CHAPTER - I
INTRODUCTION

1.1 General Background

Nepal is an economically weak country situated between two huge developed countries. As being developing country, Nepal is striving to develop and modernize her economy rapidly on rational and socially desired footings. But the structure of the economy has still remained primarily agricultural with very small manufacturing base. So, it is essential to divert and modify agro based economy. Nepal has adopted mixed and liberal economic policy with the implicit objective to help the state and the private sector, on the ground of open and liberal eco system.

Especially after restoration of the democracy, the concept of the liberalization policies has been incorporated as directive principle and state policies. The continuing thrust to the development of Nation has helped in establishing many company banks, financial institution and manufacturing industries. Thus this establishment helps the country for its development in some level but for actual economic development, capital formation and utilization are the two major things that should be essential for the investment in a country. The formation and utilization of capital are shaped by many factors like prosperity of country, lending-deposit pattern, and interest rate and so on. In modern economy Banks and financial institutions plays the major role for capital generation and utilization. In other words they take part actively in funds mobilization. Keeping other factors constant, interest rate also plays the dominant role in borrowing and lending.

Financial institution collects funds mainly from deposits (time and saving deposits) which are ultimately used as a part of capital investment in country. Thus the problem of inadequate of capital formulation is somehow wiping out by collecting more deposits from the savers (households, business and government).More precisely personal saving is the part of disposable income, which is not consumed. Saving equals income minus expenditure. The people having more income save more than people having less income do. In general, Household saves more than that of business and government. For

household, saving equals to current income minus current expenditure. For business sector savings include current earnings retained inside business firms after payment of taxes, stockholder's dividend and other expenses. Government saving arise where there is a surplus of current revenue over expenditure. To induce more saving, financial institution can play a vital role by providing attractive interest rate and other offer a different scheme. The people of the least developed countries are not much concerned about saving as most parts of earnings are spent in hand to mouth consumption. Even if some people are able to save their money, they show their interested to invest such surplus funds on non-productive sectors like gold, land, vehicles and so on. Banks and financial companies, as intermediaries, can attract savers to save more by providing them attractive interest rate and accept the deposit.

Financials institution provides loan to borrowers who are in need of money from the money accumulated in the form of deposit and capital of bank while granting loan. Bank charges a certain percentage of interest to the borrower and borrower has to pay the interest for using banks money. Interest on loan also varies according to the nature of loan, whether loan is of short term or long term. An appropriate interest rate structure greatly affects the collection of deposits, mobilization of saving (only in productive sector) and profit position of any financial institution, which in turn, affects the economic up liftmen of the whole country.

1.2 Focus of the Study
The observed and the most focusable part of the study is the effect of interest rate on lending and the deposit, as we know that there is a reverse relation between lending and deposit in the case of interest rate, when the interest rate is increase deposit will increase and when the interest rate is decrease lending will increase and vice versa. Interest rates send price signals to borrowers, lenders, savers and investor. For example, higher interest rates generally bring forth a greater volume of savings and stimulate the lending of funds. Lower rates of interest on the other hand, tend to dampen the flow of savings and reduce lending activity but increase the demand for loan. Higher rates tend to reduce the volume of borrowing and capital investment and lower rates stimulate borrowing and investment

spending (Rose, 1997:124). Hence economic growth depends upon circulation of money and financial system facilitates it.

We know that inflation is also another important factor in the financial market. All countries in the world have some magnitude of inflation. While this study is being conducted, the existing inflation rate in our country is around 5%. According to Irving Fisher, inflation rate is added to real rate of return to determine the market interest rate. So higher the inflation, higher will be the interest rate.

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

1.3 Statement of the Problems

Interest has direct relation with economic growth and development. According to economic theory (other things remain constant), low interest is impetus for high investment. And this high investment leads to high production, high employment, more income and ultimately growth in economy. So by this study it is going to explore: Does decline in interest rate increases the lending activities? Or what is the actual condition on this regard in Nepalese financial market place? If the condition is not as per theory then- what are the possible causes for such effects? Focusing on the Nepalese context, the investment is low in productive sectors due to unavailability of sufficient finance, security and other factors. Nepal's main export is basically raw materials. It means that Nepal is exporting raw materials instead of producing goods and services from these. If cheap financing is available, many factories could be established to reap benefits from utilization of resources, which would increase the employment, standard of living and status of country economy.

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

More specifically, this study seeks to solve the answer for following question.

    a. Does substitution effect is practical in the context of Nepal or not? In other words what is the effect of high interest rate on savings (deposits)?

    b. Are borrowers of Nepalese market sensitive to the interest rate of credit? Alternatively, what is the relationship between interest rate and borrowing amount?

    c. What is the magnitude of correlation between interest rate and inflation? In other words, does inflation has high positive or negative relation with interest rate in Nepalese context?

1.4 Objectives of the Study

The major objective of the study is to investigate the relation of interest rate with other three variables, Deposit, Inflation and Credit (Lending) that are currently prevailing in Nepalese market. Similarly this study also aims to identify whether the theories that are taught in university courses are applicable or not in Nepalese context. TO fulfill this main objective following sub-objectives have been formulated:

    a. To explore the relation of interest rate with deposit amounts (existence of substitution effect) in Nepalese market.

    b. To identify the sensitivity of interest rate to the investment (borrowing).

    c. To find out the relationship of interest rate with inflation in Nepalese market.

    d. To suggest for the improvement on the basis of findings of the study.

Interest Rate

Interest rate is one of the important tools for shaping economy. It plays the dominant role in borrowing and lending. Simply, interest rate is defined as price a borrower must pay to secure scarce lonable funds from lender for an agreed-upon period. It is the price of credit. But unlike other prices in the economy, the rate of interest is really a ratio or two quantities: the money cost of borrowing divided by the amount of money actually borrowed, usually expressed on an annual percentage basis. The cost of borrowing money, measured in rupee per year borrowed, is the interest rate (Samuelson & Nordhus, 2003:469). When we examine how money affects economic activity, we will focus on the interest rate, which is often called "The price of money". Interest is rent paid for the use of money. In other words, people must pay for opportunity to borrow money. Financial institutions, as financial intermediaries, collect funds from savers in the form of deposit and provide that for business sector in the form of loan. These institutions pay the interest to the depositors for the money borrowed from and charge interest from the borrower for money lend to them. As any price is determine, theoretically, by the interplay of demand and supply in a market economy, the price of money-the interest rate-plays a vital role in the allocation of resources and in the decision making of consumers and business. For example, an increase in the interest rate provides additional incentives to individuals and others to postpone current consumption (save) and thereby free resources for investment. Interest rates send price signals to borrowers, lenders ad savers. Higher interests rates generally bring forth a greater volume of savings and stimulate the lending of fund i.e. Substitution effect**.** Lower rate of interest, on the other hand, tends to reduce the volume of borrowing and capital investment and lower rates stimulate borrowing and investment spending (Rose, 1997:27). Investment is function of interest rate. The impact of interest rate is on both the saving and investment in the economy. Further the borrowings and savings are always influenced by the interest rates. The cost of production, which depends upon the function, is influenced by the interest rate. Since the credit is also one of the components of production process. /The incomes and expenditures of the variable sectors of the economy result in excess savings or excess investment in each of the sectors (Shakespeare, 1990: 17).

Before studying relationship between interest rate and other factors, it is better to know average structure of interest rate that were prevailed in the country during the past four years. Though the detail about this are analyzed in chapter four, but the table tries to give the glimpse of the lending rate and deposit rate of different financial institutions:

Table 1.1

Structure of Interest Rates

	Mid July			
	2005	**2006**	**2007**	**2008**
Nepal Rastra Bank				
Bank Rate	7.5	5.5	5.5	5.5
Refinance Rates	6.5-7.5	2.0-5.5	2.0-5.5	2.0-5.5
Government Securities				
Treasury bills (91 Days)	4.94	3.78	2.98	6.8074
National Saving certificates	8.5-13.25	8.0-13.25	7.0-13.0	
Development bonds	3.0-10.5	3.0-8.0	3.0-8.0	
Inter bank rate	4.73	1.96	4.5	6.3334
Commercial banks				
Deposit rates				
Saving deposit	3.0-6.5	2.5-6.25	2.5-6.0	2.0-7.0
Time deposit	----			
1 month	----	2.0-4.5	2.0-5.5	2.0-3.5
3 Month	2.5-6.0	2.5-5.0	2.5-5.0	2.0-4.0
6 Month	3.5-8.75	2.5-6.0	2.5-6.0	2.5-4.5
1 Year	4.5-7.75	3.5-7.0	3.0-7.0	2. 5-7.25
2 Year and above	4.25-8.5	3.25-8.0	3.25-7.5	2.75-7.75
Lending Rates				
Industry	7.0-15.0	7.0-14.0	8.5-14.0	7.0-13.0
Agriculture	12.5-14.5	12.0-14.0	10.5-14.5	9.5-12.0
Export bills	7.0-16.0	6.5-12.0	4.0-12.5	6.0-11.5
Commercial loans	7.0-16.0	7.0-16.0	7.5-16.0	8.0-13.5
Overdrafts	10.0-18.0	11.0-17.0	10.0-17.0	6.5-13.5
Cash reserve ratio]				
With NRB	7.0	6.0	6.0	5.5
Cash in vault	3.0	3.0	2.0	---

From the table 1.1, both lending and deposit rates are declining (except the National Saving Certificates) during the period of 2005 to 2008 mid-July. This may be due to the decline in the interest rate on Government securities i.e. Treasury Bills. According to table, the interest rate of T-Bills has been drastically increased from 4.94% per annum to 6.8074% per annum. As per principle, interest rates of T-Bills, are the bases for all kinds of interest rate, so decline in interest rate may leads to decline in interest rate of others. The interest rate of National Saving Certificates remains less volatile than other during the four year period. Similarly the interest rate of development bond remains almost same for the four periods.

Similarly internal interest was 4.73% on 2005mid July but it increased to 6.3334% when it came during the Mid-July of 2008. It seems that Nepalese commercial banks have excess liquidity. The most of the commercial bank classified their deposits into two sections- Saving Deposits and Time Deposits and offered the different interest rate on them. Talking about saving deposits, the interest rate ranges from 3.0% to 6.5% in the year of 2005 but this rate inclined to the range of 2.00% to7% when it came to the year of 2008. In the Nepalese economy time deposits are classified in five categories:1 month , 3month, 6 months, 1 year and 2 years and above. In one month time deposits interest rate remains almost same .Though the table shows the decreasing in interest, but it shows that spread between maximum and minimum rates narrow down by 1% when it comes from 2006 to 2008. For 3 months time deposit rate, the maximum interest rate range was 2.5% to 6% in 2001 where as this rate reached to the range of 2% to 4%. Similarly the 6 months time deposit rates also shows the decreasing tendency. The lowest range was 3.5% at the beginning but t reaches to and became stable at 2.5% up to 2008. In case of 1 year's rate the lowest range rate fluctuates more than maximum range of same. From figure it is clear that, in 2002 the lowest range rate was 4.5% but this rate falls up to 2.75% when it was 2005. But there was less fluctuation in maximum range i.e. it fell to 6.0% from highest 7.75%. At last, for 2 years and above interest rate, maximum range fell by 2% where as the minimum range fell just by 1, 25% during 4 years period.

1.5 Limitations of the Study

As a master degree thesis this study certainly has limitation. This study is limited by followings:

i. Only one factors-interest rate-is taken for the study. Impact of other aspects (factors) besides interest has not been studied.

ii. Stipulated time and resources also may have existed as limitation of this study.

iii. Reliability of this study depends upon the accuracy of published data and the genuineness of respondent.

iv. The samples have been drawn at random for convenience, so there may exit some sampling error. And the sample size may not be sufficient to generalize the findings.

v. This study covers only seven fiscal years.

vi. The sample are taken only from commercial banks, other financial intermediaries are not included in the study.

1.6 Organization of the Study

There are five chapters in this thesis which consists the following chapters:

Chapter one is "Introduction Chapter" consists of the background/ objective/ significance/ limitation of the study with a brief description of the Nepal Rastra Bank and Interest rate policy and statement of problems.

Chapter Two is "Review of Literature" with the knowledge of interest rate, factors affecting/ theories of interest rate.

Chapter Three is "Research Methodology" with research design, study of population and sample presentation and analysis of tools and methods and procedure of data collection.

Chapter four is "Data Presentation and Analysis"

Finally, Chapter Five is "Summary, Conclusion and the Recommendation" of the study.

CHAPTER - II
LITERATURE REVIEW

2.1 Conceptual Framework

Interest rate is one of the important variables in economics and financial system of the country. In common parlance interest is a payment made by a borrower to the lender for the money borrowed and is expressed as a rate percentage per year. But in economics widely different views have been put forth from the time of Aristotle to the present day. Aristotle recognized only animal husbandry and stock rising as two legitimate industries whose products could be lent and interest earned on them. In economics interest has been defined in a variety of ways. Commonly interest is regarded as the payment for the use or service of capital. If retained by owner, it can be used by him for further production and the additional product he gets through the employment of this capital includes interest. If he had lent his capital to some one else, he would have received interest in returns. As Carver said," Interest is the income which goes to the owner of capital." According to classical economists "it is only by postponing consumption that capital can be created".(cooper, Kerry S. & Fraser Donald R. 1983: 152). Since to abstain from consumption is disagreeable and painful, the lender is paid a reward in the form of interest. When people abstain from consumption they save and thus interest becomes the reward fro 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 America considered interest to be the "agio" or the premium for time preference. People prefer present to the future and hence they attach more importance to present goods. In order to induce them to postpone enjoyment of goods in the present to the future, they must be compensated in the form of interest. Interest is thus the difference between the present enjoyment and future enjoyment of some goods. The neo-classical economists however defined it as the price for the use of lonable funds. But the modern economists in their effort to avoid these divergent and controversial views about the nature of interest, have explained it in terms of productivity, saving, liquidity preference and money. In other words, interest is

simultaneously the reward for the pure yield of capital, of saving for the forgoing of liquidity and the supply of money.

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 resources 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, lenders, savers and investors. For example higher interest rate generally brings forth a greater volume of savings and stimulated the lending of funds. Lower rates of interest on the other hands, tend to dampen the flow of savings and reduce lending activity. Higher interest rates tend to reduce the volume of borrowing and capital investment and lower interest rates stimulate borrowing and investment spending. The rate of interest, according to Keynes, is a purely monetary phenomenon, a rewarded for parting with liquidity, which is determined in the money market by the demand and supply of money. In Keynes' monetary theory he has presented a proposition that the rate of interest influences the level of economic activity by first influencing the rate of real investment in the economy. According to him the real investment is in fixed capital or durable machines. Shculz 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 of 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 developing economy such as ours. When such amendments are introduced without thinking seriously, there spread more negative effects than positive. There are different interest

rates in the financial system. Even securities issued by the borrower often carry a variety of interest rates. Some common types of interest rate are as follows: (Jhingan 2000:622)

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 reward 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 roles can be notices 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. Its 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.

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2.2 Theories of Interest Rate

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

2.2.1 The Classical Theory of Interest Rates

One of the oldest theories concerning the determinants of the pure or risk-free interest rate is the classical theory of interest rates, developed during 18th and 19th centuries by a number of British economists and elaborated by Irving Fisher (1930) earlier in this century. The classical theory argues that the interest is determined by two forces: first is supply of savings, derived mainly from households, and second the demand for investment capital, coming mainly from the business sector (Rose, 2003:114).

Savings by Households

Individuals and families carry out Most of the saving in modern industrialized economics. For these households, saving is simply abstinence from consumption spending. Current savings therefore are equal to the difference between current income and current consumption expenditures. In making the decision on the timing and amount of saving to be done, households typically consider several factors: the size of current and long-term income, the desired savings target, and the desired proportion of income to be set aside in the form of savings (i.e., the propensity to save). Generally the volume of household savings rises with income. Higher income families and individuals tend to save more and consume less relative to their total income than families with lower incomes. Although income levels probably dominate saving decisions, interest rates also play an important role. Interest rates affect an individual's choice between current consumption and saving for future consumption. The classical theory of interest assumes that individuals have a definite time preference for current enjoyment of goods and services over future enjoyment. Therefore the only way to encourage an individual or family to consume les now and save more is to offer a higher rate of interest current savings. If more were saved in the current period at a higher rate of return, future consumption and future enjoyment would be increased. Higher interest rates increase the

attractiveness of saving relative to consumption spending, encouraging more individuals to substitute current saving (and future consumption) for some quantity between interest rates and the volume of savings. Higher interest rates bring forth a greater current volume of savings.

Savings by Business Firms

Not only households, but also businesses, save and direct a portion of their savings into the financial markets to purchase securities and make loans. Most business hold savings balances in the form of retained earnings. In fact, the increase in retained earnings reported by businesses each year is a key measure of the volume of current business saving. And these retained earnings supply most of the capital for annual investment spending by business firms. Saving depends on two key factors; the levels of business profits and the dividend policies of corporations. These two factors are summarized in the retention rate, the ratio of retained earnings to net income after taxes. This ratio indicates the proportion of business profits retained in the business for investment purposes rather than paid out as dividends to the owners. Experience has shown that dividend policies of major corporations do not change very often. Many corporations prefer 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 markets for funds. The result is a reduction in the demand for credit and a tendency toward lower interest rates. On the other hand, when profits fall but firms do not cut back on their investment funds. The demand for credit rises, and interest rates may rise as well. Although the principal determinant of business saving is profits, interest rates also play role in the decision of what proportion of current operating costs and long-term investment expenditures should be financed internally and what proportion externally. Higher interest rates in the money and capital markets typically encourage firms to use internally generated funds more heavily in financing projects. Conversely, lower interest rates encourage greater use of external funds form the money and capital markets.

Savings by Government

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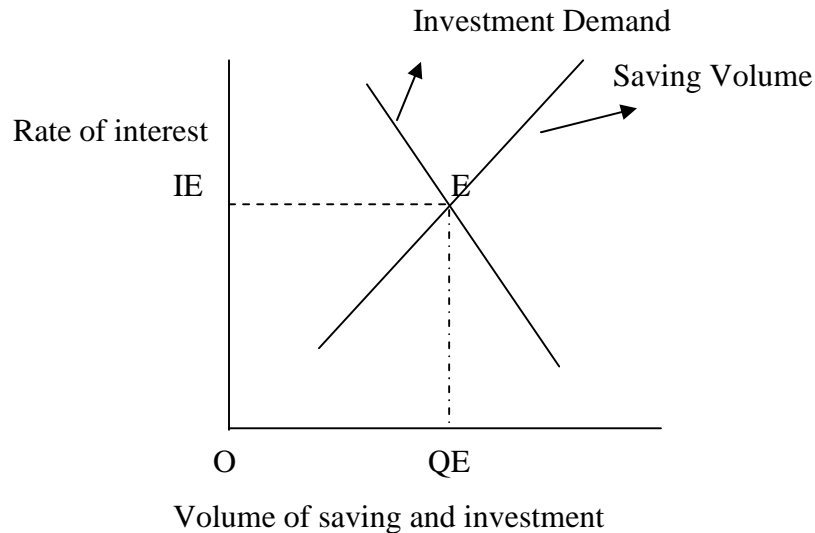
The Demand for Investment Funds

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 building and other physical facilities. The majority of business expenditures for these purposes consist of what economists call replacement investment, i.e. expenditure to replace equipment and facilities that are wearing out or are technologically obsolete.

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

Fig.2.1

Classical theory of equilibrium rate of interest

Investment Demand

Saving Volume

Rate of interest

IE   E

O   QE

Volume of saving and investment

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. Similarly if the market rate lies temporarily below 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 productivity of capital-factors that tend to change slowly. During the 1930s, British economist John Maynard Keynes (1936) developed a short-term theory of the rate of interest that, he argued, was more relevant for policy markers and for explaining near-term changes in interest rates. This theory is known as liquidity preference theory of interest. In this theory interest is the interplay of demand for liquidity and supply of money.

The Demand for Liquidity

Keynes argued that the rate of interest is really a payment for the use of scarce resources, money. Businesses and individuals prefer to hold money for carrying out daily transactions and also as a precaution against future cash needs even though its yield is low or nonexistent. Investors in fixed-income securities, such as corporate and government bonds, frequently desire to hold money as a haven against declining security prices. Interest rates therefore are the price that must be paid to induce money holders to surrender prices. 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 deposit). Money provides perfect liquidity (instant spending power): bonds pay interest but cannot be spent until converted into cash. If interest rates raise, the market value of bonds paying a fixed rate of interest falls; the investor would suffer a capital loss if those bonds were converted into cash. 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 if interest rates were expected to rise, because rising rates can result in substantial losses for investor 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 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 figure 2, the equilibrium rate is found at point E, where the quantity money demanded by the public equals the quantity of money supplied.

Figure 2.2

The Equilibrium Rate of Interest in the Liquidity Preference Theory

Quantity of Money Demanded and Supply
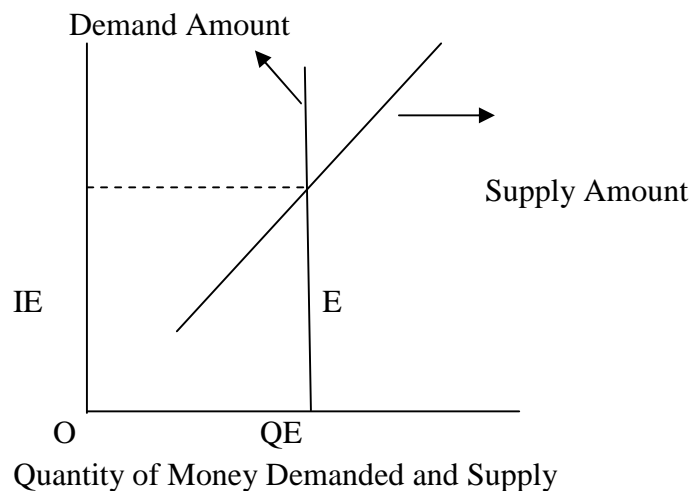
From the given figure we could more clear about quantity of money demanded and supply. Here, the supply of money exceeds the quantity demanded, and some business, households, and units of government will try to dispose of their unwanted money balances by purchasing bonds. The price of bonds will rise, 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 insights into investor behavior and the influence of government policy on the economy and financial system. Liquidity preference theory illustrates how central banks such as Federal Reserve System can be 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 the 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 lonable funds theory of interest rates. This view argues that the risk-free rate is determined by the interplay of two forces: the demand for and supply of credit (lonable funds). The demand for lonable funds consists of credit demands from domestic businesses, consumers and governments and also borrowing in the domestic market by foreigners. The supply of lonable 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.

Total Demand for Lonable 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 non-price terms of loan, such as the down payment, maturity, and the size of installment payments. This implies that consumer demand for credit is relatively business attempt to increase their cash balances at the expense of others. Hoarding reduces the volume of 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 occurs. Some individuals 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 lonable funds, which must be added to the amount of savings and the disordering of money balances to derive the total supply of lonable funds in the economy. Finally foreign lenders provide large amounts of credit to domestic borrowers in the United States. If domestic rates rise relative to interest rates offered abroad, the supply of foreign funds to domestic markets will tend to rise. At the same time domestic borrowers will turn more to foreign markets for lonable funds as domestic interest rates climb relative to foreign rates (Ibid, 1999:129).

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.

Figure 2.3

The Equilibrium Rate of Interest in the Lonable Funds Theory
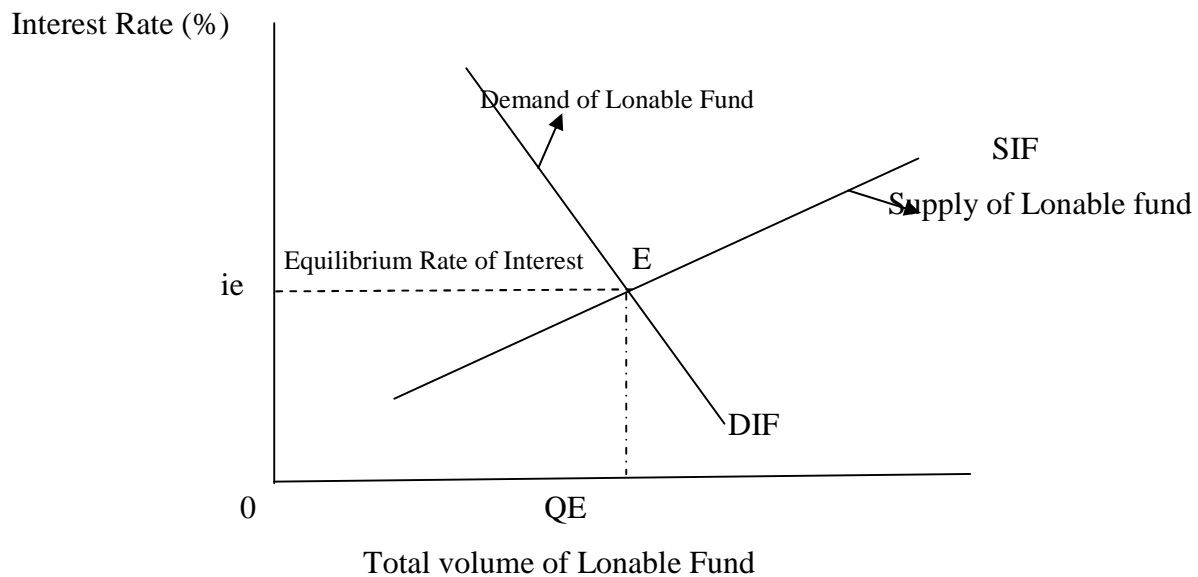
In the given figure DIF stand as a total demand of lonable fund and the SIE refer Supply of the lonable fund, If the interest rate is temporarily above equilibrium, the quantity of lonable funds supplied by domestic savers and foreign lenders, by the banking system and from the disordering of money exceeds 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 (Ibid, 2001:132). 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 conclusions of the rational expectations theory are that the prices 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 zero; expectations concerning future security prices and interest rates are formed efficiently. The rational expectations view argues that forecasting interest rates requires knowledge of the public's current set of expectations. 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 (Ibid 200:132).

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 applied 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 identify 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 interest rates.

2.3.1 Impact of Economic Growth on Interest Rates

A result of more optimistic economic projections, most business increases their planned expenditures for expansion, which translates into additional borrowing. The aggregate demand schedule would shift upward (to the right). The supply of 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 (figure "1"). The shift in the aggregate demand schedule to DA_2 in the exhibit causes an increase in equilibrium interest rate to 'I'. (Jeff 2001:27)

Figure 2.4

Quantity of Lonable Fund According to Demand and Supply

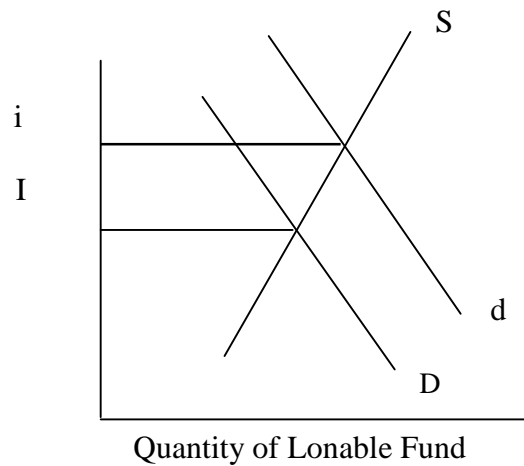| **Figure 1** | **Figure 2** |

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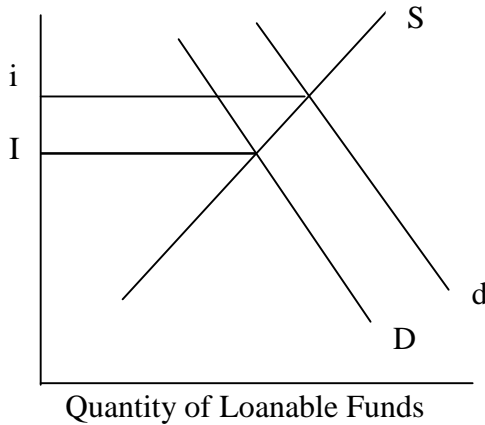
Here, it is considered that how a slowdown in the economy would affect the demand and supply schedule. The demand schedule would shift inward to the left reflecting less demand for loanable funds at any possible interest rate. The supply schedule could possibly shift a little, but it is questionable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

2.3.2 Impact of Money Supply of Interest Rates

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

2.3.3 Impact of Budget Deficit on Interest Rates

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

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

2.3.4 Impact of Inflation on Interest Rate

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

2.3.5 Impact of Deflation on Interest Rate

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

2.3.6 Impact of Default Risk

Another important factor causing on 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). (www.wekipedia/riskdefult.current.htm)

2.3.7 Marketability and Liquidity

Marketability and liquidity feature of financial assets closely influences rate of interest or yield. A liquid financial asset is readily marketable. Marketability is the capability of being sold quickly at low transaction costs. Even if an asset is marketable it is not liquid if selling immediately rather than waiting to sell, involves an expected loss. In addition its price tends to be stable over time and it is irreversible. Because the liquidity feature of financial assets lowers their risk. So, liquid and marketable assets carry lower interest rates than illiquid and less marketable assets.

2.3.8 Reinvestment Risk

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

2.4 How Open Market Operation Affect Interest Rate

Even though interest rate are market determined the government can   have strong influence on these rate by controlling the supply of loanable funds, when the government

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

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

2.5 Term Structure of Interest Rates
The term structure of interest rates refers to the relationship between market rates of interest on short-term and long-term securities. Long term rates tend to change gradually over time while short term interest rates are highly volatile and often move over wide ranges. It is the interest rate difference on fixed income securities due to differences in time of maturity. It is also known as time structure or maturity structure of interest rates, which explain the relationship between yields and maturities of the same type of securities. Short-term interest rate varies per day, per week, per month, per year and to

the maximum numbers of year for which it may be considered is three years (Shakespeare, 1997:31). However, three years is usually too long for short-term purpose. The short term rates may be defined as interest rate of the bank, the Treasury bill rate, the call money rate, the short term deposit rate and the commercial bank rate or any other rates applies by commercial banks and organizations.

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

2.6 Concept of Deposit

Deposit is a sum of money lodged with a bank, discount house or other financial institution (Shrestha, 1998:281) . Deposit is nothing more than the assets of an individual which is given to the bank of safe-keeping with an obligation to get something (interest) from it. To a bank these deposits are liabilities. Commercial bank Act 2031 (1974) defines "Deposits" as the amount deposited in a current, savings or fixed accounts of a bank or financial institution (Bhandari, 2003:73). The deposits are subject to withdraw by means of cheque or on a short notice by customers. There are several restrictions on these deposits, regarding the amount of deposit, number of withdrawal etc. They are used more as investments and hence they earn some interest. The bank attracts deposits from customers by offering different rates of interest and different kinds of facilities. Though the bank plays an important role in influencing the customer to part with his funds and open deposit accounts with it, it is ultimately the customer who decides whether s/he should deposit his surplus funds in current deposit a/c, saving deposits or fixed/time deposit a/c. Bank deposits arise in two ways. When the banker receives cash, it credits the customer's account, it is known as a primary or a simple deposit. People deposit cash in the banking system and thereby convert one form of money, cash into another form, bank money. They prefer to keep their money in deposit accounts and issue cheque against them to their creditors. Deposits also arise when customers are granted accommodation in the form of loans. When a bank grants a loan to a customer it doesn't usually pay cash

but simply credits the customers account with the amount of loan. Of course, there is nothing that prevents the borrower from withdrawing the entire amount of borrowing in cash but quite often s/he retains the amount with the bank in a deposit.

2.6.1 Types of Deposit

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

Current Deposit

A current deposit is a running account with amounts being paid into and drawn out of the account continuously. These accounts are also called demand deposits or demand liabilities since the banker is under an obligation to pay money in such deposits on demand. The account never becomes time barred, because the limitation does not run until a demand is made by the customer on the bank for the payment of deposit. These accounts are generally opened by business houses, public institutions, corporate bodies and other organization whose banking transactions are numerous and frequent. As these deposits are payable on demand, banker is obliged to keep larger cash reserves than are needed in the case of fixed and savings deposits. This type of account is just a facility offered by the bank to its customers. So such deposit doesn't yield any interest return.

The deposit in which an amount is immediately paid at the time of any account holder's demand is called demand deposit. Its transaction is continual & a very small portion of such deposit can be invested in the productive sector. Though the bank cannot gain significant profit by investing it in new sector, this is one of the facilities given to the customer. Therefore, the bank doesn't give interest on this account. For this study this types of deposit is not include.

Saving Deposit

According to Commercial Bank Act 2031 (1974) saving account means "An account of amounts deposited in a bank for savings purposes." The saving deposit bears the features of both of the current and fixed period's deposits. Saving accounts are mainly meant for

non-trading customers who have some potential for saving and who don't have numerous transactions entering their account. While opening the account the minimum compensating balance differ according to the banks rule. Similarly there is also divergence as to how much amount of money can be withdrawn. But if the customers want to withdraw more money from the bank which is not allowed by it but if s/he gives pre-information to the banks, s/he can withdraw more money. The bank fixed the minimum and maximum amount of withdraw able through a cheque from this deposit. If the bank goes into liquidation, priority is given to the saving deposit than current and fixed deposits while repaying the liabilities.

Fixed Deposit

Fixed deposits constitute a very important resource for banks as bank need not keep greater reserve in respect of such deposits. Under the Commercial Bank Act 2031(1974), "Fixed account means as account of amounts deposited in a bank for certain period of time." The customer opening such account deposit their money in the account for a fixed period. Usually, only the person or institution who wants to gain more interest opens such type of account. High interest rate is paid to this deposit as compare to saving deposits. The bank and the customer can take benefit from this deposit. The bank invests this money on the productive sector and gains profit. The principal amount along with interest must be returned to the customer after expiry of fixed time.

In England these deposits are repayable subject to a period of notice and hence known as time deposit or time liabilities means that these are withdraw able subject to a period of notice and not on demand. Fixed deposit receipt is not transferable by endorsement and certainly not negotiable. However the debt covered by the fixed deposit receipts cab be assigned. Bank generally gives loans up to 90% of this deposit against the security of the deposit. For this bank charge some interest higher than the interest allowed on the deposit.

2.6.2 Importance of Deposit

Deposit arises from saving. An individual's income equals consumption plus saving. S/he deposits the saved part of income in the bank and gets interest from it. Banks in turn lend

this money and earn profit by charging high interest rates. And the borrowers from banks, invests this fund in productive sectors yielding more return than the borrowed interest. This investment leads to create new employment opportunity in the economy. Ultimately due to new employment the purchasing power of the economy increases and finally GDP and growth of the country occurs. It means that the deposit has very important role in the economy. There is a direct relationship between deposit of banks and the investment in the economy. If the volume of deposit is low, the investment in the economy also lags behind due to lack of resources. The deposit of banks is the accumulated capital which can directly be invested. There is a great need of such deposit in the developing countries. Deposit includes the idle money of the public, band being the inter-mediator to accept this sort of money and help to channeled this in productive sector. So the importance of banks and financial intermediaries is larger in present context.

2.7 Concept of Lending (Credit)

Another importance function of commercial bank is to provide types of loans or credit. The word 'credit' means 'trusting'. In credit transaction the lender (or banks) must have confidence in the borrower that s/he will be able to repay the money. In credit transactions, the creditor turns over to the debtor to repay and equivalent amount usually money in future plus as added sum called interest. In other words the commercial bank earns profit by lending the amount in terms of loan or credit and in return it gets interests. Banks loan are classified as; a) Loans and Advances, b) Overdrafts, c) Cash Credit, d) Discounting of bills and so on (Shrestha, 1998:255). But besides this, the other forms of credit are: Bills of Exchange, cheque, Drafts, Promissory Note, Letter of Credit (LC), Travelers' Cheque, Treasury Bills (T-Bills), Book Credit etc.

If credit is made to the government the credit is known as public credit and if credit is transacted by the private for his own purposes the credit becomes private. There are certain distinctions between public and private credit. Bank credit refers to the credit taken by the banks. Bank is the major source of credit to both private and public debtor. Sometimes bank also take credit. There is another type of credit know as investment credit and commercial credit which can be divided according to the purposes of using

credit. The former refers to the credit which is used for investment and latter for trade purposes. Similarly, another classification is consumer's credit and producers' credit. The latter type of credit is the advances made to individuals firms, companies and governments, which are used to facilitate the carrying on of the various branches of utility creation.

2.7.1 Factors affecting the volume of Lending

The volume of credit within a country depends upon different factors. For this study only the effect of interest rate is taken into consideration and other factors are not considered. Some of the factors affecting the volume of credit are as follows:

1. Credit (Lending) Rate

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

2. Rate of Return

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

3. Investment Opportunity

If the investment opportunity within the country is high, the volume of credit becomes high. The basic thing for investment stimulation is easy and cheap credit etc.

4. Pace of Financial Development

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

5. Basic Infrastructure

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

6. Political Condition

Political condition, especially political instability, is also one of the major causes of low volume of credit. In such a case none would like to risk his capital in new ventures. The present condition of the country is the glaring example of this.

In addition to aforementioned point, other factors like trade condition, currency conditioned are also the factors affecting the volume of credit.

2.8 Concept of Inflation

Inflation in common sense is increment in general or average price level in the whole economy. It means that it is the increase in general price level, not he increase in individual prices. Inflation is not a temporary fluctuation in price but it is a sustained and appreciable increase in price (Joshi, 2056:364). Due to the increase in general level in price, the value of purchasing power of money declines as there is and inverse relationship between the general level of price and value of money. According to Economist Crowther "Inflation means a state in which the value of money is falling i.e. prices are increasing". Inflation is a general rise in prices across the economy. This is distinct from a rise in the price of a particular good of service. Individual prices rise and fall all the time in a particular good or service. Individual prices rise and fall all the time in a market economy, reflecting consumer choices and preferences, and changing costs. If the price of one item- say a particular model of car- increases because demand for it is high, we do not think of this as inflation. Inflation occurs when most prices are rising/Increase smoothly in the range of some degree across the whole economy. (http://www.bankofengland.co.uk/targettwopointzero/inflation/whatsinflation.htm)

During inflation, the cost of living increases rapidly, so inflation severely hurts the people who depend on the income from fixed income securities like bonds, and preferred stock. Similarly as purchasing power of money falls as well as the debtors gain and the creditor loses.

2.8.1 Inflation and Interest Rates

Inflation occurs when the average price level in the economy rises. Interest rates represent the "price" of credit. Are they also affected by inflation? The answer is yes. There is positive correlation between interest rates and inflation. In other words, increase in inflation increases the interest rates. But the exact effect of inflation on interest rate is not identified yet. On this regards, there are many theories. Here in this case, mainly two theories are going to be discussed (www.worldbank.co.uk/inflation/effectinterest.htm).

The Nominal and Real Interest Rates

Before expanding the relationship between inflation and interest rates, several key terms must be understood. In this connection one should be familiar with nominal rate and real rate of interest. The nominal rate is published or quoted interest rate on a security or loan. These rates are actual rates that are used to transact with the customers. In other words, "nominal rate of return are money rates of return that are not adjusted for the effect of inflation". For example an announcement in the financial press that major commercial banks have raised their prime lending rate to 10 percent per annum indicates what nominal interest rate is now being quoted by banks to their best customers. Similarly, the real interest rate is the return to the lender or investor measured in terms of its actual purchasing power. In a period of inflation, of course, the real rate will be lower than the nominal rate. An investment's real rate of interest during some period is calculated by removing the rate of inflation from the nominal return. (http://www.bankofengland.co.uk/ targettwopointzero /whatsinflation.htm).

The Fisher Effect

Economic theory tells us that interest rates reflect expectations about likely future inflation rates. In countries where inflation is expected to be high, interest rate also will be high, because investors want compensation for the decline in the value of the money. This relationship was first formalized by economist Irvin Fisher and is referred to as the Fisher effect. According to Fisher effect, nominal interest rate is related to the real rate by the following equation:

Nominal Interest Rate = Expected Real Rate+ Inflation Premium+ (Expected Real Rate × Inflation Premium)

According to Fisher, the cross-product term in the above equation (i.e. Expected real rate × Inflation Premium) is often eliminated because it is usually quit small expect in countries experiencing severe inflation. So the fisher's equation can be written as:

Nominal Interest Rate = Expected Real Rate + Inflation Premium Rate

Clearly, if the expected real interest rate is held fixed, changes in nominal rate will reflect shifting inflation premium. It means that if inflation premium increases then nominal rate also increases.

2.9 Review of Thesis

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

Dangol (2003) conducted a research study on "*The impact of interest rate on Financial Performance of Commercial Banks of Nepal",* Following findings are to be measured.

- 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 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. 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 t 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.

- 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 the 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 considerations are opposite the correlation analysis is not able to clearly decipher the relation between the variables

Bhatta (2004), conducted the research study on *"Interest Rate and its effect on Deposit and Lending"*. In this study, the disseminator tries to portrait the relation of interest rate with deposit and lending amount.. Following conclusion are to be measured:

- Deposit rates 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 also in decreasing trend; means that every year lending rates of sample banks under study have decreased.

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

- The simple correlation coefficient between deposit rate and deposit amount of sample banks were highly negative. But out of them, correlation coefficient analysis of one sample bank is found to be negative. It means that in that case the theory doesn't match the analysis. So writer conclude that the result appears in that study was different than the theory.

- The correlation analysis between lending rate and lending amount of all sample banks under study comes highly 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. So she concluded that 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.

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

Pokharel (2005) conducted research study on *"Determinants of Interest Rates in Nepalese Financial Markets"* also give some ideas about the interest rates in Nepalese markets. Though, this thesis tried to identify the factors that shape the interest rates in Nepalese markets, it also tried to explore the relationship between the interest rate, deposits, credit rates and inflation. Among different objectives, some objectives that match to this study are:

- To show the relationship between the liquidity position and interest rate on deposit and lending.
- To identify the effect of inflation on interest rate charged and offered by various Nepalese financial institutions.
- To identify the different methods used by Nepalese financial institutions to calculate interest on lending.

According to Pokharel, the major findings of the study are:
The correlation coefficient between interest rate on deposit and amount of deposit collected by all sample organizations were highly negative. It means that, deposit amount of all sample banks are found to increase even if the interest rate of deposit, the attracting factors for deposit, is decreasing. This is against the theory. According to theory, there must be positive relationship. Similarly in case of lending rate and lending amount, Mr. Pokharel found the result as suggested by the theory. It means, the correlation coefficient

between amount loaned and interest rate on lending of 10 sample bank is found to be highly negative. In other words, negative coefficient of other organizations means that more amounts is demanded at lower interest which means that when demand increases, price (interest rate on lending) also increases.

Similarly considering about the relationship between interest rate on deposit and on lending for all sample banks, disseminator found it to be highly positive correlated. In his own words, it is "Variation in one rate also brings variation in another rate in same direction." Therefore it is concluded both interest rate are determining factor of each other.

In same manner, the researcher explored that the relation between interest rate on deposit and inflation rate is little positive. Theoretically there should be positive correlation between these two variables. Due to little positive correlation, it is concluded that the interest rate in Nepalese Financial market is affected by inflation rate to some extent. Similarly the same result is obtained when it is tried to explore the relationship between lending rate and inflation rate. It means, theoretically there should be a positive and perfect relationship between them. Practically, the researcher found it but the degree of positive correlation is somewhat less. So on this the researcher concluded that "Interest rate on lending in Nepalese Financial Market is affected by inflation only to some extent." Finally, the relationship of interest rate on lending with risk-free rate is both positive and negative. It means that interest rate on lending in Nepalese Financial Markets in not affected by risk-free rate of interest.

Shrestha (2006) conducted a research study on *"Interest Rate Structure and Its Relation with Deposits, Inflation and Credits in Nepal",* The relationship of interest rate is depend with mostly three factors, deposit, credit and inflation. Though this study has similar topic as of Shrestha's but some of his objectives were different than this study. According that thesis, the objectives were:

- To present a concrete picture of the interest rate structure in Nepal.
- To predict the relationship between interest rate and other economic variables like

deposit, inflation and credit flow in Nepal.

- To analyze the impact and implementation of this policy of interest rate of Nepal Rastra Bank.
- To provide suggestions and recommendations for improvement in the rate structure in Nepal.

Keeping above mentioned objectives, Shrestha found that interest rate is the important explanatory variables to influence the volume of real deposits and the variables like inflation and the real income are not significant variable to influence the volume of real deposits.

Similarly, he found that rate of interest is directly affected by the rate of inflation. For loan rate of interest and loan amount, he found that loan rate of interest also affects the credit flows. It means that they have inverse relationship but rate of interest doesn't have so much influence upon credit flows like that of deposit rates on deposits.

Finally in his conclusion, he found that deposit depends upon numerous factors besides income, inflation and interest rates. If other variables are kept constant, the institutional interest rate is the important explanatory variable to influence the volume of deposit in Nepal. It means that, at the time of disseminators study, i.e. during 1980s, increase in the deposit interest rates increases the volume of deposit. Similarly the relationship with income and inflation could not come significant. According to her, the fixation of attractive interest rates on deposits has been responsible for the substantial growth in the volume of deposits in recent years. In the same manner for inflation, he has concluded:
"The inflation within the country is very high since few years. In fact the prices in Nepal are affected by the movement in Indian price level than by domestic monetary expansion. Prices in Nepal are linked with Indian because of the 500 miles open boarder and the availability of Indian goods and currency. There is no consolidated type of money and capital markets in Nepal. Commercial bank branches are concentrated in the urban areas. Regarding deposit mobilization in the present context the urban area has occupied more than 80% and the flow of credit is also centralized only in urban areas. On the other hand,

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the volume of deposits has overcome the volume of credit which means to say that banks are not getting new investment opportunities."

Finally the relationship between credit flow and loan rates was found out to be negative. If the loan rate of interest is concession, there is the possibility of raising investment and thus the volume of credit.

Shrestha (2007) Conducted a research study on *"A Study of Interest Rates & Its Impact on Resource Mobilization and Utilization"* following point to be noted.

1. How far the interest rate impact on the mobilization in order to meet the lack of capital for the implementation of various projects.
2. To see the deposit credit margin ratio through out the changed incurred in interest rate by which one can see that how far the deposits have effectively utilized.

With the above objectives he concluded his study as: The structure of interest rate has greater influences 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 cab be solved by attracting savings into maximum and then mobilizing these savings into the sectors where money is most needed. For this branches should be extended even up to remote area to mobilize the idle deposit and diversify their money according to need.

Updhaya (2008), conducted a study on *"The Interest Rate Structure of Commercial Banks in Nepal"*. The objective of his study was to see the relation of interest rate with saving and fixed deposits; with loans and advances and with interest earning (i.e. interest received on loan minus interest paid on deposits.)

His analysis concludes that the time deposits are positively and significantly correlated with the interest rates. There is significant correlation between the saving deposits and the rate of interest. Fixed deposit is more sensitive to the interest rate revision done by NRB.

But the relation between the interest rates and the loan and advances is less significant. Among all the sectors, the private sector seems most sensitive to interest rate change. Most of the loans too correlated positively if absolute cumulative figures are taken. But the growth rate of total loans and advances except investment on HMG securities is negatively correlated more with the weighted average rate of interest since 1973. The growth of loans to private sector is also negatively correlated with interest rate since 1971. Negative correlation between loans and interest rate meant that loans decrease at higher interest rate and vice-versa.

CHAPTER - III
RESEARCH METHODOLOGY

Research methodology is a systematic way to solve the research problem. In other words, research methodology describes the methods and process applied in the entire aspect of the study. Research methodology refers to the various sequential steps (along with a rational of each steps) to be adopted by researcher in studying a problem with certain objectives in view (Kothari, 1994: 9). Thus the overall approach to the research is presented in this chapter. This chapter consists of research design, sample size and selection process, data collection procedure and data processing techniques and tools. So, suitable research methodology according to the demand of the study is presented below.

3.1 Research Design

A research design is a specification of methods and procedures for acquiring the information needed. It is the overall operational pattern of frame work for the project that stipulates what information is to be collected, from which sources and by what procedures (Paul & Donald, 1999: 134). Thus a research designs in a plan for the collection an analysis of data. For research there exists different types of research design like; Historical research, Descriptive research, Case study research, Field study research, analytical research, True experimental research and so on. This study mainly concerned with historical research. If applicable, sometime descriptive and analytical approach may also be used. But generally, to show the relationship of interest rate with deposit amount and inflation rate, past historical data are used. The relevant and needed data has been collected from various publications of different commercial banks and Nepal Rastra bank.

3.2 Population and Samples

The term population or universe for research means the universal of research study in which the research is based (Wolf & Pant, 2000:75).   Since the research topic is about interested rate, all the lending and depository institution of Nepal are the member of

population study. The population for the study comprises 26 commercial banks, 57 Development banks, 72 finance companies, 34 saving and credit cooperatives, one employee provident fund and other 40 non- government financial organizations. Among the total population only some selected institutions are taken as sample on random basis similarly due to unavailability of data from all the sectors, only commercial banks are chosen for this study. So precisely saying, all 26 commercial banks are the population of this study and among them, only 5 commercial banks are chosen as samples from total population for selecting the samples, simple random sampling method is used here among different methods. Organization under study are as follows, whose general introduction and major objectives are presented in chapter one.

- Nepal Bank Limited.
- Rastriya Banijya Bank.
- Everest Bank Ltd
- Himalayan Bank Limited
- Nepal Bangladesh Bank.

3.3 Data Collection Procedure

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

3.4 Data Processing and Presentation

The information or data obtained from the different sources are in raw form.

From that information, direct presentation is not possible. So it is necessary to process data and converts it into required form. After then only the data are presented for this study. This process is called data processing. For this study only required data are taken from secondary source (bank's publication) and presented in this study. For presentation,

different tables are used. Similarly, in some case graphical presentation is also made. For reference, the photocopies of raw data are attached in the last portion of this thesis. So far as the computation is concerned, it has been done with the help of scientific calculator and computer software program.

3.5 Data Analysis Tools

In order to get the concrete results from this research, data are analyzed by using different types of tools. As per topic requirements, emphasis is given on statistical tools rather than financial tools. So for this study following statistical tools are going to use.

Arithmetic Mean

It is the sum of all the observations divided by the number of observations. In such a case all the items are equally important (Pant & Chaudhary, 1999: 91). As arithmetic mean is most common and popular tools for data analysis, here in this study also, arithmetic mean is used. It is computed by using following formula:

$$\text{Mean}\ (\bar{X}) = \frac{\Sigma X}{n}$$

Where,

$\bar{X}$ = Mean

ΣX = Sum of Variable X

n = Total Variable

Standard Deviation

The standard deviation is the best tools to study fluctuation in any data. It is usually denoted by the letter sigma ( ). Karl Pearson suggested it as a widely used measure of dispersion and is defined as the positive square root of their arithmetic mean of squares of the deviation of the given observations from their arithmetic mean of a set of value (Gupta, 2000: 380). It can be computed by using following formula.

$$\text{S.D}(\sigma) = \sqrt{\frac{1}{n}\Sigma(x - \bar{X})^2}$$

There will be higher fluctuation when the Magnitude is greater and vice versa

Coefficient of Correlation

By this statistical tool, the degree of relationship between to variables is identified. In other words this tool is used to describe the degree to which one variable is linearly related to other variables. Two or more variables are said to be correlated if change in the value of one variable appears to be linked with the change of other variables. The correlation analysis refers the closeness of the relationship between the variables (Sharma, 2000: 420). Correlation may be positive or negative and ranges from -1 to +1. Simple correlation between interest rate and credit or lending amount and interest rate (both deposit rate and lending rate) and inflation is computed in this thesis. For example, let's say that the correlation between interest rate and inflation is positive. It indicates that when inflation increases, interest rate also increases in same direction and vice versa. For our study following reference is used (Pant & Chaudary, 2053: 306).

- Correlation may be positive or negative from -1 to+1. When r = +1, there is positive perfect correlation; when r=1, there is perfect negative correlation; when r = 0, there is no correlation and when r< 0.5 then there is low degree of correlation.
- When r lies between (0.7 to -0.999), there is high degree of positive (or negative) correlation.
- When 'r' lies between 0.5 to 0.6999, there is a moderate degree of correlation.

The simple correlation, 'r' is calculated by using following formula.

Correlation Coefficient $\quad$ (r) $\quad = \dfrac{n\sum X_1 X_2 - \sum X_1 \sum X_2}{\sqrt{n\sum X_1^2 - (\sum X_1)^2}\sqrt{n\sum X_2^2 - (\sum X_2)^2}}$

Alternately, $\quad$ r $\quad = \dfrac{\text{Cov}(X_1 X_2)}{\sigma X_1 \sigma X_2}$

Where

Covariance $(X_1, X_2) = \frac{1}{n}\sum(X_1 - \bar{X}_1)\sum(X_2 - \bar{X}_2)$

n $=$ Total number of observations

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

Multiple Correlation Coefficient (R1.23) = $\dfrac{r_{12}^2 - r_{13}^2 - 2r_{12}r_{13}r_{23}}{1 - r_{23}^2}$

Where

r_{12} = correlation coefficient between variables one and two.

r_{23} = correlation coefficient between variables two and three.

r_{13} = correlation coefficient between variables one and three.

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 linear relationship between the variables. The closer it is to '0', the worse is the linear relationship (Gupta, 2000: 115).

Coefficient of multiple Determinations

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

Coefficient of Multiple Determination = $R_{1.23}^2$

t-test for significance of sample correlation coefficient:

If 'r' is the observed sample correlation coefficient of 'n' pairs of observation from bi-vibrate normal population, the test statistics for significance of correlation under null hypothesis is given by

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

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

n = sample

t= t-distribution

i.e. t follow t- distribution with n-2 degree of freedom. 'n' being the sample.

If the calculated value of the 't' exceed to t0.05 for (n-2) d.f: the value of 'r' is significant at 5% level. If 't' < t0.05 the data are consistent with the hypothesis of an uncorrelated population.

Research Hypothesis

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

The hypotheses formulated for this study are as follows:

First Hypothesis

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

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

Second Hypothesis:

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

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

Third Hypothesis:

Null hypothesis H$_0$: = 0, That is, population correlation coefficient is zero. In other words, there does not exist any correlation between interest rate on deposit and interest rate on lending.

Alternative hypothesis H$_1$: 0. That is population correlation coefficient is not equal to zero. In other words, there exist correlation between interest rate on deposit and interest rate on lending.

Fourth Hypothesis:

Null hypothesis H$_0$: = 0. Population correlation coefficient is zero. In other words, the variables in population (inflation and interest rate on deposit) in Nepalese financial market are not correlated.

Alternative hypothesis H$_1$: 0. That is the variables in population (inflation rate and interest rate on deposit) in Nepalese financial market are correlated.

Fifth Hypothesis:

Null hypothesis H$_0$: = 0. The variables in population (inflation rate and interest rate on lending) in Nepalese financial market are not correlated.

Alternative hypothesis H$_1$: 0. That is the variables in population (inflation rate and interest rate on lending) in Nepalese financial market are correlated.

CHAPTER - IV

PRESENTATION AND ANALYSIS OF DATA

This is a important section where calculated data are presented and analyzed. This is the one of the major chapter in this study because it includes detail analysis and interpretation of data from which concrete result of Nepalese market can be obtained. With out this part the study becomes incomplete. In this chapter, the relevant data and information necessary for the study are presented and analyzed keeping the objectives set in mind. This chapter consists of various calculation made for the analysis of interest rate and its effects on deposit amount lending amount, and inflation rate for the sample banks. To make our study effective and precise as well as easily understandable, this chapter is categorized in three parts; presentation, analysis and interpretation section data are presented in terms of table, graph chart of figures, according to need. The presented data are then analyzed using different statistical tools mentioned in chapter three. At last the results of analysis are interpreted. Though there is no distinct line of demarcation for each section (like presentation section, analysis section & interpretation section) but the arrangement of writing is made by aforementioned way.

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

Analysis of Lending, Deposit and Interest Rate

In this section, detail study is made about deposit amount, lending amount and interest rate of various banks. For this study only saving and fixed deposits are considered

because current deposit doesn't earn any interest. Lending is second arc of the analysis where mainly the relationship between lending interest rate and its effect upon lending amount is measured. Generally, when there is higher interest rate (esp. lending or credit rate) in the economy, people normally borrow lesser amount than the period when lending interest rate is low. According to theory, when there is low lending rate, then there should be higher amount of borrowing. Higher amount of borrowing indicates higher investment in the country or higher transaction in trade. This is necessary for the growth of the economy. So this study tries to explore the relationship between lending rate amount in Nepalese context.

4.1 Rastriya Banijya Bank

4.1.1 Interest Rate and Its Effect of Deposit on RBB

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

Table 4.1
Interest Rate Structure on Deposit of RBB as on Mid-July

Deposit	2002	2003	2004	2005	2006	2007	2008
Savings	6%	5%	4.75%	2.25%	2%	2%	2%
Fixed							
7 Days	-	-	-	-	-	-	-
14 Days	-	-	-	-	-	-	-
1 Month	-	-	-	-	-	-	-
3 Months	5.00	4.00	3.75	3.00	2.25	2.25	2.25
6 Months	5.50	4.75	4.25	3.00	2.50	2.50	2.50
1 Year	7.00	6.00	5.75	3.75	3.5	3.5	3.5
Above 2 Year	7.5	6.25	6.00	-	-	-	-
Whole Mean	**6.2**	**5.2**	**4.9**	**3**	**2.56**	**2.56**	**2.56**
Fixed Deposit Mean	**6.25**	**5.25**	**4.94**	**3.25**	**2.75**	**2.75**	**2.75**
Std. Deviation	**1.42%**						

Table 4.1 shows the deposit interest rate of RBB in 7 different FY. For this study 2002 is taken as initial year & 2008 as final years. The table portraits the interest rate that were prevailed in the Nepalese financial markets during last past 7 Years. The data shows the decreasing tendency of interest rate. The interest on saving deposit in the beginning year was 6% and decreased to 2 % in 2008. This is 66.67% reduction during the 7 years period. In same manner, the bank used to quote the interest rate of fixed deposit in different short term period like 7 days, 14 days, 1 month, 2 months, 3 months and so on. For the graph purpose, in this study the average of 7 days to 3 months is taken to make the figure clearer. For other periods also the fixed deposit rate was in decreasing trend. During the 7 year period the decline percentage is 54.54%, 50% and 20% respectively for 6 months, 1 year and 2 years period. The decreasing tendency is high for longer period interest rate. If the mean is taken of all (both fixed and saving) then average interest rate on deposit was 6.2% for 2002, 5.2% for 2003, 4.9% for 2004, 3% for 2005, 2.56% for 2006, 2.56% for 2007 and 2.56% for 2008. Similarly, if average of fixed deposits of different period is taken, then the result is almost similar with "whole average". It means the average interest rate for fixed deposit only was 6.25%, 5.25%, 4.94%, 3.25%, 2.75%, 2.75%, and 2.75% respectively for the year2002, 2003, 2004, 2005, 2006 ,2007 and 2008.The average figures also show the decreasing tendency in interest rate except in the year 2006 the interest rate is similar till 2008. All the above described matters can be shown on figure 4-2 as follows.

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

Table 4.2

Relationship between Interest Rate and Deposit Amount of RBB

Year (1)	Saving Deposit Interest Rate (2)	Saving Deposits Amounts (3)	Fixed Deposit Interest Rate (4)	Fixed Deposit Amounts (5)
2002	6.20	18997.2	6.25	15166.6
2003	5.20	20861.2	5.25	13579.5
2004	4.90	23288.9	4.94	11572.8
2005	3.00	26848.2	3.25	9001.5
2006	2.56	29494.9	2.75	8103.8
2007	2.56	32909.4	2.75	6997.5
2008	2.56	40213	2.75	4479.8
Correlation	$r_{23} = -0.8601$		$r_{45} = 0.9468$	
Coefficient of Determination	$r^2_{23} = 0.7397$		$r^2_{45} = 0.8964$	
t-statistic	t-cal = 3.77 | t-tab = 2.571	Significant	t-cal=1.302 | t-tab=2.571	Insignificant

Source: Banking and Financial Statistics, No: 38-43, NRB

The table 4.2 shows the total amount of fixed deposit and saving deposits and the interest rates offered on such deposits by RBB on seven fiscal years starting from FY 2002 to FY 2008. The table portrays that the both interest rate has been decreased by greater magnitude. Deposit amount has been increased by more than 2.43 times during the study period. It means they move in opposite direction i.e. decrease in interest rate increases the amount of deposit and vice versa. Therefore they should have negative relationship. It can be quantified by calculating correlation coefficient between them. This relationship can also be shown in graph as shown in figures 4.1 and 4.2.

Figure 4.1

Deposit Amount of RBB During Different Years
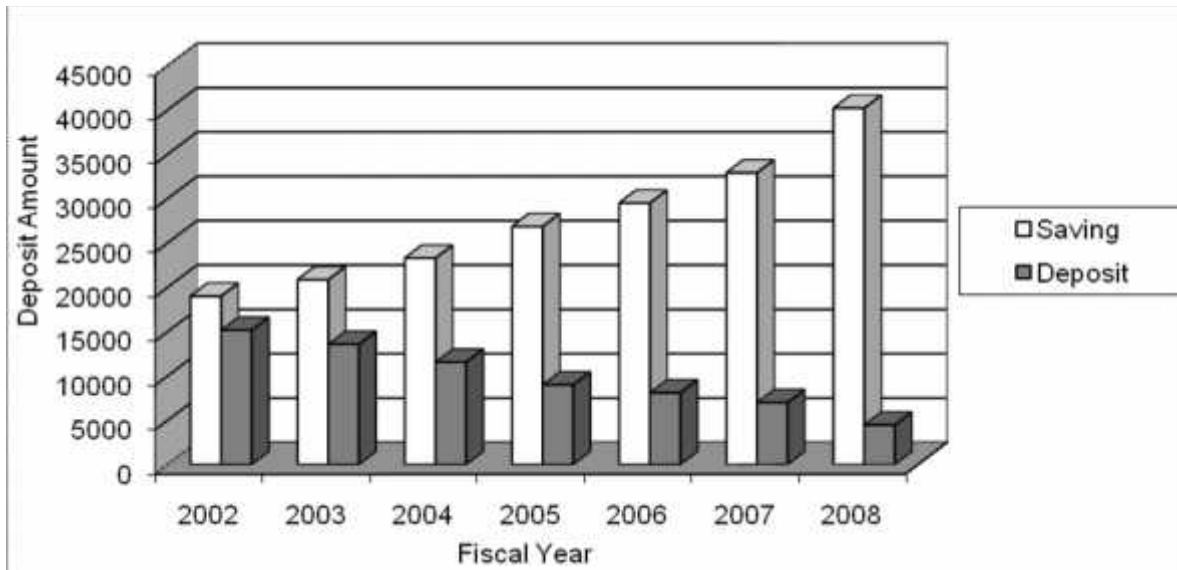
Figure 4.2

Interest Rates of RBB on Saving and Fixed Deposit
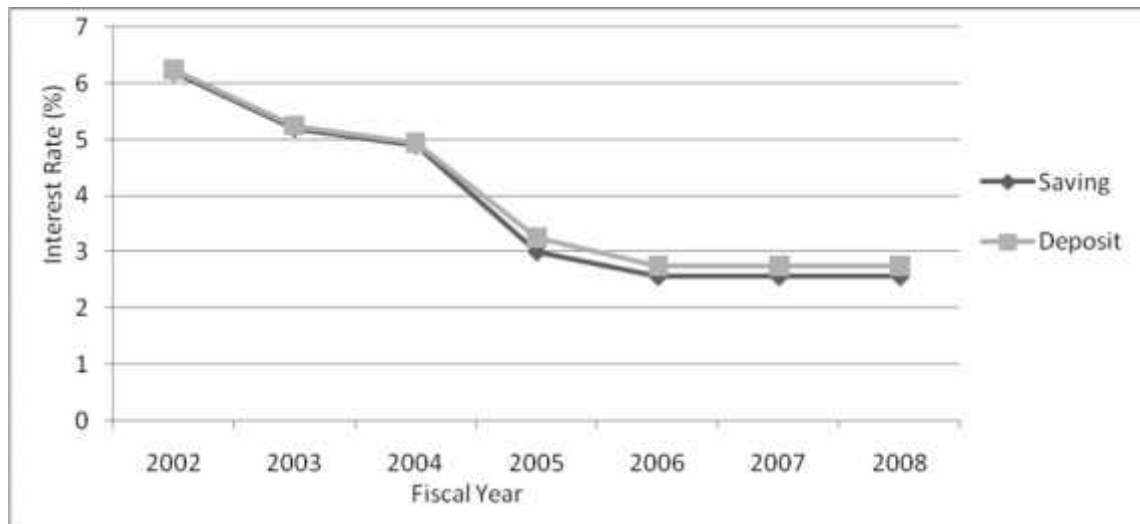
According to table 4.2, the interest rate on saving deposit has been decreased from 6.20% to 2.56% during 7 Years. The declining tendency is little. In same period the deposit amount was Rs. 18997.2 millions but this amount increases to Rs. 40213 millions. It

means interest rates fell by 66.67%, where as deposit amount rises by 111.68% within the period of seven years.

Similarly, for fixed deposit the table 4.1 shows that total amount of fixed deposit and interest rate on fixed deposit offered by RBB on seven consequent FY started from 2002 to FY 2008. The table reveals that average fixed interest rate has been decreased drastically during the seven Years. At the FY 2002 the average interest rate was 6.25% on fixed deposit but later on every year this interest rte started to decrease by 1% per annum and at 2004 it remained at 1.31% per annum on average but remain similar decrement form the year 2006 to 2008. On effect of this decline, the amount of fixed deposit declined, the amount of fixed deposit also started to decrease in some respect. The table shows that up to the FY 2003 the rate of decrement is 23%,but from the year 2004 to 2008 the rate of decrement rises near about 50%; decrease in interest rate also decreases the fixed deposit amount. In this regards, the substitution effect holds true in the case of fixed deposit.

To verify the above trend, it is necessary to calculate the correlation coefficient and t-statistics. If correlation coefficient is calculated for saving deposit and deposit amount, then it is (r_{23}) = -0.8601. This high negative correlation coefficient indicates that they have inverse relationship among each other. Decrease in interest rate is followed by an increase in saving deposit amount and vice-versa. This shows that the substitution effect in case of RBB for saving account is not applicable. The coefficient of determination between these two variables is r^2_{23} = 0.7397, which means that total variation in dependent variable (saving deposit amount) has been explained by independent variable (interest rate) to the extent of 79.90% and remaining is the effect of other factors. The t-value for testing the significance of the correlation coefficient between variables is – 3.77%(/t/ = 3.77). Since the tabulated t-value at 5% level of significance for 5 degree of freedom (t-tab = 2.571) is less than calculated value (t-cal = 4.46), the correlation coefficient is significant. This means the variables mentioned (interest rate on saving deposit & amount of saving deposit) for RBB are significantly correlated and an increase (decrease) in the amount of deposit brings a decrement (increment) in interest rate on saving deposit.

In the same manner, the correlation coefficient between interest rate on fixed deposit and fixed deposit amount (r_{45}) is 0.5034. This means that these two variables are moderately co-correlated when interest rate on fixed deposit decreases (increases) the deposit amount also decreases (increases). This is exactly the matte what the theory (substitution effects) says.

The coefficient of determination between these two variables is $r^2_{45} = 0.2534$, which means 25.34% of total variables in dependent variables (deposit unit) is explained by the independent variable (deposit rate) & remaining is due to the effect of other factors. Similarly test of significance of correlation coefficient between deposit rate and deposit amount gives the value of t = 1.3027. The tabulated value at 5% significant level with d.f. 5 is 2.571 (i.e. t-tab = 2.571). Here $t_{cal} < t_{tab}$ so H_o is accepted i.e. there is no significant relation between two variables. Though the correlation coefficient indicates that the both variables have moderate level of relationship but the t-statistics clarifies that their relationship is not so significant.

4.1.2 Interest Rate and Its Effect of Lending on RBB

The sector where RBB grant its credit during last seven Years and their corresponding interest rate, average interest rate and lending amount are presented in the table 4.3 below.

Table 4.3

Lending Rate on RBB on Different Sectors during Seven Years

Sector	2002	2003	2004	2005	2006	2007	2008
Overdraft	13.50	11.75	11.25	12.20	11.00	10.00	11.00
Export Credit	12.00	11.50	10.00	9.50	8.00	8.00	8.00
Import LC	13.00	12.00	10.00	10.00	9.00	8.00	8.00
HMG Bond	14.00	10.50	10.00	7.00	7.00	5.00	7.00
BG/CG	10.50	10.00	9.25	9.25	8.50	7.00	7.00
Other Guarantee	10.50	-	-	-	-	6.00	6.00
Industrial Loan	15.00	14.50	11.75	12.00	-	-	-
Commercial Loan	15.50	15.00	-	-	-	-	-
Priority Sector Loan	14.00	13.00	12.00	12.00	11.50	10.50	11.50
Working Capital	14.50	13.75	14.00	12.50	-	-	-
Hire Purchase	14.00	13.50	12.00	12.00	11.00	9.00	9.00
Others	15.50	15.00	12.00	12.00	11.00	11.00	11.50
Average Int. Rate (1)	**13.50**	**12.78**	**11.22**	**10.84**	**9.63**	**8.28**	**8.78**
Lending Amount (2)	**28183.50**	**27969.60**	**26514.40**	**28614.00**	**26863.80**	**25214.80**	**27353.60**
Correlation (r_{12})	-0.6622						
Coefficient of determination (r^2_{12})	0.4385						
t-statistics	t-cal = 1.98		t-tab = 2.571		Insignificant		
Std. Deviation	1.82%						

Source: Banking and Financial Statistics, No: 38-43, NRB

[Note: For all case, the higher ceiling of interest rate is taken from the table, as per suggestion of NRB research department.]

Lending activity of commercial banks can be diversified into different sectors. But according to the publication of Nepal Rastra Bank- Banking & Financial statistics- the loan of commercial banks are classified in different sub-sectors like overdraft, export credit, Import LC, commercial loan and so on. Besides this there are other section (area) when bank provides loan and these areas are placed in the topic of "others". For this study, lending area are categorized as classified by NRB.

According to table 4.3 it shows that interest rate on lending on different area are in declining stage. The table shows that the maximum interest rate is 15.50% in FY 2002 and minimum rate is 6% on FY 2008. This shows that the interest rate was decline drastically during the seven Years periods. Generally the productive sector loan rate (like commercial loan, industrial loan, priority sector loan, working capital rate and so on) decline less in magnitude than non-productive sector loan like overdraft, loan against government bond, BG/CG rate and so on. For example during the last seven Years declination of BG/CG rate was by 3.5%. In same manner, the declining magnitudes were 2.5%, 4%, and 5% for overdraft, other and hire purchase. The declining percentage for productive sectors were 2.5%, 2%, 2.5% and 3% in commercial loan, working capital, priority sector loan, and industrial loan rate respectively. According to theory, in order to induce the investment in the country or expansion of trade, the productive sector loan should be available at cheaper rate. But the figure shows that these sectors loan were somewhat costlier than other non-productive loan. If the average of each fiscal year is taken, then it shows average lending interest rate was 13.50%(2002), 12.78%(2003), 11.22%(2004), 10.84%(2005), 9.63%(2006), 8.28%(2007) & 8.78%(2008). The standard deviation for average interest rate was 1.82%, which shows the deviation from mean return. The average rate is also in decreasing trend till year 2007 but increases in the year 2008. The decreasing tendency was not smooth. It means the rate declined each year with different rate. In preceding year the declination was quite fast where as the declining tendency was little in later year. This concludes that interest rate on lending is also in decreasing tendency for past few years. With harmony to interest rate, the lending amount of RBB is also seen to be in decreasing tendency but with some fluctuation. These can also be present in figure 4.3 and 4.4.
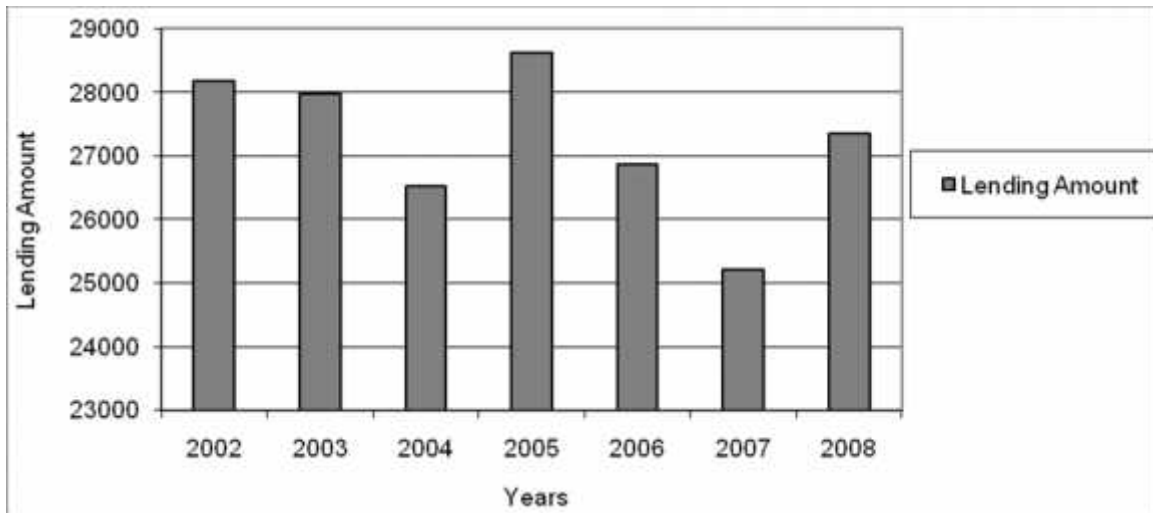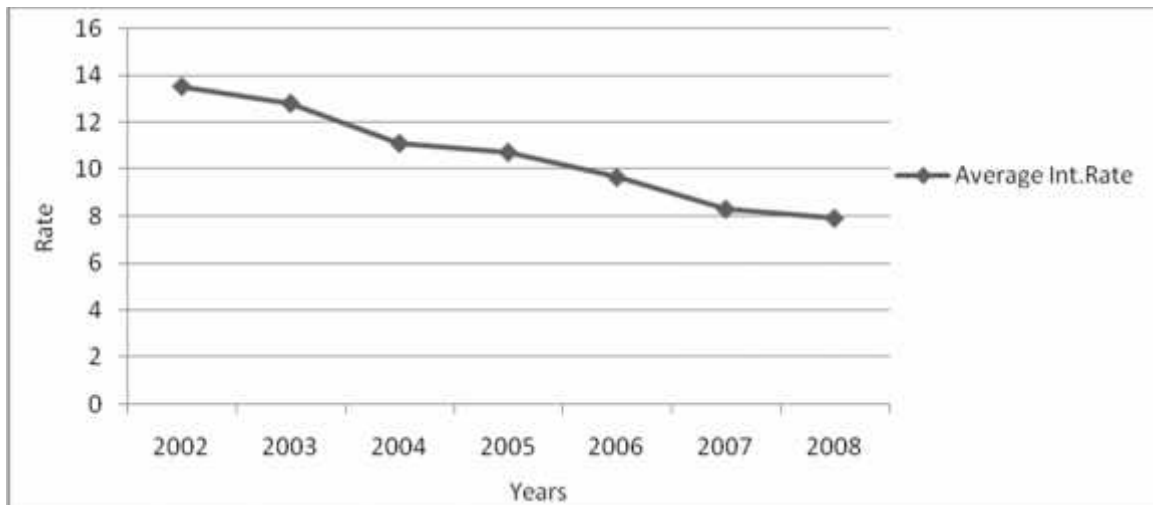
Figure 4.3

Lending Amount of RBB during different Years

Figure 4.4

Average Lending Rate of RBB during different Years

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

From table 4.3 the correlation coefficient (simple correlation) between lending rate and lending amount (r_{23}) is -0.6622. According to our classification, this negative correlation is "moderate degree" correlation. In this case it is clear that interest rate on lending &

lending amount has inverse relationship. It means they move in opposite direction i.e. increase in lending rate result decrease in total lending amount. This situation matches with the actual theory. According to the theoretical concept of lending rate and lending amount, people prefer or use more money when the market interest rate is low in the market. So the case is true for RBB also. The simple determination of correlation coefficient (r_{12}^2) is 0.4385. When total lending amount is taken as dependent variable and lending rate as independent variables, then 43.85% of total variation in dependent variable is explained by lending rate and remaining percentage is due to the effect of other variables in the economy. Test of significance of correlation calculated value of t-statistics is 1.98 (t-cal = 1.98). This value is less than tabulated value, t-tab = 2.571 with level of significance 5% and d.f. 5. In this condition, H_0 is accepted. It means that there is no significant correlation between the two variables. In other words their relation is insignificant. Though the correlation coefficient shows that these two variables have moderate level of correlation, but t-statistics verify that their relation is significant. In conclusion, the inverse relationship between lending rate and lending amount is not exactly applicable for RBB.

4.2 Nepal Bank Limited

4.2.1 Interest Rate and Its Effect of Deposit on NBL

The general structure of deposit interest rate of Nepal Bank Limited (NIBL) is shown below on table 4.4.

The table shows the interest rate of NBL during the last seven Years. The trend of interest rate shows that it is in decreasing trend. It is similar with that of RBB. The interest rate on saving deposit shows that it was 7.5% during the period of 1999 and decreases by 1% on average every year up to 2001. But after 2001 AD there was some stagnancy in interest rate because it was fell by only 0.5% up to 2004, i.e. interest rate decreased to 4.75%. But at 2005 there was sharp fall on interest rate because interest rate of 2004 (4.75%) fall to 2.5% when it passes one year (2005). Similarly the interest rate on fixed deposit also fell during the seven fiscal years by almost half. The interest rate fell by large spread in first

few years but on later years, the falling spread was little as compared to the previous years.

Table 4.4
Interest Rate Structure on Deposit of NBL on Mid-July

Deposit	2002	2003	2004	2005	2006	2007	2008
Savings	5.5%	5.0%	4.75%	2.50%	2.50%	2.00%	2.00%
Fixed							
7 Days	2.00	2.00	2.00	2.00	-	-	-
14 Days	2.50	-	-	-	-	-	-
1 Month	3.50	3.50	3.25	2.50	2.25	2.00	2.00
2 Month	-	-	-	-	-	-	-
3 Months	4.00	4.00	3.75	3.00	2.50	2.25	2.25
6 Months	5.00	4.50	4.25	3.50	2.75	2.50	2.50
1 Year	6.75	6.00	5.75	4.00	3.25	3.00	3.00
Above 2 Years	7.00	6.25	6.00	-	-	3.50	3.50
Whole Mean	**4.53**	**4.46**	**4.25**	**2.92**	**2.65**	**2.54**	**2.54**
Fixed Deposit Mean	**4.39**	**4.37**	**4.17**	**3.00**	**2.68**	**2.65**	**2.65**
Std. Deviation	**1.543%**						

Source: Banking and Financial Statistics, No: 38-43, NRB

It is also clear that the falling gap for long term fixed deposit is large where as for short term deposit the falling gap is little. In other words, both long term and short term interest rate's falling rate is similar in later year but in previous year the falling rate is fast for long term fixed deposit where as falling rate was slow for short term fixed deposit. These tendencies can also be shown in graph 4.5 as follows:

Correlation Coefficient, Coefficient of Determination and t-statistics of NBL

Table 4.5

Relationship between Interest Rate and Deposit amount of NBL

Year (1)	Saving Deposit Interest Rate (2)	Saving Deposits Amounts (3)	Fixed Deposit Interest Rate (4)	Fixed Deposit Amounts (5)
2002	4.53	19851.50	4.39	9921.80
2003	4.46	21534.50	4.37	9731.80
2004	4.25	22063.00	4.17	8396.90
2005	2.92	22671.80	3.00	7481.90
2006	2.65	23547.90	2.68	57908.90
2007	2.54	26425.40	2.65	62922.10
2008	2.54	285450.80	2.65	48258.10
Correlation	$r_{23} = -0.7946$		$r_{45} = 0.7131867$	
Coefficient of Determination	$r^2_{23} = 0.6314$		$r^2_{45} = 0.5086352$	
t-statistic	**t-cal = 3.581**	**t-tab = 2.571**	**Significant**	**t-cal= 2.270**	**t-tab=2.571**	**Insignificant**

Source: Banking and Financial Statistics, No: 38-43, NRB

In table 4.5 saving amount and deposit rates are arranged in systematic order. The outlook of the table shows that the interest has been falling since2002 on both saving and fixed deposits. But the amount of saving deposit has not been in decreasing trend. It is increasing every year. This indicates that the condition for NBL is opposite to the substitution theory. The case is same for fixed deposit too. But the pictures for fixed deposit are somewhat different. Up to 2003 the deposit amount had been increased with little amount. But after 2003 this deposit amount has been in decreasing trend. It indicates that with decrease in interest rate, fixed deposit amount also decreases. But the declining speed of interest rate is quite higher than that of declining speed of deposit amount. This suggest that they may have positive relationship but to determine the magnitude of relation, correlation coefficient should be calculated and to identify the strong ness or weakness of relationship it is necessary to calculate the t-test. But prior to all, it is clear if we show these relations on graph 4.5 & 4.6.

Figure 4.5

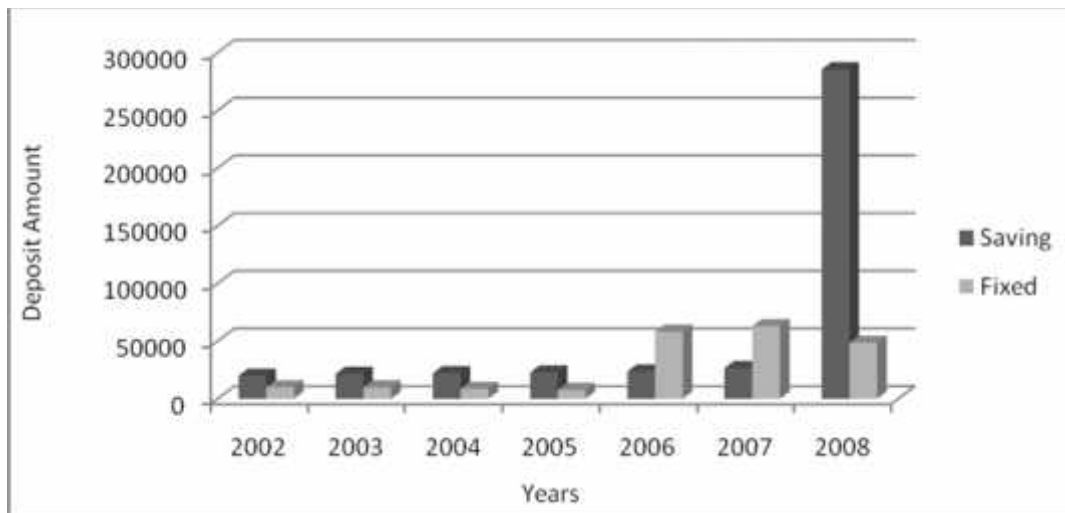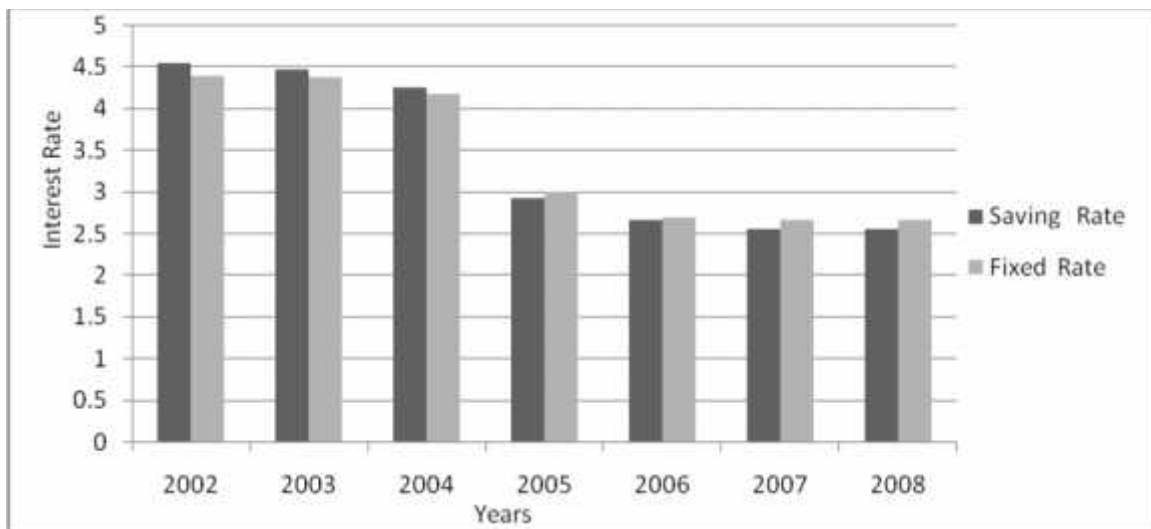**Deposit Amount of NBL During Different Years**

Figure 4.6

Interest Rates of NBL on Saving and Fixed Deposit

The correlation coefficient for saving interest rate and deposit amount, r_{23}, is found to be negative of = -0.7946. This value indicates that they two have very high negative or inverse relationship. Increase in one variables lead to decrease in other variables. This is extremely against the theory suggested by the "substitution effect". Similarly, the

coefficient of determination between two variables, r^2_{23}, is 0.6314 which means that total variation in interest rate on deposit has been explained by supply of deposits to the extent of 63.14 percent and remaining is the effect of other factors. The t- value for testing the significance of the correlation coefficient between variables is 3.581 (t-cal = 3.581), which is significantly greater than tabulated t value (t-tab = 2.571) at 5 percent level of significance with 5 degree of freedom. Since the calculated value is significantly greater than table value, the conclusion is drawn that correlation coefficient between variables is significant. This means that the interest rate on saving deposit and deposit amount of NBL are significantly correlated and increase in the supply of fund (deposit) brings the decrease in interest rate on deposit. That is the substitution theory is not applicable for the saving deposit of NBL.

Similarly, correlation coefficient for fixed deposit interest rate and fixed deposit amount, r_{45}, is found to be 0.7131. This shows that they have positive correlation. It means that the increase in deposit interest rate stimulates saving on fixed deposit. This relation can be clearly explained by the coefficient of determination, which is 0.5806, means that total variation in interest rate on fixed deposit has been explained by supply of deposits to the extent of 50.86 percent and remaining 49.14 percent is the effect of other variables. The t-value for testing the significance of the correlation coefficient between variables is 2.27 (t-cal = 2.27), which is significantly lesser than tabulated t value (t-tab = 2.571) at 5 percent level of significance with 5 degree of freedom. Since the calculated value is significantly less than tabulated value, the conclusion can be drawn that correlation coefficient between variables is insignificant. This means that though the correlation between interest rate on saving deposit and deposit amount of NBL shows the very less positive correlation, the t-test indicates that there is no significant correlation between them.

4.2.2 Interest Rate and Its Effect of Lending on NBL

The sector where NBL grant its credit during last seven Years and their corresponding interest rate, average interest rate and lending amount are presented in the table 4.6 below. Table 4.6 shows the lending interest rate structure of NBL on different sectors.

This interest rate is somewhat lower in value as compare to interest rate of RBB (table 4.13). It means that there was some difference in interest rate between the two government run banks.

Table 4.6

Lending Rate on NBL on Different Sectors During Seven Years

| Sector	2002	2003	2004	2005	2006	2007	2008
Overdraft	15.00	14.00	10.00	10.00	10.00	10.00	10.00
Export Credit	11.00	11.00	8.50	8.50	8.00	8.00	8.00
Import LC	11.00	10.00	8.50	-	-	-	-
HMG Bond	8.00	7.00	7.00	7.00	6.50	6.50	6.50
BG/CG	10.00	10.00	8.75	8.75	7.00	7.00	7.00
Industrial Loan	14.00	13.00	13.00	-	-	-	-
Commercial Loan	14.50	13.50	13.50	-	-	-	-
Priority Sector Loan	14.00	13.50	10.50	10.50	10.00	10.00	10.00
Poorer Sector Loan	10.50	10.00	8.00	8.00	7.50	7.50	7.50
Working Capital	14.00	13.00	10.00	10.00	10.00	10.00	10.00
Hire Purchase	14.00	14.00	11.00	11.00	10.50	10.50	9.00
Others	16.00	14.00	11.00	12.00	10.00	11.00	10.00
Average Int. Rate (1)	**12.67**	**11.92**	**9.98**	**9.52**	**8.83**	**8.78**	**8.67**
Lending Amount (2)	**20997.50**	**19266.10**	**19141.70**	**17456**	**12180.40**	**121606.30**	**15480.62**
Correlation (r_{12})	-0.5255						
Coefficient of determination(r^2_{12})	0.2762						
t-statistics	t-cal = 1.623		t-tab = 2.571		Insignificant		
Std. Deviation	1.50%						

Source: Banking and Financial Statistics, No: 38-43, NRB

The table 4.6 shows the lending interest rate structure of NBL on seven FY on different sectors. From table it is clear that the interest rates of NBL are in falling stage. During the first phase of FY the interest fell by large gap. But in later year the falling speed was low. This phenomenon can be seen clearly with the study of average interest rate. The average interest rate for FY,2002, 2003, 2004, 2005, 2006, 2007 and 2008 are 12.67%, 11.92%, 9.98%, 9.52%, 8.83%, 8.78%, and 8.67% respectively.. In same manner, for lending amount, the lending amount of NBB decline each year. During the last six Years the lending amount decries by more than 9 times but it increase in 2008 Years during to the

take over of the bank management by the Nepal Rastra Bank. This is very significant figures among these 5 aforementioned sample banks. This shows that the lending amount and interest have positive relationship. But to get the exact numerical result of relationship correlation ship should be necessary to calculate. The figure for changing trend of interest rate and lending amount is given on figure no 4-7and figure no 4-8
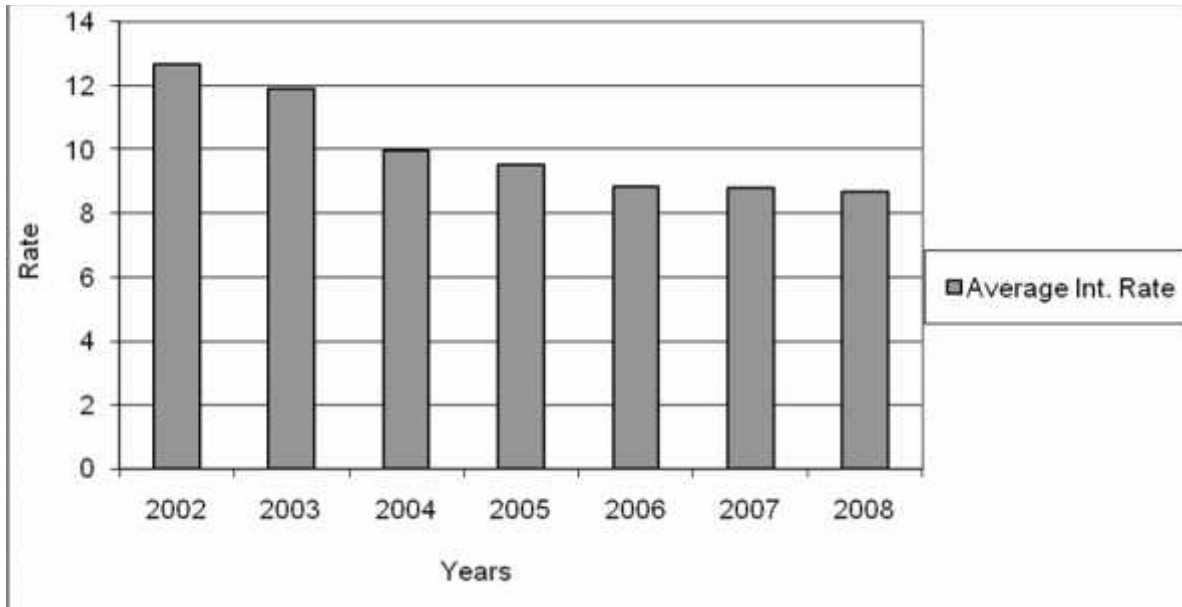
Figure 4.7

Lending Amount of NBL During Different Years
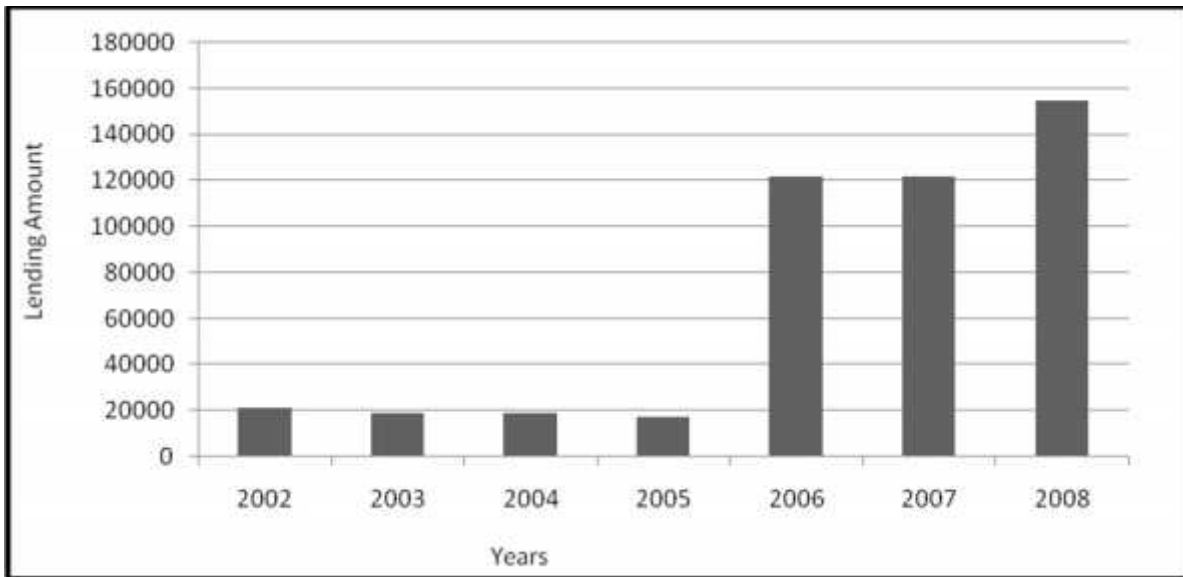
Similarly the graph of average interest rate of last seven Years is;

Figure 4.8

Average Lending Rate of NBL During Different Years

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

To find the exact relationship between the lending interest rate and lending amount, it is necessary to use some of the statistical tools like correlation coefficient, coefficient of determination. Similarly, to verify the correlation coefficient, student t-statistics is applied. For this case, the correlation coefficient between NBL's average interest rate and lending amount is -0.5255 (r_{12} = 0.3978). It means that, according to our classification, this is low degree of positive correlation. Increase in one variable result the increase in other variables but in low magnitude. In other words, if one variable increases by one percentage, then other variable increases by 0.52%. The result of correlation is against the theory. Because according to theory there should be negative correlation. In other word, decrease in interest rate should be followed by increase in lending amount. But this case doesn't happen for NBL. The coefficient of determination r_{12}^2 = 0.2762, which means that the relationship between two variable (lending amount and rate) is defined up to 27.62% only. Similarly, the calculation of t-statistics gives the value to t as 1.623 i.e. t-cal = 1.623. The tabulated value for t at 5 d.f. and 5% level of significance is 2.571. Therefore, in this case t-calculated is less than t-tabulated. Hence, null hypothesis is accepted. It indicates that the relationship shown by correlation coefficient is not significant.

4.3   Everest Bank Ltd

4.3.1 Interest Rate and Its Effect of Deposit on EBL

The general interest rate structure of EBL for last fiscal years is given on the table 4.7. Though the EBL has transaction on both agriculture sector and non-agriculture (commercial) sectors, here for this study only the interest rate of commercial sector is taken in consideration.

Table 4.7

Interest rate Structure on Deposit of EBL as on Mid-July

Deposit	2002	2003	2004	2005	2006	2007	2008
Savings	5.25	5.00	4.50	3.25	3.25	3.00	3.00
Fixed							
7 Days	-	-	-	-	-	-	-
14 Days	4.00	3.50	3.00	2.25	-	-	-
1 Month	5.00	3.50	3.50	2.25	-	2.75	-
2 Month	-	-	-	-	-	-	-
3 Months	5.25	4.50	4.00	2.50	3.00	3.00	3.00
6 Months	6.00	5.25	5.00	3.00	3.50	3.50	3.50
1 Year	6.50	5.75	5.50	3.50	4.00	4.00	5.00
Above 2 Years	7.00	6.25	6.00	4.00	4.50	4.50	5.50
Whole Mean	**5.57**	**4.82**	**4.50**	**2.96**	**3.65**	**3.46**	**4.00**
Fixed Deposit Mean	**5.63**	**4.79**	**4.50**	**2.92**	**3.75**	**3.55**	**4.25**
Std. Deviation	**0.83%**						

Source: Banking and Financial Statistics, No: 38-43, NRB

The table 4.7 shows the interest rate structure of EBL on saving deposits and fixed deposits. The deposit rates are also in decreasing trends but in the fixed deposit for 1 year and above 2 years it decline up to year 2007 and than it start inclining than after(2008). For saving deposit, it is found that the interest rate has been declined by 50% during the last seven Years. Each year there was around 1 percent declination but in constant rate. This can be illustrated on graph as figure 4.8:

Correlation Coefficient, Coefficient of Determination and t-statistics of EBL

Table 4.8

Relationship between Interest Rate and Deposit amount of EBL

Year (1)	Saving Deposit Interest Rate (2)	Saving Deposits Amounts (3)	Fixed Deposit Interest Rate (4)	Fixed Deposit Amounts (5)
2002	5.25	1733.30	5.63	2694.6
2003	5.00	2758.0	4.79	2803.40
2004	4.50	3730.70	4.50	2914.10
2005	3.25	4806.90	2.92	3444.50
2006	3.25	6929.20	3.75	4298.20
2007	3.00	9018.0	3.55	5658.70
2008	3.00	11883.90	4.25	6598.0
Correlation	r_{23} = -0.8584		r_{45} = -0.3986	
Coefficient of Determination	r^2_{23} = 0.7368		r^2_{45} = 0.1589	
t-statistic	t-cal = 3.74	t-tab = 2.571 Significant	t-cal= 0.97 t-tab=2.571	Insignificant

Source: Banking and Financial Statistics, No: 38-43, NRB

Table 4.8 shows that interest rate and deposit amount are moving in opposite direction. To get the exact relation it is necessary to calculate the correlation coefficient and t-test. Here the data shows that both saving and fixed deposits are out of substitution effect. To verify it, the value or correlation and t-statistics is necessary. But prior to this it is effective if tabular value can be shown on graph as figure 4.9.
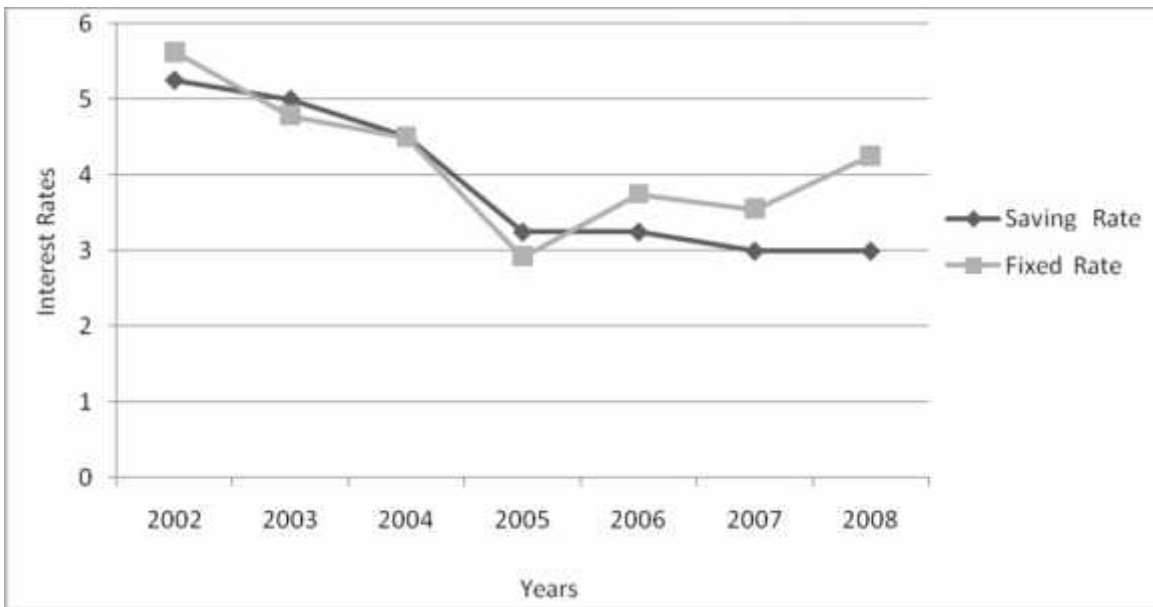
Figure 4.9

Deposit Amount of EBL During Different Years
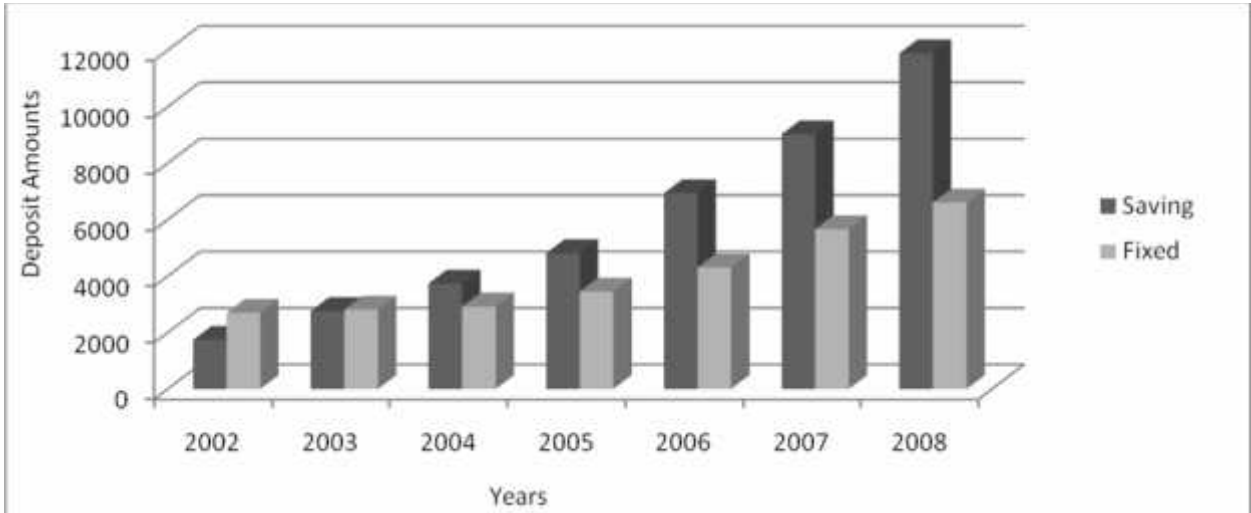
Similarly, the relationship between interest rate of saving and fixed deposit can be shown in figure 4.10 as:

Figure 4.10

Interest Rates of EBL on Saving and Fixed Deposit

The figure 4.9 shows that the deposit amount of EBL is in increasing trend. The increasing tendency is high for saving deposit but for fixed deposit, the trend is increasing slowly. Similarly figure 4.10 shows that both the interest rate of fixed and

saving deposits are in decreasing tendency. Their fluctuating pattern is almost similar which can be seen clearly on the graph 4.10.

The correlation coefficient for saving deposit and its interest rate is found to be $r_{23} = -0.8584$ which means that deposit amount and its interest rate have higher degree of negative correlation. It means increase in one variable result the decrease in other variables. Similarly the coefficient of determination, $r^2_{23} = 0.7368$ which means that the value of dependent variables is dependent on independent variables to the extent of 73.68 percent. Similarly the t-test for same shows that the calculated value of t is 3.74 (t-cal = 3.74). This value is very greater than the t-tabulated value (t-tab = 2.571) at 5 degree of freedom and 5% level of significance. Therefore when t-cal > t-tab, then H_1 or alternative hypothesis is accepted i.e. the variables are significantly correlated or their relationship is significant.

Similarly for fixed deposit, the coefficient of correlation (r_{45}) is – 0.3986, which is negative with high degree of inverse relationship. This is the extremely opposite case as compare to the correlation coefficient of RBB and NBL. The t-statistics for fixed deposit shows that its calculated value for t is 0.97, which is higher than the tabulated value of t i.e. t-cal > t-tab. In such case alternative hypothesis is accepted and null hypothesis is rejected. This indicates that the two variables are correlated or their relationship is significantly correlated.

The analysis of EBL also shows that substitution effect is not applicable from bank. That is the case is similar for all three government owned banks, meaning that there is no substitution effect for all three banks- RBB, NBL and EBL.

4.3.2 Interest Rate and Its Effect of Lending on EBL

As previously mentioned, EBL also grant credit on different area like commercial loan, industrial loan, overdraft, working capital and so on. The general lending interest rate, lending area, average lending rate and lending amount during the seven fiscal years are presented in the table 4.9.

Table 4.9

Lending Rate EBL on Different Sectors during Seven Years

Sector	2002	2003	2004	2005	2006	2007	2008
Overdraft	13.00	12.50	11.25	10.25	9.50	9.00	9.00
Export Credit	10.50	10.00	10.00	8.00	7.50	7.50	7.50
Import LC	11.75	10.75	10.75	8.75	8.25	8.25	8.50
HMG Bond	8.00	8.00	8.00	6.00	5.50	5.50	7.50
BG/CG	11.00	10.50	10.50	8.00	8.00	8.00	8.00
Industrial Loan	13.50	13.00	13.00	10.25	9.50	9.50	8.00
Commercial Loan	13.50	12.50	12.50	10.00	9.50	9.50	9.50
Priority Sector Loan	13.50	13.00	13.00	11.50	-	-	-
Poorer Sector Loan	11.00	11.00	11.00	10.50	7.25	7.25	7.25
Working Capital	13.50	12.50	11.50	9.00	9.50	9.50	8.25
Hire Purchase	13.50	13.50	10.50	8.00	7.75	7.75	7.75
Others	13.50	13.50	10.50	8.00	7.75	7.75	7.75
Average Int. Rate (1)	**12.29**	**11.87**	**11.35**	**9.42**	**8.19**	**8.39**	**8.46**
Lending Amount (2)	**3969.6**	**5030.9**	**6116.6**	**7914.4**	**10124.2**	**14059.2**	**18814.3**
Correlation (r_{12})	-0.8270						
Coefficient of determination(r^2_{12})	0.6839						
t-statistics	t-cal = 5.3042			t-tab = 2.571		Significant	
Std. Deviation	1.65%						

Source: Banking and Financial Statistics, No: 38-43, NRB

The table 4.9 shows the interest rate of EBL on lending on seven fiscal years granted in different sectors. With comparison to above aforementioned bank, EBL lending rate was somewhat lower than quoted by those above bank. This may be due to the competition because those aforementioned banks are government owned bank where as EBL is private sector leading commercial bank. The maximum interest rate quoted by the EBL during seven Years was 13.50% on "Commercial loan and Term Loan" categories. The interest rate of EBL is also in decreasing trend. But the decreasing magnitude is very little. This is so because, the interest rate of EBL during FY 2002 was very low as compare to other three banks. It means that at 2002 the average interest rate of EBL was 13.00% where as other banks had average lending rate more than 14%. During seven

years period the interest rate falls to 7.75% on average. It means that interest rate falls by only 3.46% on average. Conversely, the lending amount of EBL is seen to be in increasing trend. With compare to 2002 lending, lending of 2008 is five times more. So it can be said that lending of EBL was expanded rapidly within that seven fiscal periods. These phenomenon shows that lending interest rate and lending amount have inverse relationship.

To quantify this relationship, it is necessary to calculate correlation coefficient and t-statistics. But prior to this it is fruitful if the trend of lending interest rate and lending amount is shown in the figure as in figure 4.11.
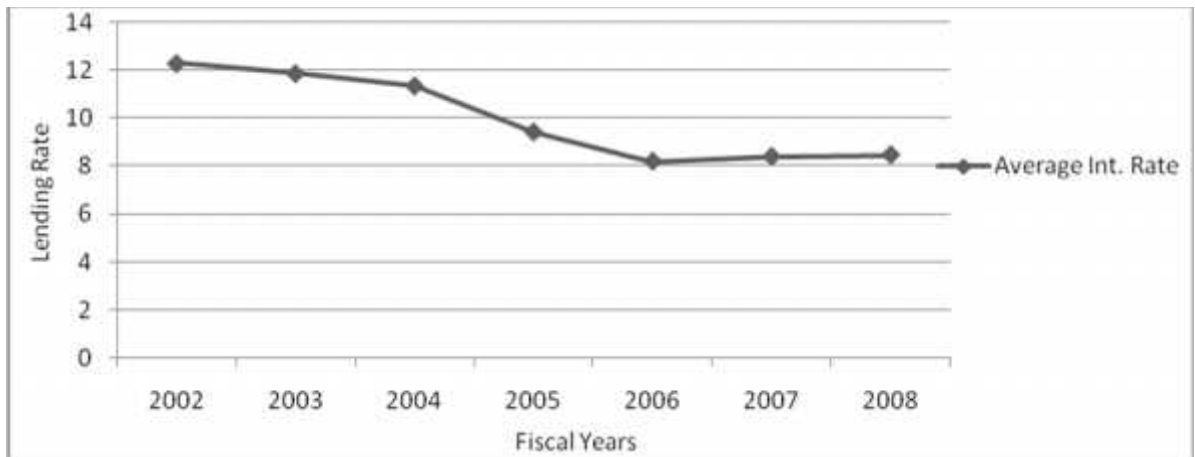
Figure 4.11

Lending Amount of EBL During Different Years
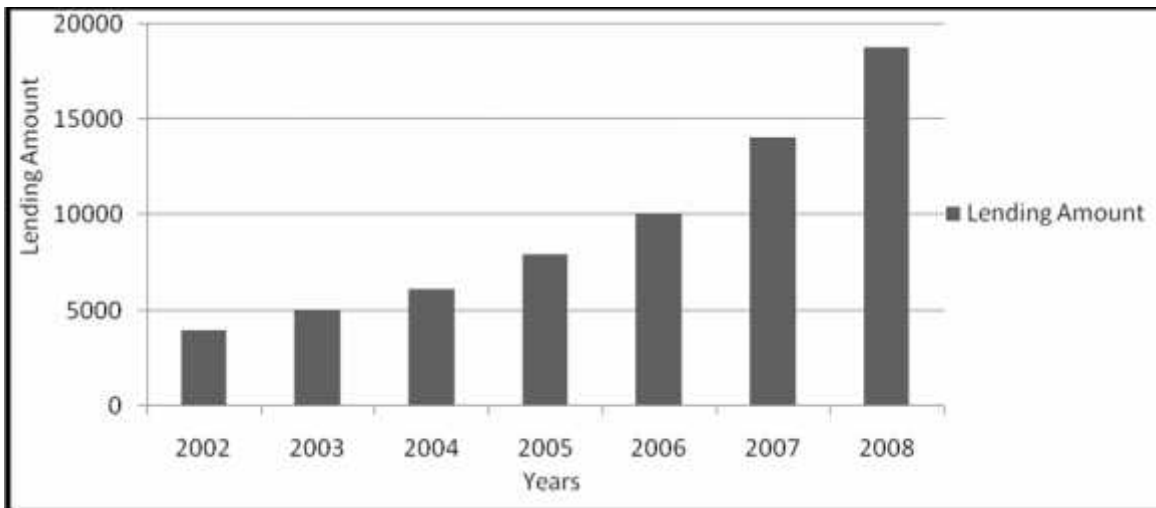
Figure 4.12

Average Lending Rate of EBL During Different FY

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

By using excel spreadsheet, correlation coefficient, average, standard deviation and other necessary statistics can be calculated. The correlation coefficient between lending rate and lending amount for EBL is –0.8270. This is very high degree of correlation. The negative sign indicates that, the two variables have opposite or inverse relationship, meaning decrease in one variables leads to increase in other variables. For this case, decrease interest rate stimulates the lending amount or vice versa. The coefficient of determination for correlation coefficient is 0.6839. In other words, the relationship between one variable is defined by another is up to the level of 68.39%.

To verify the correlation coefficient statistically, it is better if t-statistics is used. The calculated value for t is 3.33 i.e. t-cal = 3.33. Similarly the tabulated value for t at 5 degree of freedom with 5% level of significance is 2.571 i.e. t-tab = 2.571. Comparing t-cal and t-tab, it is found that t-cal > t-tab so in such case alternate hypothesis is accepted meaning the relation shown by the correlation coefficient is highly significant. In other words, two variables are significantly correlated or the increase in lending amount is due to the decrease in lending rate. Lending rate is significant factor for that.

From the analysis, it is verify that theory matches with the lending case of EBL

4.4 Himalayan Bank Limited (HBL)

4.4.1 Interest Rate and Its Effect on Deposit of HBL

The general interest rate structure for HBL for saving deposit and fixed deposits during past seven fiscal years is as follows:

Table 4.10

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

Deposit	2002	2003	2004	2005	2006	2007	2008
Savings	4.25	4.00	3.75	3.75	2.00	2.00	2.00
Fixed							
7 Days	-	-	-	-	-	-	-
14 Days	2.50	2.30	2.30	2.30	1.75	1.75	2.00
1 Month	3.50	3.30	3.30	3.30	2.00	2.00	2.25
2 Month	-	-	-	-	-	-	-
3 Months	4.25	4.00	3.75	3.75	2.50	2.50	2.50
6 Months	4.50	4.25	4.00	4.00	3.00	3.00	3.25
1 Year	5.75	5.50	5.25	5.25	3.75	3.75	3.25
Above 2 Years	5.75	6.00	5.75	5.75	3.75	4.00	3.00
Whole Mean	**4.35**	**4.20**	**4.02**	**4.01**	**2.67**	**2.71**	**2.61**
Fixed Deposit Mean	**4.38**	**4.23**	**4.06**	**4.05**	**3.24**	**2.83**	**2.72**
Std. Deviation	**1.436%**						

Source: Banking and Financial Statistics, No: 38-43, NRB

From table 4.10, it is clear that the interest rate on deposit of HBL is also in decreasing trend. But during last fiscal year the declining rate shows the unique features. The whole average interest rate is 4.35% in 2002 but it was 4.20%, 4.02% and 4.01% in FY 2003, 2004, and 2005 respectively. Similarly the average fixed deposit rate is 4.38%, 4.23%, 4.06% and 4.05% in FY 2002, 2003, 2004, and 2005 respectively. It means that decline speed of deposit interest rate of HBL is in slow position till year 2005 because it declined by only decimal each year up to 2005. This phenomenon can be portrayed in the graph as figure 4.10.

Correlation Coefficient, Coefficient of Determination and t-statistics of HBL
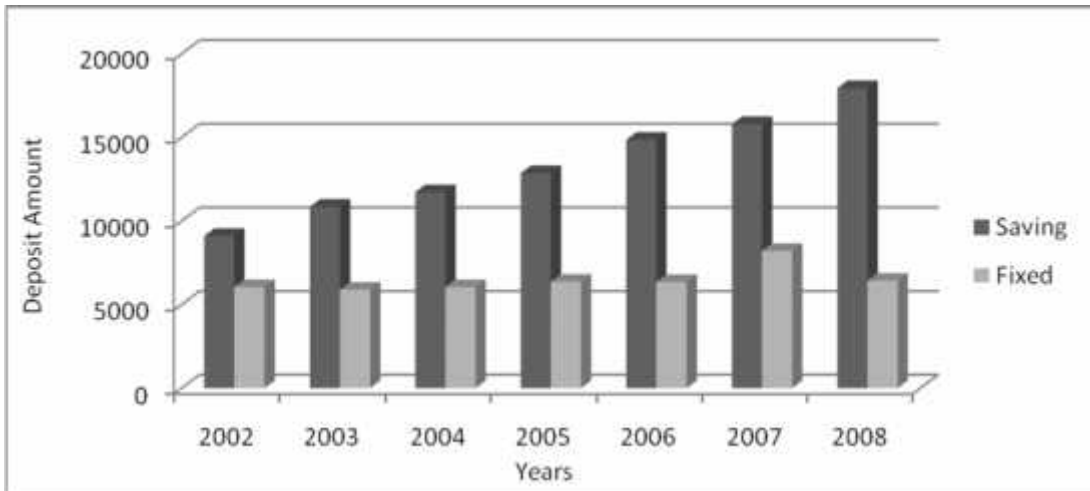
Table 4.11

Relationship between Interest Rate and Deposit Amount of HBL

Year (1)	Saving Deposit Interest Rate (2)	Saving Deposits Amounts (3)	Fixed Deposit Interest Rate (4)	Fixed Deposit Amounts (5)
2002	4.25	9102.8	4.38	6044.9
2003	4.00	10840.8	4.22	5880.7
2004	3.75	11719.7	4.06	6043.7
2005	3.75	12852.4	4.06	6364.3
2006	2.00	14852.8	3.24	6350.2
2007	2.00	15784.70	2.83	8201.1
2008	2.00	17935.00	3.72	6423.9
Correlation	r_{23} = -0.83200		r_{45} = -0.81054	
Coefficient of Determination	r^2_{23} = 0.69223		r^2_{45} = 0.65698	
t-statistic	**t-cal = 3.35** | **t-tab = 2.571**	**Significant**	**t-cal= 3.09** | **t-tab=2.571**	**Insignificant**

*Source: Banking and Financial Statistics, No: 38-43, NRB*

The table 4.11 shows the amount of saving deposit and its interest rate as well as amount of fixed deposit and its interest rate for seven fiscal year. The table indicates that, in one hand deposit rates are declining where as in other hand deposit amount is increasing in each fiscal year. This suggests that interest rate and deposit amount may have negative relationship, i.e. when one variable is found to be increased, other variable is found to be decreased and vice versa. This situation can be revealed in graph as figure no. 4.13 in following ways:

Figure 4.13

Deposit Amount of HBL during different FY

The graph 4.13 shows saving deposit amount is continuously rising each year but fixed deposit amount is seems to grow each year with some fluctuation. It means that there is rise and fall for fixed deposit amount. Similarly the interest rate of fixed deposit and saving deposit can also be shown on figure 4.14 as:

Figure 4.14

Interest Rates of HBL on Saving and Fixed Deposit
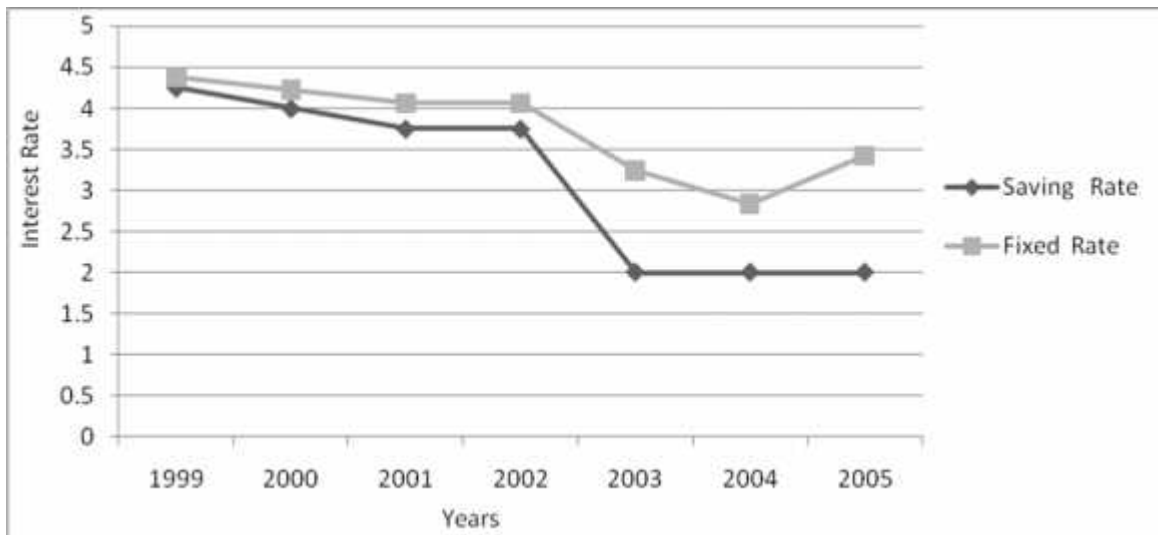
To quantify the exact relationship between interest rate and deposit amount, it is necessary to calculate the co-relation coefficient. The correlation coefficient of saving deposit amount and its interest rate is –0.83200. It means that these two variables have

very high negative relationship. Though the two variables don't have direct relationship but correlation coefficient tells that increase in one variable result the decrease in other variables. The case is similar to fixed deposit also. The correlation coefficient for fixed deposit rate and amount is -0.81054 ($r_{23} = 0.65698$), which is also very high negative correlation. Therefore for both saving and fixed deposit, the case is against the substitution effect. The coefficient of determination of correlation coefficient of saving deposit is 0.69223 ($r^2_{23} = 0.69223$), which indicates that the relation between deposit and interest rate is tied up to the level of 69.22 percent and remaining other percentage by other factors. In same manner for fixed deposit the value of coefficient of determination is 0.65698.

The value of t-statistics for saving deposit and saving interest is found to be 3.35 (t-cal = 3.35). The tabulated value for this condition at 5% level of significance with 5 degree of freedom is 2.571. It means that in this case t-calculated is greater than t-tabulated. So alternative hypothesis is accepted, which means that there is significant correlation between saving deposit and interest rate. Similarly for fixed deposit, the calculated value for t is 3.09 (t-cal = 5.228). This value is also greater than t-tabulated. So in this case also the magnitude of correlation coefficient is highly significant.

Thus from both case (saving and fixed deposit) it is clear that there is no substitution effect in the context of HBL.

4.4.2 Interest Rate and Its Effect on Lending of HBL

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

Table 4.12

Lending Rate HBL on Different Sectors during Seven Years

Sector	2002	2003	2004	2005	2006	2007	2008
Overdraft	13.00	13.75	13.25	13.25	10.50	10.00	9.00
Export Credit	9.50	9.50	9.50	9.50	8.50	7.50	7.25
Import LC	13.00	12.75	12.25	12.25	9.50	8.50	7.50
HMG Bond	8.50	8.00	8.00	8.00	6.50	6.50	7.00
BG/CG	9.50	10.50	10.50	10.50	8.75	7.50	7.50
Industrial Loan	14.00	13.50	13.00	13.00	10.50	-	-
Commercial Loan	14.00	13.75	13.25	13.25	10.25	-	-

Priority Sector Loan	14.00	13.00	13.00	13.00	11.00	-	-
Poorer Sector Loan	8.50	8.50	8.50	8.50	7.00	6.00	6.00
Term Loan	13.50	13.50	13.00	13.00	10.50	9.50	9.00
Working Capital	13.20	13.25	13.00	13.00	-	-	-
Hire Purchase	13.00	13.00	13.00	13.00	11.00	9.00	9.00
Others	16.25	16.25	15.75	15.75	13.50	11.50	10.50
Average Int. Rate (1)	**12.30**	**12.25**	**12.00**	**12.00**	**9.80**	**8.44**	**8.08**
Lending Amount (2)	**9673.50**	**10894.20**	**13081.70**	**13245.00**	**15515.70**	**17672.00**	**19985.20**
Correlation (r_{12})	-0.949811						
Coefficient of determination(r^2_{12})	0.902141						
t-statistics	t-cal = 6.79			t-tab = 2.571		Significant	
Std. Deviation	1.74%						

Source: Banking and Financial Statistics, No: 38-43, NRB

The table 4.12 shows the interest rate of HBL on lending on seven fiscal years granted in different sectors. With comparison to above aforementioned bank, HBL lending rate was somewhat lower than quoted by those above bank. This may be due to the competition because those aforementioned banks are government owned bank where as HBL is private sector leading commercial bank. The maximum interest rate quoted by the HBL during seven Years was 16.25% on "other" categories. The interest rate of HBL is also in decreasing trend. But the decreasing magnitude is very little. This is so because, the interest rate of HBL during FY 2002 was very low as compare to other three banks. It means that at 1999 the average interest rate of HBL was 12.30% where as other banks had average lending rate more than 16%. During seven years period the interest rate falls to 8% on average. It means that interest rate falls by only 3.46% on average. Conversely, the lending amount of HBL is seen to be in increasing trend. With compare to 2002 lending, lending of 2008 is two times more. So it can be said that lending of HBL was expanded rapidly within that seven fiscal periods. These phenomenon shows that lending interest rate and lending amount have inverse relationship.

To quantify this relationship, it is necessary to calculate correlation coefficient and t-statistics. But prior to this it is fruitful if the trend of lending interest rate and lending amount is shown in the figure as in figure 4.15

Figure 4.15

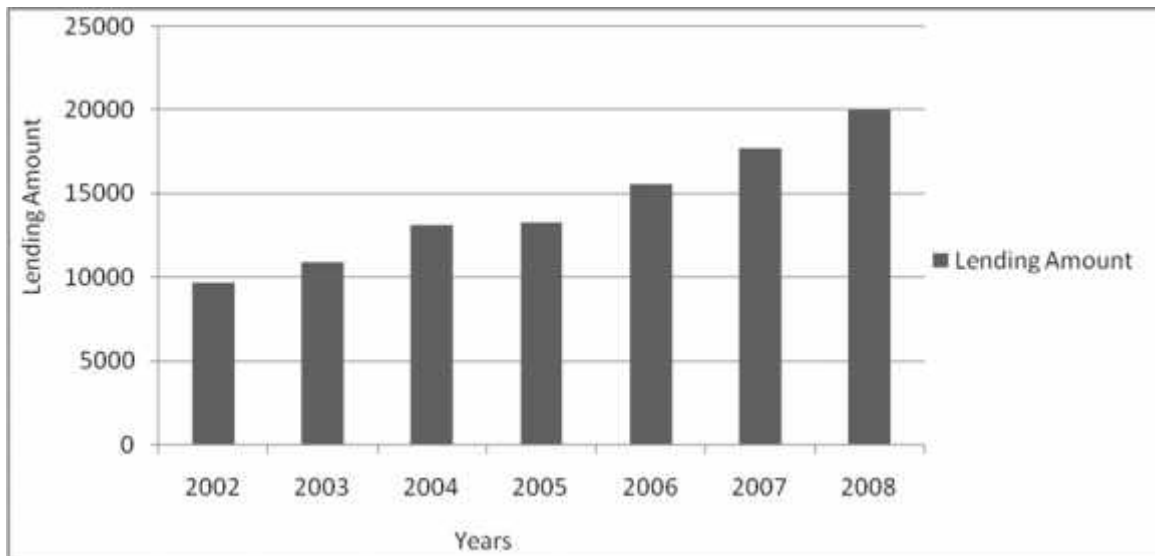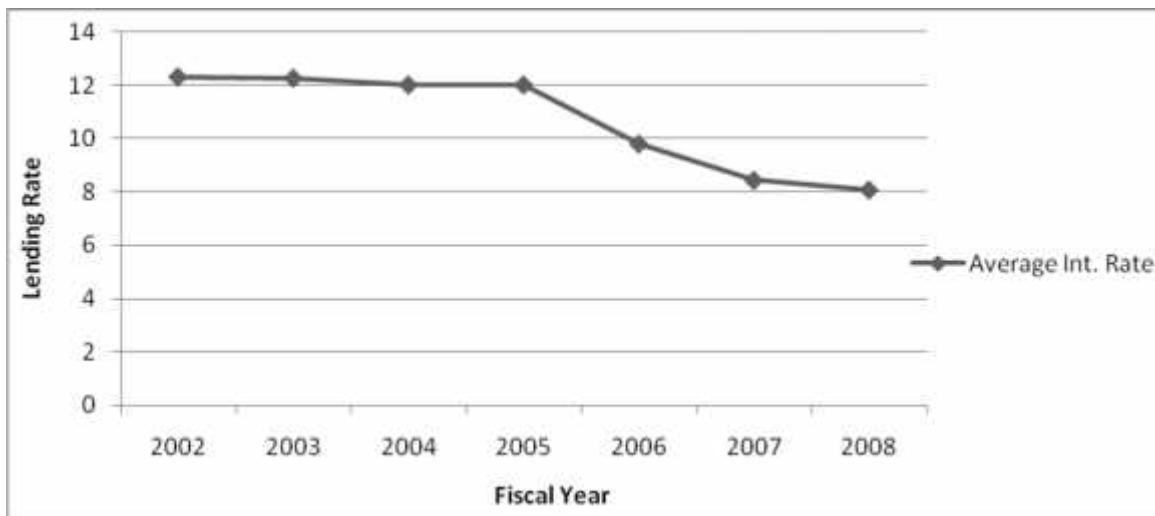**Lending Amount of HBL During Different Years**

Figure 4.16

Average Lending Rate of HBL During Different Years

The figure 4.16 shows that interest rate of lending falls rapidly up to FY 2008. It falls from average 12% to average 8%. The rate of interest rate declining is negligible till FY 2005 but decline near about three percent in FY 2006 and again fall of rate is slow till FY 2008.

Correlation Coefficient, Coefficient of determination and t-Statistics of HBL

The correlation coefficient of HBL between lending amount and lending rate is -.949811. It is high degree negative correlation. It indicates that increment in one variable result the decrement in other variables or vice versa. In this case decrease in lending interest rate increases the lending amount. People preferred more credit from the HBL when bank reduced the lending interest rate. This is similar with the saying of theory. Similarly the coefficient of determination between two variable ($r^2{}_{12}$) = 0.902141. It means that the relationship between dependent variable and independent variable is defined up to the extent of 90.2141%. In other words, the increase in lending amount by decrease in interest rate is defined up to the extent of 90.21% where as remaining percentage is due to other factors.

Similarly the t-Statistics for HBL is 6.79 (i.e. t-cal = 4.99). The tabulated value at 5% level of significance with 5 d.f. is 2.571. Comparing the t-tab and t-cal, it is clear that t-cal> t-tab, so alternative hypothesis is accepted and null hypothesis is rejected. It means that the relation shown by correlation coefficient is highly significant. That is , the inverse relation shown by two variables-lending rate & lending amount – is strong. The increase in demand of lending amount is due to the decrease in lending rate is also another strong as well as important factor that shape the lending amount. In conclusion the inverse relation of HBL on two variables is accordance with theory.

4.5 Nepal Bangladesh Bank (NBB)

4.5.1 Interest Rate and Its Effect of Deposit on NBB

As similar to previous part, it is better to present the general interest rate structure before entering to the main analysis. The interest rate structure for NBB on saving and fixed deposits for past seven Years are as presented on table 4.9.

Table 4.13

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

Deposit	2002	2003	2004	2005	2006	2007	2008
Savings	6.00	5.50	5.50	4.50	4.50	4.50	4.50
Fixed							
7 Days	-	-	-	-	-	-	-

14 Days	-	-	-	-	-	-	-
1 Month	3.50	3.50	3.50	3.50	3.50	3.50	3.50
2 Months	-	-	-	-	-	-	-
3 Months	4.50	4.50	4.50	4.00	4.00	4.00	4.00
6 Months	5.50	5.50	5.50	4.50	4.50	4.50	4.50
1 Year	7.00	7.00	6.50	4.75	4.75	4.75	4.75
Above 2 Years	7.75	7.50	7.00	5.00	5.00	5.00	5.00
Whole Mean	**5.87**	**5.58**	**5.42**	**4.38**	**4.38**	**4.38**	**4.38**
Fixed Deposit Mean	**6.45**	**5.68**	**5.40**	**4.35**	**4.35**	**4.35**	**4.35**
Std. Deviation	**0.83%**						

Source: Banking and Financial Statistics, No: 38-43, NRB

The table 4.13 portrays the interest rate of NBB on saving deposit and fixed deposits. All the interest rate on deposit is on decreasing trend. But the tendency towards decrement is similar to HBL because interest rates on first few FY were decreasing on large gap. But after 2005 the falling pace was very slow as they fell on same rate(declining rate is similar ,i.e,4.38%). But this case doesn't not match with the government owned bank; RBB, NBL & EBL. On these three banks, the declination rate was almost similar for all periods.

In the seven years fiscal periods, the interest rate is decline by almost half. This can be shown clearly if average of all interest rates is taken. The average interest rate for whole (both fixed and saving) account is 5.87%, 5.58%, 5.42%, 4.38%, 4.38%, 4.38% & 4.38% for the year 2002,2003,2004,2005,2006,2007 & 2008 respectively.

Correlation Coefficient, Coefficient of Determination and t-statistics of NBB

Table 4.14

**Relationship between Interest Rate and Deposit Amount of NBB**

Year (1)	Saving Deposit Interest Rate (2)	Saving Deposits Amounts (3)	Fixed Deposit Interest Rate (4)	Fixed Deposit Amounts (5)
2002	6.00	2086.90	6.45	5453.60
2003	5.50	2913.60	5.68	5031.60
2004	5.00	4225.90	5.40	4875.70
2005	4.50	5475.20	4.35	3536.60

2006	4.50	7414.80	4.35	2867.00
2007	4.50	5582.90	4.35	1578.10
2008	4.50	6867.20	4.35	1166.70
Correlation	r_{23} = -0.919753		r_{45} = -0.859692	
Coefficient of Determination	r^2_{23} = 0.845945		r^2_{45} = 0.73907	
t-statistic	**t-cal = 5.240** | **t-tab = 2.571** | **Significant**		**t-cal= 3.763** | **t-tab=2.571** | **Significant**	

Source: Banking and Financial Statistics, No:38-43, NRB

The table 4.14 also shows both deposit amount are increasing trend though the interest rate of both of them is in declining trend. It means interest rate and deposit amount have inverse relationship. But to find exact quantity of inverse relationship it is necessary to compute the correlation coefficient. Prior to this it is helpful if the data are presented on graph 4.17.

Figure 4.17

Deposit Amount of NBB During Different FY
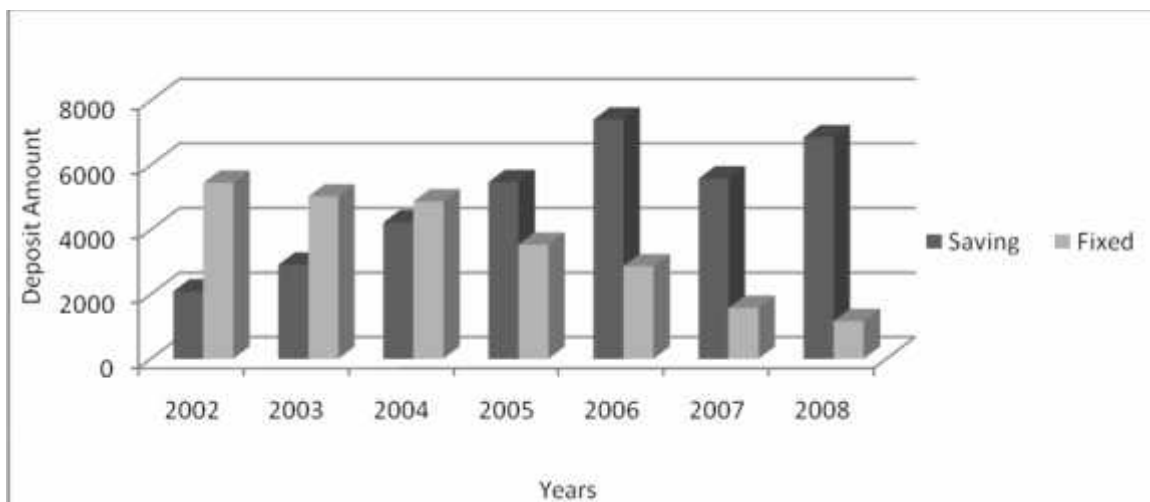
The graph shows that NBB collected more funds on fixed deposit than saving deposits in last three Years. Similarly after 2005 Years the amount of Saving deposit tends to grow more than Fixed deposit till 2008 Years. But this case was opposite in other banks.

Similarly the relationship of saving interest rate and deposit interest rate can be shown on figure 4.18 as follow.

Figure 4.18

Interest Rates on Saving and Fixed Deposit of NBB
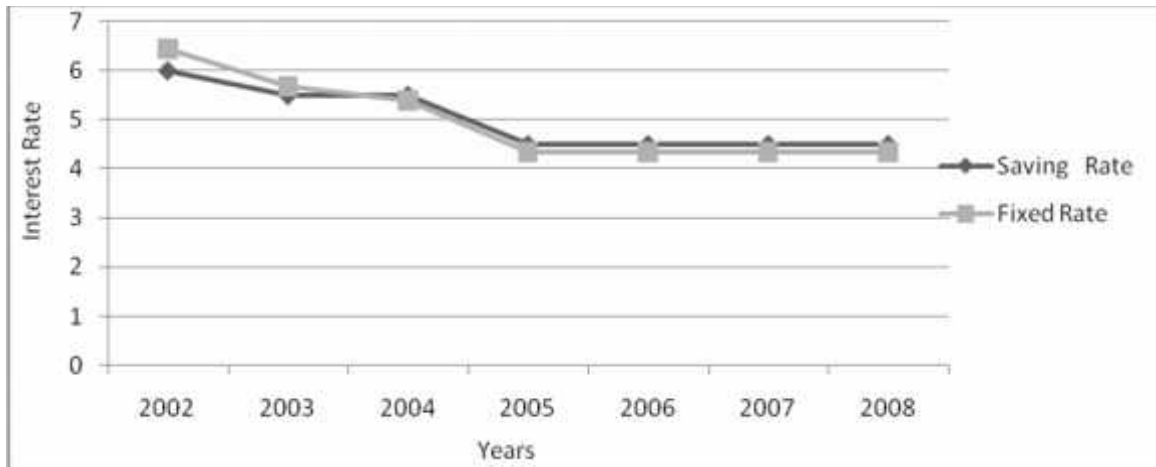
If the excel sheet is used to compute the correlation coefficient, then the value for correlation between saving deposit and interest rate is 0.919753 ($r_{23} = $ -0.919753). This is high degree of negative correlation. It means that during the last seven fiscal years, there was sharp increase in saving deposit amount even thought there was sharp decline in saving interest rates. The coefficient of determination $r^2_{23} = 0.845945$. Similarly the calculated value for t is 5.240 for saving account. The value of tabulated t at 5 d.f. and 5% level of significance is only 2.571. So for saving account t-cal > t-tab, and hence alternative hypothesis is accepted. It means that there is significant relationship between two variables (deposit amount and interest rate).

In same manner for fixed deposit, the value of correlation coefficient is $r_{45} = $ -0.859692, which indicates that the two variables have very high negative relationship. In other words, when increment occurs on one variable occur then there occur decrement on other variables. To identify the significance or insignificance of this correlation, it is necessary to calculate the value of t-statistics. The calculated value of t is 3.763. Similarly the tabulated value for t is 2.571, which is less than calculated. As a result null hypothesis is rejected and alternate hypothesis is accepted. It means that the correlation coefficient is

highly significant. Thus from the both study it reveals that substitution effect is not applicable for NBB.

4.5.2. Interest Rate and Its Effect of Lending on NBB

At last, another bank for analysis is Nepal Bangladesh Bank. This bank also grants the credit to its customers in different sectors. But according the NRB bulletin "Banking and Financial Statistics" the bank provided the loan to its customers on following sectors.

Table 4.15

Lending rate NBB on Different Sector During Seven Years

Sector	2002	2003	2004	2005	2006	2007	2008
Overdraft	15.00	14.50	14.00	13.00	12.00	-	-
Export Credit	12.00	11.75	11.75	10.50	9.50	9.50	9.50
Import LC	-	-	-	10.50	-	-	-
HMG Bond	9.00	9.00	9.00	8.50	7.50	7.50	7.50
BG/CG	13.00	13.00	13.00	12.00	8.00	8.00	8.00
Industrial Loan	14.50	14.00	14.00	-	12.00	10.50	10.50
Commercial Loan	15.00	14.50	14.00	-	9.50	8.00	8.00
Priority Sector Loan	13.00	13.00	13.00	11.00	10.00	10.00	10.00
Poorer Sector Loan	12.00	12.00	12.00	10.00	9.50	9.50	9.50
Term Loan	14.00	14.00	13.50	12.00	-	-	-
Working Capital	-	-	-	-	-	9.00	9.00
Hire Purchase	14.50	14.50	14.00	12.50	9.50	9.50	9.50
Others	15.00	14.50	14.00	13.00	10.50	10.50	10.50
Average Int. Rate (1)	**13.36**	**13.16**	**12.93**	**11.30**	**9.80**	**9.20**	**9.20**
Lending Amount (2)	**7347.4**	**8222.1**	**8491.9**	**10253.6**	**90107.00**	**83028.00**	**84200.00**
Correlation (r_{12})	-0.948052						
Coefficient of determination(r^2_{12})	0.898800						
t-statistics	t-cal = 6.66		t-tab = 2.571		Significant		
Std. Deviation	1.83%						

Source: Banking and Financial Statistics, No: 38-43, NRB

The table 4.15 shows the lending interest rate structure of NBB on seven FY on different sectors. From table it is clear that the interest rates of NBB are in falling stage. During the first phase of FY the interest fell by large gap. But in later year the falling speed was low. This phenomenon can be seen clearly with the study of average interest rate. The average interest rate for FY,2002, 2003, 2004, 2005, 2006, 2007 and 2008 are 13.36%, 13.16%, 12.93%, 11.30%, 9.80%, 9.20%, and 9.20% respectively.. In same manner, for lending amount, the lending amount of NBB increased each year. During the last five Years the lending amount rises by more than 9 times but its declines in 2007 and 2008 Years during to the take over of the bank management by the Nepal Rastra Bank. This is very significant figures among these 5 aforementioned sample banks. This shows that the

lending amount and interest have negative relationship. But to get the exact numerical result of relationship correlation ship should be necessary to calculate. The figure for changing trend of interest rate and lending amount is given on figure no 4.19 and figure no 4.20.

Figure 4.19
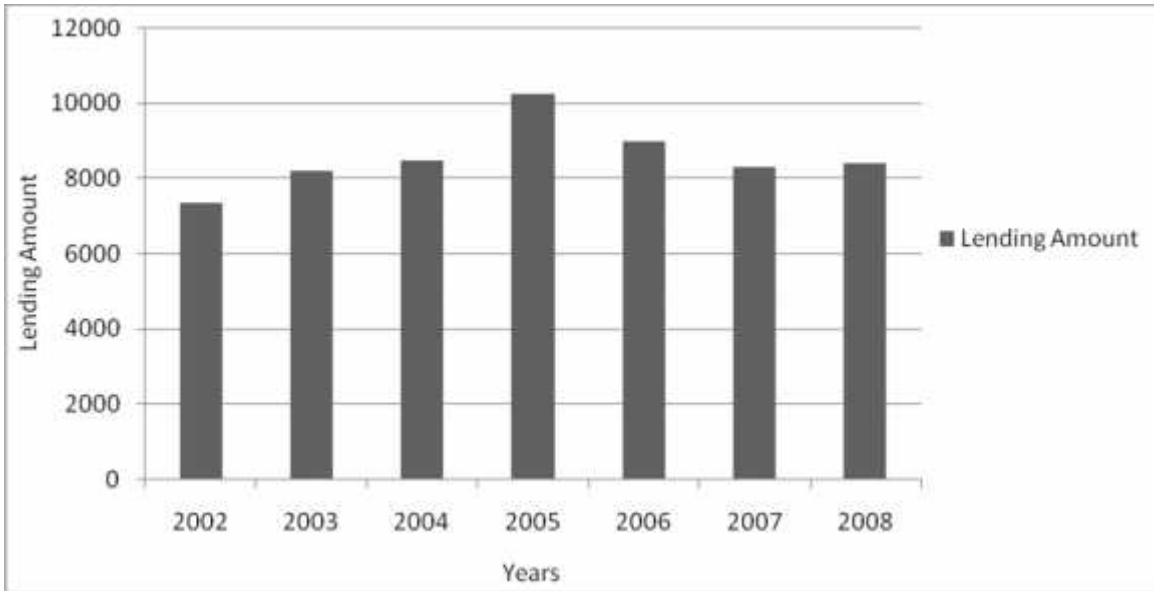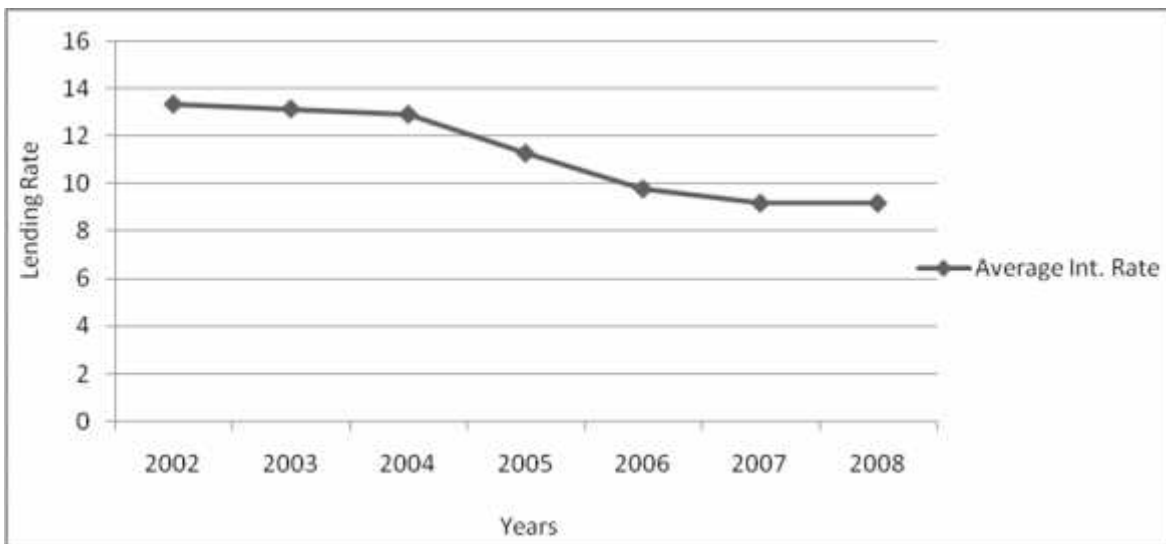
Lending Amount of NBB During Different Years

Figure 4.20

Average Lending Rate of NBB During Different Years

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

The correlation coefficient of NBB between lending amount and lending rate is -0.94805. It is high degree negative correlation. It indicates that increment in one variable result the decrement in other variables or vice versa. Decrement in lending interest rate increases the lending amount because people preferred more credit from the HBL when bank reduced the lending interest rate. This condition matches with the theory. Similarly the coefficient of determination between two variable (r^2_{12}) = 0.83275. It means that the relationship between dependent variable and independent variable is defined up to the extent of 83.27%. The remaining percentage is due to other factors.

Similarly the calculate value for NBB is 4.99 (i.e. t-cal = 4.99). The tabulated value of t-statistics at 5% level of significance with 5 d.f. is 2.571. Comparing the t-tab and t-cal, it is clear that t-cal > t-tab, so alternative hypothesis is accepted and null hypothesis is rejected. It means that the relation shown by two variables – lending rate & lending amount – is strong. In conclusion the inverse relation of NBB on two variables is accordance with theory.

4.6 Findings of the Study

This study is conducted to identify the practical applicability of some of the theories in the context of Nepal that are taught on the University and colleges. With this motive, this study is mainly focused on three objectives. First one is to determine the actual situation of substitution effect in the context of Nepalese financial markets. Similarly, next objective is to determine the relationship between lending rate and corresponding lending amount. And lastly, the next objective is to explore the actual relationship of deposit lending and interest rate.

From the study, the three major findings are obtained. They are:

1. The analysis of substitution effect for both fixed and saving deposit shows that substitution effect does not work for all sample banks. This means that, people are oriented to deposit more amounts even if the interest rate are falling every year. The

increasing deposit amount clarifies this fact.

2. According to theory, lending interest rate and lending amount should have inverse relationship. From this study, it is found that all sample banks except NBL have inverse relationship. But among them, three banks have strong relationship as required by theory. The increment in demand of loan able fund for NBB, HBL and EBL is due to the decline in lending rate because they have very high value of t-statistics. But for RBB, increase in lending amount is not due to the decrease in lending rate but due to other factors, as it has lower t-calculated value than tabulated value.

3. For fixed and saving deposits, it is found that all sample banks except EBL have moderate correlation with inflation rate. Similarly, all t-test values are insignificant except EBL. This shows that deposit rate and inflation rate are not related significantly though the Fisher theory suggest there should be positive relationship. The case is same for lending rate and inflation rate too.

CHAPTER - V
SUMMARY, CONCLUSION AND RECOMMENDATIONS

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

5.1 Summary

Nepal is orienting towards the development. Natural resources of the country remain unused and unutilized due to the lack of financing and technical know-how. In order to mobilize the limited capital, the government of Nepal adopted the liberalization policy. Financial system is hoped to develop the economy and help to raise the living standard of the people. Financial intermediaries mobilize the fund by collecting the scattered resources from the savers and provide the collected funds to the users. The intermediaries of financial systems sustain by lending the fund on higher interest rate and paying the deposit holder a little interest. It means that such organization survive by making profit through an interest spread on deposit and lending. The decision made to charge and provide interest on lending and deposit affects the profit position of the organization. Depositors are generally attracted by offering the higher interest rates. Similarly high credit rates de-motivate the investors as a result investment in the country shrinks down. Though there are various factors in the economy that affects the deposit amount and lending amount; interest rate is one of the major factor that affect deposit and lending amount. With the major objective of showing relationship between deposit rate and

deposit amount i.e. substitution effect, lending rate and lending amount, inflation and interest rate, this study is undertaken.

After the liberal policy adopted by the government, NRB liberalization the rigidness to fix the interest rate that financial intermediaries charge and offer. But time to time, NRB issues directives regarding overall performance of the financial institutions. Therefore, in past few years back, banks and other financial institutions get freedom to quote the interest rate on lending and deposit. This creates the competition in the Nepalese economy. Therefore, the spread rate gap between the deposit and lending is narrow as compare to the past trends. In this sense, this study is conducted to identify whether some of the theories of finance and economics are applicable or not in the Nepalese financial markets. These major theories are like substitution effect, fisher effect and inverse relationship between interest rate and lending amount. For this purpose brief introduction about Nepalese economy, interest rate, sample organizations, statement of problem, significance of the study, research hypothesis, and so on are made in the first chapter of this dissertation.

In second chapter, theoretical review as well as review of previous research has been made. Different views about interest, function of interest, theories of interest, factors affecting interest rate and so on are reviewed on that chapter. On the theories of interest, mainly four theories- The Classical Theory, Liquidity Preference Theory, Loanable Fund Theory and Rational Expectancies Theory - are reviewed. Similarly the factor affecting interest rate like default risk, marketability risk, exchange rate risk and so on are explained. Similarly, in order to identity the relationship of interest rate and inflation, Fisher effect, Harrod-Keynes effect are also studied on the second chapter.

Research design used is mainly analytical. Out of the total financial system, five commercial banks are chosen for sample purpose; mainly secondary data are used for the analysis. These all are made on third chapter. Lastly on fourth chapter, collected data are presented in tabular and graphic form and analyzed using various statistical tools like mean, standard deviation, correlation coefficient and t-statistics.

5.2 Conclusion

After the study of different sample banks with the helps of the various statistical tools like:- mean, standard deviation, coefficient of correlation, t- statistic, following conclusion and findings are pointed.

1. Beside RBB, there is a decreasing trends of interest rate on deposit and lending of all the sample banks under study. Fixed deposit on government banks are decreasing every year. Analysis shows interest rate on lending are higher than deposit rate of the sample banks. The correlation coefficient between two variables (deposit and lending rate) of sample banks comes highly positive.

2. The saving deposit amount and the saving interest rate are ranging from positive to negative and are inversely proportional to each other, if one variable increase uniformly other variable decrease and vice versa. This is result of the large funds of public on saving account with low interest rate, which indicate the situation of null investment opportunity.

3. Lending interest rate and lending amount have negative relationship. So except NBL all the sample banks have negative co-relation between these two variables. So by the helps of the correlation tools it can be inferred that except NBL all the sample banks have inverse relationship.

4. There is a negative relationship between saving deposit amount and the saving interest rate. So the t- statistic of negative correlation between saving interest rate and saving deposit amount conclude that for saving deposit there is no substitution effect.

5. Depositors are not satisfied due to negative real rate of return even lower that inflection rate, which indicate instead of gaining profit the depositors lose there money in real sense.

6. Except NBL and RBB there is there is negative correlation. So the correlation of coefficient for RBB and NBL is 0.946 and 0.713, the RBB has moderate level of correlation where as NBL has high degree of correlation. So there is substitution

effect occurs for both RBB and NBL in case of fixed deposit. Other banks have negative correlation coefficient so, people deposit more funds even if offer yield on fixed deposit. T-statistic also clarify that the relationship between RBL and NBL is not strong.

5.3 Recommendations

From the above analytical, interpretational and conclusion point of view following recommendation can be achieved which is useful for further researcher, academician bankers and the concerned authorities, to get insight on present topic of the present conditions. This research helps to improve the present condition and direct concerned authorities for taking effective decision making ability. According to this study, the major recommendations are as follow:

1. In order to developed the economy, financial institution have to collect more volume of the capital, so financial institution are suggested to quoted higher deposit interest rate as far as possible. This situation force for the reduction of the profit opportunity but it will enhance the economic condition of the country.

2. There is a higher spread between lending interest rate and deposit interest rate. So, higher spread increase the profit figure of the banks, but it reduces the deposit collection and investment in the country. Therefore financial institution should conscious for the unusual spread of interest, and suggestion is made to spread minimum interest as possible.

3. It is suggested to reduce more lending rate on production sector than that of non-productive sector. In practical it is hard matter to reduce more lending rate in production sector, in order to solve the problems bankers can reduce the rate of all sector proportionately.

4. NRB has a authority to determine the range between lending rate and deposit rate. So NRB is suggested to specify the whenever there is higher gap between two interest rate in the Nation.

5. There is always threaten from the depositor, weather they mobilize their fund on Non-productive sector, so in order to convince them the concerned authorities who

fixed the interest by interplay of demand and supply, are suggested to include the inflection premium as far as possible. If it is not consider real rate comes out to be negative, which force depositor to mobilize the funds in non productive sector.

6. It is suggested to all the banks to quoted one consistence rate then on range. Because the lending rate of some banks on same department are find to be different. These types of consistence may bring miss- conception towards the related organization.

7. In order to promote more lending and to promote more borrowing, lending institution are suggested to invest on the new areas as well as to introduce competitive customer oriented schemes. Its also helps in solving liquidity problems.

8. For NRB, it is suggested to give serious attention to public overall information uniformly. And for the secondary data NRB also have to pay attention on the publication of bulletins and other publication in a uniform time.

9. This research focus on a particular variable (i.e. Interest, Deposit). Future researcher is suggested to explain in detail to get maximum information.

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APPENDICES

Appendix – 1
Profile of Sample Banks

Nepal Bangladesh Bank (NBB)

Nepal Bangladesh Bank Ltd. was established in June 1994 with an authorized capital of Rs. 240 million and paid up capital of Rs. 60 million as a joint venture bank with IFIC of Bangladesh. Currently the bank has an authorized capital of Rs. 359.9 millions. Its head office is situated at New Baneshwor, Bijuli Bazar and Kathmandu. The prime objective of this bank is to render banking services to the different sectors like industries, traders, businessmen, priority sector, small entrepreneurs and weaker section of the society and every other people who need banking services. During the period of 10 years of its operation it has been able to provide excellent services to its clients. The bank has introduced its first ATM facility at Kathmandu plaza, Putalisadak branch to give 24 hours 365 days banking services to their valued customers. The bank has earned the glory of providing the services to almost all the top business houses of the country and it occupies one of the leading positions among the joint venture banks in Nepal. The bank is still pursuing to accommodate as many clients as possible.

Himalayan Bank Limited (HBL)

Himalayan Bank Limited was established in 1992 by the distinguished business personalities of Nepal in partnership with Habib Bank Limited, on of the largest commercial bank of Pakistan. Banks operations were commenced from January 1993. It is the first commercial bank of Nepal with maximum shareholding by Nepalese Private Sector. Besides commercial activities, the bank also offers industrial and merchant banking facilities. The bank at present has the five branches in Kathmandu valley and seven branches outside the valley. The bank is

also operating a counter in the premise of the Royal Palace. The bank has a very aggressive plan of establishing more branches in different pats of the kingdom in near future. The bank's policy is to extend quality and personalized service to its customers as promptly as possible. The bank, as far as possible, offers tailor made facilities to its clients, based on the unique needs and requirements, to extend more efficient services to its customers. Himalayan Bank has been adopting innovative and latest banking technology. This has not only helped the bank to constantly improve its service level but has also kept it prepared for future adoption of new technology. HBL has listed on Nepal stock exchange in July 5, 1993. The share participation of the bank is 51% Nepalese Promoters, 14% employment provident fund, 15% general public and 20% Habib Bank of Pakistan.

Everest Bank Ltd (EBL)

EBL started its operation in 1994 with a view and objectives of extending professionalized and efficient banking services to various segments of the society. The bank is providing customer friendly services through a network of 27 branches across the nation. The bank was established with the Joint venture of Punjab National Bank (holding 20% equity in the bank) which is the largest nationalized bank in the India having 113 years of banking history. The bank has been conferred with "Bank of the Year 2006, Nepal" by the banker, a publication of financial times, London. The Bank at present have 27 branches all over the nation and planning to extended its network through out the nation in the near future. The Bank's own Web based online remittance product "Everest Remit" facilities remittance from Malaysia Doha, UAE and Qatar to more than 170 payout location in Nepal. All the branches of the bank are connected with Anywhere Branch Banking System (ABBS) which enables customers to do all their transactions from any branches other than where they have their account. EBL is association with Smart Choice Technology(SCT) is providing ATM services to its customers through more than 74 ATMs and over 850 point of sales

across the country. The bank also provide the service of direct account credit in Punjab National Bank (PNB) branches connected with Central Banking System .Recognizing the value of offerings a complete range of services, the bank have pioneered in extending various customer friendly products as Home Loan, Education Loan, EBL Flexi Loan, EBL Property Plus(Future Lease Rental),Home Equity Loan, Vehicle Loan, Loan Against Life Insurance Policy and Loan For Professionals. EBL has introduced Mobile Vehicle banking system to serve the segment deprived of proper banking facilities through its Birtamod Branch, which is the first of its kind.

Nepal Bank Limited (NBL)

Nepal Bank Limited is the first bank to commence its business in Nepalese economy. After the enactment of "Nepal Bank Law" in B.S. 1994, this bank was established in 30 Kartik, 1994 B.S. Most of the banking functions in Nepalese market are on track after the establishment of this bank. At the time of establishment, beside commercial functions, this bank performed all the other functions that should be done by Central bank of the country except issuing notes (money). But after the establishment of central bank, Nepal Rastra Bank, this bank transformed itself as a pure commercial bank. The government of Nepal, HMG, has 41% share and general public have 59% shares on this bank. Now this bank is passing with many twists and turns in present competition market. This bank is also one of the governments owned having 116 branches (NRB Bulletin 2004, Mid-July) all over the country. With the foreign management team, this bank is now in the process of recovery.

Rastriya Banijya Bank (RBB)

Another government owned bank in Nepalese market is Rastra Banijya Bank. During this dissertation, this bank is also running by outsider foreign management. This bank was established in 10 Magh, 2022 B.S. on the ground of "Commercial

Bank Act" 2021 B.S. This bank played a great role to uplift the agricultural, industrial and commercial sector of the country since its establishment. This is the largest commercial bank among all seventeen commercial bank in Nepal. It has 117 branches scattered all over the countryside. This bank has highest amount of deposit as well as granted highest amount of loan till this study. So this bank is important sample for this study.