interest in %	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Saving Deposit	2.00	2.00	2.00	4.50	4.08	3.35
Fixed Deposit						
7 days	-	-	-	-	-	-
14 days	-	-	-	-	-	-
1 month	-	-	-	-	-	-
3 months	2.25	2.25	-	5.50	5.50	5.00
6 months	2.25	2.25	-	6.00	6.00	5.50
1 year	3.25	3.25	5.00	7.00	8.00	6.50
2 years	-	-	6.00	8.00	8.25	6.50
Above 2 Years	-	-	7.00	9.00	8.50	6.50
Total ∑X	**9.75**	**9.75**	**20.00**	**40.00**	**40.33**	**33.35**
Count. N	**4.00**	**4.00**	**4.00**	**6.00**	**6.00**	**6.00**
$\bar{X} = \frac{\sum X}{N}$	$\frac{9.75}{4}$	$\frac{9.75}{4}$	$\frac{20.00}{4}$	$\frac{40.00}{6}$	$\frac{40.33}{6}$	$\frac{33.35}{6}$
Mean $(\bar{X})$	**2.44**	**2.44**	**5.00**	**6.67**	**6.72**	**5.56**

Calculation of Standard Deviation of RBB

Year	Average Interest Rate (X)	$\bar{X}$	$X - \bar{X}$	$(X - \bar{X})^2$
2007	2.44	4.805	-2.365	5.5932
2008	2.44	4.805	-2.365	5.5932
2009	5.00	4.805	0.195	0.0380
2010	6.67	4.805	1.865	3.4782
2011	6.72	4.805	1.915	3.6672
2012	5.56	4.805	0.755	0.5700
n=6	$\sum X = 28.83$		$\sum(X - \bar{X})^2 = 18.9400$	

Here,

We know that,

$$\bar{X} = \frac{\sum X}{n} = \frac{28.83}{6} = 4.805$$

Standard Deviation (σ) $= \sqrt{\frac{\sum(X-\bar{X})^2}{2}} = \sqrt{\frac{18.9400}{6}} =$ ***1.777%***

Calculation of Correlation Coefficient, Coefficient of Determination & t – Statistics of RBB

For Saving Deposit Interest Rate & Saving Deposit Amount (X and Y)

Year	**Saving Deposit Interest Rate in % (X)**	**Saving Deposit Amount Rs in million (Y)**	X^2	Y^2	XY
2007	2.00	33046.06	4.00	1092042081.52	66092.12
2008	2.00	40275.75	4.00	1622136038.06	80551.50
2009	2.00	46164.26	4.00	2131138901.35	92328.52
2010	4.50	42809.49	20.25	1832652434.06	192642.71
2011	4.08	38590.02	16.65	1489189643.60	157447.28
2012	3.35	44106.77	11.22	1945407159.83	147757.68
N = 6	***∑X = 17.93***	***∑Y = 244992.35***	***∑X² = 60.12***	***∑Y² = 10112566258.43***	***∑XY = 736819.81***

Now, we have,

$$Correlation\ Cofficient\ (r_{XY}) = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2}\sqrt{N\sum Y^2 - (\sum Y)^2}}$$

$$= \frac{6 * 736819.81 - 17.93 * 244992.35}{\sqrt{6 * 60.12 - (17.93)^2}\sqrt{6 * 10112566258.43 - (244992.35)^2}}$$

$$= \mathbf{0.1707}$$

& $\boldsymbol{r_{XY}^2 = 0.0291}$

t – Statistics – RBB

$$t = \frac{r_{XY}}{\sqrt{1 - r_{XY}^2}} * \sqrt{n-2}$$

$$= \frac{0.1707}{\sqrt{1 - 0.1707^2}} * \sqrt{6-2}$$

$$= \mathbf{0.3465}$$

$$Therefore, \quad t_{cal} = \mathbf{0.3465}$$

Again, Calculation of Correlation Coefficient, Coefficient of Determination & t – Statistics of RBB

For Fixed Deposit Interest Rate & Fixed Deposit Amount (X and Y)

Year	Fixed Deposit Interest Rate in% (X)	Fixed Deposit Amount Rs in million (Y)	X^2	Y^2	XY
2007	2.58	7030.43	6.66	49426945.98	18138.51
2008	2.58	4511.21	6.66	20351015.66	11638.92
2009	6.00	3212.40	36.00	10319513.76	19274.40
2010	7.10	6539.21	50.41	42761267.42	46428.39
2011	7.25	14266.85	52.56	203543008.92	103434.66
2012	6.00	17984.35	36.00	323436844.92	107906.10
N = 6	$\sum X =$ ***31.51***	$\sum Y =$ ***53544.45***	$\sum X^2 =$ ***188.29***	$\sum Y^2 =$ ***649838596.68***	$\sum XY =$ ***306820.98***

Now, we know,

$$Correlation\ Cofficient\ (r_{XY}) = \frac{N\sum XY - \sum X \sum Y}{\sqrt{N\sum X^2 - (\sum X)^2}\sqrt{N\sum Y^2 - (\sum Y)^2}}$$

$$= \frac{6 * 306820.98 - 31.51 * 53544.45}{\sqrt{6 * 188.29 - (31.51)^2}\sqrt{6 * 649838596.68 - (53544.45)^2}}$$

$$= \mathbf{0.4091}$$

& $\boldsymbol{r_{XY}^2 = 0.1674}$

t – Statistics Value – RBB

$$\boldsymbol{t = \frac{r_{XY}}{\sqrt{1 - r_{XY}^2}} * \sqrt{n-2}}$$

$$= \frac{0.4091}{\sqrt{1 - (0.4091)^2}} * \sqrt{6-2}$$

$$= \mathbf{0.8967}$$

$\boldsymbol{Therefore,}$ $\boldsymbol{t_{cal} = 0.8967}$

Note: - Same process has been followed to calculate the correlation coefficient, coefficient of determination, t – statistics for other remaining sample banks (i.e. NBL, NABIL, HBL & KBL).