CHAPTER ONE
INTRODUCTION

1.1   Background of the Study

Nepal is a least developed country in south Asia with per capita national income of US$484 in 2008. The country is surrounded by two Asian emerging giant economics; Republic of India in south, East and west and People's Republic of China in the North. While the country has an ideal location, still 31% of the population is under the poverty line (Maskay & Pandit, 2009). Presently, the country is politically transformed to a Federal Democratic Republic, and is in the process of transforming the structure of the state in this regard. The level of economic development they (India and China) have attained over the years and the current pace of their economic growth indicate that they have potential to compete in the international market. But the pace of economic development of Nepal is still in its infant stage. Government has now initiated various economic policies with a hope that these policies will significantly change the industrial and business environment of the country in future. To accelerate economic development various policies like industrial policy, foreign investment policy, privatization policy, and trade policy have been formulated and are being implemented slowly.

The above mentioned policies have brought about liberalization in Nepalese economy. With its impact various public sector industries are being privatized slowly and various public sector industries are being privatized slowly and various multinational companies, joint venture banks and financial companies have emerged which aim in aiding economic development of the country. Banks and finance companies are the heart of financial system operating in the economy even with their branches outside the valley. It is hoped that these financial institution would help economic development of the country and even help compete in the international markets.

Banking from the beginning was not in this form as it is now. Banking has come to its present advanced form through various stages. As in other countries goldsmith and landlords functioned as the ancient bankers of Nepal. "Tejarath Adda" did not carry out banking activities. Tejarath Adda established during the tenure of the Prime Minister Ranoddip Singh (B.S.1933) that was the first step towards the institutional development of banking in Nepal. Tejarath Adda did not collect deposits from the public but gave loans to employees and public against the bullion. Banking in true sense of term started

with the inception of Nepal Bank Limited, on 30th Kartik 1994 BS. Right from inception, it carried out functions of commercial bank.

Rastriya Banijya Bank (RBB) had a Herculean responsibility of attracting people towards banking sector from pre-dominant Sahu Mahajan's transaction and of introducing other banking services as well. Being a commercial bank, it was but natural that RBB paid more attention to profit generating business. But, it is the onus of government to look into neglected sectors too.

Nepal Rastra Bank, as the central bank of Nepal was established in 2012 BS (1955 AD) to formulate monetary policies and for making rules and regulation regarding banking sector and to implement it. Similarly, Rastriya Banijya Bank as the second commercial Bank of Nepal established in 2022 BS (1965 AD). In 2016 BS, Nepal Industrial Development Corporation (NIDC) was established to look after the industrial development. In 2024 BS, Agricultural Development Bank of Nepal was established. Until the mid 1980's financial sector was dominated by the two large government owned commercial banks (RBB and NRB) Rastriya Banijaya Bank and Nepal Bank Limited respectively. Slowly other commercial banks and development bank emerged in order to provide banking facilities to the public. Competition in the financial system was enhanced only after the restoration of democracy in 1990 and with the advent of liberalization policy various joint venture banks emerged. "At present there are altogether 87 banks including 26 commercial and 61 Development Banks"(Economic Report; NRB 2007/2008). They have been established with the main objective of providing on appropriate interest on collecting deposits and charging appropriate interest on loan and advances. Similarly finance companies came into operation under the finance companies act in 1985. They are referred as limited liability companies according to the provisions of companies' act 1965. They usually accept time deposit and advances loans to individuals, companies or institution of agricultural as well non-agriculture purpose in order promote economic benefit. At present there are altogether 78 finance companies operating in a country.

In the least developed country like Nepal capital is the main obstacle standing in the road of economic development, which can be wiped only by collection of more deposits from the savers (household, business, and government). More precisely personal saving is that part of disposable

income which is not consumed. Saving equals income minus expenditure. Rich people save more than poor people both absolutely and as a percentage income. In the business sector savings include current earnings retained inside business firms after payment of

taxes, stockholder's dividend and other expenses. Government savings arise when there is a surplus of current revenues over current expenditure. Bank is only the institution which can enhance saver to save more from what they have earned. More saving can accumulated from the household sector. As people in the least developed countries are not much concerned about saving most part of earning is spent in consumption. Even if some people save their money remains idle at home it is not invested in the productive sector so the flow of capital is low in the financial market for the economic development. Banks as an intermediary can influence savers to save and then deposit (keep saving in bank) their money in bank providing them attractive interest rate. Interest rate is one of the important factor which influence people to save and deposit their saving in banks for long period. "Interest is payment for the use of money". So when saver deposit their savings in bank that time banks pays certain percentage of interest on savings. Deposits is accepted in various types of accounts (current, saving, fixed accounts) where banks pays high interest on fixed deposit rather than saving account. In fixed deposit account, time is fixed at the time of depositing money; customer has no right to withdraw money before the expiry of fixed period. For different duration interest and shorter the period less interest. In saving deposit account money is withdrawn at any time in any amount up to the minimum balance so in this deposit account less interest is paid to the depositor.

After accumulation of deposits, bank provides loan to borrowers who are in need of money from the money accumulated in deposit. In such case bank charge certain percentage of interest to the borrower and borrower has to pay that interest for using bank's money. Interest on loan also varies according to the nature of loan whether loan is of short term of long term." the rate of interest is the price a borrower must pay to secure lonable fund from a lender for an agreed upon time period" (Rose,Peter S, 2003) . An appropriate interest rate structure greatly affects the collection of deposits, mobilization of savings (in productive sector) and profit position of any financial institution, which in turn affects the economic upliftment of the whole country. Interest rates rise if the rate of price increment tends to follow in future time period. So the fluctuating interest rate raises the main issue of financial markets. Simply, a period of high interest rate reflects tight money, which in turn associates with tight reserve positions at commercial banks. At such times interest rates rise but there are conventional limits on interest rates. Consequently a larger quantity of funds is demanded by borrowers that bank is able to make available. As the economic development of the country depends upon efficient transformation of savings from the hands of surplus units to deficit units in productive way; this transformation takes largely through the intermediation of financial institutions and commercial banks. Financial market including banks channel savings to the

individuals and institutions needing more funds for spending than are provided by their current incomes. The financial markets are the heart of the financial system attracting and allocating savings and setting interest rate on deposit and loan.

The role of financial markets in channelising savings into investment is absolutely essential to the health and vitality of the economy. The acts of savings and lending borrowing and investing are intimately linked through financial market and institutions. One factor that significantly influences and ties all of them together is the rate of interest, the rate of interest is the price a borrower must pay to secure scarce lonable funds from a 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 of two quantities: the money cost borrowing divided by the amount of money actually borrowed. Usually expressed on an annual percentage basis. Interest rate sends price signals to borrowers, lender savers and investors. "Higher interest rate generally brings forth a greater volume of savings and stimulates the lending of funds. Lower rate of interest on the other hand tend to dampen the flow of savings and reduce lending activity. Higher interest rate tends to reduce the volume of borrowing and capital investment and lower interest rate stimulate borrowing and investment spending" (Rose, Peter S, 2003). So it is important to know and be familiar with interest rate charged on lending and interest provided on deposit and how interest rate affects deposit and loan.

1.2   Overview of Interest Rate Policy and Financial Development

Interest rates, in general, reflect the cost of funds-the interest rate can be viewed as the rental price for money, or alternatively can view as the opportunity cost for money where the cost of not using money is its next best alternative. The policy rate is the rate by which the monetary authority signals the cost of borrowing from the central bank. The effect of policy rate to the market interest rates however depends on the structure of interest rates and the level of financial development. In this regards it is difficult to examine interest policy in Nepal without understanding the level of financial development (Maskay & Pandit, 2009).

a.   Pre Interest Rate Phase (pre-1955)

Prior to 1955, the domestic financial system was underdeveloped - it was dominated by unorganized/informal financial system generally driven by private individuals, Shahus (merchants) and landlords. To provide financial services, Nepal Bank Limited (NBL) which is the first commercial bank in the country, was established in1937, and reflects the

start of the formal financial system. Despite this beginning, the Nepalese financial system remained in an embryonic stage which can be seen through some comparative ratios of Nepal, UK and India at that time: Nepal had 400,000 persons per bank branch while it was 4,000 and 70,000for UK and India respectively; further the per capita deposit at that time in Nepal was NRs. 8, or less than a dollar, compared to 367 US dollar for UK and 9 US dollar for India. During that time, the country's monetary system was characterized as being a dual currency system - financial transactions were dominated by the use of Indian currency with there being a volatile exchange rate between the IC and NC and a very low level of monetization in the country. Therefore, in the initial period, the primary responsibility for Nepal Rastra Bank was to bring the monetary system under its control - this was reflected in the preamble of the Nepal Rastra Bank Act of 1955.

b. **Controlled Interest Rate Phase (1956 - 1983)**

The establishment of NRB in 1956 coincided with the period of planning (such as the first development plan from 1956 – 1960). At the initial stage, the financial system was still rudimentary and described as "predominantly a cash economy"; however the further effort by GON of formalizing the financial system was reflected in the establishment of i) Nepal Industrial Development Corporation (NIDC) in 1959; ii) Rastriya Banijya Bank (RBB) 1966; and iii) Agriculture Development Bank in 1968; these institutions facilitated the elimination of the dual currency system in 1967, which predominated in Nepal. In that year, NRB also adopted a controlled interest rate determination regime, where the Bank used to fix deposit and lending rates of the commercial banks. Different rates were fixed for different instruments and purpose of the loan. As the market based monetary policy instruments were not developed, determination of interest rate was one of the few options left for the NRB at that time. Also, at that time there was a lack of competition in the domestic financial system due to the limited number of banks operating in the country. Before 1983, there were only two commercial banks operating in the country (e.g. NBL and RBB) which controlled the lion's share of the resources.

c. Transitional Interest Rate Phase (1984 - 1989)

In early 1980s, Nepal experienced a series of BOP problem. To control the depletion of international reserve Nepal adopted the International Monetary Fund's (IMF) supported economic stabilization program in 1985, and subsequently entered into IMF's Structural Adjustment Facility; this presaged gradual reform measures in the financial sector. In this regard, on November 16, 1984 NRB initiated a limited flexibility to commercial banks to fix the interest rates. Commercial banks were then allowed to offer interest rate on savings and time deposits to the extent of 1.5 and 1.0 percentage point above the minimum level. This form of limited deregulation on interest rate helped increase the competitiveness among banks and financial institutions. In this liberalizing environment, three joint venture commercial banks were established during1984-1987. Effective May 29, 1986, interest rates for deposit and lending were further liberalized except for the priority sector lending, in which banks were not allowed to charge interest rate more than 15%. The objective of gradual deregulation of interest rates was to create competitiveness in the banking sector thereby increasing efficiency, effective mobilization and allocation of resources.

d. Liberalized Interest Rate Phase (1990 - present)

Controlled interest rate regime was completely abolished on August 31, 1989. Banks and financial institutions were now given full autonomy to determine their interest rates on deposits and lending. This coincided with the period of economic liberalization, which saw a huge spurt in the number of banks and financial institutions. The number of institutions expanded tremendously from 7 banks and financial institutions in the last phase to 244 in the current phase an increase by over 33 times. Although the NRB has given the autonomy to determine the interest rate, the Bank has been forced to intermittently issue directives in regard to anomalies in the interest rate determination as there had existed a high interest rate spread between deposit and lending rates. Therefore, the objective of interest rate deregulation to lower the financial intermediation cost was not met. The promulgation of NRB Act 2002 attempted to address development in the financial market. But, the continuing high level of interest rate spread suggested that greater financial sector development

had not brought efficiency in the financial system. To address this, NRB attempted to maintain the interest rate spread of commercial banks at a desired level through using moral suasion only. Additionally, in the spirit of interest rate deregulation, the provision of interest rate spread of 5.5%was withdrawn by the NRB in 2003. Since then no such direct or indirect restriction is implied as far as determination of interest rate is concerned, although NRB has shown intermittent concern regarding interest rates.

1.3   Statement of the Problem

The prime concern of every nation of the world is economic development. Underdeveloped countries like Nepal are facing various problems in the process of economic development. Nepal is not exception to this condition. For the economic development, interest rate is also important tools which play an important role through mobilization of idle money. In today's world investment is needed highly in every sector of the economy. For that banking and financial institutions are also equally important for providing credit at cheaper rate and enhance deposits providing higher interest rate. People keep their saving idle because they are provided with less interest. In lending investors are charged high interest rate so the investment is not done in the useful and priority sector. Instead investment is done in unproductive and wasteful sector. Thus Nepal is lacking institution that mobilize savings into productive channels. Majority of people are in need of money to invest in productive sector. Even to use new technology more capital is needed which can be possible to get only from bank with low interest rate.

Although the Joint Venture Commercial bank has managed to perform better than the local commercial banks within the short span of time, they have been facing high competition against one another. The policy of economic liberalization has further intensified the competition which has ultimately affected these profitability of banks. There is high competition which ultimately affecting the interest rate. The interest rates of bank have been decreasing and the mobilized resource are mostly idle. Due to decreasing interest rates the depositor are discouraged. In the view of these problems, this study is directed towards the following research problem.

a.   What are the interest rate offered and charged by different commercial banks of Nepal on deposit and loans?

b.   What are the different ways banks charges interest rate on deposit and loans?

c. How far change in interest rate has influenced total amount of deposits and loan advances?

1.4 Objective of the Study

The main objective of this study is too see the effect of interest on deposits and loans. Besides this there are other objectives related to this study.

a. To examine the relationship between interest rate and deposits.

b. To examine the relationship between interest rate and loans.

c. To present and analyze interest rate structure of various commercial banks in different time period.

d. To present a concrete picture of the interest rate structure in Nepal.

e. To provide suggestions and recommendation for improvement in the rate structure in Nepal.

1.5 Significance of the Study

Many studies have been made in various topics related to financial management. This topic being an important aspect for the economic development of the country has not much been emphasized. So, curiosity arose to make a study on this topic and be familiar with interest rate structure of commercial bank and to know whether it influence deposits and loans. Even though people have more savings and even need more money for investments, are not familiar with the interest rate structure of banks. In some instances commercial banks even exploit the customers charging unfavorable interest rate. It is hoped that to some extent this study will help the policy makers so make strong policy regarding interest rate charged on deposits and lending. Last, but not the least this study will help teachers, students, researchers and academicians in abstracting some useful information about interest rate, deposits and lending.

1.6 Research Hypothesis

"A quantitative statement about population parameter is called hypothesis. In other words, it is an assumption that is made about the population parameter and then its validity is tested. It may or may not be found valid in verification. The act of verification involves testing the validity of such assumptions which, when undertaken on the basis of sample evidence, is called statistical hypothesis or testing of hypothesis. The main goal of testing hypothesis is to test the characteristics of hypothesized population parameter based on sample information whether the difference between the population parameter

and sample statistics is significant or not. Hypothesis is set as null hypothesis and alternative hypothesis". (Sharma & Chaudhary, 2000)

   a.   Hypothesis one is related to the significance of the correlation coefficient between interest rate and deposits.

   Null hypothesis, H0: p=0 i.e. interest provided on deposits by commercial banks and deposit amount are uncorrelated.

   Alternative hypothesis, H1:p 0 i.e. interest provided on deposits by commercial banks and deposit amount are correlated.

   b.   Hypothesis two is related to the significance of the correlation coefficient between interest rate and lending.

   Null hypothesis, H0: p=0 i.e. interest rate charged on lending and lending amount of commercial banks are uncorrelated.

   Alternative hypothesis, H1: p 0 i.e. interest rate charged on lending and lending amount of commercial banks is correlated.

   c.   Hypothesis three is related to the significance of the correlation coefficient between interest rate on deposit and interest rate on lending.

   Null Hypothesis, H0: p=0 i.e. interest rate provided on deposit and interest charged on lending of commercial banks is uncorrelated.

   Alternative hypothesis, H1: p 0 i.e. interest rate provided on deposit and interest rate charged on lending of commercial banks are correlated.

1.7   Limitation of Study

There are some limitations in this study, which are as follows:

   a.   Due to the some constraints, few samples (Five Commercial Banks) are selected for study.

   b.   The study is based mainly on secondary data which may not be exact and hundred percent genuine.

   c.   The study is focused only on commercial banks deposits and lending where as other financial institutions also plays an important role for economic development of the country.

   d.   Very limited financial and statistical tools are used in the analysis.

1.8 Organization of the Study

This study is divided into five chapters. They are;

  a. Introduction

  b. Review of literature

  c. Research Methodology

  d. Presentation and analysis of data

  e. Summary, Conclusion and Recommendation

The first chapter is about introduction. It includes background, overview of interest rate policy and financial development, statement of problem, objective, significance of the study, limitation and organization of the study.

The second chapter is about the review of the literature. It includes conceptual framework, theories of interest rate, economic factors affecting interest rate and review of previous dissertation, journal, articles, reports and books.

The third chapter is about research methodology. It includes research design, population and sample, data/information collection procedure, data processing, data analysis tools and variables.

The fourth chapter is about presentation and analysis of data of related topic based on annual reports of sample banks

The fifth chapter is about summary, conclusion and recommendation of the study.

CHAPTER TWO
REVIEW OF LITERATURE

The next 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. For the preparation of this study, some books, dissertation, reports and articles will be reviewed.

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 raising as two legimate 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 the owner, it can be used by him for further production and the additional product he gets through the employment of his capital includes interest. If he had lent his capital to someone else, he would have received interest in returns. "Interest is the income which goes to the owner of capital" (Jhingan M.L 8th Edition).According to classical economists "it is only by postponing consumption that capital can be created. Since to abstain from consumption that capital can be created. 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 John Rae and Boehm Bawerk and followed by fisher in American 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 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.

Interest rate is also an important factor in the financial system. The interest rate is the price of money, the price of renting the use of the resource that money commands for a specified period of time. The acts of saving and lending, borrowing and investing are linked through the financial system. And one of the factors that significantly influences and ties all of them together is the rate of interest. The rate of interest is the price a borrower must pay to secure scarce lonable funds from a lender for an agreed upon time period. It is the price of credit, but unlike other prices in the economy the rate of interest is really a ratio of two quantities: the money cost of borrowing divided by the amount of money actually borrowed, usually expressed on an annual percentage basis. Interest rates send price signals to borrowers, lender, savers and investors. For example higher interest rate generally brings forth a greater volume of savings and stimulates the lending of funds. Lower rates of interest on the other hands, tend to dampen the floe of savings and reduce lending activity. Higher interest tends to reduce the volume of borrowing and capital investment and lower interest stimulate borrowing and investment spending. The rate of interest, according to Keynes is a purely monetary phenomenon, a reward 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 influence 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. Schulz has also expressed his view that, "An important aspect of interest rate policy is the setting of an appropriate margin between the lending and deposit rate. If the margin is too high, banks will make excessive profits and this lead to waste to saved resources. If is too low it will discourage intermediation and devitalize financial institutions. At the same time 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 a developing economy such as ours. When such amendments are introduced without thinking

seriously, they 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: (Jhingan M.L 8th Edition)

Pure or 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. It is a rate of return presenting little or no risk of financial loss to the investor. And it represents the opportunity cost of investing in government bonds with no risk and earns this minimum rate of return.

Gross interest: The payment, which the borrower makes to the lender excluding the principal, is gross interest.

Reward for risk taking: Interest also includes rewards for risk taking. The lender exposes him to risk when he lends money. The greater the risk element the higher the rate of gross interest. Unsecured loans are more risky than secured loans and they carry a high premium rate.

Reward for inconvenience: Interest also a reward for inconvenience. When a lender loans money he forgoes its use for the duration of the loan. His money is locked up and cannot be used for more profitable purposes. Even if he needs this amount for his personal use, he will have to undergo the inconvenience of arranging it from some other source. So on fixing the rate of interest the lender includes in it the reward for such inconveniences.

Interest rates have diverse roles and functions in the economy. Its role can be a noticed as a reward to capital which is a factor of production, a return to saving a cost of investment as an instrument of monetary policy for credit control. Their functions are: It helps guarantee that current savings will flow into investment to promote economic growth. It rations the available supply of credit generally providing lonable funds to those investment projects with the highest expected returns. It brings the supply of money into balance with the public's demand for money.

2.2   Theories of Interest Rate

Various interest rate theories have been propounded by various economists; we describe how interest rate is determined in various situations. Some well known theories of interest rates are as follows:

2.2.1 The Classical Theory of Interest Rates

One of the oldest theories concerning the determinants of the pure of risk-free interest rate is the classical theory of interest rates, developed during 18th and 19th centuries by a number of British economists earlier in this century. The classical theory argues that the interest is determined by two forces: first is supply, deprived mainly from households, and second the demand for investment capital, coming mainly from the business sector (Rose, Peter S., 2003).

Savings by households: Most of the saving in modern industrialized economics carries out by individual and families. For these households, saving is simply abstinence from consumption spending. Current savings therefore are equal to the difference between current income and current consumption expenditure. 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 saving 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 incomes families and individuals tend to save more and consume less relative to their total income than families with lower incomes. Although income level probably dominates 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 individual have a definite time preference for current over future consumption. A rational individual have a definite time preference for current over future consumption. A rational individual, it is assumed, will always prefer 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 or return, future consumption and future enjoyment would be increased. The classical theory considers the payment of interest a reward of waiting-the postponed of current consumption in favor of greater future consumption. Higher interest rate increase the attractiveness of saving relative to consumption spending, encouraging more individuals to substitute current saving (and future consumption) for some quantity of current consumption. This so-called substitution effect calls for a positive relationship between interest rates and the volume of savings. Higher interest rates bring forth a greater current volume of savings.

Saving by business firms: Not only households, but also business, save and direct a portion of their savings into the financial markets to purchase securities and make loans. Most business hold savings balances in the form of retained earnings. In fact, the increase

in retained earnings reported by business each year is a key measure of the volume of current business saving. And there retained earning supply most of the capital for annual investment spending by business firms. Saving depends on two key factors: the level of business profits and the dividend policies of corporations. These two factors are summarized in the retention ratio, 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. Experience has shown that dividend policies of major corporations do not change very often. Many corporations prefers to keep their dividend payments level constant or increase them slightly each year, regardless of their current earnings. Any shortfalls in earnings needed for dividend payments are made up though borrowing. 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 and a tendency toward lower interest rates. On the other hand, when profits fall but firms do not cut back on their investment plans, they are focused to make heavier use of the money and capital markets for 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 expenditure should be financed internally and what proportion externally. Higher interest rate 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 from the money and capital markets.

Savings by government: Government also saves, though less frequently than households and business. In fact, most government receipts unexpectedly exceed the actual amount of expenditure. 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 saving. It increases the supply of funds.

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. All this means, concluding, supply and demand for businesses require huge amounts of funds each year to purchase equipment, machinery and inventories and to support the construction of new buildings and other physical facilities. The majority of

business expenditure for these purposes consists of what economists call replacement investment, i.e. expenditure to replace equipment and facilities that are wearing out or are technologically obsolete.

The classical economists believed that interest rates in the financial markets are determined by the interplay of the supply of saving and demand for investment. Specifically the equilibrium rate of interest is determined at the point where the quantity of saving 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
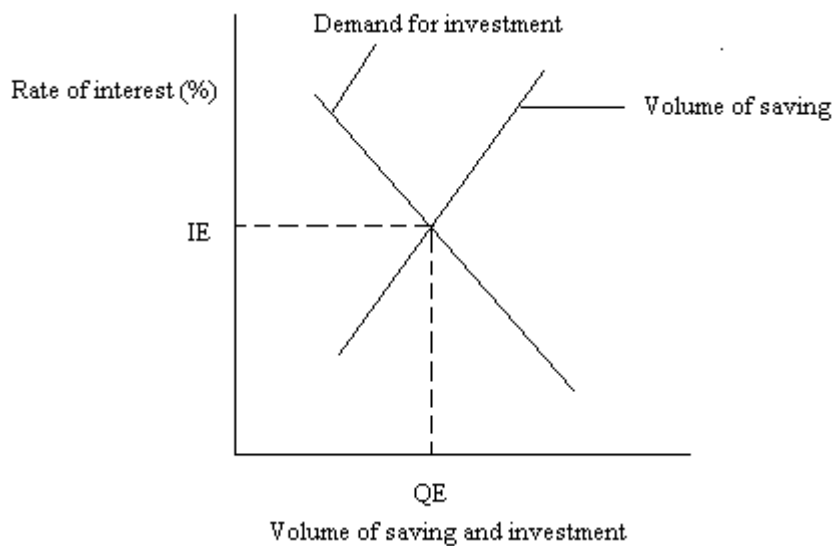
Figure 1. The equilibrium rate of interest in the classical theory

If the market rate of interest is temporarily above equilibrium, the volume of savings exceeds the demand for investment capital creating an excess supply of savings. Savers will offer their funds at lower and lower rates until the market interest rate approaches equilibrium; investment demand exceeds the quantity of savings available. Business firm will bid up the interest rate until it approaches the level at which the quantity saved equals the quantity of funds demanded for investment purposes. The classical theory of interest rates helps us to understand some of the long-term forces driving interest rates.

2.2.2 The liquidity Preference Theory of Interest

The classical theory of interest has been called a long- term explanation of interest rates because it focuses on public's thrift habits and the productivity of capital-factors they tend to change slowly. During the 1930's British economist Keynes 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 the liquidity preference theory of interest. In this theory interest is the interplay of demand for liquidity and supply of money (Rose, Peter S., 2003).

The demand for liquidity: Keynes argued that the rate of interest is really a payment for the use of scare resources, money. Businesses and individual prefers 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 a perfectly liquid asset and hold other assets that carry more risk. At times the preference for liquidity grows very strong unless the government expands the money supply, interest rates will rise. In the theory of liquidity preference, only two outlets for investor funds are considered: bonds and money (including bank deposits). Money provides perfect liquidity (instant spending power); bonds pay interest but cannot be spent until converted into cash. If interest rates rise, 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. On the other hand, a fall in interest rates results in higher bond prices: the bondholder will experience a capital gain if his or her bonds are sold for cash. To the classical theorists, it was irrational to hold money because it provided little or no return. To Keynes, however the holding of money could be a perfectly rational act it interest rates were expected to rise, because rising rates can result in substantial losses for investors in bonds. The total demand for money in the economy is simply the sum of transactions, precautionary, and speculative demands. Because the principal determinant of transactions and precautionary demand is income, not interest rates, these money demands are fixed at a certain level of national income.

The Supply of Money: The 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 the 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 Equilibrium Rate of Interest in Liquidity Preference Theory: 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 figure2, the equilibrium rate is found at point E, where the quantity of money demanded by the public equals the quantity of money supplied.
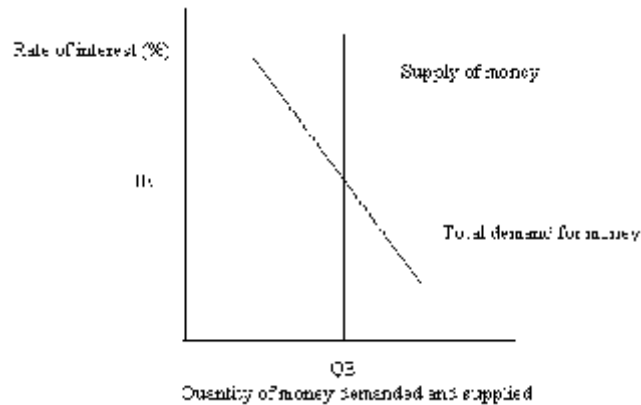
Figure 2 The equilibrium rate of interest in the liquidity preference theory

Above this 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 money balances by purchasing bonds. The price of bonds will rise, driving interest rates down toward equilibrium at IE. On the other hand, at rates below equilibrium the quantity of money demanded exceeds the supply. Liquidity preference theory provides some useful insight into investor behavior and the influence of illustrates how central banks such as Federal Reserve System can influence interest rates in the financial markets, at least in the short term. If higher interest rates are desired, the central bank can reduce the size of the money supply and interest rates will tend to rise (assuming the demand for money is unchanged). If the demand for money is increasing, the central bank can bring about higher interest rates by ensuring that the money supply grows more slowly than money demand. In contrast, if the central bank expands the money supply, interest rates will decline in the short term (provided the demand for money does not increase).

2.2.3 The Lonable Fund Theory of Interest Rate

A view that overcomes many of the limitations of earlier theory is the loanble fund 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 (lonable funds). The demand for lonable funds consists of credit demands from domestic businesses, consumers and government and also borrowing in the domestic market by foreigners. The supply of loanble funds stems from four sources: domestic savings, hoarding demand for money, money creation by the banking system, and lending in the domestic market by foreign individuals and institutions (Rose, Peter S., 2003).

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Total Demand for Loanble Funds

The total demand for lonable funds is the sum of domestic consumer, business and government credit demands plus foreign credit demands. Domestic consumers demand lonable 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 nonprice terms of loan, such as the down payment, maturity, and the size of installment payments. This implies that consumer demand for credit is relatively inelastic with respect to the rate of interest. The credit demands for domestic businesses generally are more responsiveness to changes in the rate of interest than in consumer borrowing. Most business credit is for such investment purposes as the purchase of inventories and new plant and equipment. Government demand for loanable funds is a growing factor in the financial markets but does not depend significantly on the level of interest rates. This is especially true of borrowing by the federal government. Federal decisions on spending and borrowing are made in response to social needs and the public welfare not the rate of interest. In recent years foreign banks and corporation, as wells as foreign governments, have increasingly entered the huge U.S. financial marketplace to borrow domestic lending rates and interest rates in foreign markets. Higher interest rates lead some businesses, consumers and governments to curtail their borrowing plans; lower interest rates bring forth more credit demand. However the demand for loanble funds does not determine the rate of interest by itself (Rose, Peter S., 2003).

Total Supply of Lonable Funds

The total supply of loanble funds includes domestic saving, foreign lending, dishoarding of money, and new credit created by the domestic banking system. The supply of domestic savings is the principal source of loanble funds. As noted earlier, most saving is done by households and is simply the difference between current income and current consumption. Businesses, however, also save, by retaining a portion of current earnings and by adding to their depreciation reserves. Government saving while relatively rare occurs when current revenues exceed current expenditures. Most economists today believe that income levels, rather than interest rates, are the dominant factor in the decision of how much and when to save. But there is evidence that business and household saving may be goal oriented; so called income effect. Still another source of loanble funds is centered on the public's demand for money relative to the available supply of money. The supply of money on the other hand, is closely controlled by government. The difference between the public's total demand for money and the money

supply is known as hoarding. When the public's demand for cash balances exceeds the supply, positive hoarding of money takes place as some individuals and businesses attempt to increase their cash balances at the expense of others. Hoarding reduces the volume of lonable 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 (dishoarding) occurs. Some individual and businesses will dispose of their excess cash holdings, increasing the supply of lonable funds available in the financial system. Credit created by the domestic banking system represents an additional source of loanable funds, which must be added to the amount of savings and the dishoarding of money balances to derive the total supply of lonable funds in the economy. Finally foreign lenders provide large amount 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. Foreign lenders will find it more attractive to make loans to domestic borrowers. At the same time domestic borrowers will turn more to foreign markets for lonable funds as domestic interest rates climb relative to foreign rates. (Rose, Peter S., 2003)

The Equilibrium Rate of Interest in the Lonable Funds Theory

The two forces of supply and demand for lonable 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 towards the equilibrium point at which the supply of lonable funds equals the demand for lonable funds. This point of equilibrium is shown in the figure 3.

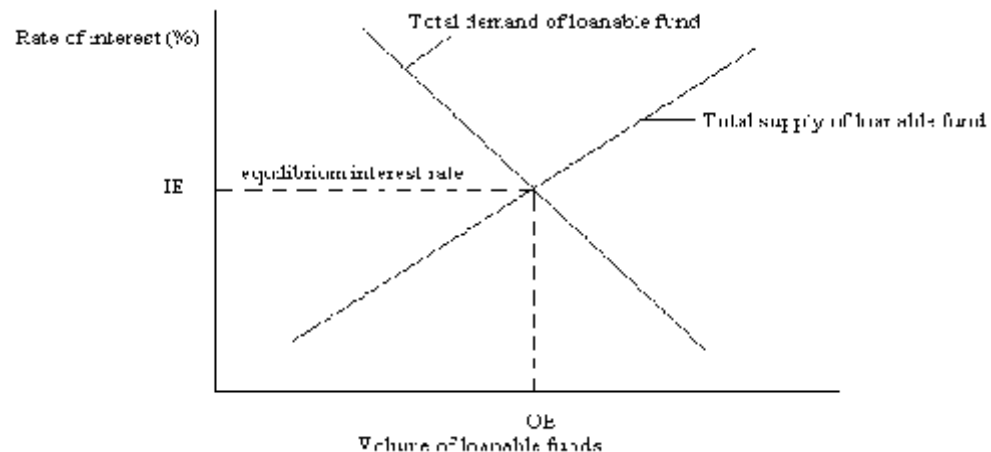
Figure 3 The equilibrium rate of interest in the loanable funds theory

If the interest rate is temporarily above equilibrium, the quantity of lonable funds supplied by domestic savers and foreign lenders, by the banking system and from the

dishoarding of money exceeds the total demand for lonable funds, and the rate of interest will be bid down. On the other hand, if the interest rate is temporarily below equilibrium, lonable funds demand will exceed the supply. Borrowers will bid up the interest rate until it settles at equilibrium once again.

2.2.4 Rational Expectancy Theory

In recent years, a fourth major theory about the forces determining interest rates has appeared and now appears to be gaining supporters. This is the rational expectations theory of interest rates. It builds on a growing body of research evidence that the money and capital markets are highly efficient institutions on digesting new information affecting interest rates and security prices. The important assumptions and conclusion of the rational expectations theory are that the price of securities and interest rates should reflect all available information and the market uses all of this information to establish a probability distribution of expected future prices and interest rates: changes in rates and security prices are correlated only with unanticipated information; the correlation between rates of return in successive time periods is zero; expectations view argues that forecasting interest rates are formed efficiently. The rational expectations view argues that forecasting interest rates requires knowledge of the public's current set of expectations. If new information is sufficient to alter those expectations, interest rates must change. It implies that policy makers cannot cause interest rates to move in any particular direction without knowing what the public already expects to happen and, indeed, cannot change interest rates at all unless government officials can convince the public that a new set of expectations is warranted (Rose, Peter S., 2003).

Nevertheless, the rational expectations view is still in the development stage. One key problem is that it is not known very much about how the public forms its expectations, what data are used, what weights are supplied to individual bits of data, and how fast people learn from their forecasting mistakes.

2.3   Economic Factors Affecting Interest Rate

Although it is useful to those who supply or demand lonable funds, it is also necessary to recognize the underlying economic forces that cause a change in the supply of or the demand for lonable funds. The following economic factors influence the demand for and supply of lonable funds and therefore influence interest rates (Madura Jeff, 5th edition).

2.3.1 Impact of Economic Growth on Interest Rates

It is assumed that as a result of more optimistic economic projections, most business increase their planned expenditure for expansion, which translates into additional

borrowing. The aggregate demand schedule would shift upward (to the right). The supply of lonable 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 lonable 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 is an upward shift in the demand schedule as no obvious change in the supply schedule (figure "a"). The shift in the aggregate demand schedule to DA_2 in the exhibit cause an increase in equilibrium interest rate to i_2.

Now, 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 (fig. "b") Figure 4 "a" and Figure 4"b" when demand changes
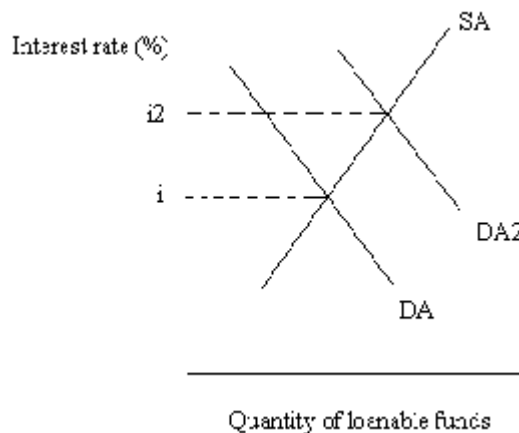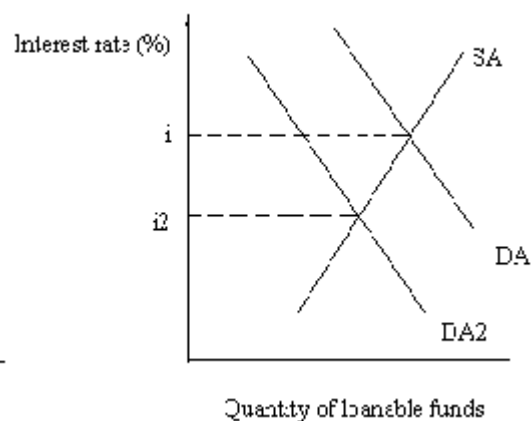

Figure 4 (a)   **Figure 4 (b)**

2.3.2 Impact of Money Supply on Interest Rates

The government can affect the supply of lonable funds by increasing or reducing the total amount deposits held at commercial banks or other depository institutions. When the government increases the money supply it increases the supply of lonable funds, which places downward pressure in interest rate. However if the government's actions affect inflationary expectations this would also increase the demand for lonable 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 lonable funds. Assuming no change in demand, this action places upward pressure on interest rates.

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 lonable 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 consumer 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".

There is a counter agreement that the supply schedule might shift outward if the government creates more jobs by spending 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 Rates

One of the most serious problems confronting economics around the globe in recent years is 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.

2.3.5 Impact of Deflation on Interest Rates

For the past fifty years and more inflation- a rising average 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 a expense of borrowers because the formers purchasing power rises and businesses trying to borrow money have to struggle to raise the capital they require to grow and put people back to work.

2.3.6 Impact of Default Risk

Another important factor causing one interest rate to differ from another is the degree of default risk carried by individual securities. Investors in 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 an agreed upon times. All securities except government securities are subject to varying degrees of default risk. So, the yield on risky security is positively related to the risk of borrowers default as perceived by investors. Yield on risky security is composed of two elements i.e. risk free interest rate and default risk premium. Higher the degree of default risk higher the default risk premium and greater the yield (interest) and lower the default risk lesser the default risk premium and lower the yield (interest).

2.3.7 Marketability and Liquidity

Marketability and liquidity feature of financial assets closely influences interest rate 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.

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 investors that generate cash flows for the investors prior to the maturity of investment. The internal rate of return calculation found in any text book of business finance shows that one of the limitations of the internal rate of return calculations for investments is the assumption that all the cash flows received before the end of the maturity investment period are reinvested at the IRR. The reinvestment problem creates reinvestment risk for investor. This is the risk that the cash flows received before the maturity of the investment cannot be reinvested at the yield to maturity of the investment.

2.4   How Open Market Operation Affect Interest Rate

Even though most interest rates are market determined the government can have strong influence on these rates by controlling the supply of loanable funds, when the government uses open market operations to increase bank funds, banks have more fund that can be loaned out. This can influence various market determined interest rates. First, the government funds rate (interest rate on loan between banks) may decline as some banks have a larger supply of excess funds to lend out in the government funds market. Second banks with excess funds may offer new loans at lower interest rates in order make use of these funds. Third these banks may also lower interest rates offered on deposit because they have more than adequate funds to conduct existing operations.

As banks deposits rate decline household with available funds may search for alternative investment such as treasury securities or other debt securities. As more funds are invested in these securities, the yield will decline. Thus open market operations uses to increase bank funds influence not only bank deposits and loan rates but the yields on other debt securities as well. The reduction in yield 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 expenditure that they might not have made if interest rates were higher. If open market operations are used to reduce banks funds, the opposite effect occurs. More banks have deficiency of funds and fewer banks 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.

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. 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 applied 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. The fixation of short-term rates on bank loans at a level higher than the rates on their term loans is the long time manifestation of financial policy in the country. If two securities are identical in every aspect except maturity, it is likely that they will sell in the market at different prices (or yields or interest rates. People generally held both long term and short-term securities depending on the relative yields. Usually the long term securities tend to fluctuate more in price than the short term securities, even though their yields do not fluctuate as much. There are various factors which determine the term structure of interest rate: as risk preference, supply demand conditions, expectation and uncertainty.

2.6   Deposit

Accepting deposits is one of the major functions of bank. Deposits are closely linked to savings in the economy. More precisely personal saving is that part of income which is not consumed. With the increment in savings there is more chance to increase deposits. Fixing appropriate interest rate on deposits is very important because it is the cost of resource on one hand and on the other; it is an attraction to the customers' savings. Deposits are the real economic variable, which is influenced by the interest rate. Attractive interest rates and other facilities can also be helpful towards mobilization of the scattered domestic savings as well as attracting foreign saving in banking system. Too high interest on deposit rate is unprofitable and too low rate is unattractive to the savers. Moreover there are various rates to be set for the various kinds and terms of deposits. Bankers as the dealer on money, deals in other people's money. They attract funds from public in the form of deposits. Individuals and businesses deposit their money mainly in three types of account: Current deposit, Saving deposit and fixed deposit. Mostly businessmen favor current deposits. The bank allows unrestricted freedom regarding the withdrawal of those deposits. Savings deposits are not intended for the current transaction. There are several restrictions on these deposits regarding the amount of deposit, and number of withdrawals etc. they are used more as investments and hence they earn some interest. The rate of interest varies depending on the nature of savings (deposits). Fixed deposit is concerned to the time factor. It is also known as the term deposit. It refers to the deposit of fixed amount, fixed interest rate, fixed period and fixed payee. According to the time period interest is paid differently. Higher term deposit is paid more interest than lower time deposit.

The bank attracts deposits from customers by offering different rates of interest and different kinds of facilities. But improper fixation of rates may hinder the operation and profitability of banks and even influence economy. So interest rate is one of the key factors in accumulation of deposits. Upward movement in the deposit rates increases the volume of deposit. Fixation of attractive interest rates on deposits has been responsible for the substantial growth in the volume of deposit. Besides deposit depends upon numerous factors other factors which affect deposits as income of people, their saving behavior, foreign investment opportunities, security and future expectations.

2.7   Lending

The next important function of banks is to provide loan i.e. to lend the money which has been accumulated from deposits which depositors has deposited in the bank in various

accounts. This is a regular function of every bank. Furthermore the borrowings and lending are always influenced by the interest rate. In order to earn profit bank has to perform this function in a proper and effective way. Lending support investment to business firms, governments and households. The amount of money which bank lends is invested in various sectors for the health and vitality of the economy. Improper and unsystematic lending may lead to fragile economy. Money is lended to investors in various forms as short-term loan, medium-term loan and long-term loan. With the term structure of loan interest rate also varies. Banks charge different percentage of interest rate taking into consideration the nature of loan. Interest rates on bank loans are not uniform. They reflect both the characteristics of individual loan and the general conditions of supply of and demand for credit in the money and capital markets. Rates vary also with the degree of credit risk associated with the loan, its maturity, the size of the borrower, and of the loan. In addition rates on lending are influenced by habit and custom, competition between banks and other sources of funds.

2.8   Review of Previous Thesis and Articles

Shrestha (1979) aims to study the interest rate impact on mobilization of resource and its utilization to meet the lack capital for the implementation of various projects. Shrestha concluded that the structure of interest rate has greater influence over the resource mobilization and utilization in the productive sectors. But, however the commercial banks of Nepal not yet fully succeed in this regard. The commercial banks have not fully been able to motivate and facilitate to their customer except the change in interest rate as instructed by Nepal Rastra Bank. It can be solved by attracting savings into maximum and then mobilizing these savings into the sectors where money is most needed. For this branches of Bank should be extended even up to remote area to mobilize the idle deposit and diversify their money according to need.

Chettri (1980) aims to study the interest rate and its relation with deposit, inflation and credits in Nepal to analyses the impact and the implication of the policy of interest rate. Chettri concluded that Deposit depends upon numerous factors besides income, inflation, and interest rates. Keeping other variables constant, the institutional interest rate is the important explanatory variable to influence the volume of deposit in Nepal. This means to say that the upward movement in the deposit rates increases the volume of deposit. The relationship with income and inflation could not come significant. The fixation of attractive interest rates on deposits has been responsible for the substantial growth in the volume of deposits in recent years. The inflation within the country is very high since few years. There is no consolidated type of money and capital markets in Nepal. Commercial

banks are concentrated in the urban areas. Regarding deposit mobilization in the present context the urban areas has occupied more than 80% and the flow of credit is also centralized only in urban areas. Finally the relationship between credit flow and loan rates is found out to be negative. If the loan-rate of interest is concessional there is the possibility of raising investment and thus the volume of credit.

Bhandari (1998) aims to study that interest rate and its impact on investment portfolio of commercial bank to assess the impact of interest rate structure of commercial bank on their investment portfolio by analyzing their deposit, loans/advances, interest spread rate, investment, and bills purchased and discounted. Bhandari's viewed that Deposit rate is the most important determinant of the deposit collection of the commercial banks. According to the analysis, it is found that, the amount of deposit collection of the commercial banks is increasing, the rate of increment is declining with the decline in the deposit rates. This means, depositors are more interest conscious. They increase their deposit, if higher deposit rates are offered. He also concluded that the deposits rates and lending rates of the commercial banks have been changing time to time. It is found that the deposit rates and lending rates increased slightly immediately after the liberalization of interest rate on August 31, 1989.But, thereafter these rates started to decline. Lower rates of interest have helped in increasing the credit flow. The study shows that the increasing demand for credit can be met only by increasing deposit collection. This study covers 10 years analytical period from 1987 to 1996 of only two commercial banks which can't divide into before and after the liberalization.

Bastola (2003) aims to study that monetary measures can provide additional capital for financial development through the change in money supply and instituitional interest rates has made a theoretical attempt and has not presented any mathematical terms in his study. Bastola views that the problem of lack of capital can be solved when the available capital diverts into the real productive sectors. Money supply is a factor providing additional capital by expanding banking facility in rural areas and to mobilize the resources of rural areas into productive sectors. The volume of money supply should be increased by increasing demand deposits and net currency from banking sector. In the opinion of Bastola, the institutional rate of interest has seemed to be cheaper in our country that had created imbalances between demand and supply of credit. Due to this reason real people are not getting enough credit facility, on the other hand commercial banks are providing credit facility on trade and commerce which has hit the traditional sector. So, that to mobilize the resources and to divert them into productive work, institutional interest should be higher.

Dangol (2004) aims to study the impact of interest rate on the financial performance of commercial banks of Nepal and also viewed that the commercial banks are more or less similar in various aspects. The major finding of this study is that the most of the sample commercial banks contradict the general financial theory. The average data also is contradictory with the general financial theory. Thus, the whole banking sector represents an anomaly in the financial theory. The relation between deposit and interest rate must be positively correlated. But this is not so as indicated in the study. The analysis shows just the opposite picture. The study reveals that in our economy as a whole, deposits are increasing despite the decrease in the general level of interest. This is because of the lack of investment opportunities for the investors. The economy of the country is stagnant at the present time. This has resulted in low consumer and business confidence. As a result of such psychological phenomenon, businesses are reluctant to invest in new ventures. The result of such phenomenon is that there are fewer investment opportunities for the banking sector as well as the general investors. This causes people to deposit money in banks and banks are forced to lower the interest rate to cut the cost of fund and induce more loans from the bank. The relation between total amount of loan and the lending rate is negative and significant in all the cases. This thus is what is expected in an economy. This is one aspect where the general economic theory is applicable. The change in the total amount of loan flow is not however proportionate with the change in the lending rate, this also caused by current state of the economy. The general trend of the operating cost of the commercial banks is growing this is probably the result of inflation prevailing in the economy. The trend of the interest rates are however just opposite. Thus, since the general trends of both the variables under consideration are opposite the correlation analysis is not able to clearly decipher the relation between the variables.

Shah (2004) aims to study the impact of interest rate on investment portfolio of commercial banks in Nepal to present the concrete picture of interest structure before and after liberalization. Shah viewed that interest rate is the main determinant factor of firm's profit which also influence over the resource mobilization and utilization in the productive sector. After liberalizations, the interest rate on deposit decrease and the lending rate increase. Therefore, effort should be made to lessen the gap between deposit rates and lending rates of commercial banks. Deposit only creates short term profit. So banks should increase their credit flow to create long term profit. Commercial banks should not be limited to Government and other securities; it should increase investment in private sectors. This study covers all the commercial banks that are in operation and the period covered by five years before and after liberalization which is based on secondary data.

In the context of articles, the global economy is reeling under the several financial crisis, the powerhouses of world economy like USA, Japan, European Union and China as well as the median economies like Korea, India and Brazil are introducing the stimulus package to revive the world economy as soon as possible. Fear is still looming across the world; the economic crisis may further get deeper.USA alone has introduced the stimulus package of $700 Billion bailout package to protect the giant financial institutions like American International Group, Laymen Brothers, Washington Mutual and Morgan Stanley. Now the US government is still mulling over the rescue package for the auto companies as well. The present world economic crisis basically emerged from the problem of sub-prime mortgage over housing sector. Consequently, the spillover effects of the housing sector grips the whole US economy. Then the world economy catches the down-turn with fear of recession and the capital market is heavily tumbled, almost fifty percent in the beginning of December 2008 than in the comparison of 2007.To stimulate the US economy, Federal Reserve has cut down the interest rates several times this year. Now it has been heading to almost to zero level. The Federal Reserve Bank has expected; this would increase the availability of the credit in the market, increases the consumption and revive the economy at last. Bank of Japan and European Central Bank are also on the same line to cut down the interest rate to stimulate their economy. Besides these, World Bank and International Monetary Fund are also introducing their own rescue plan to stimulate the global economy. As we mentioned above, the interest rate has very wide implication in the economy. However, the interest rate is not the sole factor to guide the national and world economy. Here the remarkable comment by US Federal Reserve Bank is that it could not do more than this when the interest rate has been already cut down to almost zero level.

Obviously, US economy is the hard-hit economy and Federal Reserve is struggling to find the solution. It has cut the interest rate four times within a year and its latest decision came on December 16, 2008 which reduced the interest rate to 0.25%. It is the least level in the US history and the central bank has already hinted that it has done everything to stimulate the economy and it could not do more than this. The market very positively responded the decision of Federal Reserve and surges by 4.1%.The European Central Bank is also cutting the interest rate and has now reduced to 2%. Moreover, the Swiss, Swedish, French and English are now cutting the interest rates near following the US move. In Asia, Japan is the leading Asian economy. However, the economy is looming over the threat of depression where the economy has been already facing the recession. The interest rate has been cut three times within 2008 and now it is 1.5%. The objective is obvious, to stimulate the economy by increasing credit availability for the consumers.

It means, the policy makers, analysts and leading financial institutions are employing the interest rate as the instrumental tool to guide the economy on the desirable path. However, the common consensus among the experts is that interest rate level has serious implication in the economy but it is not the sole factor to guide the economy. However, the decisions made by the different central banks to cut down the interest are not criticism free. The critics have the opinion that this move only increases the printed money and increases the inflation. Secondly, as soon the problem of recession is overcome, inflationary pressure would reel the economy (Haekal, R.N., 2008).

Heakel (2008) defined that interest rate is the cost of borrowing money or on the other side, of the coin; it is the compensation for the service and the lending of the money. Without it people were unwilling to lend or even save their cash, both of which require the determinant of the opportunity to give up the spending in the present. But prevailing interest rate are always changing and different types of loan offer various interest rates. Therefore, lender and borrower should understand the reasons for these changes and differences. Moreover, Heakel concluded that interest rate is primarily determined by the intersection of the demand for and supply of credit along with other surrounding factors. Heakel also concluded that interest rates are major factor of the income, investor can earn by lending money, of bonding price, and of the amount investor will have to pay to borrow money, it is important for investors to understand how prevailing interest rates change; primarily by the forces of demand and supply which are also affected by inflation and monetary policies. Of course, when investors are deciding on investing on debt security, it is important that investor can understand how its characteristics determine what kind of rate can receive.

Shrestha (2008) has briefly discussed about the contemporary interest rate regime of the economy focusing the organized market. The banks and financial institutions give the interest on deposits and take the interest on the lending. After 1990, they are granted autonomy to fix the interest rate both on the lending and deposits. This is the outcome of the liberal economic policy and it is still operating.

During 1990s, the deposit rate was around 9.5% and the lending rate was 15%-21%. The liberalized policy has reduced both the lending and deposit rate. Now, the minimum rate on the lending is 6.5% and the maximum rate is around 13% according to the sectors. It is a positive move in one sense because the reduced rate in the interest also reduced the cost of investment. Simultaneously, this increases the level of production and the employment. However, this has also significantly reduces the deposit rates. For example the minimum rate of saving account is 2% and 2% to 6.5% in the fixed account according

to time period. Here the big bankers are providing very low level of interest rate. However, they are collecting higher portion of then deposits. For example, big eight banks have the deposit of Rs.147 billion while their deposit rate is just 2 to2.5% on saving account. It is the 73% of total deposit of saving account. Other five banks are giving up to 3.5% in the saving account and other are banks giving up to 4.5% interest on saving account. It means the deposit rate is by itself very a low and the big volume of deposits are in the bigger banks having very low interest rate. Therefore the depositors are getting very minimal level of interest on their deposits.

In the competitive economy, the costumers should not pay different cost for same good. Here the out looking seems competitive. However, the outcome is not according the spirit of competitive market. Here is very crucial example. The government sold the four years bond having 7.75% of interest rate. However, it was not sold completely. It means the depositors are depositing their money in two percent interest instead buying the bond having seven percent of interest rate. This phenomenon does not force the banks to increase the deposit rate. Big contrary of our banking and financial market is that costumers are queuing on those institutions having lower deposit rate leaving other having higher deposit rate. Now there is no problem of choice like two decades ago since around one hundred of financial institutions are doing the business of lending and deposits.

The lending rate position is also different in different banks. However, it is notas in the case deposits. In case of the lending also, the financial institutions are making the costumers worried. Banks are collecting the service charge beside interest rate on lending rate. Moreover, another crucial point is that the banks and financial institutions are altering the interest rate on the lending even after the agreement. For example, a borrower borrows the money on seven percent of interest rate for five years. On the way, if the market rate rises, they automatically raise the interest rate on lending but never reduce the interest rate when the market rate falls. They should formulate two types of policy. The first one is fixed for all time indifferent to the changing market rates. The second one is floated which can be changed according to the changing market scenario. Here the customers can choose the appropriate one.

The existing interest rate policy of banks and the financial institutions is affecting both the depositors and the creditors simultaneously. It happens either due to the lack of sufficient information about banking system to the costumers or the public have no access to NRB information or NRB information is not properly utilized by the public. Probably another point is the costumers or the public is risk averters who are ready to

deposit their money even in the low level of deposit rate where the risk is felt low. Moreover, the costumers are choosing the easily accessible institutions, the public have low level of knowledge about the banking and financial system and they could not calculate the differences between the loss and benefits while depositing their money. Due to these various reasons, financial institution are flourishing rapidly despite of the significantly dismissal economic performance. Here the depositors are worried for low level of interest rate and the lending has failed to go on the productive sector. In this context, the costumers themselves should be very rational and the banking and financial institutions and media should deliver the appropriate information to the public.

Thapa (2005) in his article discusses the interest rate structure in Nepal which was published in Golden Jubilee Magazine of NRB. In his article, Thapa has given the brief overview of the history of interest rate phenomenon in the organized sector in Nepal after the establishment of NRB in 1956 A.D. under the Nepal Rastra Bank Act 1955 A.D. After the establishment of central bank, our monetary market has witnessed numbers of upheavals and NRB has initiated number of policy changes. Thapa writes, "Almost fifty years ago, Nepal had a tightly administered interest rate regime. Presently, the domestic interest rate regime has been completely liberalized. The evolution of interest rate regime from completely administered one to one of full liberalization has been via gradual process, with the interest rate policy having been the most intensively used monetary policy instrument in Nepal. It was made use of achieving a numbers of objectives ranging from: achieving the stability in Balance of Payment (BOP); accelerating resources mobilization: combating inflation, deploying the resources to the preferred sectors of the economy to enhancing the competition in the financial sector and increasing efficiency in the resource allocation". Thapa also highlighted the importance interest rate structure which can directly and indirectly affects almost all sector of the economy.

Sharma (1993) in his article discusses about interest rates of Nepal as, in a market regulated economy as of today, rate of interest should indicate the profit, or the efficiency of the fund invested in each sector, Nepal's economic performance measured in terms of the of the sectoral ICOR's should not be that disappointing. But since the profit rate, or the productivity growth is affected by so many other risk and uncertainty factors with their domestic as well as foreign origin and when the profit or the productivity rate is not explained by the capital alone, it is quite difficult to reach a definite conclusion on the built-in economic nature and the structure of the natural rate and the effect of it on

investment decision. He further emphasizes, "The size of the influence on the rate, on the other hand, from outside the economy and of the long run and of the generated through the research exercises. Still we may conclude that the structure, height, behavior and the co-existence   to   the rates are quite enough in indicating the stages of the economic development popularly known as backward and advanced ones, from this point of view, Nepal, obviously belongs to the former category".

Regmi (2005) in his book has distinctly recognized the role of NRB to maintain the monetary and fiscal discipline in the financial sector. Higher interest rate squeezes on the demand of the credit and increases the cost of goods and services. If the interest rate is reduced, it increases the demand of the credit and inflationary pressure is realized in the economy. Therefore the interest rate should be very appropriate and balanced. Central bank can manipulate the interest rate in the market applying various kinds of the monetary instruments. NRB is playing direct and indirect role to guide the interest rate in the desirable level.

Gaudel, in his book writes that the monetary dualism is the main syndrome of Nepalese monetary system. It implies that there is coexistence of two monetary markets namely organized and unorganized in the same economy. The organized money market consists of commercial banks, development banks, and other financial institutions. Their activities though rapidly expanding in the recent years are confined to few urban centers only. The unorganized market consists largely of indigenous moneylenders, traders, landlords, and dhukuti owners (savings co-operatives); provide the bulk of credit requirements to the semi-urban areas. The participants of unorganized money market, therefore, are generally outside the control of NRB. This type of dualism also prevails in the interest rate structure of the Nepalese economy. In the unorganized sector, interest rate is determined by   the   monopoly   market   condition.   There   exist   few creditors or indigenous moneylenders in relation to a large numbers of borrowers. So the interest rate charged by them has always been exorbitant (24% to 60%) in comparison to organized market. From the year 1996, there occurred a new thinking about the interest rate policy that the high interest rate on bank deposits is necessary to mobilize savings for economic development. Accordingly, many changes have been taken place on the deposit rate structure of commercial banks from 1966 onwards. Nepal adopted a new approach of high but flexible interest rate policy in April 1975.Since then, it follows the prescription of maintaining the positive loan and deposit rate as argued by real money theorist. In this context, the adjustment made by the monetary towards higher rate of interest on savings and fixed amount of commercial banks offered an inducement to save

more in bank deposits. Similarly the loan of the commercial banks showed an upward movement over the past several years from 1965 to 1990. Further, it was stated that the interest rates in organized money market were administered and regulated not only on deposits and loans of commercial banks but also on the securities issued by the government until 1989. Particularly, since May1986, the NRB decided to deregulate the interest rate policy in the context of financial liberalization. As a result, the interest rate on savings and fixed deposits was found reduced since 1994. Moreover, it also gave an advice to commercial banks to reduce the existing gap between deposits and lending rates assigned by them to stimulate the investment. However, the policy of independent interest rate too did not materialize. While considering the real interest rate from 1965 to 1999, the trend did not give any consistent pattern to analyze the impact of interest rates in the economy. Although, there is a little scope to generalize on the basis of ISD's (Institute for Sustainable Development) conclusion, the erratic movement in the real interest rate has caused capital outflow and deficit balance of trade in the country. From this analysis, it may be inferred that the long trend of interest rate in Nepal does not reflect the opportunity cost of holding money for speculative purposes. Low interest rate policy seems to encourage unproductive expenditure and to discourage savings mobilization.

Singh (2011) in her article discuss the Banks' interest income rising which was focus at the interest rate of bank. The higher lending interest rate due to tight liquidity situation pushed the interest income of the commercial banks by Rs 10 billion in the last fiscal year compared to a fiscal year ago. The total interest income of the commercial banks stood at Rs 37.8 billion by the end of fiscal year 2010-11, while the commercial banks had recorded Rs 27.8 billion a fiscal year ago, according to the unaudited financial report of fourth quarter released by the commercial banks. In the last fiscal year (2010-11), the average net interest income of the commercial banks stood at Rs 1.21 billion while a fiscal year ago, the average net interest income of the whole banking sector was at Rs 896 million. Even discounting the four new commercial banks that were not in existence a fiscal year before, the average interest income of the old 27 commercial banks amount to Rs 1.38 billion in last fiscal year. In the preceding fiscal year these 27 banks had recorded Rs 1.03 billion as the average net interest income.Net interest income is simply difference between revenues generated by interest-bearing assets like loans and interest-burdened liabilities like deposits. Since last few years, Nepali financial sector has been going through liquidity crunch pushing the interest rates up. The interest being value of money, the banks started to offer higher interest rate for deposits. Moreover, the emergence of new financial institutions including commercial banks, development banks and finance

companies, the interest rate were pushed higher up to attract more deposits. Rising deposit interest rate also led to surge in lending interest rate hurting the industries that have been bearing the burnt of the prolonged hours of power cuts and labor disputes. The old commercial banks' interest income that is income from interest on lending rose to Rs 42 billion which was almost half at Rs 27 billion a fiscal year ago. The interest expense that is interest paid for the depositors also surged from Rs 57.5 billion to Rs 80.5 billion in fiscal year 2010-11.

The interest rate offered by the banks for deposit ranges from mere two per cent to 12 per cent, according to Nepal Rastra Bank (NRB) data. Some of the older and established commercial banks that have created goodwill among the depositors offer pittance for deposits while they charge prevailing interest rate for loans. The huge spread rate difference between lending and deposit interest rate contributed in higher interest income of many banks.

Heakel (2009) in her articles forces behind interest rate explain that interest rate is the cost of borrowing money. Or, on the other side of the coin, it is the compensation for the service and risk of lending money. Without it, people would not be willing to lend or even save their cash, both of which require a deferment of the opportunity to give up spending in the present. But prevailing interest rates are always changing and different types of loans will offer various interest rates. Lender or borrower or both, it's important to understand the reasons for these changes and differences. As interest rates are a major factor of the income which is earn by lending money, of bond pricing, and of the amount have to pay to borrow money, it is important to understand how prevailing interest rates change: primarily by the forces of supply and demand, which are also affected by inflation and monetary policy.

Neupane (2011) in his articles discuss the influence of brand name in banking service choice in Nepalese Market Perspective. In his articles, he has discussed that various factors influence the choice of brand name in banking service. This study on brand in banking service in Nepalese financial market underlined that people mainly keep commercial bank in their mind. Households from urban and suburban were selected including Kathmandu Valley, Pokhara, Damouli, Butwal and other similar growing urban municipalities of Nepal. The result of the survey shows that the customers are loyal to the commercial banks. People believe that good branding bank always provide better service. Majority of the people seek information before opening bank account. Female consult more in family to open the bank account than male counterpart. It was found those females are less openness with their friends about financial activities. The findings

indicate that people prefer to open new account in well known bank because they feel secure and comfortable in well known bank. Well known bank have superior in quality over the lesser known bank and always provide better service in Nepal. Though Nepalese customers have brand awareness about the banking service, they usually open an account in lesser well known bank because people need special formalities like big amount of money to open new account, proof for business activities and have to keep large amount of money as minimum balance in popular bank. Furthermore, sub-urban people heard about branded bank facilities however, they have less access due to distance from their residence.

Customers argue that brand logo in banking service is also important to recognize the bank. People from urban area like Kathmandu disagree with the views that brand image enhance the personality than urban counterpart. The results from survey revealed that people from sub-urban areas think that the relationship with the good bank produce secured feeling but urban people keep relationship with those banks which could provide the credit and other facilities in near future. It is difficult to create a well known bank that is popular for every class of people residing in all regions of the country. However, findings manifest that Standard Chartered Bank Ltd. and Nabil Bank Ltd. come first and second preference under the people's mind due to their reputation and become branded bank in Nepalese market space.

2.9   Research Gap

The purpose of this research is to develop some expertise in one's area, to see what new contribution can be made and to receive some ideas, knowledge and suggestions about the impact of interest rate on deposit and lending of sample commercial bank. Thus, the previous studies can't be ignored because they provide the foundation to the present study. In other words, there has to be continuity in research. This continuity in research is ensured by linking the present study with the past research studies. Here, it is clear that the new research cannot be found on that exact topic, i.e. Impact of Interest Rate on Deposit and Lending of Commercial Bank. Therefore, to fulfill this gap, this research is selected. To complete this research work: many books, journals and various published and unpublished dissertations are followed as guideline to make the research easier and smooth. In this regard, here we are going to analyze the interest rate structure of different commercial banks. Our main research problem is to analyze whether the banks provide the good deposit rate to the depositors as per they charge to creditors. To achieve this main objective, various financial and statistical tools are used. Similarly, trend analysis of deposit and lending amounts are reviewed to make this research complete. Therefore, this study is expected to be useful to the concerned banks as well as different persons; such as shareholders, investors, policy makers, stockbrokers, state of government etc.

CHAPTER THREE
RESEARCH METHODOLOGY

A research methodology helps to solve the research problem in a systematic way. This chapter has been designed and developed as a guideline or a plan for the achievement of objectives set and hypothesis developed for the purpose of this study in the first chapter. Reliability and validity of research work is facilitated by research methodology and the basic objective of this chapter is to guide chapter four for data presentation, descriptive and empirical analysis of interest rate and its effect on deposits and lending. So, suitable research methodology as demanded by the study has been followed. It is intended to use simple and lucid research methodology.

3.1   Research Design

Research design is plan, structure and strategy of investigation. It is a blueprint for the collection measurement and analysis of data (Wolf, Howard K. & Pant, Prem R, 2000). Research design is the arrangement of conditions and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. This is an ex-post facto or historical research design. Research design is more analytical and less descriptive. The relevant and needed data has been collected from various publication of various commercial banks and publication of Nepal Rastra Bank.

3.2   Population and Sample

The term "population" or universe for research means all the members of research study in which the research is based. Here the population or universe of the study comprises of all 26 commercial banks within the kingdom of Nepal. As the study of whole population makes the study cumbersome only 5 banks are taken as sample. Even though, we know there are various sampling methods when taking sample from population. Here the simplest method of sampling that is simple random sampling method is used. The sample banks are Standard Chartered Bank, Nepal Bangladesh Bank Limited, Bank of Kathmandu Limited, Nepal Investment Bank and Himalayan Bank.

3.3   Data/ Information Collection Procedure

Basically this study is based on published sources of information. Thus, this study is based on secondary source of data to fulfill above- mentioned objectives. The secondary data are collected from various publications of commercial banks, Nepal Rastra Bank,

And even from websites of various banks. The primary data has not been used in this study as the primary information regarding this study is too difficult to generate.

3.4   Data Processing

Data obtained from various sources cannot be directly used in their original form. When data will not be presented in understandable and easier way there would be no use of conducting research study or analysis of data. Analysis part would be difficult without processing data, even difficult to understand to the readers. So, to make the study understandable at the first sight data should be processed.

As presentation of data means to keep raw data into understandable form by editing rechecking and using various tools such as tables, charts, figures and trend lines. In this study also data are presented using all the above-mentioned tools so as to make understand the analysis part in proper and easier way. Homogeneous data have been sorted in one table and similarly various tables have been prepared to keep required data. Using financial and statistical tools, the data have been analyzed and interpreted.

3.5   Data Analysis Tools

As this study requires more statistical tools rather than financial tools to attain the objectives set above various statistical tools have been used which as follows:

) **Arithmetic mean:**

Arithmetic mean of a given set of observation is their sum divided by the number of observations (Gupta,S.C ,2002). In such a case all the items are equally important. Simple arithmetic mean is used in this study as per the necessity for analysis.

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

where,

 X = Sum of all the values of the variables

N = Number of observations

X = Variable involved

) **Standard Deviation**

The standard deviation usually denoted by the letter sigma (σ). Karl Pearson suggested it as a widely used measure of dispersion and is defined as the positive

square root of the arithmetic mean of the squares of the deviation of the given observations from their arithmetic mean of a set of value (Gupta,S.C ,2002). It is also known as root mean square deviation. Standard deviation in this study has been used to measure the degree of fluctuation of interest rate and that of other variables as per the necessity of the analysis.

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

where,

N=Number of observations

The greater the standard deviations the greater will be the magnitude of the deviation of the values from mean and vice versa.

) **Coefficient of Correlation**

Correlation is a statistical tool, which studies the relationship between two variables, and correlation analysis involves various methods and techniques used for studying and measuring the extent of the relationship between the two variables. Two or more variables are said to be correlated if change in the value of none variable appears to be related or linked with the change in the other variables. When the relationship is of a quantitative nature, the appropriate statistical tool for discovering and measuring the relationship and expressing it in a brief formula is correlation analysis.

Karl Pearson's

Measure known as correlation coefficient is the most widely used method in practice which is given by

$$Simple\ Correlation\ Coefficient = \frac{n\sum XY - \sum X \sum Y}{\sqrt{n\sum X^2 - (\sum X)^2}\sqrt{n\sum Y^2 - (\sum Y)^2}}$$

Where,

n= Number of observations

) "Correlation may be positive or negative a ranges from -1 to +1, there is perfect correlation; when r+1, there is perfect negative correlation; when

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r=0, there is no correlation and when r<0.5 then there is low degree of correlation.

) When 'r' lies between 0.7 & 0.999 (or -0.7 & -0.999) there is high degree of positive or negative correlation.

) When 'r' lies between 0.5 & 0.6999, there is a moderate degree of correlation.

Simple correlation between interest rate and deposit, between interest rate and lending and deposit rate and lending is examined in this study.

) **Co-efficient of Determination (r^2)**

The square of simple correlation co-efficient is called co-efficient of determination. It measures the percentage of total variation in dependent variable explained by independent variable.

Similarly multiple correlation coefficients between above mentioned variables also have been determined once assuming interest rate on deposit as dependent variable and other two variables (deposit amount and lending rate) as independent and then assuming interest rate on lending as dependent variable and other two variables (lending amount and deposit rate) as independent.

Co-efficient of Determination $(r^2) = (R)^2$

Where,

X and Y= two variables, correlation between which is calculated

N= Total number of observations

The multiple correlations are used for the measure of degree of association between one variable and a group of other variables as the independent variable. It lies between 0 and 1.The close it is to '1' the better the linear relationship between the variables. The closer it is to '0' the worse is the linear relationship.

Multiple Correlation Coefficients; variable one as dependent and variables two and three as independent.

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

where,

$r_{12=}$ correlation coefficient between variable one and two

$r_{13=}$ correlation coefficient between variable one and three

$r_{23=}$ correlation coefficient between variable two and three

) **Coefficient of Multiple Determinations:**

The square of multiple correlation coefficients is called coefficient of multiple determination and it is very useful in interpreting the value of multiple correlation coefficient. The main significance of the multiple determinations is to represent the proportion of total variations in the dependent variable, which is explained, by the variation in the two independent variables. Co-efficient of multiple determination measures the percentage of total variations in the dependent variable which is explained by the independent variables.

$$Coefficient\ of\ multiple\ determination = R_{1.23}{}^2$$

) **T-test for Significance of Correlation Coefficient**

T-distribution is commonly called student's distribution and is used when the sample size is less than 30, given a random sample from a bivariate normal population. When hypothesis is tested that the correlation coefficient of the population is zero, i.e. the variables in population are uncorrelated, the following t-test is applied; which is applied in this study.

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

Here, 't' follows t-distribution with (n-2) degree of freedom (d.f), 'n' being the number of sample.

If the calculated value of 't' exceeds $t_{0.05}$ for (n-2) d.f; we say that the values of 'r' is significant at 5% level. If 't'$<t_{0.05}$ the data are consistent with the hypothesis of an uncorrelated population.

3.6 Variables

Variables are the characteristics of persons, things, groups, programme etc. A variable is thus a symbol to which numerals or values are assigned. Deposit rate, lending rate, deposit amount, lending amount etc are variables of this study.

ﺝ   Dependent variable

The variable that values dependent upon the other variable's' is called dependent variable. The researcher's purpose is to study, analyze and predict the variability in the dependent variable.

ﺝ   Independent variable

The variable that is not influenced by any other variables is called independent variable. Any change in the independent variable, either positive or negative leads to change in the dependent variable.

CHAPTER FOUR
PRESENTATION, ANALYSIS AND INTERPRETATION

This part is core of any research study. Without this part the study remains incomplete in a sense that the above set objectives in Chapter one cannot be met and conclusion and findings cannot be drawn. To know what the practically is in the population this part is of much importance. Ignoring this is part it is not possible to know what the real problems are and what factors are affecting those problems in the real world. 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 calculations made for the analysis of interest rate and its effects on deposits and lending amount of commercial banks. So, to make the study clear, effective, systematic, result oriented and easily understandable this chapter is categorized in three parts viz: presentation, analysis and interpretation. The analysis is full based on secondary data available. Firstly data are presented in tabular and chart form according to the need, the presented data are then analyzed using various statistical tools as mentioned in chapter three according to the requirement of the study, at last following the analysis part interpretation is made.

Presentation, analysis and interpretation of the study is made bank wise i.e. the one after another all sample banks data are presented, analyzed and interpreted. At first the interest rate structure is shown (that of deposit and lending) then after the relationship between interest rate on deposit and deposit amount and relationship between interest rate on lending and lending amount is shown and analyzed. Even relationship between deposit rate and lending rate is calculated and analyzed. Analysis is made calculating correlation coefficient and testing significance using t-statistics. After presenting, analyzing and interpreting the relationship between interest rate and deposit amount, interest rate and lending amount, interest rate on deposit and interest rate on lending of all sample banks the comparative analysis made. Like this the analysis parts ends.

4.1 Analysis of Himalayan Bank Limited (HBL)

Table 4.1 "A"

Calculation of Average Rate of Interest on Deposit of Himalayan Bank										
Deposit Types	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Savings	5.25	4.25	4.00	3.75	3.75	3.38	2.00	2.00	2.00	2.25
Fixed	-	-								
7 Days										
14 Days	3.00	2.50	2.30	2.30	2.30	1.75	1.75	1.75	2.00	2.50
1 Months	4.50	3.50	3.30	3.30	3.30	2.00	2.00	2.00	2.25	3.25
2 Months	0.00	4.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 Months	5.13	4.50	4.00	3.75	3.75	2.50	2.50	2.50	2.50	3.75
6 Months	6.00	5.75	4.25	4.00	4.00	3.75	3.00	3.00	3.25	4.50
1 Year	6.88	7.00	5.50	5.25	5.25	3.75	3.75	3.75	5.00	6.50
2 yrs/Above	7.75	5.75	6.00	5.75	5.75	3.75	3.75	3.75	5.38	7.60
Total	38.51	37.50	29.35	28.10	28.10	20.88	18.75	18.75	22.38	30.35
Number (n)	7	8	7	7	7	7	7	7	7	7
Mean (x)	5.50	4.69	4.19	4.01	4.01	2.98	2.68	2.68	3.20	4.34
S. Deviations	**0.88**									

Source: Various banking and financial statistics published by NRB

Note: Calculation of Average and standard deviation is done as shown in annex 1.

Table 4.1 shows the average interest rate on all deposits of Himalayan Bank is in decreasing trend from 5.50% in 2000 to 2.68% in 2007 and increasing trend from 3.20% in 2008 to 4.34% in 2009. In 2000 the average interest rate on deposit was 5.50% then it decrease to 4.69 in 2001 then to 4.19%, 4.01%, 4.01%, 2.98%,2.68%,2.68% respectively in 2002, 2003, 2004, 2005, 2006, 2007 as well as increase to 3.20% and 4.34% in year 2008 and 2009 respectively. Standard deviation of 0.88 answers that the scatteredness among deposit rate within ten year time period is 0.88.

Table 4.1 "B"

Sectors	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Interest Rate of Structure on Lending of Himalayan Banks										
Overdraft	13.75	12.50	12.50	11.88	11.88	11.50	10.50	9.00	9.00	9.75
Export credit	10.75	9.25	9.25	9.25	9.25	8.50	8.50	7.38	8.50	9.63
Import L/C	12.50	11.63	11.25	10.75	10.75	9.58	9.58	7.75	8.25	9.38
Against FDR	8.75	7.75	7.50	7.75	7.75	6.00	6.00	6.00	7.00	10.25
Against HMG bond	10.00	8.50	8.00	8.00	8.00	5.50	5.50	6.50	7.00	8.00
Against BG/CG	11.00	9.50	10.00	10.00	10.00	8.75	8.63	7.25	7.50	9.00
Against other guarantee	11.00	10.50	10.50	10.50	10.50	10.50	10.50	0.00	0.00	0.00
Industrial Loan	13.00	11.50	11.25	11.00	11.00	10.50	10.50	10.50	0.00	0.00
Commercial Loan	13.00	11.50	11.38	11.13	11.25	10.38	10.38	10.38	0.00	0.00
Priority Sector	14.00	13.50	12.50	12.50	12.50	11.63	11.63	10.00	0.00	10.00
Poorer sector	9.00	8.50	8.50	8.50	8.50	6.38	6.38	6.38	6.88	7.38
Term Loan	14.50	13.00	13.00	12.50	12.50	10.63	10.63	9.25	9.50	11.00
Working capital	13.25	12.00	12.00	11.75	11.75	11.75	11.75	0.00	0.00	0.00
Hire purchase	15.00	13.00	12.50	12.25	12.25	10.25	10.25	8.50	8.50	10.75
Others	13.25	12.38	12.38	12.13	10.75	9.75	9.75	9.00	7.75	11.50
Total	182.75	165.01	162.51	159.89	158.63	141.60	140.48	107.89	79.88	106.64
Number (n)	15	15	15	15	15	15	15	13	10	11
Mean (X)	**12.18**	**11.00**	**10.83**	**10.66**	**10.58**	**9.44**	**9.37**	**8.30**	**7.99**	**9.69**
S. Deviations	**1.222**									

Source: Various banking and financial statistics published by NRB

Note: Calculation of average and standard deviation is done as shown in annex 1.

From the table 4.2 "B" it is clear that the average lending rate is also in decreasing trend from 12.18% in 2000 to 7.99% in 2008 and increased to 9.69% in 2009. In 2000 the rate on lending was 12.18% which has decrease to 11% in year 2001, similarly the rate decreases to 10.83%, 10.66%, 10.58%, 10.66%, 10.58%, 9.44%, 9.37%, 8.30%, and 7.99% in the year 2002, 2003, 2004, 2005, 2006, 2007 and 2008 respectively.

Table 4.1 "C"

Computation of Correlation Coefficients, Coefficient of determinations and T-Statistics of Himalayan Bank Limited (HBL)

Year	Deposit interest Rate (1)	Deposit Amount (2) in million Rs	Lending Interest rate (3)	Lending Amount (4) in million Rs
2000	5.50	14,082.50	12.18	7,423.20
2001	4.69	17,613.60	11.00	9,176.90
2002	4.19	18,595.20	10.83	9,673.50
2003	4.01	21,002.80	10.66	11,074.20
2004	4.01	22,760.90	10.58	13,081.70
2005	2.98	24,831.10	9.44	13,245.00
2006	2.68	26,456.20	9.37	15,515.70
2007	2.68	29,905.80	8.30	17,672.00
2008	3.20	31,805.30	7.99	19,985.20
2009	4.34	34,680.96	9.69	25,292.07
$r_{12}=(0.624)$	t-tabulated value $(t_{5\%,8})=2.3060$	$r_{13}=0.863$	$r_{34}=(0.743)$ $r^2_{34}=0.5518$	$R^2_{2.14}=0.9956$
$r^2_{12}=0.3899$	Degree of Freedom(d.f) =8	$r^2_{13}=0.7446$	$R_{4.32}=0.9950$	t-calculated$(t_{34})=3.1380$
$R_{2.14}=0.9978$	t-calculated $(t_{12})=2.2613$	t-calculated $(t_{13})=$ 4.8290	$R^2_{4.32}=0.9900$	

Note: Interest rate on deposit and lending is taken from the rate calculated in Table 4.1 "A" and Table 4.1 "B" i.e. the average of all deposits and lending and deposit amount

and lending amount is taken from the various banking and financial institutions statistics published by NRB.

Calculations of correlation coefficients, coefficients of simple determination, multiple correlation coefficient, coefficient of multiple determination and t-calculated is shown in annex 1.

Figure: 4-1

Relationship between Deposit Rate and Lending Rate of Himalayan Bank Limited
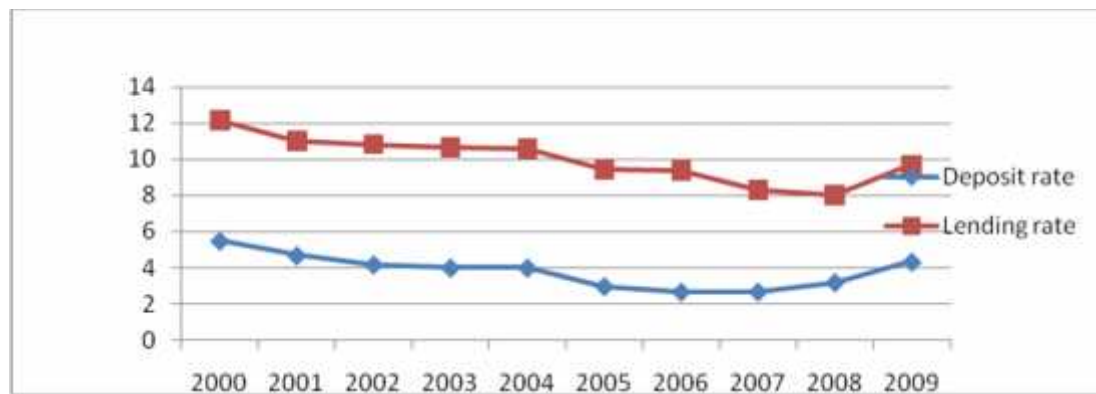
From the table 4.1 "C" the correlation coefficient (simple correlation) between deposit interest rate and deposit amount (r_{12}) is -0.624 this means that there is moderate negative correlation between deposit rate and total deposit amount of Himalayan Bank Limited. It is a well known fact that higher interest rate attracts more deposit and vice-versa. But from the above analysis it is found that the less increase/decrease in interest rate moderately decrease/increase the deposit amount of HBL. The simple coefficient of determination between deposit rate and deposit amount r^2_{12} is 0.3899 which indicates that 38.99% of total variation in dependent variable (deposit amount) is explained by the independent variable (deposit rate) and remaining 60.01% is due to the effect of other factors. When deposit amount is taken as dependent factor supposing deposit rate and lending amount as independent factor the coefficient of multiple determination $R^2_{2.14}$=0.9956 which indicate that 99.56% of the total variation in the dependent variable i.e. total deposit has been explained by the two independent variables (interest rate on deposit and lending amount) and 0.04% percentage is due to the effects of other factors. From this analysis it can be said that interest rate is affecting deposit negatively. Test of significance of correlation coefficient between deposit rate and deposit amount also supports it. Because, the tabulated value of "t" for 8 d.f (degree of freedom) at 5% level of significance 2.3060 which is greater than the calculated value of "t" (i.e. t-calculated <t-tabulated) **2.2613<2.3060** thus "t" is insignificant, hence alternative hypothesis is

rejected and null hypothesis accepted which means that the variables (deposit rate and deposit amount) of HBL are uncorrelated.

The correlation coefficient between lending rate and lending amount (r_{34}) is -0.743 shows that the variable are high negatively correlated. In other words interest rate on lending and lending amount are negatively correlated i.e. the small increase in lending rate results decrease total lending amount. The simple coefficient of determination between lending rate and lending amount r^2_{34} is 0.5518 which indicates that 55.18% of total variation in dependent variable (lending amount) is explained by the independent variable (lending rate) and remaining 45.18% is due the effect of other variables. When lending amount is taken as dependent factor and other two variable lending rate and deposit amount as independent variable the the coefficient of multiple determination ($R^2_{4.32}$) is 0.9900 which indicates that 99% of the total variation in dependent variable i.e. total lending amount is explained by the two independent (lending rate and deposit amount) and remaining 1% is due to the effect of other variables. Test of significance of correlation coefficient between lending rate and lending amount makes clear that; since, the tabulated value of 't' for 8 d.f (Degree of Freedom) at 5% level of significance 2.3060 is less than the calculated value of 't" (i.e. t-calculated>t-tabulated) **3.1380>2.3060** 't' is significant, hence null hypothesis is rejected and alternative hypothesis is accepted which means the variables are lending amount and lending rate of Himalayan Banks are correlated with each others.

From the same table it is clear that the relationship between the two variables; interest rate on deposit and interest rate on lending is positive; that is the correlation coefficient between these two variables (r_{13}) is 0.863 this mean that there is perfect positive correlation between interest rate on deposit and interest rate on lending which indicates that increase or decrease in one variable the other variable also increase or decreases. When deposit rate increase with small percentage point lending rate increase to large extent and vice versa. The coefficient of simple determination (r^2_{13}) is 0.7446 which indicates 74.46% of total variation in the dependent variable (lending rate) is explained by independent variable (deposit rate) and remaining is due to other factors. Test of significance of correlation coefficient between deposit rate and lending rate makes clear that: the calculated value of "t" for 8 d.f (degree of freedom) at 5% level of significance is **4.8290** which is greater than tabulated value of "t" which is **2.3060<4.8290**. Therefore, alternative hypothesis is accepted which indicates that the two variables (lending rate and deposit rates of Himalayan Banks) are significant or correlated.

4.2 Analysis of Standard Chartered Bank Limited (SCBL)

Table 4.2 "A"

Calculation of Average Rate of Interest on Deposit of Standard Chartered Bank										
Deposit Types	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Savings	4.00	3.00	2.50	2.50	2.00	1.75	2.00	2.00	2.00	2.00
Fixed	-	-								
7 Days										
14 Days	2.50	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
1 Months	3.50	2.50	2.50	2.50	2.00	1.50	1.50	1.50	1.50	1.50
2 Months			0.00	0.00	2.00	1.50	1.50	1.50	1.50	1.50
3 Months	4.00	3.00	2.50	2.50	1.50	1.50	1.50	1.50	1.50	1.50
6 Months	5.00	4.00	3.00	3.00	2.50	1.75	1.75	1.75	1.75	1.75
1 Year	6.00	5.00	4.00	3.50	2.25	2.25	2.25	2.25	2.50	2.50
2 yrs Above	5.75	4.75	3.75	3.75	2.50	2.50	2.50	2.50	2.88	2.88
Total	30.75	24.25	20.25	19.75	15.75	13.75	14.00	14.00	14.63	14.63
Number (n)	7.00	7.00	7.00	7.00	8.00	8.00	8.00	8.00	8.00	8.00
Mean (X)	4.39	3.46	2.89	2.82	1.97	1.72	1.75	1.75	1.83	1.83
S. Deviation	**0.873**									

Source: Various banking and financial statistics published by NRB

Note: Calculation of average and standard deviation is done as shown in annex 1

The above table 4.2"B" shows that the average interest rate on all deposit of SCBL with the ten years time period is in decreasing trend to 6 year and increasing trend to 4 year. The rate was 4.39 in the year 2000 and 1.83% in 2009.

The rate decreased successively to 3.46%, 2.89%, 2.82%, 1.97%, and 1.72% respectively in the year 2001, 2002, 2003, 2004, and 2005 and increased successively to 1.75%, 1.75%, 1.83%, and 1.83% respectively in the year 2006, 2007, 2008 and 2009. The standard deviation of 0.873 shows that the scatteredness among the average interest rate

on all deposits from the mean of all average rates is 0.873% within these ten years time period.

<div align="center">**Table 4.2 "B"**</div>

Interest Rate of Structure on Lending of Standard Chartered Bank										
Sectors	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Overdraft	0.00	0.00	0.00	0.00	0.00	6.50	6.50	6.50	6.50	6.50
Export credit	10.25	10.00	9.25	9.25	9.25	9.25	9.00	9.00	9.00	8.25
Import L/C	12.50	11.00	10.50	10.00	9.75	9.75	8.25	8.25	8.25	8.50
Against FDR	8.00	6.50	6.50	6.00	4.75	4.75	6.13	4.75	5.00	5.00
Against HMG bond	9.75	8.75	8.75	8.75	8.50	8.50	7.25	7.25	7.25	7.50
Against BG/CG	12.25	11.50	11.25	9.75	9.75	9.75	9.00	9.00	9.00	8.50
Against other guarantee	13.50	9.75	9.75	12.50	12.25	12.25	10.50	10.50	10.50	10.50
Industrial Loan	13.25	12.25	11.75	12.50	11.00	11.00	10.75	10.75	10.75	10.75
Commercial Loan	12.75	12.75	12.25	13.00	11.50	11.50	11.25	11.25	11.25	0.00
Priority Sector	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Poorer sector	11.00	10.50	10.00	10.00	10.00	10.00	7.50	7.50	7.50	7.50
Term Loan	14.50	14.00	13.50	12.00	12.75	12.75	10.75	10.75	10.75	10.75
Working capital	13.25	13.25	12.75	12.25	12.25	12.25	9.50	9.50	9.50	9.50
Hire purchase	15.00	13.00	11.00	9.00	9.00	9.00	8.25	8.25	8.25	0.00
Others	11.50	11.25	11.00	10.50	10.50	10.50	9.75	9.75	9.75	11.50
Total	157.50	144.50	138.25	135.50	131.25	137.75	124.38	123.00	123.25	104.75
Number (n)	13	13	13	13	13	14	14	14	14	12
Mean (X)	**12.12**	**11.12**	**10.63**	**10.42**	**10.10**	**9.84**	**8.88**	**8.79**	**8.80**	**8.73**
S. Deviations	**1.0998**									

Source: Various publications of banking and financial statistics published by NRB

Note: Calculation of average and standard deviation is done as shown in annex 1

From the table 4.2 "B" it is seen that the average lending rate on all credit of SCBL is in decreasing trend. The maximum rate was on 2000 i.e. 12.12% decreasing every year the rate reached to 8.73% in the year 2009. This is lowest rate within these ten years time period. The standard deviation is 1.0998 shows that the scatteredness among the average lending rates with these ten years period is 1.0998%.

Table 4.2 "C"

Computation of Correlation Coefficients, Coefficient of determinations and T-Statistics of Standard Chartered Bank Limited (SCBL)

Year	Deposit Rate (1)	Deposit Amount (2)	Lending Interest (3)	Lending Amount(4)
2000	4.39	12,566.40	12.12	4,957.50
2001	3.46	15,430.10	11.12	5,924.10
2002	2.89	15,835.70	10.63	5,787.90
2003	2.82	18,755.50	10.42	6,080.70
2004	1.97	21,161.40	10.10	6,729.60
2005	1.72	19,344.00	9.84	8,213.50
2006	1.75	23,050.50	8.88	8,905.10
2007	1.75	24,640.30	8.79	10,538.10
2008	1.83	29,743.90	8.80	13,355.00
2009	1.83	35,871.80	8.73	13,118.60
r_{12}=(0.728)	t-tabulated value $(t_{5\%,8})$=2.3060	r_{13}=0.927	r_{34}=(0.873) r^2_{34}=0.763	$R^2_{2.14}$=0.901
r^2_{12}=0.530	Degree of Freedom(d.f)=8	r^2_{13}=0.859	$R_{4.32}$=0.952	t-calculated(t_{34})=5.069
$R_{2.14}$=0.949	t-calculated (t_{12})=3.003	t-calculated (t_{13})=6.988	$R^2_{4.32}$=0.906	

Note: Interest rate on deposit and lending is taken from the rate calculated in table 4.2 "A" and table 4.2 "B" i.e. the average of all deposits and lending and deposit amount and

lending amount is taken from the various banking and financial institutions statistics published by NRB.

Calculations of correlation coefficient, coefficients of determination, multiple correlations, coefficient of multiple determination, and t- calculated is made as shown in annex 1.

Figure: 4-2

Relationship between Deposit Rate and Lending Rate of

Standard Chartered Bank Limited (SCBL)
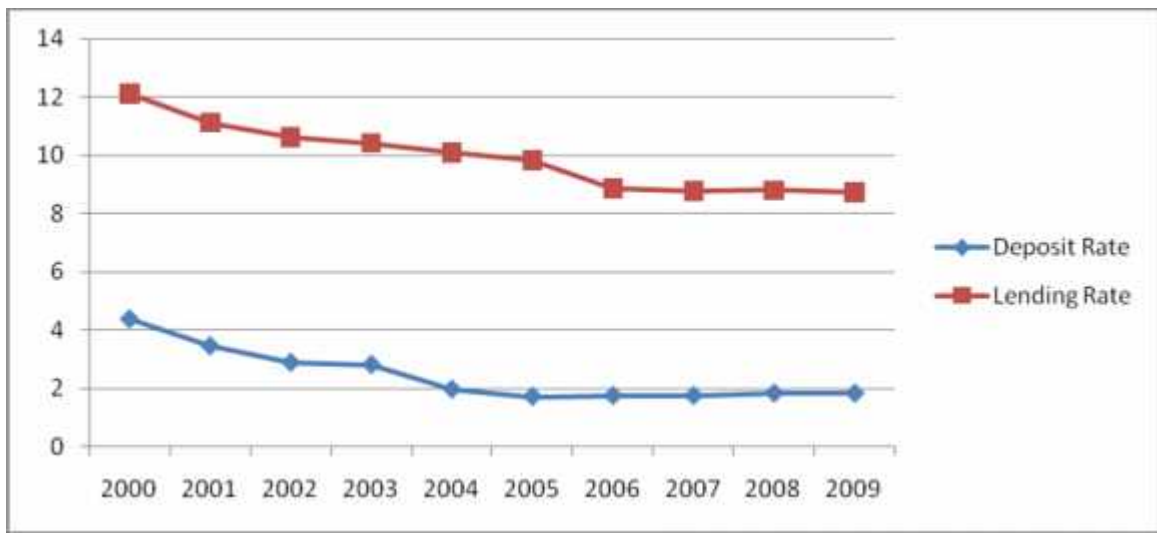
From the table 4.2 "C" it is clear that there is high degree of negative correlation between deposit interest rate and deposit amount i.e. (r_{12}) is **-0.728** it means that with the increase in interest rate deposit amount decrease and with the decrease in interest rate deposit amount increases. The high degree of negative correlation means that less increase/ decrease in deposit rate decrease/increase deposit amount. It is found that amount of deposit is continuously increasing even when interest rate on deposit is declining throughout the study period. The simple correlation coefficient of determination r^2_{12} is 0.530 indicates that 53% of total variation in dependent variable (Deposit Amount) has been explained by the independent Variable (Deposit Rate) and remaining is due to the effect of other factors which are not covered by this study. When deposit amount is taken as dependent variable supposing deposit rate and lending amount as independent variable the coefficient of multiple Determination $R^2_{2.14}$=**0.901** indicates that 90.1% of total variation in dependent variable has been explained by the two independent variables and remaining is due to the effect of other factors in the economy. Test of significance of correlation coefficient between deposit rate and deposit amount of SCBL makes clear that whether it is significant or insignificant. Since, the tabulated value of "t" for 8 d.f (degree

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of freedom) at 5 % level of significance is 2.3060 which is less than the calculated value of "t" which is 3.003. Therefore "t" is significant, hence null hypothesis is rejected and alternative hypothesis is accepted which means that the variable (deposit rate and deposit amount) of SCBL are correlated.

From the same table it is clear that there is high degree of negative correlation between lending rate and lending amount of SCBL (r_{34}) = **(0.873).**It means that with the increase in interest rate less amount of lending is made and with the decrease in interest rate higher amount of lending made. It is clear from the above analysis that the interest rate affect lending amount negatively. The simple correlation coefficient between lending amount and lending rate (r^2_{34}) **is 0.763** which indicates that 76.30% of total variation in dependent variable has been explained by one independent variable (lending rate) and remaining due to the effect of other factors in the economy. When it is assumed that two independent factors lending rate, deposit amount affect lending amount; lending amount is taken as dependent variable. It is found that the multiple correlation coefficient of determination ($R^2_{4.32}$) **=0.906** which indicates that 90.6 % of total variation in the dependent variable (lending amount) is explained by the two independent variable (i.e. lending rate and deposit amount) and remaining is due to the effect of other variable in the economy. Test of significance of correlation coefficient between lending rate and lending amount makes clear that; since, the tabulated value of "t" for 4 d.f (degree of freedom) at 5% level of significance 2.3060 is less than the calculated value of "t' (i.e. t-calculated>t-tabulated) 5.069>2.3060 "t" is significant, hence null hypothesis is rejected and alternative hypothesis accepted which means that the two variables (lending rate and lending amount) of SCBL are correlated.

But the computed correlation coefficient between deposit rate and lending rate from the table 4.2"C" is r_{13}**=0.927** which is positive. This means that the relationship between these two variables is positive which explains that with less increment/decrement in deposit rate lending rate increase/ decreases more proportionately. The coefficient of simple determination r^2_{13}**=0.859** indicates that 85.90% of total variation in the dependent variable (interest rate on lending) has been explained by the one independent variable(interest rate on deposit) remaining is due to the effect of other factors in the economy. Test of significance of correlation coefficient between deposit rate and lending rate makes clear that; since the tabulated value of "t" for 8 d.f (degree of freedom) at 5% level of significance **2.3060** is less than the calculated value of "t' (t_{13}) =6.988 so "t" is significant, hence null hypothesis is rejected and alternative hypothesis is accepted which means that the variable (deposit rate and lending rate) of SCBL are correlated.

4.3   Analysis of Nepal Bangladesh Bank Limited (NBBL)

Table 4.3 "A"

Calculation of Average Rate of Interest on Deposit of Nepal Bangladesh Bank										
Deposit Types	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Savings	6.00	6.00	5.50	5.50	4.50	4.13	4.50	4.50	4.50	4.50
Fixed										
7 Days										
14 Days										
1 Months	4.00	4.00	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
2 Months										
3 Months	5.50	5.00	4.50	4.50	4.00	4.00	4.00	4.00	4.00	4.00
6 Months	6.00	5.50	5.50	5.50	4.50	4.50	4.50	4.50	4.50	4.50
1 Year	7.50	7.00	7.00	6.50	4.75	4.75	4.75	4.75	4.75	4.75
2yrs/Above	8.00	7.63	7.50	7.00	5.00	5.00	5.00	5.00	5.00	5.00
Total	37.00	35.13	33.50	32.50	26.25	25.88	26.25	26.25	26.25	26.25
Number (n)	6	6	6	6	6	6	6	6	6	6
Mean (X)	6.17	5.86	5.58	5.42	4.38	4.31	4.38	4.38	4.38	4.38
S. Deviations	**0.7043**									

Source: Various banking and financial statistics published by NRB

Note: Calculation of average and standard deviation is done as shown in annex 1.

In the table 4.3 "A" interest rate structure of Nepal Bangladesh Bank (NBBL) shown. The average of all deposit is calculated which is in decreasing and then increasing trend. The interest rate (i.e. average on 2000 was 6.17% then it decreased to 5.86%, 5.58%, 5.42%, 4.38%, 4.31% respectively in the year 2001, 2002, 2003, 2004 and 2005 then it increase to 4.38% each respectively in the year 2006, 2007 and 2009 respectively. The highest rate was on 2000 and lowest on 2005. The standard deviation of 0.7043 indicates that the dispersion among interest rate in ten years period is 0.7043%.

Table 4.3 "B"

Sectors	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Interest Rate of Structure on Lending of Nepal Bangladesh Banks										
Overdraft	14.75	14.25	14.00	13.75	12.50	12.50	12.50	12.50	0.00	0.00
Export credit	10.00	9.75	10.63	11.50	10.25	9.25	9.25	9.25	9.25	9.25
Import L/C	12.75	12.50	0.00	0.00	10.25	10.25	10.25	10.25	0.00	0.00
Against FDR	9.50	9.00	9.00	7.75	6.50	6.50	6.50	6.50	6.75	6.75
Against HMG bond	11.00	9.00	9.00	9.00	8.50	7.50	7.50	7.50	7.50	7.50
Against BG/CG	15.00	13.00	13.00	13.00	12.00	8.00	8.00	8.00	8.00	8.00
Against other guarantee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Loan	14.50	13.00	12.63	12.63	0.00	11.00	11.00	11.00	10.25	10.25
Commercial Loan	15.00	13.50	11.38	12.88	0.00	8.75	8.75	8.75	8.75	8.75
Priority Sector	13.00	13.00	12.50	13.00	11.00	10.00	10.00	10.00	10.00	10.00
Poorer sector	12.00	12.00	8.50	12.00	10.00	9.50	9.50	9.50	9.50	9.50
Term Loan	14.50	13.50	13.00	13.25	11.50	11.50	11.50	11.50	0.00	0.00
Working capital	0.00	0.00	12.00	0.00	0.00	0.00	0.00	0.00	9.00	9.00
Hire purchase	14.50	14.25	14.25	14.00	11.00	9.50	9.50	9.50	9.50	9.50
Others	13.75	13.00	12.25	12.00	10.00	8.25	9.25	8.25	9.00	9.00
Total	170.25	159.75	152.14	144.76	113.50	122.50	123.50	122.50	97.50	97.50
Number (n)	13	13	13	12	11	13	13	13	11	11
Mean (X)	**13.10**	**12.29**	**11.70**	**12.06**	**10.32**	**9.42**	**9.50**	**9.42**	**8.86**	**8.86**
S. Deviations	**1.5018**									

Source: Various banking and financial statistics published by NRB

Note: Calculation of average and standard deviation is done as shown in annex 1.

The table 4.3 "B" shows the interest rate structure on lending of NBBL from the year 2000 to 2010. From the above table the lending interest rate of NBBL is 13.10%, 12.29%,11.70%, 12.06%, 10.32%, 9.42%, 9.50%, 9.42%, 8.86% and 8.86 in 2000 to 2009 respectively. The standard deviation of 1.5018 signifies that the scatteredness among the lending rate within the ten year time period is 1.5018%.

Table 4.3 "C"

Computation of Correlation Coefficients, Coefficient of determinations and T-Statistics of Nepal Bangladesh Bank Limited (NBBL)

Year	Deposit Rate (1)	Deposit Amount (2)	Lending Interest (3)	Lending Amount(4)
2000	6.17	6,455.60	13.10	4,611.80
2001	5.86	8,578.80	12.29	7,347.40
2002	5.58	9,514.00	11.70	8,222.10
2003	5.42	10,548.00	12.06	8,491.90
2004	4.38	12,747.30	10.32	10,253.60
2005	4.31	12,125.50	9.42	8,739.80
2006	4.38	13,014.80	9.50	9,010.70
2007	4.38	9,464.00	9.42	8,302.80
2008	4.38	10,883.70	8.86	8,420.00
2009	4.38	9,995.63	8.86	8,507.80
$r_{12}=(0.777)$	t-tabulated value $(t_{5\%,8})=2.3060$	$r_{13}=0.960$	$r_{34}=(0.633)$ $r^2_{34}=0.401$	$R^2_{2.14}=0.824$
$r^2_{12}=0.640$	Degree of Freedom(d.f)=8	$r^2_{13}=0.921$	$R_{4.32}=0.986$	t-calculated(t_{34})= 2.314
$R_{2.14}=0.908$	t-calculated $(t_{12})=3.493$	t-calculated $(t_{13})=9.667$	$R^2_{4.32}=0.973$	

Note: Interest rate on deposit and lending is taken from the rate calculated in table 4.3 "A" and table 4.3 "B" i.e. the average of all deposit and lending and deposit amount and

lending amount is taken from the various banking and financial institutions statistics published by NRB.

Calculations of correlation coefficients, coefficients of simple determination, multiple correlation, coefficient of multiple determination and t-calculated is made as shown in annex 1.

Figure: 4-3

Relationship between Deposit Rate and Lending Rate of

Nepal Bangladesh Bank Limited (NBBL)
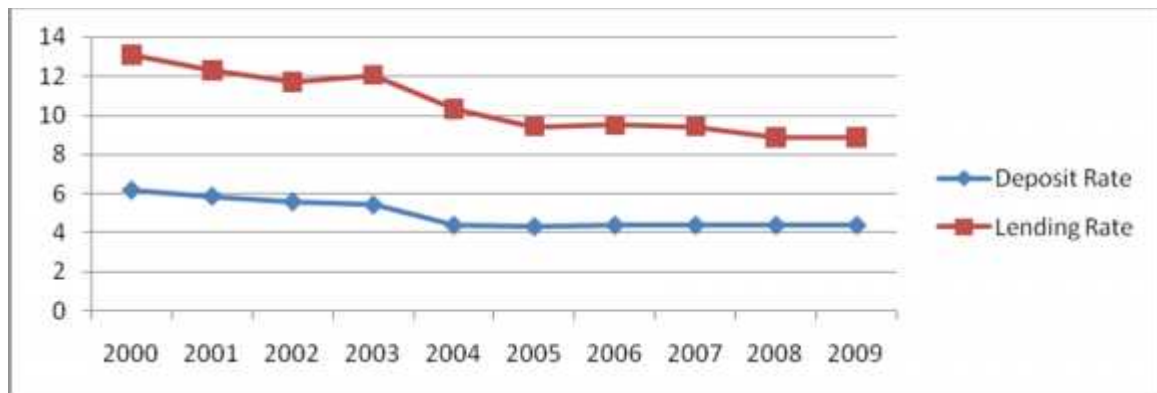
The table 4.3 "C" shows the value of simple correlation coefficient, coefficient of simple determination, multiple correlation coefficients and coefficient of multiple determination and t-statistics of NBBL. The correlation coefficient of both deposit rate and deposit amount and lending rate and lending amount are negatively correlated i.e. **r_{12}=(0.777)** and **r_{34}=(0.633)** which means that with the small increase or decrease in interest rate on deposit and lending will decrease or increase in deposit amount and lending amount. The theory of deposit rate and deposit amount does not match with the result of analysis obtained and that with the increase or decrease in deposit rate deposit amount increase or decrease proportionately. In general, theory there is positive relation between interest rate on and deposit amount. The theory of interest rate on lending match the result obtained from analyses that with the increase/decrease in interest rate on lending, lending amount decrease/increase. That is the theory says there is negative relation between lending rates and lending amount that comes true in aspect of NBBL.

The coefficient of simple determination of both interest rate on deposit and deposit amount and interest rate on lending amount are **r^2_{12}=0.640 and r^2_{34}=0.401** respectively. This indicate that 64% and 40.1% of total variation in the dependent variable (deposit amount and lending amount) is explained by independent variable (deposit rate and lending rate) respectively and remaining effect is due to the effect of other variable in the

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economy. Test of significance of correlation coefficients between interest rate on deposit and deposit amount makes clear that t-statistics under null hypothesis (t-calculated) **3.493** is greater than the tabulated value of "t" at 5% level of significance for 5 degree of freedom **2.3060**. Hence, "t" is significant, thus null hypothesis is rejected and alternative hypothesis accepted which states that the two variables (deposit amount and deposits rate) of NBBL are correlated. Similarly, test of significance of correlation coefficient between interest rate on lending and lending amount makes clear that t-calculated **2.314** is greater than t-tabulated value at 5% level of significance for 5 degree of freedom **2.3060**.Thus, there is significant relation between the two variables; as a result alternative hypothesis is accepted which signifies that the two variables (lending rate and lending amount) of NBBL are statistically correlated.

To make the effect of two independent variables clear deposit amount is taken as dependent variable assuming deposit rate and lending amount as independent. This effect is made clear by coefficient of multiple determinations. The multiple determination of $R^2_{2.14}$**=0.824** indicates that 82.4% of total variation in the dependent variables of NBBL is explained by two independent variables and remaining effect is due to the effect of other variable in the economy. It shows that more percentage of total variation in the dependent variables is explained by two variables and too less percentage is explained by other variables in the economy. Multiple determinations of $R^2_{4.32}$**=0.973** indicates that when lending rate is taken as dependent variable assuming interest rate on lending and deposit amount as independent variable; 97.3% of total variation in the dependent variable (lending amount) of NBBL is explained by two independent variables and remaining is the effect of other variables in the economy.

The correlation of coefficient of r_{13}**=0.960** shows that there is high degree of positive correlation between deposit rate and lending rate of NBBL. Meaning that both rates move in the same direction but the movement in one is more with respect to other. The coefficient of simple determination r^2_{13}**=0.921** indicates that 92.10% of total variation in the dependent variable (lending rate) of NBBL is explained by an independent variable (deposit rate) and remaining percentage is due to the effect of other variable in the economy. Test of significance for correlation coefficient between deposit rate and lending rate of NBBL (t-calculated) **9.667** makes clear that since, the calculated t-value **9.667** is greater than tabulated at 5% level of significances for 8 degree of freedom is **2.3060.** Therefore, "t" is more statistically significant, hence null hypothesis is rejected and alternative hypothesis accepted which means that both the variables (interest rate on deposit and interest rate on lending) of NBBL are statistically correlated.

4.4   Analysis of Bank of Kathmandu (BOK)

Table 4.4 "A"

Calculation of Average Rate of Interest on Deposit of Bank Of Kathmandu										
Deposit Types	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Savings	5.00	5.00	5.00	3.88	2.75	2.38	2.50	2.25	2.25	2.25
Fixed	-	-								
7 Days	2.50	2.50	2.50	2.00	2.00	1.50	1.50	1.50	2.00	2.00
14 Days	3.00	3.00	3.00	2.50	2.50	2.00	2.00	2.00	2.50	2.50
1 Months	4.00	4.00	4.00	3.00	3.00	2.50	2.50	2.50	3.00	3.00
2 Months										
3 Months	5.00	4.75	4.75	3.50	3.50	3.00	3.00	3.00	3.50	3.50
6 Months	5.50	5.25	5.25	4.00	4.00	3.50	3.50	3.25	4.00	4.00
1 Year	3.75	6.50	6.50	4.50	4.50	4.25	4.25	3.63	5.00	5.00
2yrs/Above	7.25	7.00	7.00	4.75	4.75	5.13	5.13	3.63	5.50	5.50
Total	36.00	38.00	38.00	28.13	27.00	24.255	24.375	21.76	27.75	27.75
Number (n)	8	8	8	8	8	8	8	8	8	8
Mean (x)	4.50	4.75	4.75	3.52	3.38	3.03	3.05	2.72	3.47	3.47
S. Deviation	**1.1602**									

Source: Various banking and financial statistics published by NRB

Note: Calculation of average and standard deviation is done as shown in annex 1.

The table 4.4 "A" shows the interest rate structure of BOK from 2000 to 2009. The average interest rate on deposit is computed for every year. The deposit rate (average on all deposit) is ups and down trends. From year 2000 to 2005 average deposit rate are in declining trend while it is increase in 2006 and again decline in 2007 then stable in 2007 and 2008. The interest rate on deposit of BOK is 4.50%, 4.75%, 4.75%, 3.52%, 3.38%, 3.03%, 3.05%, 2.72%, 3.47% and 3.47% in the year 2000 to 2009 respectively. The standard deviation of 1.1602 makes clear that the dispersion among the rates within the ten years period is 1.1602%.

Table 4.4 "B"

Interest Rate of Structure on Lending Of Bank of Kathmandu										
Sectors	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Overdraft	13.25	12.25	12.25	11.75	11.75	11.75	11.75	11.75	11.75	11.75
Export credit	9.50	9.50	9.50	10.00	10.00	7.25	7.75	7.75	7.75	11.00
Import L/C	0.00	0.00	0.00	11.00	10.25	10.25	10.25	10.25	10.25	10.25
Against FDR	8.75	8.50	8.50	7.50	7.50	9.25	7.50	7.50	7.50	9.25
Against HMG bond	9.00	8.50	8.50	7.50	7.25	7.25	7.25	7.25	7.25	9.50
Against BG/CG	11.50	11.00	11.00	9.75	9.25	0.00	9.25	9.25	9.25	9.75
Against other guarantee	0.00	0.00	0.00	8.00	7.50	7.50	7.50	7.50	7.50	0.00
Industrial Loan	13.00	12.50	12.50	11.75	11.75	11.75	11.75	11.75	11.75	0.00
Commercial Loan	13.50	13.00	13.00	12.25	12.25	12.25	12.25	12.25	12.25	0.00
Priority Sector	13.50	13.50	13.50	13.50	0.00	0.00	0.00	0.00	0.00	0.00
Poorer sector	9.00	9.00	9.00	8.75	8.75	8.75	8.75	8.75	8.75	8.75
Term Loan	13.50	12.50	12.50	12.00	11.50	11.75	11.75	11.75	11.75	12.00
Working capital	13.25	12.75	12.75	11.75	11.75	11.75	11.75	11.75	11.75	11.75
Hire purchase	15.00	13.50	13.00	10.75	10.75	9.50	9.25	9.25	9.25	10.50
Others	15.00	15.00	15.00	8.75	8.75	8.75	9.25	9.25	8.00	10.75
Total	157.75	151.50	151.00	155.00	139.00	127.75	136.00	136.00	134.75	115.25
Number (n)	13	13	13	15	14	13	14	14	14	11
Mean (X)	**12.13**	**11.65**	**11.62**	**10.33**	**9.93**	**9.83**	**9.71**	**9.71**	**9.63**	**10.48**
S. Deviations	**0.897**									

Source: Various banking and financial statistics published by NRB

Note: Calculation of average and standard deviation is done as shown in annex 1.

The table 4.4 "B" shows the interest structure on lending of BOK from year 2000 to 2009. The average lending rate is computed from all types of credits. The lending rate (i.e. average on all credits) is in decreasing trend except the lending rate on 2009. The rate was 12.13 in the year 2000 then it decreased to 11.65%, 11.62%, 10.33%, 9.93%, 9.83%, 9.71%, 9.71%, and 9.63% respectively in the year 2001, 2002, 2003, 2004, 2005,

2006, 2007 and 2008.But in 2009 the rate was increase to 10.48 from 9.63%. The standard deviation i.e. dispersion among the interest rate on lending (average on all credits) of BOK is 0.897%.
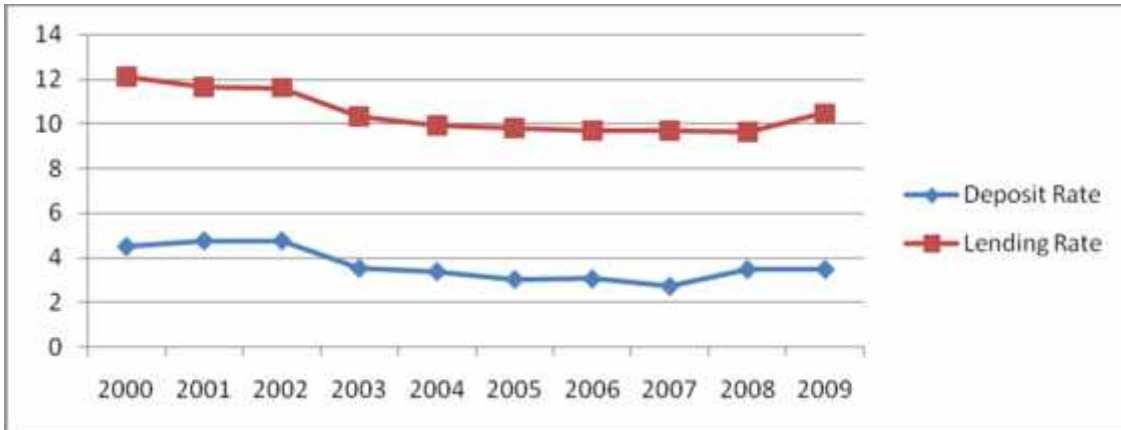
Table 4.4 "C"

Computation of Correlation Coefficients, Coefficient of determinations and T-Statistics of Bank of Kathmandu (BOK)

Year	Deposit Rate (1)	Deposit Amount (2)	Lending Interest (3)	Lending Amount(4)
2000	4.50	3,983.00	12.13	2,995.30
2001	4.75	5,724.10	11.65	4,327.10
2002	4.75	5,735.90	11.62	4,977.60
2003	3.52	6,169.60	10.33	4,956.20
2004	3.38	7,741.60	9.93	6,104.90
2005	3.03	8,942.80	9.83	6,166.90
2006	3.05	10,429.30	9.71	7,525.20
2007	2.72	12,358.60	9.71	9,663.60
2008	3.47	15,832.70	9.63	12,692.90
2009	3.47	18,083.90	10.48	14,894.70
$r_{12}=(0.568)$	t-tabulated value $(t_{5\%,8})=2.3060$	$r_{13}=0.930$	$r_{34}=(0.553)$ $r^2_{34}=0.305$	$R^2_{2.14}=0.993$
$r^2_{12}=0.323$	Degree of Freedom(d.f)=8	$r^2_{13}=0.865$	$R_{4.32}=0.747$	t-calculated$(t_{34})=1.8758$
$R_{2.14}=0.997$	t-calculated $(t_{12})=1.9541$	t-calculated $(t_{13})=7.1738$	$R^2_{4.32}=0.558$	

Note: Interest rate on deposit and lending is taken from the rate calculated in table 4.4 "A" and table 4.4 "B" i.e. the average of all deposit and lending and deposit amount and lending amount is taken from the various banking and financial institutions statistics published by NRB.

Calculations of correlation coefficients, coefficients of simple determination, multiple correlation, coefficient of multiple determination and t-calculated is made as shown in annex 1.

Figure: 4-4

Relationship between Deposit Rate and Lending Rate of

Bank of Kathmandu (BOK)

The table 4.7 "C" exhibits the correlation coefficient between deposit rate and deposit amount lending rate and lending amount, deposit rate and lending rate their coefficients and t-calculated value for test of significance. It is clear from the table that there is moderate degree of negative correlation between deposit rate and deposit amount of BOK i.e. r_{12}= **(0.568).** It means that with less increment/decrement in interest rate on deposit of BOK deposit amount decrease/increase moderately. In general theory the relation between interest rate and deposit amount is positive i.e. with the increase or decrease in interest rate deposit amount also increase or decrease. But from the analysis it is seen that interest rate on deposit and deposit amount of BOK move in the opposite direction. To be clear about whether interest rate of BOK affect its deposit amount or not deposit amount is here taken as dependent variable and interest rate as independent variable. The coefficient of simple determination r^2_{12}**=0.323** explains that 32.30% of total variation in the dependent variable is explained by the effect of independent variable and remaining is due to the effect of other variables in the economy.

But to know the effect of two independent variables in the dependent variable, deposit amount is taken as dependent variable and supposing deposit rate and lending amount as independent variables. The coefficient of multiple determinations $R^2_{2.14}$**=0.993** indicates that 99.30% of total variation in the dependent variable (deposit amount) has been explained by two independent variables (deposit rate and lending amount) and remaining

percentage is due to the other factors in the economy. Test of significance of correlation coefficient between deposit rate and deposit amount of BOK under null hypothesis (t-statistics) makes clear that, since the tabulated value of "t" for 8 degree of freedom at 5% level of significance 2.3060 is more than the calculated value of "t" (i.e. **2.3060>1.9541**) "t" is insignificant; hence null hypothesis is accepted and alternative hypothesis is rejected, this signifies that the two variables (deposit rate and lending rate) of BOK are statistically uncorrelated.

Similarly the correlation between lending rate and lending amount of BOK are moderately negatively correlated (i.e. $r_{34}=$ **(0.553)** which means that with the increase/decrease in lending rate lending amount moderately decrease/increase. The relationship of interest rate on lending amount match the real theory that with the increase in lending rate lending amount decreases meaning that (borrowers borrow less if bank increase lending rate). Here, to be clear about whether amount loaned is affected by interest charged on lending; lending amount is taken as dependent variable and lending rate as an independent variable. The coefficient of simple determination r^2_{34}**=0.305** indicates that 30.5% of total variation in the dependent variable (lending rate) and remaining is due to the effect of other factors in the economy. To know the effect of two independent variables (lending rate and deposit amount) in the dependent variable (lending amount), coefficient of multiple determination is computed. The coefficient of multiple determinations $R^2_{4.32}$**=0.558** explain that 55.80% of total variation in the dependent variable has been explained by two independent variable and remaining is due to the effect of other factor in the economy. Test of significance of correlation coefficient between lending rate and lending amount of BOK under null hypothesis (t-statistics) makes clear that since the calculated value of "t" for 8 degree of freedom at 5% level of significance is **1.8758** which is less than the tabulated value of "t'. Therefore, "t" is insignificant which means null hypothesis is accepted. There is no correlation between the lending amount and lending interest rate of BOK.

The correlation between lending rate and deposit amount of BOK is highly positive (r_{13}**=0.930**) meaning that both the variable move in the same direction; when one rate increase other also increase and vice-versa. The coefficient of simple determination of r^2_{13}**=0.865** indicates that 86.5% of total variation in the dependent variable (lending amount) is explained by independent variable (deposit rate) of BOK. Test of significance (t-calculated) of correlation coefficient for deposit rate and lending rate makes clear that since, tabulated value of "t" at 8 degree of freedom at 5% level of significance **2.3060** more less than the calculated value of "t" is **7.1738,** "t" is significant; hence null

hypothesis is rejected and alternative hypothesis is accepted which means that the lending rate and deposit rate of BOK are correlated as they are statistically significant.

4.5   Analysis of Nepal Investment Bank Limited (NIBL)

Table 4.5 "A"

Calculation of Average Rate of Interest on Deposit of Nepal Investment Bank										
Deposit Types	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Savings	5.00	5.00	5.00	5.00	5.00	2.63	2.50	2.50	2.50	2.50
Fixed	-	-								
7 Days										
14 Days	3.00	3.00	3.00	3.00	3.00	1.25	1.25	1.25	1.25	1.25
1 Months	4.00	4.00	4.00	4.00	4.00	1.75	1.75	1.75	1.75	1.75
2 Months										
3 Months	5.00	5.00	5.00	5.00	5.00	2.63	2.63	2.63	2.63	2.63
6 Months	5.50	5.50	5.50	5.50	5.50	2.88	2.88	2.88	2.88	2.88
1 Year	6.75	6.50	6.50	6.50	6.50	3.63	3.63	3.63	5.25	5.25
2 yrs/Above	7.00	6.75	6.75	6.75	6.75	3.88	3.88	3.88	5.75	5.75
Total	36.25	35.75	35.75	35.75	35.75	18.65	18.52	18.52	22.01	22.01
Number (n)	7	7	7	7	7	7	7	7	7	7
Mean (X)	5.18	5.11	5.11	5.11	5.11	2.66	2.65	2.65	3.14	3.14
S. Deviations	1.151									

Source: Various banking and financial statistics published by NRB

Note: Calculation of average and standard deviation is done as shown in annex 1.

In the table 4.5 "A" interest rate structure of Nepal Investment Bank (NIBL) shown. The average of all deposit is calculated which is in decreasing and then increasing trend. The interest rate (i.e. average on 2000 was 5.18% then it decreased to 5.11% in 2001 and stable to 5.11% till 2004. then it decrease to 2.66%, 2.65% and 2.65% respectively in the year 2005, 2006 and 2007 respectively. In year 2008 and 2009, the interest rate on

deposit stable at 3.14% each. The highest rate was on 2000 and lowest on 2006 and 2007. The standard deviation of 1.151 indicates that the dispersion among interest rate in ten years period is 1.151%.

Table 4.5 "B"

Interest Rate of Structure on Lending of Nepal Investment Bank										
Sectors	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Overdraft	13.00	13.00	13.00	13.00	13.00	10.88	10.88	10.88	10.88	10.88
Export credit	11.50	11.50	11.50	11.50	11.50	9.38	9.38	9.38	9.38	9.38
Import L/C	12.00	12.00	12.00	12.00	12.00	0.00	0.00	0.00	0.00	0.00
Against FDR	8.75	8.50	8.50	8.50	8.50	7.50	7.50	7.50	7.50	7.50
Against HMG bond	9.00	9.00	9.00	9.00	9.00	7.00	7.00	7.00	7.00	7.00
Against BG/CG	11.00	11.00	11.00	11.00	11.00	8.00	8.00	8.00	8.00	8.00
Against other guarantee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Industrial Loan	13.00	13.00	13.00	13.00	13.00	0.00	0.00	0.00	0.00	0.00
Commercial Loan	12.50	12.50	12.50	12.50	12.50	0.00	0.00	0.00	0.00	0.00
Priority Sector	14.50	14.50	14.50	14.50	14.50	8.00	8.00	8.00	0.00	0.00
Poorer sector	12.00	12.00	12.00	12.00	12.00	6.50	6.50	6.50	6.50	6.50
Term Loan	14.50	0.00	0.00	0.00	0.00	11.50	11.50	11.50	11.50	11.50
Working capital	13.00	13.00	13.00	13.00	13.00	11.00	11.00	11.00	10.88	10.88
Hire purchase	0.00	0.00	0.00	0.00	0.00	10.00	10.00	10.00	10.00	10.00
Others	13.00	13.00	8.00	8.00	13.00	9.75	9.75	9.75	9.75	9.50
Total	157.75	143.00	138	138	143	99.51	99.51	99.51	91.39	91.14
Number (n)	13	12	12	12	12	11	11	11	10	10
Mean (X)	**12.13**	**11.92**	**11.50**	**11.50**	**11.92**	**9.05**	**9.05**	**9.05**	**9.14**	**9.11**
S. Deviations	**1.3689**									

Source: Various banking and financial statistics published by NRB

Note: Calculation of average and standard deviation is done as shown in annex 1.

The table 4.5 "B" shows the interest rate structure on lending of NIBL from the year 2000 to 2010. From the above table the lending interest rate of NIBL is 12.13%, 11.92%,11.50%, 11.50%, 11.92%, 9.05%, 9.05%, 9.05%, 9.14%, 9.11% in 2000 to 2009 respectively. The standard deviation of 1.3689 signifies that the scatteredness among the lending rate within the ten year time period is 1.3689%.

Table 4.5 "C"

Computation of Correlation Coefficients, Coefficient of determinations and T-Statistics of Nepal Investment Bank Limited (NIBL)

Year	Deposit Rate (1)	Deposit Amount (2)	Lending Interest (3)	Lending Amount(4)
2000	5.18	2,982.40	12.13	2,071.30
2001	5.11	4,256.20	11.92	2,431.30
2002	5.11	4,174.80	11.50	2,715.70
2003	5.11	7,922.80	11.50	5,949.20
2004	5.11	11,706.30	11.92	7,290.20
2005	2.66	14,254.80	9.05	10,295.40
2006	2.65	18,927.30	9.05	13,007.20
2007	2.65	24,488.90	9.05	17,482.00
2008	3.14	34,451.80	9.14	27,145.50
2009	3.14	46,697.90	9.11	36,250.40
r_{12}=(0.699)	t-tabulated value $(t_{5\%,8})$=2.3060	r_{13}=0.985	r_{34}=(0.757) r^2_{34}=0.573	$R^2_{2.14}$=0.997
r^2_{12}=0.488	Degree of Freedom(d.f)=8	r^2_{13}=0.970	$R_{4.32}$=0.998	t-calculated(t_{34})=3.2746
$R_{2.14}$=0.998	t-calculated (t_{12})= 2.7626	t-calculated (t_{13})= 15.9950	$R^2_{4.32}$=0.996	

Note: Interest rate on deposit and lending is taken from the rate calculated in table 4.5 "A" and table 4.5 "B" i.e. the average of all deposit and lending and deposit amount and

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lending amount is taken from the various banking and financial institutions statistics published by NRB.

Calculations of correlation coefficients, coefficients of simple determination, multiple correlation, coefficient of multiple determination and t-calculated is made as shown in annex 1.

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Figure: 4-5

Relationship between Deposit Rate and Lending Rate of

Nepal Investment Bank Limited (NIBL)

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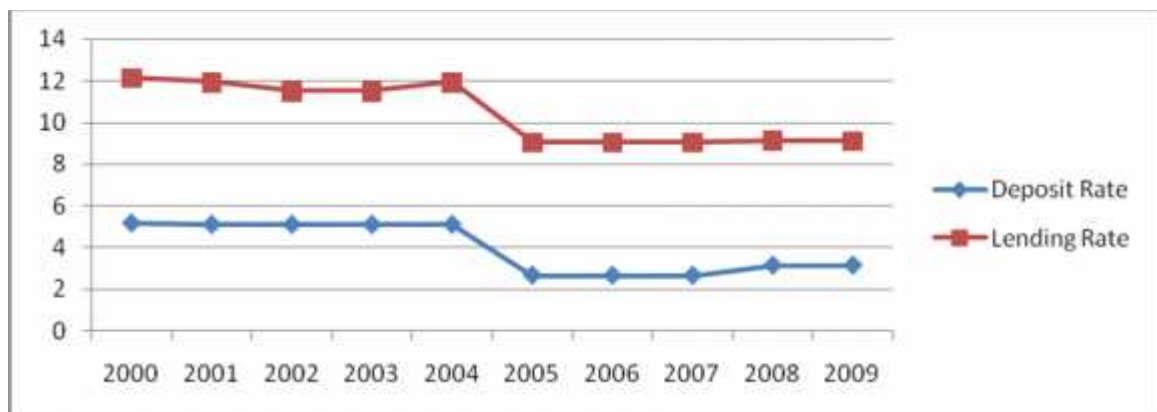
The table 4.5 "C" shows the value of simple correlation coefficient, coefficient of simple determination, multiple correlation coefficients and coefficient of multiple determination and t-statistics of NIBL. The correlation coefficient of both deposit rate and deposit amount and lending rate and lending amount are negatively correlated i.e. **r_{12}=(0.699)** and **r_{34}=(0.757)** which means that with the small increase or decrease in interest rate on deposit and lending will decrease or increase in deposit amount and lending amount. The theory of deposit rate and deposit amount does not match with the result of analysis obtained and that with the increase or decrease in deposit rate deposit amount increase or decrease proportionately. In general, theory there is positive relation between interest rate on and deposit amount. The theory of interest rate on lending match the result obtained from analyses that with the increase/decrease in interest rate on lending, lending amount decrease/increase. That is the theory says there is negative relation between lending rates and lending amount that comes true in aspect of NIBL.

The coefficient of simple determination of both interest rate on deposit and deposit amount and interest rate on lending amount are **r^2_{12}=0.488 and r^2_{34}=0.573** respectively. This indicate that 48.8% and 57.3% of total variation in the dependent variable (deposit amount and lending amount) is explained by independent variable (deposit rate and

lending rate) respectively and remaining effect is due to the effect of other variable in the economy. Test of significance of correlation coefficients between interest rate on deposit and deposit amount makes clear that t-statistics under null hypothesis (t-calculated) 2.7626 is greater than the tabulated value of "t" at 5% level of significance for 5 degree of freedom **2.3060**. Hence, "t" is significant, thus null hypothesis is rejected and alternative hypothesis accepted which states that the two variables (deposit amount and deposits rate) of NIBL are correlated. Similarly, test of significance of correlation coefficient between interest rate on lending and lending amount makes clear that t-calculated **3.2746** is greater than t-tabulated value at 5% level of significance for 5 degree of freedom **2.3060**.Thus, there is significant relation between the two variables; as a result alternative hypothesis is accepted which signifies that the two variables (lending rate and lending amount) of NIBL are statistically correlated.

To make the effect of two independent variables clear deposit amount is taken as dependent variable assuming deposit rate and lending amount as independent. This effect is made clear by coefficient of multiple determinations. The multiple determination of $R^2_{2.14}$**=0.997** indicates that 99.7% of total variation in the dependent variables of NIBL is explained by two independent variables and remaining effect is due to the effect of other variable in the economy. It shows that more percentage of total variation in the dependent variables is explained by two variables and too less percentage is explained by other variables in the economy. Multiple determinations of $R^2_{4.32}$**=0.996** indicates that when lending rate is taken as dependent variable assuming interest rate on lending and deposit amount as independent variable; 99.6% of total variation in the dependent variable (lending amount) of NIBL is explained by two independent variables and remaining is the effect of other variables in the economy.

The correlation of coefficient of r_{13}**=0.985** shows that there is high degree of positive correlation between deposit rate and lending rate of NIBL. Meaning that both rates move in the same direction but the movement in one is more with respect to other. The coefficient of simple determination r^2_{13}**=0.970** indicates that 97.00% of total variation in the dependent variable (lending rate) of NIBL is explained by an independent variable (deposit rate) and remaining percentage is due to the effect of other variable in the economy. Test of significance for correlation coefficient between deposit rate and lending rate of NBBL (t-calculated) 15.9950 makes clear that since, the calculated t-value **15.9950** is greater than tabulated at 5% level of significances for 8 degree of freedom is **2.3060.** Therefore, "t" is more statistically significant, hence null hypothesis is rejected

and alternative hypothesis accepted which means that both the variables (interest rate on deposit and interest rate on lending) of NBBL are statistically correlated.

4.6 Comparative Analysis on Deposit Rates and Lending Rates of Sample Banks

Table 4.6

Statistical tools	HBL	SCBL	NBBL	BOK	NIBL
Average interest rate of all deposits (i.e. highest and lowest rate)	5.50-2.68	4.39-1.72	6.17-4.31	4.75-2.72	5.18-2.65
Standard deviation	0.88	0.873	0.7043	1.1602	1.151
Average interest rate of all credit (i.e. highest and lowest rate)	12.18-7.99	12.12-8.73	13.10-8.86	12.13-9.63	12.13-9.05
Standard deviation	1.222	1.0998	1.5018	0.897	1.3689

The table 4.6 shows the deposit rates (average of all deposits) and lending rates (average of all credits) of sample banks. Similarly, standard deviation is shown which shows dispersion among the interest rate on deposit rate and lending rate of commercial banks with in the ten years time period.

As all the commercial bank are free to set the interest rate on deposit and lending as directed by NRB; interest rate on deposit and lending of all sample banks differ from one another to some extent. From the table above it is clear that highest interest rate on deposit was provided by NBBL in 2000 (i.e. 6.17%) and lowest rate was provided by SCBL (i.e. 4.39%) in 2000. The highest rate on deposit in the year 2005 is of NBBL which is 4.31% which is decreased from 6.17%. similarly, the lowest rate on deposit on the year 2005 is of SCBL (i.e.1.72%).The deposit rates of other five banks lies in between these two rates (i.e. highest and lowest). The standard deviation of 0.7043 from the same table makes clear that within the ten years time period there is less deviation among interest rate of NBBL and standard deviation of 1.1602 makes clear that there is more deviation among interest rate of other commercial banks. It is clear that NBBL provides high interest on deposit comparing other sample banks. It is also clear that SCBL do not concern in collecting deposits as the interest rate on deposit is too less.

Therefore, it can be concluded that interest rate on deposit does not attract depositors; as every year deposit rates of sample banks are seen decreasing.

Similarly, interest rate on lending of all sample banks is also in decreasing trend. The highest rate charged on lending in 2000 is of NBBL (i.e.13.10%) comparing interest rate charged by other banks. The lowest rate charged on that year was 12.12% of SCBL. The lowest rate is charged on lending in the year 2008 is by HBL (i.e.7.99%) and highest rate is charged by BOK (9.63%). The standard deviation 0.897 of BOK shows that within the ten years time period there is less dispersion among lending rates of BOK. Likewise, standard deviation 1.5018 of NBBL shows that there is more dispersion among lending rates of NBBL. It is clear that among the sample banks NBBL charges practical interest on lending comparing other sample banks and NBBL charges high interest rate on lending. It can be concluded that, interest rate on lending attracts borrowers as lending rates of sample banks has decreased from time to time to provide better investment opportunities to the investors.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter is a last part of the research study. In this chapter briefing of whole study is made. This chapter contains summary, conclusion and recommendation of the research study. To know the actual theme of the study, following four chapters viz. Introduction, Literature Review, Research Methodology and Analysis the study is summarized, then, conclusion is drawn following analysis part and comparing the theoretical aspect and analysis. Conclusion part answers whether practically relates to theory. Based on conclusion necessary suggestions are presented in recommendation part i.e. various measures are recommended to concerned organization or party involved in the matter of this study. Recommendation is made with the hope of improving present situation of interest rate structure in Nepalese commercial banks.

5.1   Summary

After the liberalization policy various banks and financial institutions came into existence with a hope to play important role in the development of financial system of the country. Accepting deposit from savers (household, businesses or government) and transferring the collected deposit to the investment sector (i.e. by lending collected amount from depositors to borrowers) is one of the major functions of banking business. Banks are the real intermediaries who transfer savings to the needy investors, so that money can be used in the productive sector for economic development. To collect deposit bank lure savers by providing certain percentage of interest and when amount is loaned outside (which has been collected form savers) certain percentage of interest is charged to them. The proper decision making in charging and providing interest rate affects profit position of bank and even lure depositors and borrowers to deposit and borrow. Even though there are various factors in the economy that effects deposit amount and lending amount; interest rate is one of the major economic indicator that affect deposit and lending amount of banks. With the curiosity to be clear about interest rate structure of commercial banks and to be clear about whether interest rate affect deposit and lending amount, this study is made. With the major objective of showing relationship between deposit rate and deposit amount, lending rate and lending amount, interest rate on deposit and lending this study is undertaken. It is true that NRB has provided some directives relating interest rate, which is to be followed by all banks and finance companies. But it is also clear that commercial banks and finance companies are free to set the interest rate on deposit and lending. There

are various theories relating interest rate and various factors affecting interest rate determination. With the impact of various theories and various economic factors, interest rate fluctuates time to time and which in turn affect deposit amount and lending amount.

The effect of interest on deposit and lending amount and interest rate structure on deposit and lending are analyzed using statistical tools mentioned in chapter three. Secondary data are collected from NRB's economic reports and annual reports of related banks. Analysis shows that there is significant relationship between deposit rate and deposit amount and lending rate and lending amount of almost all commercial banks except HBL (deposit rate and deposit amount) and BOK.

5.2   Conclusion

From the analysis of relevant data of sample banks under study; using various statistical tools: mean, standard deviation, correlation co-efficient and t-statistics following findings have been drawn.

- Deposit rate of all sample banks under study are in decreasing trend: meaning that every year deposit rates of sample banks under study have decreased.

- Lending rates of all sample banks, under study are in decreasing trend; meaning that every year deposit rates of sample banks under study have decreased.

- Analysis shows that interest rates on lending are far higher than deposit of sample banks. The correlation coefficient between these two variables (deposit rate and lending rate) of sample banks comes highly positive.

- The simple correlation coefficient between deposit rate and deposit amount of 3 sample banks comes highly negative and other 2 banks (HBL and BOK) comes moderately negative. Here, the real theory which says with the interest rate increase in deposit amount of bank deposit of bank is also increase and vice-versa does not match the analysis (decrease in interest rate increase the deposit amount and vice versa).Hence, it can be concluded that this result appears in this study because there may be various other factors in the economy such as investment opportunities and money supply which affect deposit amount: which are to be analyzed further.

- The correlation analysis between lending rate and lending amount of 3 sample banks under study comes highly negative and 2 sample banks (i.e.

NBBL and BOK)comes moderately negative. This relation between two variables (lending rate and lending amount) of sample banks matches with the theory which says with the increase in lending rate, lending amount decreases and vice versa. Hence, it can be concluded that lending rate affects lending amount to large extent. Lending rate is the most important determinant of loan and advances of all commercial banks. This makes clear that borrower's seem more interest conscious.

) The multiple determination ($R^2_{2.14}$) of 5 sample banks under study from the analysis makes clear that to large extent total variation on dependent variable (deposit amount) has been explained by two independent variables (deposit rate and lending amount) and less percentage of variation is due to the effect of other factors in the economy.

) The multiple determination ($R^2_{4.32}$) of 4 sample banks under study form the analysis makes clear that to large extent variation on dependent variable (lending amount) has been explained by two independent variables (lending rate and deposit amount) and less percentage of variation is due to the effect of other factors in the economy.

) The Multiple determination ($R^2_{4.32}$) of BOK comes 0.558 explains that 55.80% total variation on dependent variable (lending amount) has been explained by two independent variable (lending rate and deposit amount and remaining percentage of variation is due to the effect of other factors in the economy.

) Test of significance for correlation coefficient between deposit rate and deposit amount of 3 sample banks comes significant and that of HBL and BOK comes insignificant; meaning that there is no correlation between deposit rate and deposit amount of HBL and BOK. Hence, it can be concluded that population correlation coefficient between deposit rate and deposit amount is significant as there is significant relationship between these two variables of almost all sample banks.

) Test of significance for correlation coefficient between Lending rate and lending amount of 4 sample banks comes significant and that of BOK comes insignificant; meaning that there is no correlation between lending rate and lending amount of BOK. Hence, it can be concluded that population correlation coefficient between lending rate and lending amount is significant as there is significant relationship between these two variables of almost all sample banks except BOK.

At the end it can be said that whether interest rate has positive or negative effect with the deposit amount and lending amount; it is one of the major variable which affect deposit amount and lending amount of commercial banks to large extent. Besides, there are few other factors also in the economy which has less effect of deposit amount and lending amount of sample banks, but those other factors are not covered by this study.

5.3   Recommendation

After making analysis and drawing conclusions it is thought that there are some recommendations (suggestions) which would be helpful in near future for the bankers, researcher, and academicians, which are as follows:

- The central bank of Nepal, NRB should pay special attention in matter for prescribing certain provisions and rules regarding percentage of interest payment on lending as the lending rates of all sample banks, which are high as compared to deposit rates.

- There is inconsistency in payment and charging of interest rates. This may create misconception about the organizations regarding its financial position and profit. So, banks are suggested to fix concessional rates on lending so that it can increase investment opportunities and promote industrial sector.

- As NRB's publications are the major source of data and information regarding this topic, untimely and late publications makes the researcher wait long and even individual banks do not put available information regarding interest rate structure on their annual report. So, NRB and even individual commercial banks are suggested to publish all necessary publication in time and their own publications respectively for the convenience of researcher and other interested people.

- 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 commercial banks are suggested to set proper and practical interest rate policy.

- As, financial institution deals with public money i.e. collect deposits from various sectors and lend collected money to various investment sectors; active supervision, and credit monitoring role of NRB is hoped that it will be more useful for balanced operations of financial system in the country.

- Future researchers are suggested to make more explanatory research in this topic.

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Annex 1

Calculation of Average of Interest rate on Deposit of HBL.

Deposit Types	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Savings	5.25	4.25	4.00	3.75	3.75	3.38	2.00	2.00	2.00	2.25
Fixed	-	-								
7 Days										
14 Days	3.00	2.50	2.30	2.30	2.30	1.75	1.75	1.75	2.00	2.50
1 Months	4.50	3.50	3.30	3.30	3.30	2.00	2.00	2.00	2.25	3.25
2 Months	0.00	4.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3 Months	5.13	4.50	4.00	3.75	3.75	2.50	2.50	2.50	2.50	3.75
6 Months	6.00	5.75	4.25	4.00	4.00	3.75	3.00	3.00	3.25	4.50
1 Year	6.88	7.00	5.50	5.25	5.25	3.75	3.75	3.75	5.00	6.50
2 yrs/Above	7.75	5.75	6.00	5.75	5.75	3.75	3.75	3.75	5.38	7.60
Total (X)	38.51	37.50	29.35	28.10	28.10	20.88	18.75	18.75	22.38	30.35
Number (N)	7	8	7	7	7	7	7	7	7	7
Mean (X)	5.50	4.69	4.19	4.01	4.01	2.98	2.68	2.68	3.20	4.34

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

$$=38.51/7$$

$$=5.50$$

Where,

X= Sum of all values of the variable 'X'=38.51=Deposit rates 2000.

N= Number of observation = 7

Mean (X) = Variables involved = Deposit rates 2000.

Calculation of Standard deviation of Average Interest Rate on Deposit of HBL

Year	Average Interest (X)	(X-X)	(X-X)2
2000	5.5	1.672	2.795584
2001	4.69	0.862	0.743044
2002	4.19	0.362	0.131044
2003	4.01	0.182	0.033124
2004	4.01	0.182	0.033124
2005	2.98	-0.848	0.719104
2006	2.68	-1.148	1.317904
2007	2.68	-1.148	1.317904
2008	3.2	-0.628	0.394384
2009	4.34	0.512	0.262144
Total	**x=38.28 and X=3.828**		**(x-X)^2=7.74736**

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

=0.88

Note: Similarly average rate on lending and standard Deviation on average rate on lending is calculated.

Calculation of Correlation Coefficient between Deposit Rate and Deposit Amount of HBL

Correlation-coefficient between deposit rate (1) and deposit amount (2) (r_{12})

Year	Deposit Rate (1)	Deposit Amt (2)	Lending Rate (3)	Lending Amount(4)	1*2	1^2	2^2
2000	5.50	14,082.50	12.18	7,423.20	77,453.75	30.25	198,316,806.25
2001	4.69	17,613.60	11.00	9,176.90	82,607.78	22.00	310,238,904.96
2002	4.19	18,595.20	10.83	9,673.50	77,913.89	17.56	345,781,463.04
2003	4.01	21,002.80	10.66	11,074.20	84,221.23	16.08	441,117,607.84
2004	4.01	22,760.90	10.58	13,081.70	91,271.21	16.08	518,058,568.81
2005	2.98	24,831.10	9.44	13,245.00	73,996.68	8.88	616,583,527.21
2006	2.68	26,456.20	9.37	15,515.70	70,902.62	7.18	699,930,518.44
2007	2.68	29,905.80	8.30	17,672.00	80,147.54	7.18	894,356,873.64
2008	3.20	31,805.30	7.99	19,985.20	101,776.96	10.24	1,011,577,108.09
2009	4.34	34,680.96	9.69	25,292.07	150,515.37	18.84	1,202,768,986.52
N=10	38.28	241,734.36	100.04	142,139.47	890,807.02	154.28	6,238,730,364.80

$$Simple\ Correlation\ Coefficient = \frac{n\sum XY - \sum X\sum Y}{\sqrt{n\sum X^2 - (\sum X)^2}\sqrt{n\sum Y^2 - (\sum Y)^2}}$$

$$(r_{12}) \qquad = (0.624)$$

Where,

N= Fiscal Year=10

XY= Summation of Variables "1" Multiply "2"=890807.02

X = Sum of Variable "1"= 38.28

Y = Sum of Variable "2" = 241734.36

X^2 = Sum of Squares of Variable "1" =154.28

($X)^2$ = Sum of Squares of summation "1" Variable = 1465.358

Y^2 = Sum of Squares of Variable "2" = 6238730364.80

($Y)^2$ = Sum of Squares of summation "2" Variable = 58,435,500,804.61

$$\text{Multiple Correlation Coefficient } (R_{2.14}) = \sqrt{\frac{r_{12}^2 + r_{24}^2 + 2r_{12}r_{24}r_{14}}{1 - r_{14}^2}}$$

$$= 0.9978$$

Where,

$(R_{2.14})$ = Multiple Correlation Coefficient assuming Variable "2" (Deposit Amount) as dependent variable and other two variables "1" and Variable "4" (i.e. Deposit Rate and Lending Amount) as Independent Variables.

r_{12} = Correlation Coefficient between variable "1" and "2" = (0.624)

r_{24} = Correlation Coefficient between variable "2" and "4" = 0.976

r_{14} = Correlation Coefficient between variable "1" and "4" = (0.405)

$(r_{12})^2 = 0.3899$

$(r_{24})^2 = 0.9524$

$(r_{14})^2 = 0.2022$

T-statistics under null hypothesis

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

$t_{12} = 3.003$

Where,

r = correlation coefficient between deposit rate (1) and deposit amount (2) = (r_{12}) = (0.728)

r^2 = Coefficient of Determination = $(r_{12})^2 = 0.530$

n = No. of Year = 10

Note: As calculated above correlation coefficients between lending rate and lending amount, deposit rate and deposit amount are calculated. In the similar manner as calculated above multiple correlations, multiple determination and t-value for these variables are calculated.