

CHAPTER ONE

INTRODUCTION

1. Introduction:

1.1 General Background

Nepal an economically poor country, lying on the lap of the Himalayan, and surrounded by two strong countries, China and India, is situated at the southern part of the Asian Continent. Economic growth rate since ten years is very low whereas population is growing very rapidly. The growth rate for GDP is only 1.9% and per capita income is \$240, which is very low as compared to other SAARC countries. But the rate of inflation is about 8 %.(Agrawal,Govinda Ram,2004:51) So, the people have negative return from bank deposits. Income distribution is also uneven. About 38% of people are still living below the poverty line. Most of the people are fully dependant on agriculture. But its' contribution to GDP is only 40%. Although majority of population has agriculture profession; still there is insufficiency of food in most of the Himalayan region. The agricultural sector is very much unproductive. Nepal, in the past well known for food-exporting country, is now importing. People are unemployed and it is a key problem of Nepal, which is leading the youths towards frustration, social crimes, violence, and even foreign migration. People engaged in agriculture are also semi employed. There is disguised unemployment on agricultural sector.

The living standard of the people of any country to large extent is determined by the economic development of that country. Being the people of poor country, the living standard of the Nepalese people is also low. The basic function of the economy is to allocate scarce resources to produce goods and services demanded by the society. The production of goods and services require the transformation of resources –land, labour, capital, technology, managerial skill and information. Among these resources capital is considered as the most important and is known as the lifeblood of business for the production of goods and services. Among the three sectors of the economy (i.e. household business and government), business sector produces goods and services, which helps in economic development. Household sector (individuals and family) save the money, which can be used as capital for business sector. Without adequate capital business sector wouldn't foster and hence economic development become difficult. So, the capital mobilization is necessary to develop the economy and to raise the living standard. The role of financial intermediaries is vital for the economic development because they collect scattered funds from savers and provide that to productive use. Now the world has become a global village but even there exist barter system in the rural areas of Nepal. Development of economy is very difficult unless it is monetized and financial institution plays major role to monetize the economy.

Financial institutions in Nepal, as an organized sector for capital mobilization was started after the advent of Nepal bank Limited in 1994 B.S as a joint venture between government and private sector under Nepal Bank Act 1994. It was the pioneer institution of modern banking system. Before that “Tejarathj Adda” was fulfilling the banking need of the people. Nepal Rastra Bank was established on 14th Baishak 2013 B.S under Nepal Rastra Bank Act 2012 to monetise the economy and to avoid the dual monetary system. Nepal Rastra Bank is the central Bank which formulates monetary policies and fiscal policies to Strengthen and develop the financial system and to guide and supervise the other commercial Banks. A fully government owned bank; Rastriya Banijya Bank was established in 2022 B.S under commercial Bank Act 2021 B.S. Similarly agriculture development bank was established in 2024 B.S Under its respective Act. After the restoration of democracy in 2046 B.S and liberalisation policy adopted by government, some commercial banks, development banks, finance companies, insurance companies emerged to provide banking facilities to the public. Till mid July 2007 as per NRB data there are 23 commercial banks, 58 development banks, 5 rural development banks, 79 finance companies, 12 micro credit development banks, 17 saving and credit cooperative societies, and 47 non government organizations (NGOs) are in operation taking license from NRB.

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 some how wipe 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 the people having less income. 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 firm 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 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 able to save their money, they show their interest 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. Banks provide 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 that 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 upliftment of the whole country. So, interest rate is crucial in survival and development of financial institutions.

1.2 Interest Rate

The rate of interest is the price a borrower must pay to secure scarce loanable funds from a lender for an agreed upon period. It is the price of credit. But unlike other prices in the economy, the rate of interest is really a ratio of two quantities: the money cost of borrowing divided by the amount of money actually borrowed. It plays the dominant role on lending and borrowing.

Generally interest rate refers to the market interest rate. The glossary term of market interest rate is the interest rate for bonds with similar risk characteristics and terms to maturity to those of the bond you are selling. The market interest rate is useful for indicating the price of your bond. If the market interest rate is lower than the coupon rate of your bond, your bond price will be at a premium to its face value. If the market interest rate is above the coupon rate of your bond, your bond price will be at a discount to its face value.

The price or amount that someone pays for the transitory use of someone else's funds is called interest. Interest could also mean the payment that someone receives for giving up the ability to spend money temporarily for the purpose of lending the money to someone else. The definitions clearly describe the relationship between a lender and a borrower. Lenders would not willingly allow anyone to borrow or allow him or herself the sacrifice of not spending money if there is no interest. On the other hand, borrowers would be only too happy to spend if they do not have to worry about interest rates. If, for example, you intend to borrow Rs.100 per year, the interest rate would be 10 percent per year. This is due to the fact that interest rates are expressed as percents per year. At the end, you would have to pay the Rs.100 you owe and an additional Rs.10 as interest. There are reasons why interest rates exist, but they are different from the perspectives of a lender and a borrower. From a lender's point of view, an interest rate makes up for increasing prices of goods. This is a means to compensate him for giving up his power to purchase by lending his money to others. An interest rate also makes up for the risk that a lender makes in having his money borrowed. For bank lenders, an interest rate allows them to stay in business. The profit from interest rates allows banks to continue running. From a borrower's point of view, an interest rate allows him to spend now, rather than later on items. Interest rates also allow a borrower to make a larger or a more expensive purchase such as a house or a car. By availing of interest rates, education becomes affordable to some

borrowers. Willingness to pay interest allows business borrowers to purchase equipment, buildings and inventories to make investments and increase their profits. Some borrowers are willing to pay interest rates because they are after associated tax advantages. Lastly, an interest rate is a means to move funds to where they could earn the highest rates.

Interest is what a bank charges to lend money. The rate of interest charged for the use of money is usually expressed at an annual rate. The rate is determined by dividing the amount of interest by the amount of principal borrowed. The homeowner's home loan mortgage is the instrument through which they "rent" the money required to buy a home. The "rent" of that money is expressed in terms of an interest rate. Therefore an interest rate of 5% means that the customer will be paying 5% of the principal as the cost for borrowing money for a certain period, usually a year.

Interest rates are set by banks and lending institutions. Most countries have a main "central bank" that sets the interest rate these banks and lending institutions must pay to borrow from the central bank. In the United States, that central bank is known as the Federal Reserve. The rate that a bank or lending institution charges customers is the Federal Reserve's rate plus an additional charge of their own. Therefore, if a bank borrows money from the Federal Reserve at 3%, they may then charge their customers 5% as their mortgage rate. The rates the Federal Reserve charges are set in order to control business growth and inflation by limiting or increasing the amount of business activity in the country through its interest rates.

Interest rates affect everything from the stock market to loan prices to individual savings rates. The Federal Reserve controls interest rates in the U.S. primarily by changing the rates it charges to banks. The banks then pass along the new rates to the customers. In this way the Federal Reserve is able to help control the country's economic growth and avoid inflation. Low inflation allows consumers and businesses to use low interest rates to make beneficial investments.

When interest rates are low, people will borrow more, invest more, and build more. While this increased business activity is viewed as a good thing, having too much money available can have negative consequences. When everyone is building at the same time, this means there will be shortages of materials and labor. In turn, builders will be forced to pay higher prices to get the materials they need before they run out. This is called inflation. During inflationary periods, interest rates tend to go up. When inflation goes up enough, people build less, invest less, and borrow less. This slows down business activity.

Another factor that affects interest rates charged to borrowers is credit risk. Borrowers who are seen as reliable and have a strong credit history are charged lower interest rates because there is little risk that they will not pay back their home loan. Borrowers with a weaker credit history are perceived as being a higher-risk loan customer, and will be charged a higher interest rate.

Interest is the cost of borrowing and the interest rate is the rate expressed as a percentage of the total sum borrowed, for a stated period of time. All business organizations or individuals are responsive to interest rate of banks and financial institutions in one way or another. 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 money 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 them 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 businesses. For example, an increase in the interest rate provides additional incentives to individuals and others to postpone current consumption (Save) and thereby free resources for investment. Interest rates send price signals to borrowers, lenders, and savers. Higher interests rates generally bring forth a greater volume of savings and stimulate the lending of fund i.e. *Substitution effect*. Lower rate of interest, on the other hand, tend to reduce the volume of borrowing and capital investment, and lower rates stimulate borrowing and investment spending. (Rose, Peter S, 1997:211) Investment is function of interest rate. The quality and flow of investment determines the income in the economy. Therefore, 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 production function, is influenced by the interest rate, since the credit is also one of the components of production process. The saving in investment in the economy, which are influenced by the interest rates, are the real economic variables. The incomes and expenditures of the variable sectors of the economy result in excess savings or excess investment in each of the sectors

Whenever we talk about interest rate, we also have to remember another important factor, which have direct relation with interest rate; that is Inflation. These two things are two side of same coin. Theoretically, market interest rate is determined only after adding inflation premium to the real interest rate.

Mathematically, $\text{Nominal Interest Rate} = \text{Real Interest Rate} + \text{Inflation Premium}$

1.3 Interest rate structure in Nepal

Before studying the relationship of 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 analysis about this are analyzed in chapter four, but the table no 1-1 below tries to give the glimpse of the lending rate and deposit rate of different financial institutions:

Table: 1-1 Structure of Interest Rates (Percentage per Annum)

	Mid-July			
	2003	2004	2005	2006
Nepal Rastra Bank				
Bank Rate	5.5	5.5	5.5	5.5
Refinance Rates	2.0-4.5	2.0-3.0	1.5-2.35	1.5-2.35
Government Securities				
Treasury Bills (91 days)	2.98	1.47	3.94	3.25
National Saving Certificates	7.0-13.0	6.5-13.0	6.5-13.0	6.5-8.5
Development Bonds	3.0-8.0	3.0-8.0	3.0-8.0	3.0-8.0
Inter bank Rate	4.50	.71	4.71	2.13
Commercial Banks				
Deposit Rates				
Saving Deposits	2.5-6.0	2.0-5.0	1.35-5.0	2.0-5.0
Time Deposits				
1 Months	-	2.0-3.5	1.35-3.5	1.5-3.5
3Months	2.0-.50	2.0-4.0	1.5-4.0	1.5-4.0
6Months	2.5-6.0	2.0-4.5	2.5-4.5	1.75-4.5
1 Years	3.0-7.0	3.75-5.75	2.25-5.0	2.25-5.0
2Years and above	3.25-7.50	3.0-6.0	2.5-6.05	2.5-6.4
Lending Rates				
Industry	8.50-14.0	8.5-13.5	8.25-13.5	8.0-13.5
Agriculture	10.5-14.5	10.5-13.0	10.0-13.0	9.5-13.0
Export Bills	4.0-12.5	4.0-11.5	4.0-12.0	5.0-11.5
Commercial Loans	7.5-16.0	9.0-14.5	8.0-14.0	8.0-14.0
Overdrafts	10.0-17.0	10.0-16.0	5.0-14.5	6.5-14.5
Cash Reserve Ratio (CRR)				
With NRB	6.0	6.0	5.0	5.0
Cash in Vault	2.0	-	-	--

Source: Macroeconomics Indicators of Nepal, NRB, Research Department, Statistics Division, January, 2007

[Note: The average lending rate of any sector is calculated by adding the two rates and divided it by 2 i.e. for example for industrial sector average lending rate it is calculated as $(7\% + 15\%) \div 2 = 11\%$]

According to the structure of interest presented in table 1-1, both lending and deposit rates are declining (except development Bond) during the period 2003 to 2006 mid July. This may be due to fluctuating interest rate on government securities i.e., Treasury bills(T-Bills).According to table, the interest rate of T-Bills has decline from 2.98 in 2003 to 1.47 in 2004 and again it increases to 3.94 in 2005 and decreases to 3.25 in 2006. As per principle, interest rate of T- Bills are the bases for all kinds of interest rate. So fluctuating T-bills interest rates may leads to decline in interest rates of others. The interest rate of National Saving Certificates has decline, which was 7.0-13.0 in 2003 which reaches to 6.5-8.7 in 2006. If average is taken it is 10%, 9.75%, 9.75% and 7.5% respectively in 2003, 2004, 2005 and 2006.

The interbank interest rate was 4.5% on 1002 but it decreases to 0.71% when it came during mid July 2004, which shows the banks have excess liquidity. But it again increase to 4.71% in 2005 then decline to 2.13% in 2006 which again shows increasing liquidity position of bank. Most of the commercial banks classified their deposits into two sections –Saving Deposits and Time Deposits and offered the different interest on them. Talking about saving deposit, the interest rates range from 2.5-6.0 in years 2003 but this rate decline to 2.0-5.0 when it comes to the year of 2004. If mean is taken, then the average interest rate on 2003 is 4.25%, 3.5% on 2004, in 2005, 3.17% and in 2006 it is 3.5%. This shows that interest rate on savings deposit has decreasing tendency but in last one year it has increases from 3.17 % to 3.50%. In Nepalese economy, time deposits are classified in five categories: 1 month, 3 month, 6 month, 1 year and 2 year and above. In one month time deposits, interest rate remains almost same. For 3 months time deposit rate, the rate decrease from 3.5% in 2003 to 2.745% in 2006. Similarly for 6 months time deposit, it was 4.25% in 2003, 3.25 in 2004, 3.5 in 2005 and 3.12 on 2006. In case of 1 year's rate, the rate falls from 5% in 2003 to 3.12% in 2006. At last, for 2 years and above interest rate, the rate don't have high fluctuation, it was 5.37% in 2003, 4.5% in 2004, 4.27% in 2005 and 4.45% in 2006.

For lending also, the table shows that average interest also fell during 4 years period. But in case of lending there was wide range in maximum and minimum range. The range or spread of maximum and minimum rate was low in case of deposit. The lending was categorized in five parts: Industry, Agriculture Export Bills, Commercial loans and Overdrafts. Among all the highest rates was for Overdrafts. It was up to 17% per annum. Similarly the lowest lending bill was on export Bills. If the average of all is taken then the industrial sector lending rate is 11.25%, 11% 10.87% and 10.75% respectively in 2003, 2004, 2005 and 2006 respectively. It shows that on past four years the interest rate of industry was

around 11% on average. Similarly for agriculture sector the average interest rate was 12.5%, 11.75%, 11.5% and 11.25%. This shows that the industrial lending and agriculture lending rate was cheaper when reaches to 2006. For Export Bills the average rate was 8.25%, 7.75%, 8% and 8.25%. For commercial loans this average lending rate was 11.75%, 11.25%, 11% and 11%. It was static. For Overdrafts it was 13.5%, 13%, 9.75% and 10.5% respectively.

1.4 Statement of the problems

Interest has direct relation with economic growth and development. According to economic theory (other things remain constant), low interest rate 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 be 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. ore specifically, researcher tries to solve the following questions.

- 1) 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)?
- 2) Are borrowers of Nepalese market sensitive to the interest rate of credit? Alternately, what is the relationship between interest rate and borrowing amount?

- 3) 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?
- 4) To show the relationship between liquidity position and interest rate on deposit and lending.
- 5) To identify the effect of inflation on interest rate charged and offered by various Nepalese financial institutions.
- 6) To identify whether there is any correlation between interest rate of lending and interest rate of deposit.
- 7) To identify the different methods used by Nepalese Financial Institutions to calculate interest rate on lending.
- 8) To identify the other major qualitative factors determining the interest rate charged and provided by Nepalese financial institutions.

1.5 Objectives of the study:

The major objective of the study is to investigate the relation of interest rate with other three variables viz, 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:

- 1) To explore the relation of interest rate with deposit amounts (existence of substitution effect) in Nepalese market. In other word, the objective is to find out, whether the deposit amount (saving) increases with increase in interest rate or not. i.e. **Substitution effect**.
- 2) To identify the sensitivity of interest rate to the investment (borrowing). In other word, the objective is to find out whether the **inverse relation of interest rate and investment** is true or not.
- 3) To find out the relationship of interest rate with inflation in Nepalese market. In other word, other motive for this study is to access the applicability of **“Fisher’s effect”** of inflation in Nepal.

1.6 Significance of the study

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 interest rates tend to reduce the volume of borrowing and capital investment and lower rates stimulate borrowing and investment spending. (Rose, Peter S.,1997:211)

Hence economic growth depends upon circulation of money and financial system facilitates it.

Similarly 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.

But in real world, the aforementioned theory may not come true, especially for developing country like Nepal because, most of the theories of financial markets are determined by the studies which had been conducted on developed 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.

1.7 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 P. K. & Chaudhary A.K.,2005:229) The hypotheses formulated for this study are as follows:

First Hypothesis:

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

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

Second Hypothesis:

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

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

Third Hypothesis:

Null hypothesis H_0 : $\rho = 0$. 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 : $\rho \neq 0$. That is the variables in population (inflation rate and interest rate on deposit) in Nepalese financial market are correlated.

Four Hypothesis:

Null hypothesis H_0 : $\rho = 0$. The variables in population (inflation rate and interest rate on lending) in Nepalese financial market are not correlated.

Alternative hypothesis H_1 : $\rho \neq 0$. That is the variables in population (inflation rate and interest rate on lending) in Nepalese financial market are correlated.

1.8 Limitation Of the study

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

- 1) Only one factors -interest rate- is taken for the study. Impact of other aspects (factors) besides interest has not been studied.
- 2) Reliability of this study depends upon the accuracy of published data and the genuineness of respondent.
- 3) 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.

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

1.9 Plan of the Study

This study is divided into 5 chapters. Prior to the body of the thesis several pages of preliminary materials such as title page approval sheet, viva sheet, acknowledgements, table of contents, list of figure, list of table, abbreviation used etc have been presented. Chapter one is the introduction, which contains background of the study, different aspects of interest rate, statement of the problem, objectives of the study, significance of the study, research hypothesis, organization under study and limitations of the study. Chapter two is literature review, which consists of the review from, books journals Internet and thesis. Chapter three is research methodology and it contains research design, population and sample, sources and nature of data, procedure of sampling and data collection, data processing and presentation, and data analysis tools. Chapter four is presentation and analysis, which contains presentation of data in various ways and its interpretation. Last chapter is summary, conclusion and recommendation. After the body of the thesis bibliography and appendices are presented as supplementary materials.

CHAPTER TWO

REVIEW OF LITERATURE

2.1 Introduction:

A literature review is an essential part of all studies. It is a way to discover what other researchers have covered and left in the area. A critical review of the literature helps the researcher to develop a thorough understanding and insight into previous research works that relates to the present study. It is also a way to avoid investigation problems that have already been definitely answered. Thus a literature review is the process of locating, obtaining, reading and evaluating the research literature in the area of the student's interest.

[Howard K. Wolff and P.R. Pant (2005)], The purpose of literature review is to find out what research studies have been conducted in one's chosen field of study and what remains to do. The primary purpose of literature review is to learn not to accumulate. It enables the researcher to know

- What research has been done in the subject?
- What others have been done in the study?
- What theories have been advanced?
- The approach taken by the other researchers
- Area of agreement or disagreement
- Whether there are gaps that can fill through the proposed research?

2.2 Theoretical Review

2.2.1 Meaning of Interest:

The interest rate is the price of money; the price of renting the use of the resources that money commends for a specified by the free interplay of supply and demand in a market economy. The price of the 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 for individuals and others to postpone current consumption (save) and thereby free resources for investment. Government policies intended to expand the volume of saving should aim at increasing the attractiveness of saving by increasing the return to saving – the interest rate.

2.2.2 Theories of Interest:

In financial markets there are numerous interest rates exists. These differences are due to the risk premium associated with the issuer. Even securities issued by the same borrowers often carry a variety of interest rates. In this section, we focus upon those basic forces that influence the level of different interest rates.

To uncover these basic rate-determination forces, however, we must make a simplifying assumption. We assume in this chapter that there is one fundamental interest rate in the economy known as the pure or real rate of interest which is the component of all interest rates. The closest approximation to this pure rate in the real world is the market yield on the government bonds minus inflation. The rate of interest on Treasury bond is called risk free rate of interest which consists of real rate of interest plus premium for inflation. It is a rate of return presenting no risk of financial loss to the investor and representing the opportunity cost of holding idle cash, because the investor can always invest in no risk bonds and earn this minimum rate of return. Once pure rate of interest is determined, all other interest rates may be determined from it by examining the expected future inflation and special characteristics of the securities issued by individual borrowers. For example, only the government can borrow at risk-free interest rate; other borrowers pay higher rates that due to the greater risk of loss attached to their securities. Difference in liquidity, marketability and maturities are other important factors causing interest rate to differ from the pure or risk free rates.(Rose, Peter S.,1997:211)In this study mainly four theories of interest are reviewed. They are:

2.2.2.1 THE CLASSICAL THEORIES OF INTEREST RATES

This is one of the oldest theories concerning the determinants of pure or risk-free interest rate. It was propounded during the 18th and 19th century by a number of British economists and elaborated by Irving Fisher in 1930. The classical theory argues that the rate of interest is determined by two forces: 1) the supply of savings, derived mainly from households and 2) the demand for investments capital coming mainly from the business sector

Saving by Households:

Generally most of the saving in modern industrialized economies is carried out by individual and families. For these households, saving is simply abstinence from consumption spending. Current savings, therefore, are equal to the difference between current income and current consumption 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 rate also plays an important role. Interest rates affect an individual's choice between saving and current consumption. The classical theory of interest assumes that individual have a definite time preference for current over future consumption. A rational individual, it is assumed, will always prefer current enjoyment of goods and services over future enjoyment. Therefore, the only way to encourage an individual or family to consume less now and save more is to offer a higher rate of interest on current savings. If more were saving in the current period at a higher rate of return, future consumption and future enjoyment would be increased. The classical theory considers the payment of interest as a reward for waiting the postponement of current consumption in favor of greater future consumption. Higher interest rate increase the attractiveness of saving (and future consumption) for some quantity of current consumption. This so-called **substitution effect** calls for a positive relationship between interest rates and the volume of savings.

Saving 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 businesses hold savings balances in the form of retained earnings (as reflected in their equity or net worth accounts). In fact, the increase in retained earnings reported by business each year is a key measure of the volume of current business saving. And these retained earnings supply most of the money for annual investment spending by business firms. The volume of business saving depends on two key factors: the level of business profits and the dividend policies of corporations. These two factors are summarized in the retention ratio, the ratio of retained earnings to net income after taxes. This ratio indicates the proportion of business profits retained in the business for investment purposes rather than paid out as dividends to the owners. The critical element in determining the amount of business savings is then the level of business profits. If profits are expected to rise, business 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 falls but firms do not cut back on their investment plans, they are forced to make heavier use of the money and capital markets for investment funds. The demand for credit rises and interest rates may rise as well. Although the principal determinant of business saving is profits, interest rates also play a 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 from the money and capital markets.

Saving by Government

Governments also save, though less frequently than households and businesses. In fact, most government saving (i.e. a budget surplus) appears to be unintended saving that arises when government receipts unexpectedly exceed the 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. The total supply of fund is sum of above three elements as SS on figure no 2-1.

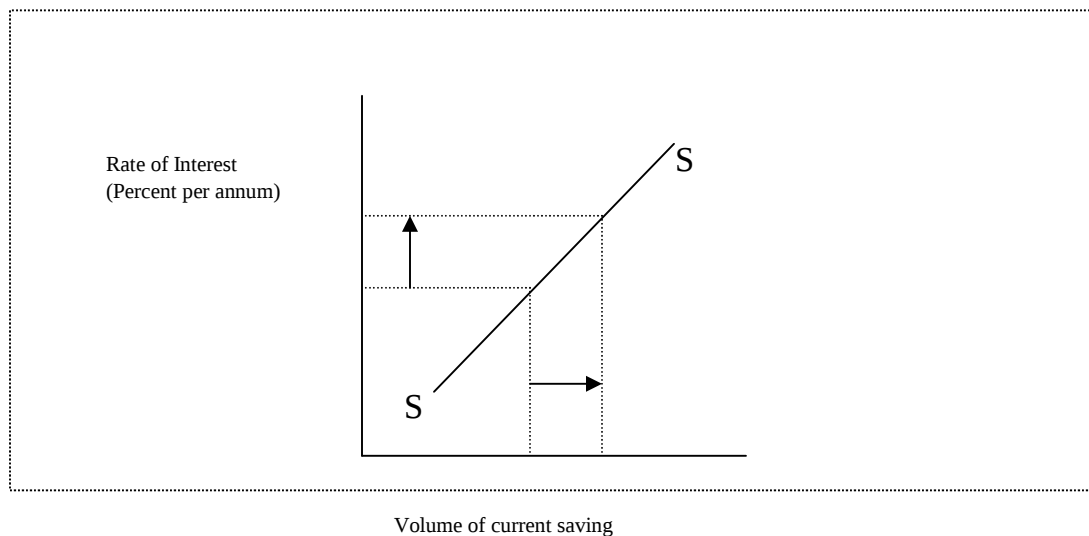


Fig No 2-1: The substitution effect relating saving and interest rates

The Equilibrium Rate of Interest in the Classical Theory of Interest:

According to the classical economists, the interest rates in the financial markets were determined by the interplay of the supply of saving and the demand for investment. Specifically, the equilibrium rate of interest is determined at the point where the quantity of savings supplied to the market is exactly equal to the quantity of funds demanded for investment. To support this in figure no 2-3 this occurs at point E where the equilibrium rate of interest is i_E and the equilibrium quantity of capital funds traded in the financial markets is Q_E .

The market rate of interest moves towards its equilibrium level. However, supply and demand forces change so fast that the interest rate rarely has an opportunity to settle in at a specific equilibrium level. At any given time, the rate is probably above or below its true equilibrium level but moving towards that equilibrium. If the market rate is temporarily above equilibrium, the volume of savings exceeds the demand for investment capital creating an excess supply of savings. Savers will offer their fund at lower and lower rates until the market interest rate approaches equilibrium. Similarly, if the market rate is temporarily below equilibrium, investment demand exceeds the quantity of savings available. Business firm will bid up interest rate until it approaches the level at which the quantity saved equals to quantity of funds demanded for investment purpose.

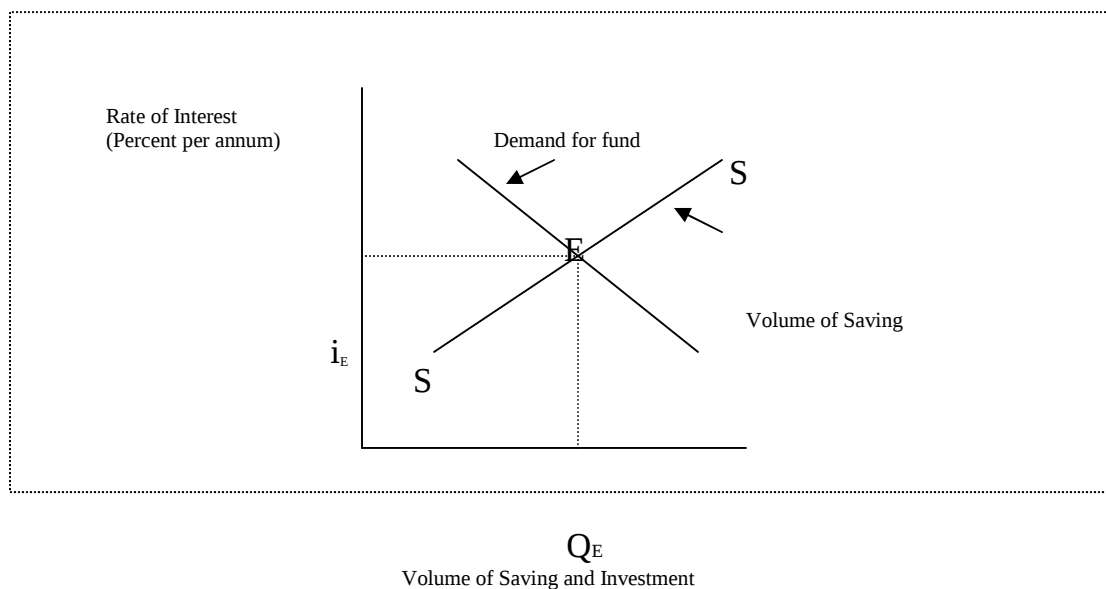


Fig No 2- 2: The Equilibrium rate of interest in the classical Theory

2.2.2.2 THE LONABLE FUND THEORY:

In this theory, the main theme is the supply and demand for loanable funds (i.e. lending & borrowing) determines the interest rate. This explanation emphasizes the flow of funds by suppliers of loanable funds (lenders) and the flow of funds by the demanders of loanable funds (borrowers). It is a monetary theory of interest since it focuses on the financial factors that influence interest rates (i.e. borrowing and lending). In addition, the loanable fund theory is a short-run, partial equilibrium explanation in which some factor or factors produce a change in the interest rate, but there is no analysis of the long-run impact of this change in the interest rate on the level of employment, income, and production of the resulting impact of changes in employment, income and production on the interest rate.

Rather, the loanable fund theory focuses on the factors that underlay the supply and demand schedules for loanable funds and on their interaction.

Supply of Loanable Funds:

The major sources of supply of loanable fund are from two sources: 1) The amount of saving by households, business, governments and 2) The amount of new money created by the commercial banking system.

Saving:

Saving refers to the postponement of current consumption. The decision to save is the decision to forgo current consumption in order to have a larger quantity of consumption in the future S. (Kerry Cooper & Donald R. Fraser, 1983:160)

Individual or household save for a variety of reasons but there is little evidence to suggest that the quantity of loanable funds supplied through saving is clearly influenced by the level of the interest rate. A higher interest rate represents a greater reward to the saver for postponing current consumption and thus might be expected to produce a higher quantity of saving for some individuals. In general case, the quantity of savings supplied by individuals is principally determined by the level of income and it is influenced to a lesser degree by the level of interest rates.

Business saving refers to the net income after taxes of the firm, less any cash dividends i.e. retained earnings. There is little reason to believe that the volume of saving at business firm is strongly influenced by the level of interest rates. For governments, the volume of saving is defined as the difference between revenues and expenditures such that saving exists when revenues exceed expenditures (a budget surplus).

For example, at an interest rate of r , the volume of saving would be Q , where as the higher interest rate of r' , the volume of saving would be only a slightly higher Q' . The responsiveness of saving to change in interest rates is quite small.

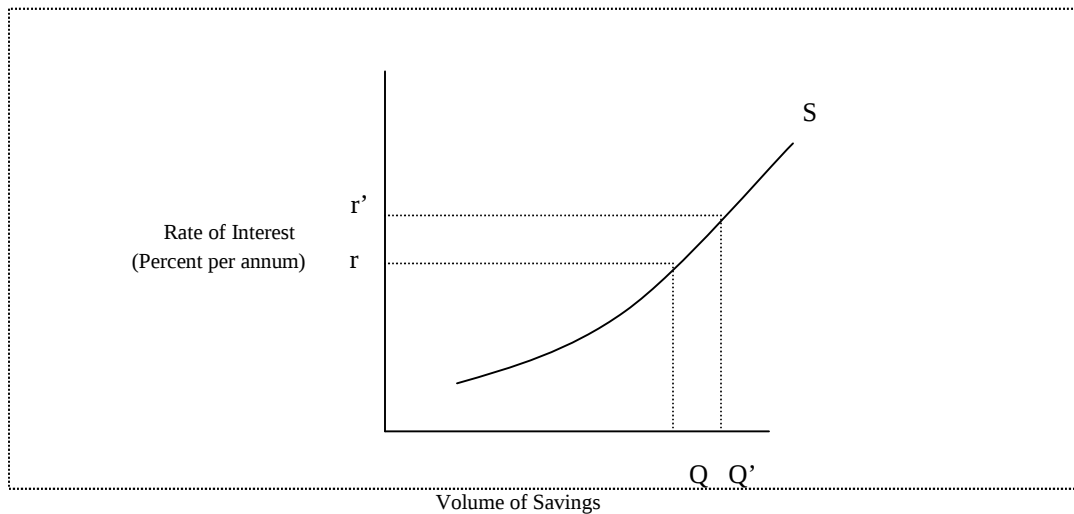


Fig no 2-3: The interest rate and volume of savings

New Money:

Although the volume of saving is the principal source of loanable funds in financial markets, the supply of the loanable funds may be increased through the creation of new money beyond the amount made possible by current saving. The amount of new money created is determined jointly by the actions of the commercial banking system and the central bank. Commercial banks use any excess reserves to make loans and purchase securities and create money (demand deposits) through the credit creation process. However, the ability of commercial bank to create money is limited by the central bank through the use of its monetary policy tools like open-market operations, reserve requirement changes, and discount rate changes.

There is little evidence that either the central bank or commercial banks are substantially influenced in the money creation process by the level of interest rates. The principal factor that determines the volume of new money created by the banking system is the amount of reserves, and the principal factors that determines the amount of reserve is central bank monetary policy. Neither of these factors should be directly influenced by the level of interest rates. We may therefore draw the relationship between the amount of new money created and interest rate as show in figure 2-4. The volume of new money supplied is Q and at the higher interest rate r' , the amount of new money created is the same Q . Essentially, change in the money supply are determined by factors other than the interest rate.

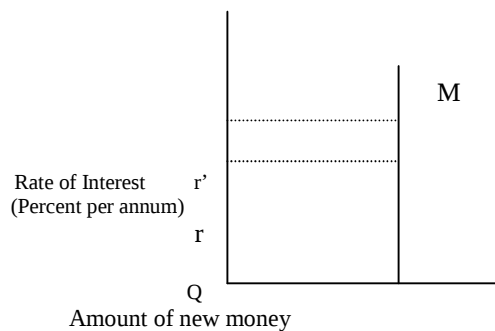


Fig No 2-4: The Supply of Loanable Funds

In summary, the supply of loanable fund is the sum of the supply of savings and the amount of new money created. This supply schedule of loanable fund may be increased by either an increase in the desire to save by business, households or governments or by the creation of more new money by commercial banking system. Conversely, the supply of loanable funds may fall because of a reduction in the desire to save or a reduction in the amount of new money created.

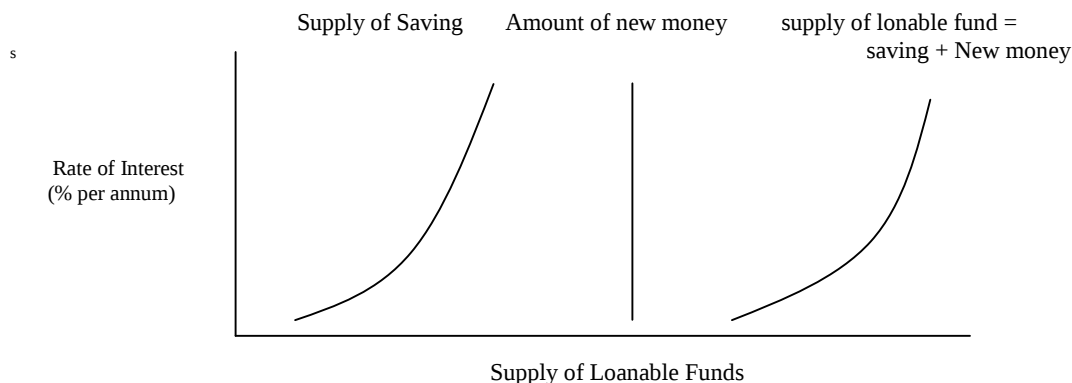


Fig No 2-5: Total Supply of Loanable Funds

The Demand for Loanable Fund:

The demand for loanable fund is composed of the demand by individual, business and governments.

Consumer Demand:

Domestic consumers demand loanable funds to purchase a 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 a loan, such as the down payment, maturity and size of installment payments. This implies that consumer demand for credit is relatively inelastic with respect to the rate of interest. Certainly a rise in interest rate leads to some reduction in the quantity of consumer demand for loanable fund (particularly when home mortgage credit is involved) whereas a

decline in interest rates stimulates some additional consumer borrowing. However, along the consumer's relatively inelastic demand schedule, a substantial change in the rate of interest must occur before the quantity of consumer demand for funds changes significantly.

Domestic Business Demand:

The credit demands of domestic business generally are more responsive to changes in the rate of interest than in consumer borrowing. Most business credit is for such investment purposes as the purchase of inventories and new plant and equipment. As noted earlier in our discussion of the classical theory of interest, a high interest rate eliminates some business investment projects from consideration because their expected rate of return is lower than the cost of funds. On the other hand, at lower rates of interest, many investment projects look profitable with their expected returns exceeding the cost of funds. Therefore the quantity of loanable funds demanded by the business sector increases as the rate of interest falls.

Government Demand:

Government demand for loanable funds is a growing factor in the financial markets but doesn't depend significantly on the level of interest rates. Government decision on spending and borrowing depends in response to social needs and the public welfare, not the rate of interest. Moreover in case of central government, it has the power both to tax and to create money to pay its debts. State and local government demand on the other hand, is slightly interest elastic because many local governments are limited in their borrowing activities by legal interest rate ceilings. When open market rates rises above these ceilings, some state and local governments are prevented from offering their securities to the public.

Total Demand for Loanable Fund:

The total demand for the loanable fund is the sum of domestic consumer, business and government credit demands. These demand curve slopes downward and to the right with respect to the rate of interest. Higher rate of interest lead some businesses, consumers and governments to curtail their borrowing plans; lower rates bring forth more credit demand.

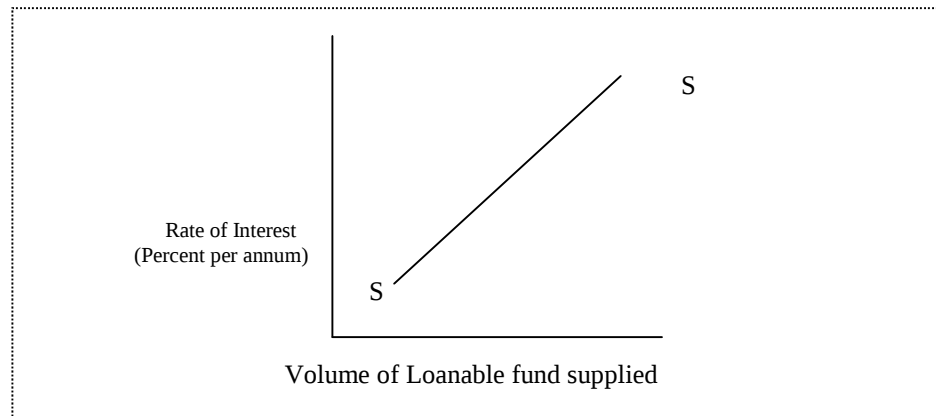


Fig No 2-6: The Supply of Loanable Funds

The Equilibrium Rate of Interest in the Loanable Funds Theory:

Two forces of supply and demand for loanable funds determine not only the volume of lending and borrowing in the economy but also the rate of interest. The interest rate tends towards the equilibrium point at which the supply of loanable funds equals the demand for loanable funds. If the interest rate is temporarily above equilibrium, the quantity of loanable funds supplied by domestic savers and foreign lenders, by banking system, and from the dis-hoarding of money exceeds the total demand for loanable funds and the rate of interest will be bid down. On the other hand, if the interest rate is temporarily below equilibrium, loanable funds demand will exceed the supply. The interest rate will be bid up by borrowers until it settles at equilibrium once again.

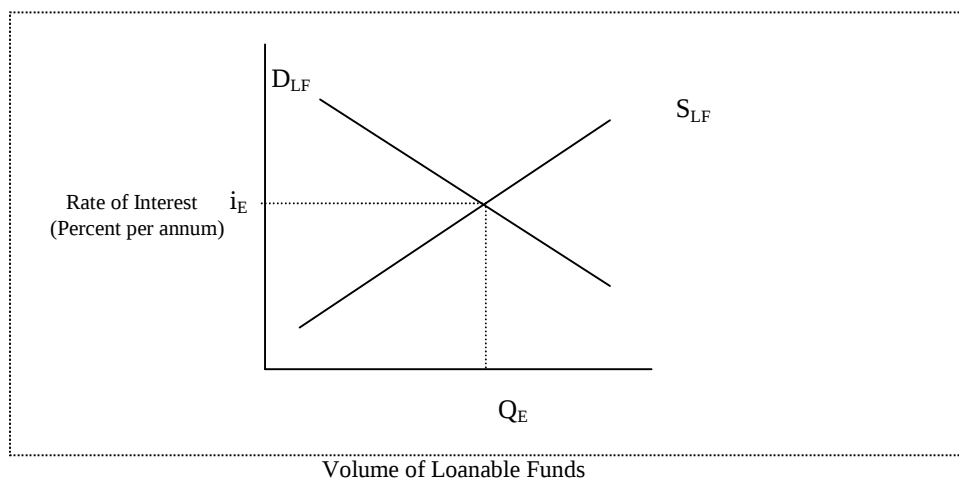


Fig No 2-7: Equilibrium rate of Interest in loanable funds theory

2.2.2.3 THE LIQUIDITY PREFERENCE THEORY OF INTEREST RATE:

The loanable funds approach to interest rate determination focuses on supply and demand for loanable fund. An alternative approach the liquidity preference view focuses instead on the supply and demand for money. It is assumed that individuals inherently prefer money among all financial assets since money can be used to make payments and is thus the most liquid assets. Wealth holders are persuaded to hold financial assets other than money only because these non-money assets offer an interest return greater than between the yields by money. Further, greater the spread between the yields on non money financial assets and money, less the demand for money holdings and greater the demand for other financial assets and vice versa. The demand schedule for money can thus be depicted as a function of the rate of interest as shown in figure 2-9.

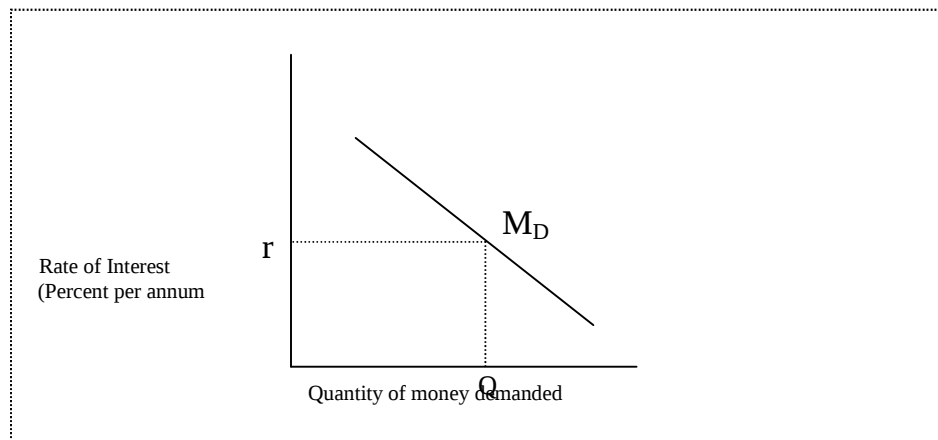


Fig No 2-8: The demand for money (M_D) as a function of the rate of interest

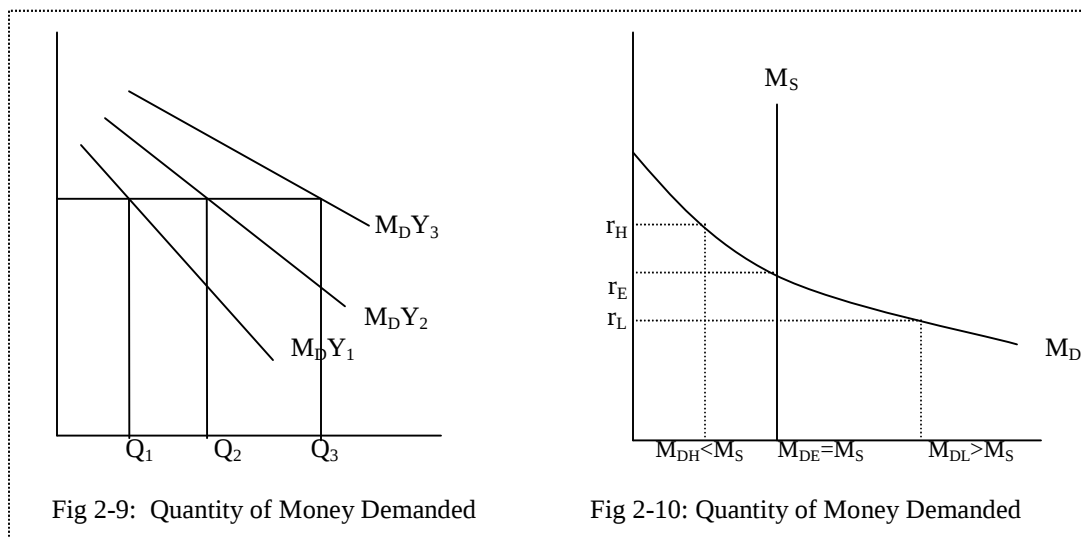


Fig 2-9: Quantity of Money Demanded

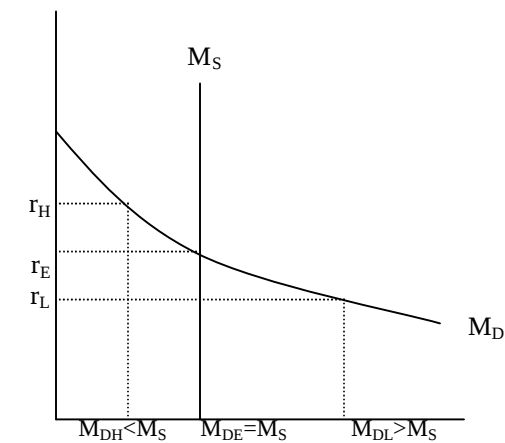


Fig 2-10: Quantity of Money Demanded

Thus the greater the income, the greater will be the quantity of money demanded at a given rate of interest and vice versa. The relationship is depicted in figure number 2-10 where $M_D Y_1$, $M_D Y_2$, $M_D Y_3$ represent the demand for money at the successively higher income level Y_1 , Y_2 and Y_3 . Thus for a given income level, say Y_2 and a given money supply the rate of interest (r_E) is viewed as determined by the supply-demand equilibrium depicted in fig 2-11 where M_S is the supply of money. The equilibrium interest rate r_E is obtained by action of individuals seeking to maintain desired levels of cash balances. Since the amount of desired money holdings is a function of the rate of interest, there is only one rate of interest at which the demand for money balances is the same as the amount of the money supply. At a rate of interest higher than r_E , say r_H in fig no 2-11 individual in the aggregate will be holding more money (M_S) than they desire M_{DH} at that rate of interest (the total supply of money must be held by the public.) To rid themselves of “excess” cash, individual purchase interest-bearing financial assets, driving their prices up and their interest rate down. This occurs until the rate of interest falls to r_E at which $M_{DE} = M_S$

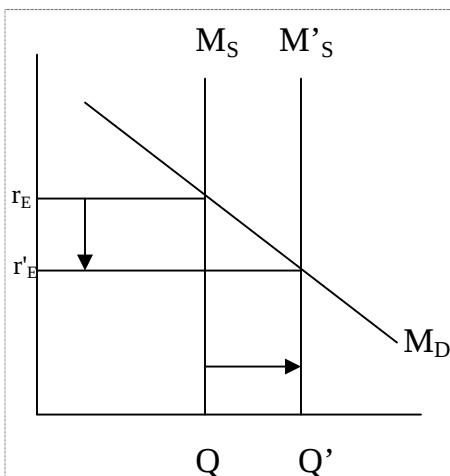


Fig 2-11: Effect of an increase in the money Supply on the rate of interest.

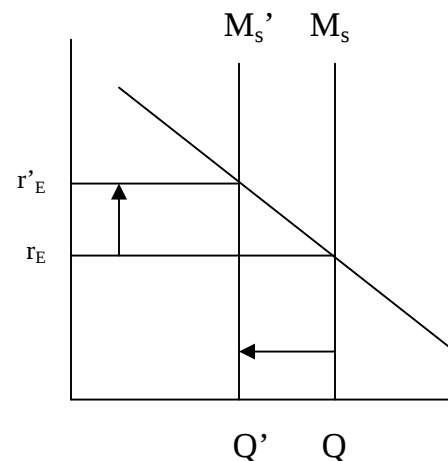


Fig 2-12: Effect of an decrease in the money Supply on the rate of interest.

The outcome of course, is that public still holds, in the aggregate, the same amount of money but at the lower rate of interest, this is now the desired amount. On the other hand, if the interest rate is lower than r_E say r_L in figure no 2-11 the public will be holding smaller money balance (M_S) that they desire (M_{DL}) at that rate of interest. As a result, in order to obtain more cash in this situation individuals sell interest-bearing securities, the aggregate effect of which is lower security prices and higher interest rates. The interest rate will thus rise to r_E at which point desired cash holdings equal the supply of cash.

A principal aspect of the liquidity preference model is that changes in the money supply affect the rate of interest. In the liquidity preference framework,

with income and the price level assumed to be constant, an increase in the money supply will lower r_E the equilibrium rate of interest (fig 2-12) and a decrease in the money supply will raise r_E (fig 2-13).

In summary, when the money supply is MS_1 the rate of interest is r_1 . As the money supply expands to MS_2 and MS_3 , the rate of interest falls to r_2 and r_3 respectively. The process by which interest rates falls as M_3 expands can again be interpreted in terms of public preference for money holding relative to other financial assets such as interest bearing securities. For example, as in figure 2-14, when the money supply expands from MS_1 to MS_2 individual find themselves holding larger cash balance than they desire at interest rate r_1 . As they seek to reduce money holdings by purchase of security, security price rise and interest rate fall until a new equilibrium is established at interest rate r_2 where $M_D = M_S$.

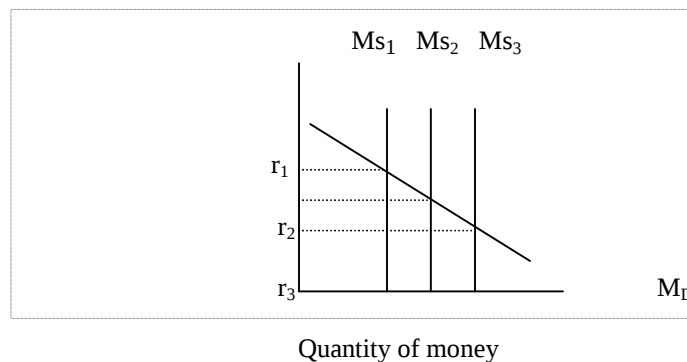


Fig- 2-13: Money supply and interest rate

2.2.2.4 THE RATIONAL EXPECTATION THEORY:

This theory is new to the financial market so it is in still development stage. The main theme of this theory is that “money and capital markets are highly efficient institutions in digesting new information affecting interest rates and security prices.”(Rose, Peter S.,1997:211)

This theory assumes that equilibrium interest rate depends upon the change in investor's expectation regarding future security prices and return. Investor's decision towards the borrowing and lending funds come from the availability of new information. When new information appears about investment, saving or the money supply, investors begin immediately to translate that new information into decision to borrow and lend funds. So rapid is the process of the market digesting new information that security prices and interest rates presumably impound the new data from virtually the moment they appear. In the absence of new information, next period's interest rate will be equal to current periods interest rate. In other words, the knowledge of past interest rate will not be a reliable

forecast of future interest rate. In a perfect efficient market it is impossible to win excess returns continuously by trading on publicly available information.

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

- 1) the price of securities and interest rates should reflect all available information and the market uses all this information to establish a probability distribution of expected future prices and interest rates
- 2) change in rates and security prices are correlated only with unanticipated information
- 3) the correlation between rates of return in successive time periods is zero
- 4) no unexploited opportunities for profit can be found in the securities' markets
- 5) transaction and storage costs for securities are negligible and information costs are small relative to the value of securities traded and
- 6) expectation concerning future security prices and interest rates are formed rationally and efficiently.

If the money and capital markets are highly efficient in the way we have described, this implies that interest rates will always be at or very near their equilibrium levels. Any deviation from equilibrium rate dictated by demand and supply forces will almost instantly eliminate security trader who hope to consistently earn windfall profits from correctly guessing whether interest rate are “too high” (and therefore will probably rise) are unlikely to be successful in the long run. Interest rates fluctuations around equilibrium are likely to be random and momentary. If market participants were expecting increased demand for credit (with supply unchanged), an unexpected announcement of reduced credit demand implies lower interest rates in the future. Similarly, a market expectation of less credit demand in the future (with supply unchanged) when confronted with an unexpected announcement of higher credit demand, implies that interest rate will rise.

We can illustrate the foregoing points about the rational expectation theory of interest by modifying the loanable funds theory of interest so that its demand and supply schedules reflect not just actual demand and supply but also the expected demand for and supply of loanable funds. The figure no 2-15 depicts the equilibrium rate of interest under rational expectation theory. ‘ D_o ’ and ‘ S_o ’ reflect the actual demand and supply of loanable funds in current period, while ‘ D_f ’ reflects the actual demand for loanable funds that will prevail in the next future

time period. The supply of loanable funds is assumed to be the same in both time periods, ($S_0=S_f$).

Now imagine that during the current period, the government makes an unexpected announcement of its increased need to borrow more money in future period 'F' but as viewed by borrowers and lenders today in time period '0'. In this case, the equilibrium interest rate in the current period will not be ' I_0 ', but rather ' I_e ', where the expected demand curve ' D_e ' intersects the actual supply curve ' S_0 '. The equilibrium quantity of loanable funds traded in the current period then will be ' C_e ' not ' C_0 '. This is because, according to the rational expectation theory, borrowers and lenders will act as rational agents, using all the information they possess (including expected events) to price financial assets today. When the future period arrives, the equilibrium interest rate will rise to rate ' I_f ' then quantity of loanable funds traded will be ' D_f '. The equilibrium rate moves upward because the demand for loanable funds in period 'f' is more than the expected future loanable-funds in period 'F' is more than the expected further loanable-funds demanded as seen by market participants in period 'o'. Suppose, on the other hand, the actual loanable-funds demanded in period 'F' increases upward and beyond ' D_o ' but by a smaller amount than was anticipated by investors in the market in period 'o'.

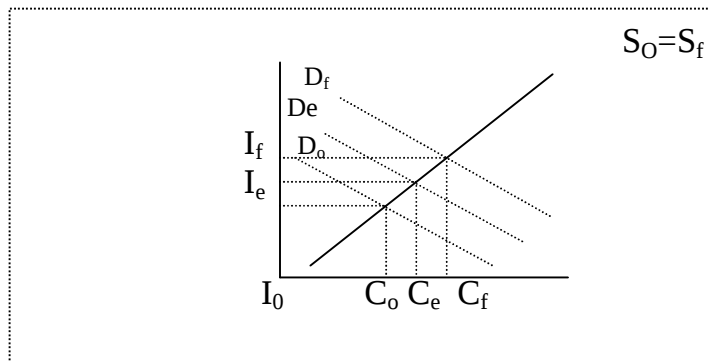


Figure 2-14: Equilibrium interest rates under rational expectation theory

Demand schedule ' D_f ' would then fall somewhere between ' D_o ' and ' D_e '. The equilibrium interest (with supply curve unchanged) would be lower than i.e. laying somewhere between ' I_0 ' and ' I_e '

2.2.3. Functions of Interest rate in the economy:

The interest rate has opposite relation with the value of financial assets. It means that if the interest rate increases, the value of assets decreases and vice versa. This concept is very useful for the valuation of the investable securities. Besides this there are some important functions that interest plays in the economy.

- ❖ It helps guarantee that current savings will flow into investment to promote economic growth.
- ❖ It rations the available supply of credit, generally providing loanable funds to those investment projects with the highest expected returns.
- ❖ It brings into balance the supply of money with the public's demand for money.
- ❖ It is also important tool of government policy to stimulate or discourage saving and investment through its influence on the volume of saving and investment. If the economy is growing too slowly and unemployment is rising, the government can use its policy tools to lower interest rates in order to stimulate borrowing and investment. On the other hand, an economy experiencing rapid inflation has traditionally called for a government policy of higher interest rates to slow both borrowing and spending.

2.2.4 Change in interest & its effect upon value of an asset:

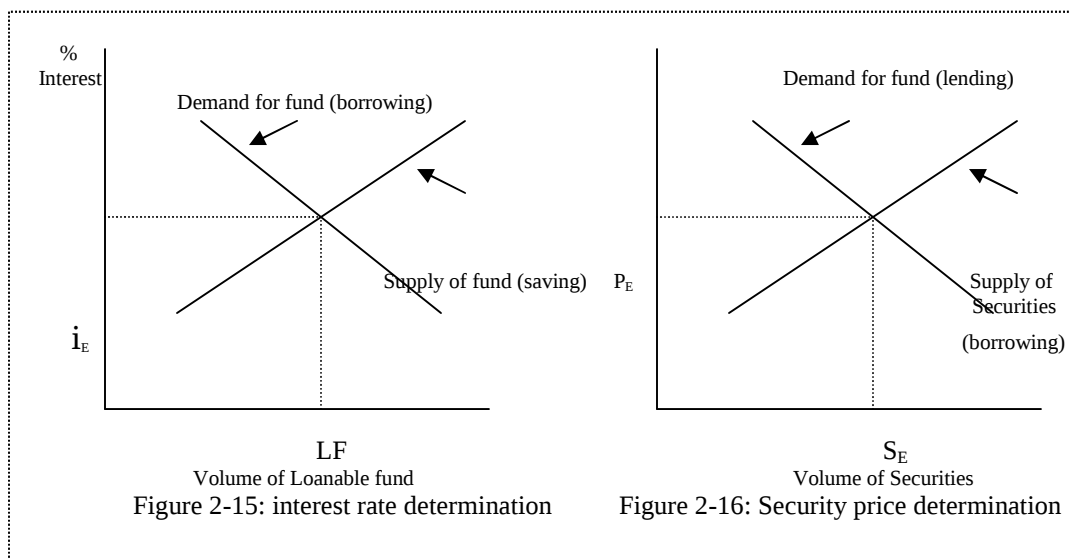
The price of the security and its yield (rate of interest) has inverse relationship. It means that a rise in yield implies a decline in price; conversely, a fall in yield is associated with a rise in the security's price.

The investing funds in financing assets can be viewed from two different perspectives, the borrowing and lending of money or the buying and selling of securities. Similarly the equilibrium rate of interest from the lending of funds can be determined by the interaction of the supply of loanable funds and the demand for loanable funds. Demanders of loanable funds (borrowers) supply securities to the financial marketplace and suppliers of loanable funds (lenders) demand securities as an investment. Therefore, the equilibrium rate of return or yield on a security and the equilibrium price of that security are determined at one and the same instant and are simply different aspects of the same phenomenon, the borrowing and lending of loanable funds.

This can be cleared with the help of figure. The fig 2-16 and 2-17 show the demand and supply curves for both the rate of interest and the price of securities. The supply of loanable funds curve (representing lending) in the interest rate diagram 2-16 is analogous to the demand for securities curve (also representing lending) in the price of securities diagram 2-17. Similarly the demand for loanable funds curve (representing borrowing) in the interest diagram is analogous to the

supply of securities curve (also representing borrowing) in the price of securities diagram.

We note in figure 2-17 the borrowers are assumed to issue a larger volume of securities at a higher price and that lenders will demand more securities at a lower price. In figure 2-16, on the other hand, borrowers demand a smaller quantity of loanable funds at a higher interest rate, while the lenders supply fewer loanable funds at a lower interest rate.



The equilibrium interest rate in figure number 2-16 is determined at a point i_E where the demand for loanable funds equals the supply of loanable funds. Similarly, in figure 2-17, the equilibrium price for securities lies at point p_E where the demand for and supply of securities are equal. Only at the equilibrium interest rate and equilibrium security price will both borrowers and lenders be content with the volume of lending and borrowing taking place in the financial system.

The inverse relationship between interest rates and security prices can be seen quite clearly when we allow the supply and demand curves of figure 2-16 and 2-17 to change. For example, suppose that in the face of continuing inflation, consumers and business firms accelerate their borrowings, increasing the demand for loanable funds. The demand for loanable curve slides upward and to the right with the supply of loanable funds unchanged. This increasing demand for loanable funds also means that the supply of securities must expand by a shift in the supply curve. Both a new loanable equilibrium price for securities and a higher equilibrium interest rate for loanable funds result.

Conversely, suppose that consumers decide to save more, expanding the supply of loanable funds. Then the supply of loanable funds curve slide

downward. But with more savings, the demand for securities curve must rise, sliding upward as those added savings are invested in securities. The result is a rise in the equilibrium price of securities and a decline in the equilibrium interest rate.

2.2. 5 Factors influencing the difference in interest rates:

Though it is assumed deposit increases as interest increases but interest rate is affected by numerous factors. In real world, different financial institution quotes different interest rate. It means that the same types of instrument carries different interest rate so there is presence of interest spread. For this difference there are numbers of factors influencing the difference in interest rates. (Thygerson, Kenneth J.,1993:38)

- 1) Credit or default risk
- 2) Marketability or liquidity risk
- 3) Call or prepayment risk
- 4) Servicing costs
- 5) Exchange rate risk
- 6) Taxability

1) Credit of Default Risk:

Credit or default risk involves the potential that a saver will receive less principal and interest On the financial claim that the contract specifies. Default risk is related to the probability that some or all of the initial investment will not be returned. The degree of default risk is closely related to the financial condition of the company. (Cheney, John M & Moses, Edward A.,1998:38) Credit risk requires making estimates of the potential for loss. This probability is then converted into an interest rate premium, the credit or default risk premium and added to the saver's required nominal yield. Typically, the securities issued by the government, (esp. T-bills), are considered to be credit risk free.

2) Marketability Risk:

Marketability is the capability of being sold quickly at low transaction cost.(Kohn, Meir, 1999:174) Marketability risk deals with the degree of difficulty in being able to convert a financial claim into cash at its most recent transaction price or very close to it. Savers who purchase investments with poor marketability expect to be compensated for the lack of marketability. This represents an additional interest spread and is referred to as the marketability or liquidity risk premium.

3) Call or prepayment Risk:

Some financial claims offer the borrower the right to repay the principal debt prior to maturity, on financial claims like bond, these provision are referred to as call provision. On financial claims such as home mortgage and installment auto loans, they are called pre-payment provisions. These provisions are options. The borrower has the option to call or prepay the debt. The investor in the financial claim that is callable or subject to repayment accepts risk. The risk is that if interest rates fall, the borrower will call the bond or prepay the mortgage. The investor receiving the cash funds that he or she cannot reinvest it at an interest rate as high as the rate on the previous investment. This risk is called a call or prepayment risk. The compensation that investors demand to accept this risk is an additional interest spread reoffered to as the call option premium.

4) Servicing cost:

Some financial claims are difficult to service. This means that the process of collecting interest and principal payments providing accurate records or monitoring the ongoing credit position of the borrowing involves considerable operating costs. Lenders must be compensated for the servicing costs. This cost is included in the interest rate charged and is referred to as the servicing cost. (Thygeson, Jenneth J, 1993: 40)

5) Exchange Rate Risk:

As our financial markets have become more global, there has been a significant growth in the borrowing and investing in foreign denominated financial claims. A Nepalese company establishing a manufacturing facility in Belgium might be inclined to issue bonds denominated in Belgium francs rather than Nepali Rupees. Investors also have available to them many investments that are denominated in foreign currencies. This transaction involves exchange rate risk. This risk relates to the potential that the rate of exchange between the domestic currency and foreign denominated currency will change as a result of any number of factors. The primary risk for the borrower is that the value of the domestic currency. This results in an unexpected cost on the international loan. Since the loan would have to be repaid in the foreign currency that has risen in value relative to the domestic currency. This potential change in currency values must be reflected in computing the cost of borrowing.

6) Taxability:

The final factor influencing the change in interest rate is taxability. Financial claim income is typically subject to taxation. Since the value of a financial claim is based on its anticipated cash flow, taxation acts to reduce those cash flows. Not all incomes are taxable equally

2.2.6. Concept of Deposit:

Deposit is a sum of money lodged with a bank, discount house or other financial institution (Shrestha Manohar K & Bhandari, Dipak B, Financial Markets and Institutions, Asmita Books Publishers & Distributors, putalisadak, Kathmandu, P. 281)

Deposit is nothing more than the assets of an individual which is given to the bank for 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, Dilli Raj, 2003:73),

The deposits are subject to withdrawals by means of cheques 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 rate of interest varies depending on the nature of the deposits. 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 cheques 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.

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 suitable.

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 fixes 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 customers 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 and the customer too can be made his financial transaction stronger by getting more interest from this deposit. The principal amount 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.(Radhaswamy, M. & VasuDevan S. V, 1979:72) Fixed deposit receipt is not transferable by endorsement and certainly not negotiable. However the debt covered by the fixed deposit receipts can be assigned. Bank generally gives loans up to 90% of the deposit against the security of the deposit. For this bank charge some interest higher than the interest allowed on the deposit.

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, bank being the inter-mediator to accept this sort of money and help to channelize this in productive sector. So the importance of banks and financial intermediaries is larger in present context.

2.2.7. Concept of Lending (Credit):

Another important function of commercial bank is to provide different 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 an equivalent amount usually money in future plus an added sum called interest. In other words the commercial bank earns profit by lending the amount in terms of loan or credit and in return it gets interests. Banks loan are classified as: A) Loans and advances, b) Overdrafts c) cash credit d) discounting of bills and so on. (Shrestha Manohar K & Bhandari, Dipak B, 2000:255)

But besides this, the other forms of credit are: Bills of Exchange, cheques, Drafts, Promissory Note, Letter of Credit (LC), Travelers' cheque, Treasury Bills (T-Bills), Book Credit e.t.c.

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 known 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 the 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.

2.2.8 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 nation is expanded, the volume of credit rises.

5) Basic Infrastructure:

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

6) Political Condition:

Political condition, especially political in-stability, 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 condition are also the factors affecting the volume of credit.

2.2.9 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 the increase in individual prices. Inflation is not a temporary fluctuation in price but it is a sustained and appreciable increase in price (Joshi, Shyam, 2056:364). Due to the increase in general level in price, the value of purchasing power of money declines as there is an 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 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 by 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.

Inflation has severe social, political and economic effects. Hence, some like to call it 'worst than taxes' and 'legal robbery.' During last 30- 40 years, almost all countries of the world have experienced some degree of inflation. For example, Germany, Russia, Austria in 1920s and Hungary, Romania, China and again Germany in 1940s had experienced the strain of hyper-inflation. Inflation brings political instability. According to Milton Friedman the rise of Hitler was due to hyper-inflation. Today each and every nation of the world is suffering from the economic evil of inflation. The trend of rising prices has the general phenomenon of every country. The most developed and industrialized countries have adopted

various method like credit control via bank interest rate, checking money supply and various other price control policies yet they have not been able to remain aloof from this disease. On the other hand the developing nations who have much less sufficient type of economy are suffering severely from both domestic as well as imported inflation.

If the rate of increase in money incomes overcomes the rate of increase in production, there is excess purchasing power in the hands of public. Inflation is reflected in high prices and increased imports.

There are many theories regarding how inflation occurs in an economy. Some of these theories are demand-pull inflation, cost-push inflation, wage-push inflation etc. similarly there are various methods of checking inflation, such as, government spending, taxes which lie under fiscal tool of checking inflation and higher reserve requirements, open market operation etc. which lie under the monetary method of checking inflation. But these are not going to be discussed here because these are not the concern of our present study.

Inflation in Nepal:

According to the “National Urban Consumer Price Index”, published by Research Department of Nepal Rastra Bank, the inflation rate on different fiscal years are as follows (Table 2-1).

Table no 2-1: Inflation Rate during five FY

Year	Food& Beverage	Non Food&Services	Over all Change
	% change	% change	% change
2003	3.7	2.1	2.9
2004	4.4	5.0	4.8
2005	3.3	4.7	4.0
2006	4.0	5.1	7.3
2007	7.8	8.1	8.9

Source: NRB Research Department.

2.2.9.1 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.

The Nominal and Real Interest rates:

Before exploring 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 the 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”(Francis, Jack Clark, 11th edition:438) .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. (Rose, Peter S.1997:240)

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 i.e. by using following equation:

$$(1+rr) = \frac{(1+r)}{(1+q)}$$

Where

rr = real rate of return

r = nominal rate of return

q = inflation rate

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 (Shrestha Manohar K & Bhandari, Dipak B, 2000:176)

According to Fisher effect, nominal interest rate is related to the real rate by the following equation:

$$\text{Nominal interest} = \text{Expected real rate} + \text{Inflation Premium rate} + (\text{Expected real} \\ \times \text{Inflation Premium rate})$$

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

$$\text{Nominal Interest} = \text{Expected real rate} + \text{Inflation Premium rate}$$

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. But this does not necessarily mean that an increase in expected inflation automatically increases nominal interest rates. There are several different views on this matter but according to Fisher expected rate of return tends to be relatively stable over time because it depends on such long term factors as the productivity of capital and the volume of savings in the economy. Therefore, a change in the inflation premium is likely to influence only the nominal interest rate, at least in the short run. The nominal rate will rise by the full amount of the expected increase in the real rate of inflation.

If this view, known today as the Fisher effect, is correct, it suggests a method of judging the direction of future interest rate changes. To the extent that a rise in the actual rate of inflation causes investors to expect greater inflation in the future, higher nominal interest rates will soon result. Conversely, a decline in the actual rate of inflation may cause investors to revise downward their expectations of future inflation, leading to lower nominal rates. This will happen because, in an efficient market, investors will be compensated for the risk of expected changes in the purchasing power of their money.

The Harrods-Keynes Effect of Inflation:

There is another view about **inflation-interest rate relationship** propounded originally by British economist Sir Roy Harrods. This view conflicts with that of Fisher's effect. It is based upon the Keynesian liquidity preference theory of interest rate. Harrods argues that the real rate will be affected by inflation but the nominal rate need not be. Following the liquidity preference theory, the nominal interest rate is determined by the demand for and supply of money. Therefore unless inflation affects either the demand for and supply of money, the nominal rate must remain unchanged regardless of what happens to inflationary expectations. According to this principle, Harrods argues that a rise in inflationary expectations will lower the real rate of interest. In liquidity preference

theory, the real rate measures the inflation-adjusted return on bonds. However, conventional bonds, like money, are not a hedge against inflation, because their rate of return is fixed by contract. Therefore, a rise in the expected rate of inflation lowers investors' expected real return from holding bonds. If the nominal rate of return on bonds remains unchanged, the expected real rate must be squeezed by expectations of rising prices.

2.2.9.2 Tools to measure Inflation:

There is no completely satisfactory way to summarize the price changes that have occurred over a given time period for the large number of goods and services available in the country. Nevertheless, the government has attempted to do so by measuring the cost of specific mix of major items (a basket of goods, consisting of specified quantities and qualities of various items of food, clothing, housing and health care products bought by the average urban household. (Francis, Jack Clark, :438) at various point of time. The "overall" price level computed for this representative combination of items is termed as cost-of-living index. The percentage change in this index over a given time period can be viewed as a measure of the inflation that took place from the beginning of the period to the end of the period. (Sharpe W.F., Alexander G.J., Bailey J.V. 2003:322)

Similarly most governments compute a number of alternative price indices in order to provide a wider choice for analysis. Nevertheless, many people tend to focus on one index as an indicator of the price level. Generally, in most of the countries, Consumer price Index, CPI, is used as this tool to calculate the inflation rate. The percentage change in the CPI over time measures the rate of inflation, as shown below in equation. The inflation rate is denoted by q .

$$q = \frac{CPI_1 - CPI_0}{CPI_0}$$

Where, CPI_1 = Consumer price index of period 1

CPI_0 = Consumer price index of period 0

Nepal Rastra Bank too, uses CPI as the tool to measure inflation in the country taking 1995/96 fiscal year as base index.

2.3 International Articles Related to this Subject:

Reserves Announcement and Interest Rates:

Hardouvelis(1987) provided clear evidence on the crucial question of whether markets perceive that monetary policy can affect real interest rates through open market operations. The author provides evidence on the perceived existence of strong liquidity effect. More precisely, the author unambiguously provides positive evidence on the perceived ability of monetary policy to alter real interest rates in the short run. The analysis is based on the response of the term structure of

interest to the weekly Federal Reserve announcements of bank reserves during the post –October 1979 period. It shows that unanticipated changes in the mix between borrowed and non borrowed reserves cause expected real interest rates to change after the announcement because they provide information about a future change in the supply of money. The author develops a precise model and test during sub periods of no borrowed and borrowed reserves targeting by Fed(Federal Reserve System).

$$DE_t i_{t+1} = h_{01} + h_{1n} UNBR + h_{2n} UMY + e_{tn}$$

Where,

$DE_t i_{t+1}$ is interest rate response to announcement of nonborrowed reserves and M1

h_{01} is the constant term

h_1 and h_{2n} are the estimated coefficient

$UNBR$ refers to the seasonally unadjusted data that is a proxy for the unanticipated component of total no borrowed reserves

UMY refers to the seasonally adjusted data that is a direct empirical proxy for the unanticipated component of M1

e_{tn} is the regression standard error

The author presents the results of his finding as follows:

The study revealed that, until 1982, both short and long-term interest rates would decrease after the announcement of a higher than anticipated level of nonborrowed reserves (or lower than anticipated level of borrowed reserves). Apparently, market participants believed the unanticipated increase in reserve pressure at the discount window. They would expect a future increase in the supply of reserves and thus lower real interest rates down immediately following the announcement. It is possible that the expected increase in reserves increases the inflation premium. However, even if the interest rates (or the depreciation of the dollar) show the real rate of interest is expected to decrease.

After October 1982, the relation to the announcement of nonborrowed reserves disappears. In October 1982, the Federal Reserve adopted borrowed reserves as its operating target. Changes in the degree of reserve pressure were explicitly mentioned at the FOMC (Federal open Market Committee) meetings. Market participants would now interpret the unanticipated change and, therefore, being more persistent than before October 1982. The relative persistence between the surprises about borrowed and nonborrowed reserves decline after October 1982, and similarly, the strength of the market reactions declined.

The unanticipated components of nonborrowed and borrowed reserves reflected surprises about Fed supply behavior. Thus hypothesis that originate in real business-cycle models and attempt to explain a correlation between money and real interest rates outside the sphere of discretionary monetary policy are not

potential candidates for the observed interest rate reactions to announced changes in reserves. This is why he claims that the expected change in the real interest rate is due to an expected liquidity effect.

The author also states in his study that an announced unanticipated changes in non borrowed reserves, like announced unanticipated changes in M1, are predetermined causal variables sampled at regular and frequent time intervals. However, unlike unanticipated changes in M1 that provide information about the demand for and the supply of money, announced unanticipated changes in non borrowed reserves unambiguously reflect unanticipated changes in the supply of money caused by discretionary Fed actions. Thus, evidence that real interest rates change after the announcement of non borrowed reserves is evidence for existence of an expected liquidity effect.

Market Interest Rates and Commercial Bank profitability: An Empirical Investigation

Flannery (1981) presented the results of his empirical investigation on market interest rates and commercial bank profitability. His principal hypothesis in his study is that the market rate fluctuations have a significant impact on bank profitability. The author states that the banking system's ability to whether these conditions has come as surprise to many, but seems to indicate the banks have effectively balanced their assets and ability portfolios to hedge against interest rate changes. The author selects the fifteen CB's randomly and takes the data for a sample period of his study 1959-78. The regression models are tested to determine if market rate fluctuations adversely affect commercial bank profit, which take the following form:

$$\frac{GOI_t}{TA_{t-1}} = \alpha_0 + \alpha_1 \frac{GOI}{TA} + \alpha_2 R_t + \alpha_3 \sigma_t^2 + \alpha_4 R_t \left[\frac{TA_t - TA_{t-1}}{TA_{t-1}} \right] + e_t$$

$$\frac{TOE_t}{TA_{t-1}} = \beta_0 + \beta_1 \left(\frac{TOE}{TA} \right)_{t-1} + \beta_2 R_t + \beta_3 \sigma_t^2 + \beta_4 R_t \left[\left(\frac{TA_t - TA_{t-1}}{TA_{t-1}} \right) + \mu_t \right]$$

$$\frac{NCOE_t}{TA_{t-1}} = \gamma_0 + \gamma_1 \left(\frac{NCOE}{TA} \right)_{t-1} + \gamma_2 R_t + \gamma_3 \sigma_t^2 + \gamma_4 R_t \left[\left(\frac{TA_t - TA_{t-1}}{TA_{t-1}} \right) + \mu_t \right]$$

Where

TA = book total assets (TA_t and TA_{t-1} refers TA at the period t and t-1)

R_t = level of the market interest rate in period t

I_t = the discount rate applied by the market in period t

σ_t² = variability of the market interest rate in period t

GOI = gross operating income

TOE = total operating expenses

NCOE = net current operating earnings (GOI-TOE, net of tax)

μ and e_t = standard error of estimate
Other variables are coefficient signs.

The results of author's empirical investigation are:

Market rate levels emerge as a prominent influence on intermediary costs and revenues, but the effects of market rate changes effectively cancel one another for most large banks. Furthermore, intraperiod rate variability around a fixed mean has no significant effect on bank revenues or costs.

In view of the uncertainties associated with describing the duration of bank demand deposits, saving accounts, and so forth, this ex-post performance by large banks must be considered rather impressive.

The conclusion of his study is negative: large banks have effectively hedged themselves against market rate risk by assembling assets and liability portfolios with similar average maturities.

The author also suggests several important questions for future research. The author says that his study ignores bank earning risk and thus cannot determine the net effect of market rates on bank equity values relative to equity values of other firms. Secondly, he states that it is unclear from the study how banks operationally achieve maturity balance, though this is a major management issue. Finally, he suggests extending the methodology to thrifty institutions and small banks. The author does not deny saying that his work is in progress.

2.4 Inflation: Inflation and Interest Rates

(<http://www.investopedia.com/pdf/tutorials/inflation.pdf>)

Whenever it is heard the latest inflation update on the news, chances are that [interest rates](#) are mentioned in the same breath. In the United States, interest rates are decided by the [Federal Reserve](#). The Fed meets eight times a year to set short-term interest rate targets. During these meetings, the CPI is one significant factor in the Fed's decision. Interest rates directly affect the credit market (loans) because higher interest rates make borrowing more costly. By changing interest rates, the Fed tries to achieve maximum employment, stable prices, and a good level of growth. As interest rates drop, consumer spending increases and this in turn stimulates economic growth. Contrary to popular belief, excessive economic growth can in fact be very detrimental. At one extreme, an economy that is growing too fast can experience [hyperinflation](#), resulting in the problems already mentioned earlier. At the other extreme, an economy with no inflation has essentially stagnated. The right level of economic growth, and thus inflation, is somewhere in the middle. It's the Fed's job to maintain that delicate balance. A tightening, or rate increase, attempts to head off future inflation. An easing, or rate decrease, aims to spur on economic growth. While inflation is a major issue, it is not the only factor informing the Fed's

decisions on interest rates. For example, the Fed might ease interest rates during a financial crisis to provide [liquidity](#) (flexibility to get out of investments) to U.S. financial markets, thus preventing a market meltdown.

Inflation and Investment:

When it comes to inflation, the question on many investors' minds is: "How will it affect my investments?" This is an especially important issue for people living on a fixed income, such as retirees. The impact of inflation on your portfolio depends on the type of securities you hold. If you invest only in stocks, worrying about inflation shouldn't keep you up at night. Over the long run, a company's revenue and earnings should increase at the same pace as inflation. The exception to this is stagflation. The combination of a bad economy with an increase in costs is bad for stocks. Also, a company is in the same situation as a normal consumer -- the more cash it carries, the more its purchasing power decreases with increases in inflation. The main problem with stocks and inflation is that a company's returns tend to be overstated. In times of high inflation, a company may look like it's prospering, but in reality inflation is the reason behind the growth. When analyzing financial statements, it is also important to remember that inflation can wreak havoc on earnings depending on what technique the company is using to value inventory. We discuss this in detail in our article, "Inventory Valuation for Investors: FIFO and LIFO." Fixed-income investors are the hardest hit by inflation. Suppose that a year ago you invested \$1,000 in a T-bill that yielded 10%. You are about to collect the \$1,100 owed to you. Is your \$100 (10%) return real? Of course not! Assuming inflation was positive for the year; your purchasing power has fallen, and thus so has your real return. We have to take into account the chunk inflation has taken out of your return. If inflation was 4%, then your return is really 6%. This example highlights the difference between nominal interest rates and real interest rates. The nominal interest rate is the growth rate of your money, while the real interest rate is the growth of your purchasing power. In other words, the real rate of interest is the nominal rate reduced by the rate of inflation. In our example, the nominal rate is 10% and the real rate is 6% ($10\% - 4\% = 6\%$). As an investor, you must look at your real rate of return. Unfortunately, investors often look only at the nominal return and forget about their purchasing power altogether.

Real Interest Rates and the Fisher Equation (http://www.digitaleconomist.com/Inf_4020.html).

A common use of this measure of inflation is to add an inflation premium to interest rates to allow for expectations about future inflation. As stated above inflation erodes the purchasing power of money over time. Individual lending money in an inflationary environment will be repaid in dollars which possess less purchasing power upon maturity of the debt contract. An inflation premium is often built in to nominal interest rates to protect against this loss of purchasing

power. However, at the time the debt contract is developed the inflation premium is based on expected rates of future inflation. If these expectations differ from actual inflation rates during the life of the debt contract either the lender or borrower can be adversely affected.

The inflation premium represents the difference between nominal market interest rates ' i_{market} ' (i.e., those interest rates published in the paper or posted on the wall at a bank) and the desired real rate of interest ' r^* ' which usually reflects the rate of real economic growth (the amount of reward that should accrue to the lender for lending to a productive economy). Thus the nominal rate of interest (holding risk constant) on a short-term debt contract (one year or less) is developed as follows:

$$i_{\text{market}} = r^* + E[\pi_t] \quad (5)$$

where ' $E[\pi_t]$ ' represents the expected rate of inflation.

At the termination of the debt contract an ex-post **real rate of interest** ' r ' can be developed as follows:

$$r = i_{\text{market}} - \pi \quad (6)$$

Thus the **Real Interest Rate** represents the real return to lenders measured in terms of the **purchasing power** of interest paid.

If $E[\pi_t]$ is greater than π_t then ' r ' will exceed ' r^* ' to the benefit of lenders (real returns to lending greater than desired and perhaps greater than the rate of real economic growth) as shown by the following operation -- substituting (5) into (6) we have:

$$r = r^* + E[\pi] - \pi$$

If the opposite is true, then benefits will accrue to the borrower.

During the 1980's, many economists have felt that the real rate of interest was abnormally high (i.e., in excess of 2.5-3%). This may be explained in part due to the inflationary expectations that built up in the late 1970's and early 1980's. Nominal interest rates have taken these expectations into account. The effects of these inflationary expectations differing from the actual rate of inflation can be seen in the table no 2-2 where the annualized 6-month **T-bill rate** is used as a measure of the market interest rate:

Over time, changes in market interest rates may be attributed to changes either in the real desired rate ' r^* ' or due to changes in inflationary expectations.

Changes in the desired real rate reflect the behavior in the market for loanable fund.

If the supply of these funds (public and private savings) exceeds the demand for these funds (public and private borrowing) then the desired rate should fall in reaction to a surplus of these funds. In periods of economic growth the opposite is true. The growing economy is sustained in part by increased borrowing activity for inventory investment and investment in new capital stock to allow for increased production to meet growth in aggregate demand.

Changes in inflationary expectations tend to be a more complicated matter. One may hypothesize that current inflationary expectations are based on the history of past actual rates of inflation. A formal model that may help in understanding the development of these expectations is that of the **Adaptive Expectations** model. This model is based on the notion that economic agents slowly adapt to a changing inflationary environment. This may have been the case in the late 1960's and early 1970's. During the 1960's, the inflation rate was relatively low in the 2-4% range. Basically, during this period time inflation was not considered to be a major economic problem. Thus in the next decade when actual inflation began to creep up towards the double-digits, many individuals and institutions were surprised. Forecasts of future inflation (based on recent historical experience) consistently lagged behind an accelerating actual rate of inflation.

In the early to mid-1980 the actual rate of inflation was de-accelerating, a phenomenon known as **disinflation**. During this period, economic agent's expected rates of inflation were greater than what actually occurred. These agents were slow to adapt thus putting upward pressure on ex-post real interest rates.

2.5 NRB Directives and Interest rate in Nepal.

Taking the reference of history on interest rates, we observe different changes in interest rate. The sole controller for regulating interest rate in Nepal is central bank, Nepal Rastra Bank. In the beginning, the interest rate charged and offered by banks and financial institutions was mentioned at a lower level with a view to stimulate real income and employment. However, dramatic change had been made time to time. Regulation of interest rate by Nepal Rastra Bank is made in the early stage of financial market development taking the period from 1955 to 1965. But NRB gradually began to liberalize the determination of interest rate on a phase-wise basis according to compatibility of the banks and the financial institutions that have developed in the country. In the early mid 1980's the country has adapted liberal economic policy. Number of finance companies and commercial banks began to develop and government made the liberal policy in maintaining the interest rate were encouraged for commercial banks, established under joint venture in association with foreign banks in private sectors. Similarly,

deregulated of interest rate was applied to under financial companies established finance company acts. Likewise other financial institutions like development banks, micro financial institutions. NGOs and licensed cooperative under, NRB were also made competitive in the determination of interest. The central bank, the sole institution authorized to determine the interest rate as per NRB act. There are full discretions to NRB in determining interest rate structure of banks and financial institutions taking from the period 1960 to 1975.

On 16 November 1984 government had provided autonomy in offering the interest rate on saving and time deposit to the extent of 1.5% and 1% points respectively above the prevailing rates. In 1986 financial institutions got freedom in fixing their interest rates in their deposits and loans. In addition, there was also limitation on the interest rate on different loans provided for the productive and priority and full deprived sector. However there was limitation imposed on certain sectors of lending such as the rate of maximum of 15% on the priority sectors loan. And for other kinds of loans financial institutions were given freedom to maintain the interest rate structure. In this way government provided freedom as well as limitation on the determination of interest rate.

On August 22, 1992, Nepal Rastra Bank issued some directives to commercial banks and financial institutions to clearly spell out the interest rate on deposits. Nepal Rastra Bank also instructed the bank and financial institutions to limit their interest rate spread on deposit and credit at 6 percent within the mid-December 1993. A further instruction to banks and financial institutions was issued in 2002, and now the interest rate spread required to be maintained by commercial banks and financial institutions has also been removed.

The interest rate regime in Nepalese perspective change from rigid control and monopoly of NRB from 1960-1980 to that of ultimate deregulation of interest rate and removal of spread from 1986 to 2002. At present there is complete freedom to have competitive system an important part of government's financial liberalization policy. In this way, the interest rate became a market determined phenomena rather than a regulated phenomena. The process of interest rate deregulation became a major indicative factor of the financial sector reform in the country.

The following table no 2-3 shows the development of interest rate in the Nepalese Financial Markets:(Shrestha Manohar K & Bhandari, Dipak B,2000:173)

Table No. 2-2: Phase-wise development of Interest rate.

1960	Sole monopoly of NRB to fix interest rate on deposit and loans.
1976	NRB empowered to determine interest rate.
1980	Process continued for NRB to fix interest rate and banks and financial institution to follow it.
1986	Freedom to commercial banks to offer higher interest rates from the minimum level of interest rate fixed by NRB
1989	Interest rate fully deregulated.
1992	Issue directive to commercial banks to spell out interest rate policy encouraging competition in interest rate.
1993	Spread not to exceed 6 percent.
1999	Decrease spread to 5 percent.
2002	Removal of spread restriction.

Source: Financial Markets and Institutions, Dr. Manohar K. Shrestha and Dipak B. Bhandari

2.6 Monetary policy of 2005/06

The monetary policy of 2005/06 was formulated, considering economic, monetary and financial situation of the previous fiscal year as well as likely developments in domestic and w\external economies in 2005/06.

As in previous year, monetary policy of 2005/06 was also geared towards the twin b\objectives of price stability and balance of payments consolidation, as stipulated by the NRB Act 2002. Initially, average inflation rate was projected at 5% for 2005/06. But, initial inflation estimation was revised upward to 7% in mid-term review of monetary policy, following frequent upward changes in petroleum prices.

Ex-ant monetary stance for 2005/06 was caution on account of sluggish economic activities and pressure on inflation. For example, economic growth was 2.5% in 2004/05; and due to the rise in petroleum price and increase in VAT rate from 10 to 13%, there was also a pressure on inflation. To signal the monetary policy stance, the bank rate was increased from 5.5% to 6.0%. The hike in the bank rate was aimed at anchoring inflationary expectations. (NRB economic Report 2005/06, Monetary Development)

Monetary Instruments

Bank Rate

The monetary policy of 2005/06 continued the price of signaling ex-ant monetary policy stance through the bank rate. The bank rate was increased from 5.5% to 6.0% in order to contain inflationary expectation. The rate was further increase by .25%point to6.25% in the mid-term review of the monetary policy considering the rising trend of inflation.

Cash Reserve ratio

Over the years, a policy of reducing CRR was taken with a view to helping commercial banks lower the financial intermediation cost. However, CRR remained unchanged at 5.0% (of total deposits in domestic currency) in 2005/06 to a pressure on price front.

2.7 Review of Thesis:

Prior to this study, 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 theses which are related to this study to some extents. The review and the extract from them are presented in this section.

A study by **Sanjeev Parajuli** (2005) "Interest rate Structure and its relation with deposit, Lending and Inflation" has tried to define relation with deposit, lending and inflation.

The objectives were:

1. To explore the relation of interest rate with deposit amounts (existence of substitution effect) in Nepalese market.
2. To identify the sensitivity of interest rate to the investment (borrowing).
3. To find out the relationship of interest rate with inflation in Nepalese market.
4. To explore the relation of interest rate with deposit amounts (existence of substitution effect) in Nepalese market.
5. To identify the sensitivity of interest rate to the investment (borrowing).
6. To find out the relationship of interest rate with inflation in Nepalese market.

Methodology

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, lending (credit) 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.

The population of this study and among them, only 5 commercial banks are chosen as samples from total population. For this study, mainly secondary data are used. These secondary data are collected mainly from published sources like annual report, prospectus, balance sheet, newspaper, journal, Internet and other sources.

For this study, only required data are taken from the 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.

Major Findings

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 rates on deposit 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.
3. For fixed and saving deposits, it is found that all sample banks except ADB/N have moderate correlation with inflation rate. Similarly, all t-test values are insignificant except ADB/N. 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.

Conclusion:

1. The interest rates on both deposit and lending of all sample banks are found to be in decreasing trend. The government run bank's fixed deposit is found to be decreasing every year.
2. The saving deposit amount and saving interest rate have negative relationship.
3. For saving deposit, there is no substitution effect.
4. For fixed deposit also, there is no substitution effect at all.
5. So Increase in lending amount is not due to the decrease in lending interest rate but due to the other reason.

Another study by **Prativa Adhikari** (2007) "Determinants of Interest Rates", tried to identify the relationship of interest rate with three other factors, deposit, credit and inflation and other determinants, According that thesis,

The objectives were:

1. To show the relationship between liquidity position and interest rate on deposit and lending.
2. To identify the effect of inflation on interest rate charged and offered by various Nepalese financial institutions.

3. To identify whether there is any correlation between interest rate of lending and interest rate of deposit.
4. To identify the different methods used by Nepalese Financial Institutions to calculate interest rate on lending.
5. To identify the other major qualitative factors determining the interest rate charged and provided by Nepalese financial institutions.

Methodology:

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, lending (credit) 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.

All 23 commercial banks are the population of this study and among them, only 4 commercial banks namely Standard Chartered Bank Ltd, Macchapuchhre Bank Ltd, Everest Bank and Kumar Bank Ltd are chosen as samples from total population. For selecting the samples, simple random sampling method is used here among different methods.

The major findings:

1. Competition is an important factor to shape the interest rate in Nepalese financial market. Organization competes within the group i.e commercial banks with themselves.
2. Quoted rate differs according to sector but negotiation may change it.
3. Political instability, violence are not directly affecting interest rate in financial market but they are responsible for economic slackness, which ultimately affects interest rate through influencing demand and supply forces.
4. NRB's various policies and directives are also the responsible factors for determining the interest rate in Nepalese financial market.

Conclusion

The 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. Similarly the relationship with income and inflation could not come significant.

According to him, 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, she 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. Even though, NRB does not intervene the interest rate directly, various regulatory and promotional roles played through various monetary measures and directives issued from time to time affect the interest rate in Nepalese financial market to large extent. Some of the measures used by NRB to influence the interest rate through money supply are CRR, refinance rate, bank rate, buying and selling of foreign currency and treasury securities.

Other specific factors influencing interest rate on lending are performance of borrowing company, collateral base, goodwill and reputation of borrower, loyalty, size of business, volume of loan, bargaining power etc. Besides, interest rate in Nepalese financial market is also affected by long term economic factors like economic and business growth rate, reduction in lending opportunity due to terrorism, conflict, insecurity etc. According to respondents, because of unavailability of investment opportunity, Nepalese financial institutions are suffering from over liquidity in recent years as shown by increasing trend of deposit and decrease rate on such deposits.

Another Study conducted by **Neeta Dangol** in (2003) on the “Impact of Interest Rate on Financial Performance of Commercial Banks”

The Objectives:

1. To present the relationship between deposits, loan/advances and interest rate.
2. To show the relation between profitability and interest rate structure of financial institutions.

Methodology:

She has also used primary and secondary data for the research purpose. To show the relationship of interest rate with deposit amount, lending (credit) amount and inflation rate, past historical data are used.

Conclusions:

1. Most of the commercial banks contradict the general financial theories.
2. The relation between amount of deposits and interest rate on deposit, in general concept, must be positive. But deposits are increasing despite the decrease in the general level of interest. The result of such

phenomenon is that there are fewer investment opportunities for the banking sectors as well as general investors.

3. The relation between total amount of loan and the lending rate is negative and significant. However, the change in the total amount of loan flow is not proportionate with the change in the lending rate.
4. Correlation between interest rate and inflation is not significant.
5. Not only interest rate is responsible to shape the profitability of banks but also the operating efficiency also has major influence on it.

All the above mentioned thesis uses following Data Analysis Tools such as Airthmetic Mean, Standard Deviation, Coefficient of Correlation, Coefficient of Multiple Determination.

Another study made by **Kaji Dahal**(2006) in his thesis “monetary Policy and Banking Profits in Nepal”, he tried to show the effect of monetary policy on CB’s activities. He also shows that loan and deposit interest rates are sensitive in the commercial banks portfolio and profit behavior.

The Objectives:

1. To analyze the effect of monetary policy on CB’s activities
2. The sensitivity of loan and deposit interest rates on commercial bank’s portfolio and profits behavior.
3. To find the views of NRB and CB’s regarding the effect of monetary policy on banking activities like investment portfolio and thereby profit of CB’s in Nepal.
4. To show the relationship between the liquidity position and interest rate on deposit and lending.

Conclusions:

1. The small change in interest rate on bank loan brings large change in the interest rate on time deposits in Nepal.
2. The investment in government securities is the main source of income of commercial banks in Nepal.

3. The level of loan provided by commercial bank is regarded as the main source of earning interest income, which favorably affects the commercial bank profits.
4. The loan demanded by public and gross National Product has positive relationship.

Methodology

The data analysis tools used are: Regression Models, Profit Definition and Chi -square Test.

2.8. Research Gap

Interest rate is the function availability of deposit (supply of loanable fund), investment opportunities. It is indirectly influenced by the investment habit, psychology and awareness of investors. Investor's behavior changes with the passage of time. So, does their preferences and priorities. This study examines the current trend of investor's perception and attitude about the market and provides fresh findings and recommendations. In this connection, this study contributes something new toward the interest rate in banking market that is not sought yet by surveying the inflation of the country, lending and deposits in the market. This sort of study identifies investor's perception and awareness is a new and challenging in itself but is also an opportunity to learn and identify about the prevailing interest rate in the market and its opportunities and threats.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction:

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 rationale of each step) to be adopted by a researcher in studying a problem with certain objectives in view. (Kothari, C.R., 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.

3.2 Research Design

A research design is the specification of methods and procedures for acquiring the information needed. It is the overall operational pattern or framework for the project that stipulates what information is to be collected, from which sources and by what procedures. (Paul, E. Green and Donald. S. Till; Research for Marketing Decisions.)

Thus a research design is a plan for the collection and 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 is 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, lending (credit) 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.

Population and Samples:

The term “population” or universe for research means the universe of research study in which the research is based (Wolf, Howard K. & Pant, P.R., 2000:75). Since the research topic is about interest rate, all the lending and depository institutions of Nepal are the members of population study. The population for the study comprises 23 commercial banks, 58 development banks, 79 finance companies, 17 saving and credit co-operatives, one employee provident fund and other 47 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 sectors, only commercial banks are

chosen for this study. So precisely saying, all 23 commercial banks are the population of this study and among them, only 4 commercial banks are chosen as samples from total population. For selecting the samples, simple random sampling method is used here among different methods. Organizations under study are as follows, whose general introduction and major objectives are presented in chapter one.

1. Standard Chartered Bank Nepal Limited (SCBL)
2. Everest Bank Limited (EBL)
3. Kumari Bank Limited (KBL)
4. Machhapurchase Bank Limited (MBL)

3.4 Sources of data and Collection Procedure:

For this study, mainly secondary data are used. These secondary data are collected mainly from published sources like annual report, prospectus, balance sheet, newspaper, journal, Internet and other sources. Besides this in some case, if needed, primary data can also be used. They can be collected through direct interview and observation.

Secondary data published on annual reports of concerning organizations, like interest rate as well as amount and their organizational profiles are collected through personal visit of respective organization as well as from their web sites. Some secondary data like source and use of funds of respective bank, comparative study, and inflation rates are collected from Nepal Rastra Bank.

3.5 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 convert 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 the 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.

3.6 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, G.D. & Chaudhary, A.K., 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:

$$\text{Mean } (\bar{X}) = \frac{\sum X}{n} \quad \text{Where } \bar{X} = \text{Mean}$$

$\sum X$ = Sum of all the Variable X
n = Variables involved

Standard Deviation:

The standard deviation is the best tools to study fluctuation in any data. It is usually denoted by the letter sigma (δ). 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, S.C. 2000:380)

It can be computed by using following formula.

$$S.D(\delta) = \sqrt{\frac{1}{n} \sum (X - \bar{X})^2}$$

Greater the magnitude of standard deviation, higher will be the fluctuation 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 in the other variables. The correlation analysis refers the closeness of the relationship between the variables. (Sharma, P.K. and Chaudhary, A.K. 2000:420) Correlation may be positive or negative and ranges from -1 to +1. Simple correlation between interest rate and deposit amount, 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. (Sharma, P.K. and Chaudhary, A.K., 2000:420)

- Correlation may be positive or negative and ranges 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 (or -0.7 to -0.999), there is high degree of positive (or negative) correlation.
- When 'r' lies between 0.5 to 0.699, there is a moderate degree of correlation.

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

$$\text{Simple Correlation Coefficient (r)} = \frac{n\sum X_1 X_2 - (\sum X_1)(\sum X_2)}{\sqrt{n\sum X_1^2 - (\sum X_1)^2} \sqrt{n\sum X_2^2 - (\sum X_2)^2}}$$

Alternately,

$$r = \frac{\text{Cov}(X_1 X_2)}{\text{Var}X_1, \text{Var}X_2}$$

Where,

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

n = Total number of observations.

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

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

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

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

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

Multiple correlation is used for the measure of degree of association between one variable and a group of other variables as the independent variable. It lies between 0 and 1. The close it is to '1', the better the linear relationship between the variables. The closer it is to '0', the worse is the linear relationship. (Gupta, S.P 2000:115)

Coefficient of Multiple Determination:

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 represent the portion of total variation in 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 observations from bivariate normal population, the test statistics for significance of correlation under null hypothesis is given by

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

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

The (1- α) % confidence limits for estimating population correlation coefficient (ρ) are given by

$$\begin{aligned} & r \pm t_{\alpha} (n-2) \times \text{S.E. (r)} \\ & = r \pm t_{\alpha} (n-2) \times \frac{1-r^2}{\sqrt{n}} \end{aligned}$$

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction:

This is the section where, the filtered data are presented and analyzed. This is the one of the major chapter of this study because it includes detail analysis and interpretation of data from which concrete result of Nepalese market can be obtained. 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. The analysis is fully based on secondary data available. In presentation 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.

For our simplicity, in this thesis, presentation analysis and interpretation of data are made according to the nature. In other words, at first relationship of deposit and interest rate of all 6 sample banks are analyzed. After then, the relationship between interest rate and credit (lending) amount is made. Lastly the relationship between interest rate and inflation is presented. While analyzing, different statistical tools like correlation coefficient, coefficient of determination, t-statistics for significance are employed.

4.2 Analysis of Deposit and Interest Rate:

In this section, detail study is made about deposit amount and interest rate of various banks. For this study only saving and fixed deposits are considered because current deposit doesn't earn any interest.

4.2.1 Kumari Bank Limited

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 no 4-1: Interest rate structure on deposit of KBL as on Mid-July

Deposit	2003	2004	2005	2006	2007
Savings	5.0%	4.75%	4.25%	4.0%	3.0%
Fixed					
7 Days	-	-	-	-	-
14 Days	3.00	2.50	2.00	2.00	2.00
1 Months	3.50	3.00	2.25	2.37	2.37
3 Months	4.00	3.5	2.50	2.75	2.75
6 Months	4.50	3.75	3.50	3.75	3.00
1 Years	5.50	4.50	4.00	4.25	3.87
Above 2Yrs	6.50	5.00	4.75	5.25	4.5
Whole Mean	4.57	3.85	3.32	3.48	3.07
Fixed Deposit Mean	4.5	3.71	3.16	3.39	3.08
Std. Deviation	0.6098				

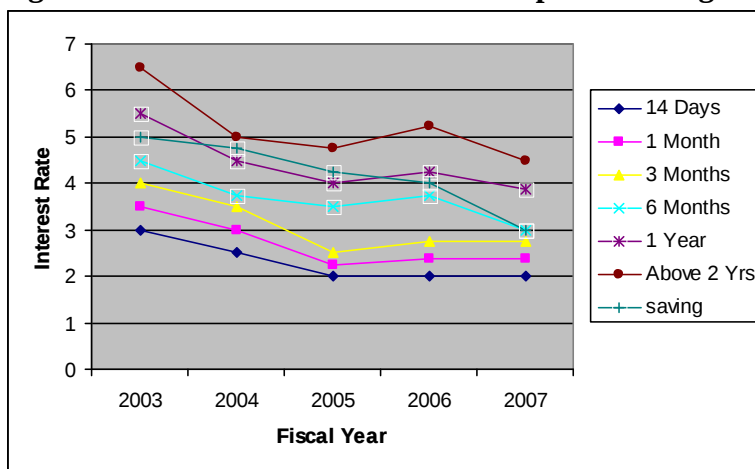
Source: Banking and Financial Statistics, NRB

Table no 4-1 shows the deposit interest rate of KBL in 5 different FY. For this study 2003 is taken as initial year & 2007 as final years. The table portrays the interest rate that were prevailed in the Nepalese financial markets during past 5 FYs. The data shows the decreasing tendency of interest rate. The interest rate on saving deposit in the beginning year was 5.0% and decreased to 3.0% in 2007. This is 40% reduction during the 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 months, 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 5 year period the decline percentage is 33.33%, 29.63% and 30.76% respectively for 6 months, 1 years and 2 years period. The decreasing tendency of interest rate is very less for these period. If the mean is taken of all (both fixed and saving) then average interest rate on saving deposit was 4.57% for 2003, 3.85% for 2004, 3.32% for 2005, 3.48% for 2006, and 3.07% for 2007. 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 4.5%, 3.71%, 3.16%, 3.39% and 3.08% respectively for the year 2003 to 2007 respectively. The average figures also show the decreasing tendency in interest rate except in the year 2006. At that period, the interest rate was slightly higher

than year 2005 but ultimately felled to the 3.07% in the 2007. All the above described matters can be shown on figure 4-1 as follows.

The graph 4-1 reveals that, all the period interest rates are on declining trend. Saving interest rate falls every years But for fixed deposit, interest rate remain constant from 2005 to 2007 for 14 days whereas it slightly increases from the period 2005 to 2006 for 1 month, 3 month, 6 months, 1 year and Above 2 years. For other years, the fixed interest rate declined by some percentage every year.

Figure 4-1: Interest Rate of KBL on Deposits during Different FY



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

Table No 4-2: Relationship between Interest Rate and Deposit amount of KBL
In Millions

Year (1)	Saving Deposit Interest Rate (2)	Saving Deposits Amounts (3)		Fixed Deposit Interest Rate(4)	Fixed Deposit Amounts (5)	
2003	5.0	4619.40		4.5	7954.02	
2004	4.75	9029.40		3.71	12924.49	
2005	4.25	15155.75		3.16	23020.87	
2006	4.0	23178.42		3.39	31628.33	
2007	3.0	44616.95		3.08	27764.80	
Correlation	r ₂₃ = -0.993			r ₄₅ = -0.84181		
Coefficient of determination	r ² ₂₃ = 0.9860394			r ² ₄₅ = 0.708644		
t-statistic	t-cal= 14.588	t-tab= 2.571	significant	t-cal= 2.751	t-tab= 2.571	Significant

Source: Banking and Financial Statistics, , NRB

The table 4-2 shows the total amount of fixed deposit and saving deposits and the interest rates offered on such deposits by KBL on five fiscal years starting from FY 2003 to FY 2007. The table portrays that the both interest rate has been decreased by greater magnitude. 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 4-2 and 4-3.

Figure No 4-2: Deposit Amount of KBL during different FY

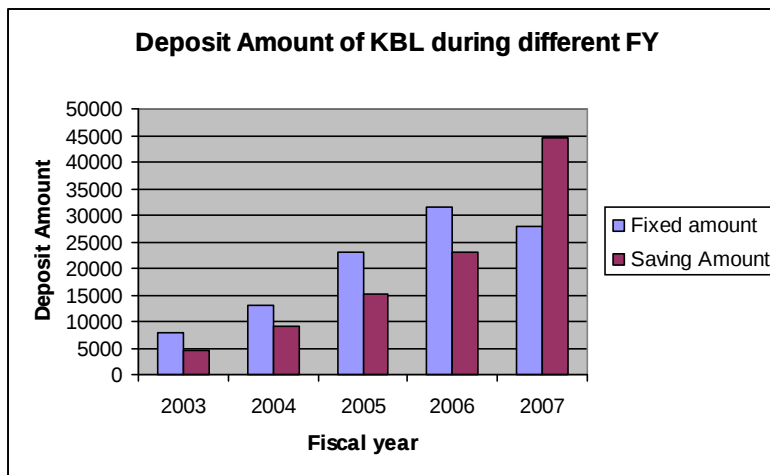
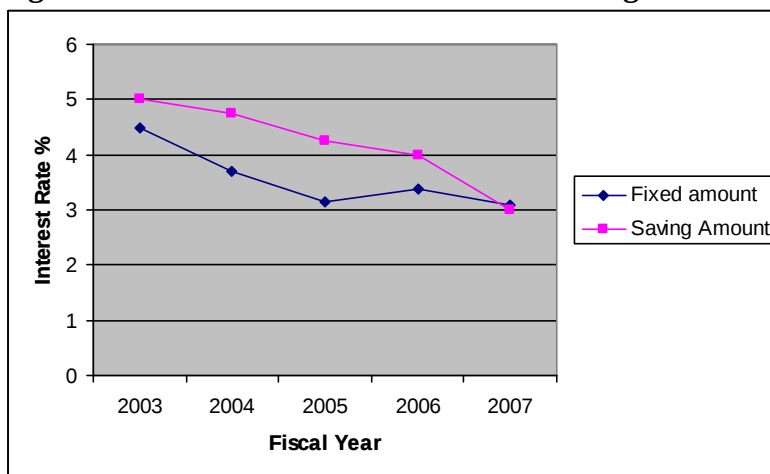


Figure No. 4-3 Interest rates of KBL on Saving And fixed Deposit



According to table no 4-2, the interest rate on saving deposit has been decreased from 5% to 3% during 5 FYs. The declining tendency is little. In same period the deposit amount was Rs 4619.40 millions but this amount increases to

Rs. 44616.95 millions. It means interest rates fell by 40%, where as deposit amount rises by 865.86% within the period of 5 years.

Similarly, for fixed deposit the table 4-2 shows that total amount of fixed deposit and interest rate on fixed deposit offered by KBL on five consequent FY started from 2003 to FY 2007. The table reveals that average fixed interest rate has been decreased steadily during the five FYs. At the FY 2003 the average interest rate was 4.5% on fixed deposit but later every year this interest rate decreases and reached to 3.08% in 2007 on average. But the amount of fixed deposit increases as the interest rate starts decreasing. The table shows in 2003 the amount of fixed deposit was RS 7954.02million and in 2007 it reached to RS 27764.80 which is 249.66% increment. In this regards, the substitution effect do not holds true in the both case fixed deposit and normal saving.

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 $(r_{23}) = -0.993$. 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 KBL for saving account is not applicable. The coefficient of determination between these two variables is $r^2_{23} = 0.986$, which means that total variation in dependent variable (saving deposit amount) has been explained by independent variable (interest rate) to the extent of 98.60% and remaining is the effect of other factors. The t-value for testing the significance of the correlation coefficient between variables is -14.588 ($t = 14.588$). Since the tabulated t-value at 5% level of significance for 5 degree of freedom ($t_{\text{tab}} = 2.571$) is less than calculated value ($t_{\text{cal}} = 14.588$), the correlation coefficient is significant. This means the variables mentioned (interest rate on saving deposit & amount of saving deposit) for KBL 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 -0.841. This is the similar case as of normal saving. This high negative correlation coefficient indicates that they have inverse relationship among each other. Decrease in interest rate is followed by an increase in fixed deposit amount and vice-versa. This shows that the substitution effect in case of KBL for fixed account is not applicable. The coefficient of determination between these two variables is $r^2_{45} = 0.7086$, which means 70.86% 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 $t = 2.7519$. The tabulated value at 5%

significant level with d.f. 5 is 2.571 (i.e. $t_{\text{tab}} = 2.571$). Here $t_{\text{cal}} > t_{\text{tab}}$ so H_0 is rejected i.e. there is significant relation between two variables interest rate on fixed deposit and amount of fixed deposit.. 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.

4.2.2 Standard Chartered Bank Ltd:

The general structure of deposit interest rate of Standard Chartered Bank Ltd (SCBL) is shown below on table no 4-3.

The table shows the interest rate of SCBL during the last five FYs. The trend of interest rate shows that it is in rigid. It is dissimilar with that of KBL. The interest rate on saving deposit shows that it was 2.5% during the period of 2003 and It decreases to 2.0 % in year 2004 and again 1.75% in year 2005 but it again increases to 2.0% in year 2006 and remain same in 2007 as well. Similarly the interest rate on fixed deposit also remains rigid during the five fiscal years.

There is slight fall in interest rate in year 2004 from 2003. It was 1.81 and 2.96 respectively but after that for rest of the year from 2005 to 2007 it remain same i.e. 1.75%.

Table no 4-3: Interest rate structure on deposit of SCBL as on Mid –July

Deposit	2003	2004	2005	2006	2007
Savings	2.5%	2.00%	1.75%	2.00%	2.0%
Fixed					
7 Days	-	-	-	-	-
14 Days	2.00	1.00	1.00	1.00	1.00
1 Months	2.50	-	1.50	1.50	1.50
3 Months	2.50	1.50	1.50	1.50	1.50
6 Months	3.00	-	1.75	1.75	1.75
1 Years	4.00	2.25	2.25	2.25	2.25
Above 2Yrs	3.75	2.5	2.50	2.50	2.5
Whole Mean	2.89	1.85	1.75	1.78	1.78
Fixed Deposit Mean	2.96	1.81	1.75	1.75	1.75
Std. Deviation	0.6954				

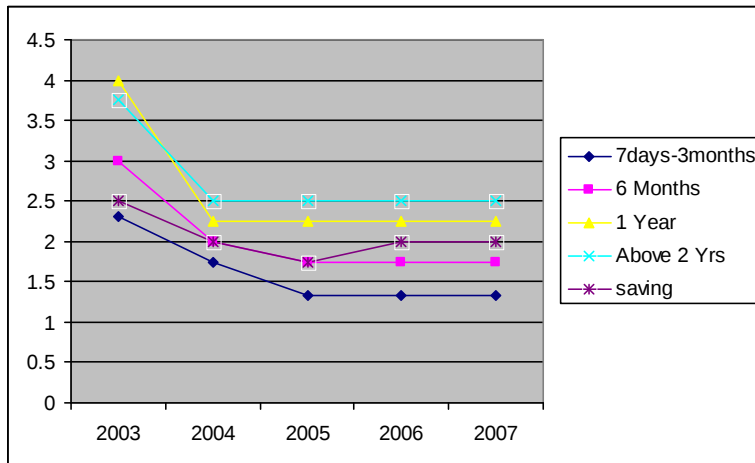
Source: Banking and Financial Statistics, , NRB

The above table shows that the interest rate on saving deposit of SCBL is 2.5%in year 2003 and it fell down to 2.0% in year2007. This is 20.0% reduction

during the three year period. But the reduction rate is very less as compare to KBL. The fluctuation rate is also less in these FY.

Similarly in case of fixed deposit the interest rate was 2.96% in 2003 and it fell down to 1.75% in average in 2007 which is about 50.0% reduction in the three year period. Here also the fluctuation rate was very less. These tendencies can also be shown in graph no 4-4 as follows:

Figure No. 4-4: Interest Rate of SCBL on Deposits during Different FY



By graph 4-4 also it is clear that declining tendency is high in former period than in later periods. Similarly, lower periodic rate remains almost constant in later years. **Correlation Coefficient, Coefficient of Determination and t-statistics of SCBL**

Table No 4-4: Relationship between Interest Rate and Deposit amount of SCBL
In Millions

Year (1)	Saving Deposit Interest Rate (2)	Saving Deposits Amounts (3)		Fixed Deposit Interest Rate(4)		Fixed Deposit Amounts (5)
2003	2.5	113957.05		4.39		10254.89
2004	2	127718.25		4.39		14284.95
2005	1.75	130309.29		4.38		14163.82
2006	2	145976.74		4.07		21363.07
2007	2	152443.84		3.15		31964.89
Correlation	r ₂₃ = -0.543499			r ₄₅ = -0.964697		
Coefficient of determination	r ² ₂₃ = .2953			r ² ₄₅ = 0.9304		
t-statistic	tcal=1.12	t-tab= 2.571	insignificant	tcal=6.32	t-tab= 2.571	Significant

Source: Banking and Financial Statistics, , NRB

In table no 4-4 saying amount and deposit rates are arranged I systematic order. The outlook of the table shows that the interest has been falling since 2003

in both case saving and fixed deposits. But the amount of saving deposit has not been in decreasing trend. It is increasing every year. But it is seen that that the decrease in interest rate is very less, the rate was almost same for 2003, 2004 and 2005 then it decline to 4.07% in year 2006 and 3.15% in 2007. It is similar in case of fixed deposit also. There is very less change in interest rate and amount of fixed deposit is increasing. This indicate that the condition for SCBL is opposite to substitution theory. This suggest that they have inverse relationship but to determine the magnitude of relation, correlation coefficient should be calculated and to identify the strength 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 and 4-6.

Figure 4-5: Deposit Amount of SCBL during different FY

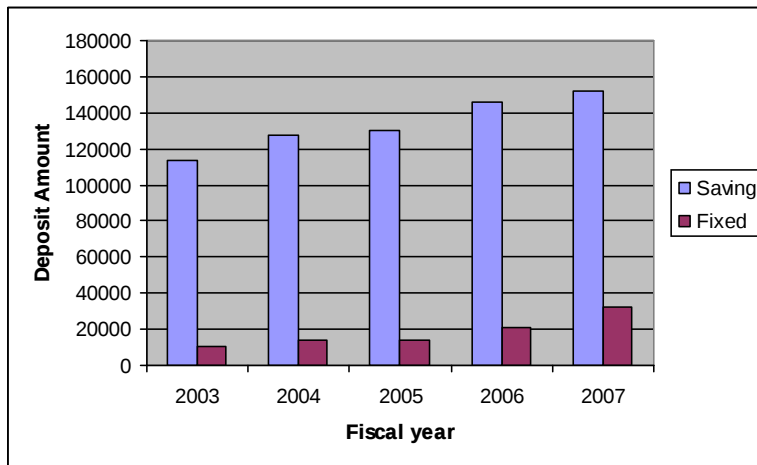
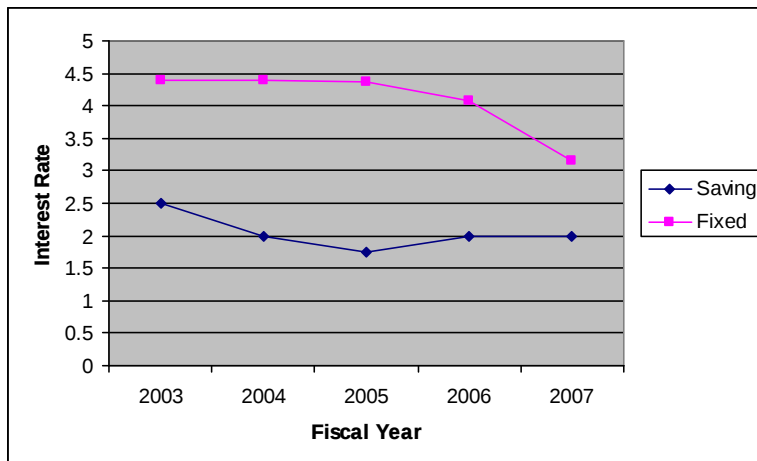


Figure No 4-6: Interest Rates of SCBL on Saving and Fix Deposit



The figure no 4-5 shows that the deposit amount of SCBL is in increasing trend. The increasing tendency is high for saving deposit but for fixed deposit, the trend is increasing slowly. Similarly figure 4-6 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 no 4-6.

The correlation coefficient for saving deposit and its interest rate is found to be $r_{23} = -0.964$ 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, $r^2_{23} = 0.9304$ which means that the value of dependent variables is dependent on independent variables to the extent of 93.04 percent. Similarly the t-test for same shows that the calculated value of t is 6.32 (t-cal = 6.32). 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. Whereas for fixed deposit, the coefficient of correlation (r_{45}) is -0.534, which is negative with moderate degree of inverse relationship. This is the similar to the KBL. The t-statistics for fixed deposit shows that its calculated value for t is 1.12, which is less than the tabulated value of t i.e. t-cal < t-tab. In such case first hypothesis (H_0) is accepted and alternative hypothesis (H_1) is rejected. This indicates that the two variables are insignificantly correlated. The analysis of SCBL also shows that substitution effect is not applicable for bank.

Machhapurchhre Bank Limited (MBL)

The general rate structure of MBL for saving deposit and fixed deposits during past seven years is as follows:

Table no 4-5: Interest rate structure on deposit of MBL as on Mid -July

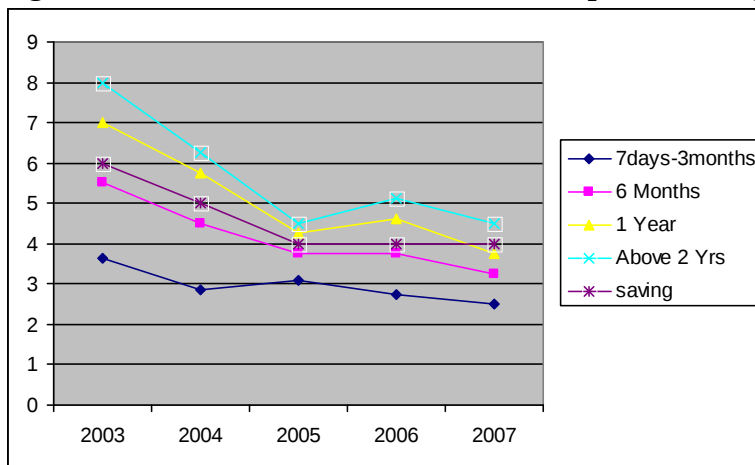
Deposit	2003	2004	2005	2006	2007
Savings	6.00	5.00	4.00	4.00	4.00
Fixed					
7 Days	2.00	2.00	2.25	-	-
14 Days	3.00	2.50	-	-	-
1 Months	4.25	3.00	3.25	-	-
3 Months	5.25	4.00	3.75	2.75	2.75
6 Months	5.50	4.50	-	3.75	3.25
1 Years	7.00	5.75	4.25	4.625	3.75
Above 2Yrs	8.00	6.25	4.50	5.125	4.50
Whole Mean	5.125	4.125	3.667	4.05	3.65
Fixed Deposit Mean	5.00	4.00	3.60	4.062	3.562
Std. Deviation	.5911%				

Source: Banking and Financial Statistics, NRB

From table 4-5 it is clear that interest on deposit of MBL is also in decreasing trend. But during last fiscal year the declining rate shows that unique features. In saving deposit during five FYs in year 2004 the interest rate has

decreased to 5.00% which was 6.00% in 2003 and again it has decline to 4.00% in year 2005 which remain same in year 2006 and 2007 also. This shows that rate is remaining static during last three year. Whereas in case of fixed deposit the interest rate seems to be fluctuating all over the 5 FYs. It was 5.00% in year 2003, then decline to 4.00% in 2004, then 3.60 in year 2004 but it again increased to 4.062 in year 2006. At last it again decrease to 3.56% in 2007. But the declining speed is very slow during this five year. This phenomenon can be portrayed in graph as figure no 4-7.

Figure No:4-7 Interest Rate of MBL on Deposits during Different FY



The graph no 4-7 shows that declining rate of interest is slow but the through out five year the there is fluctuation in the interest rate.

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

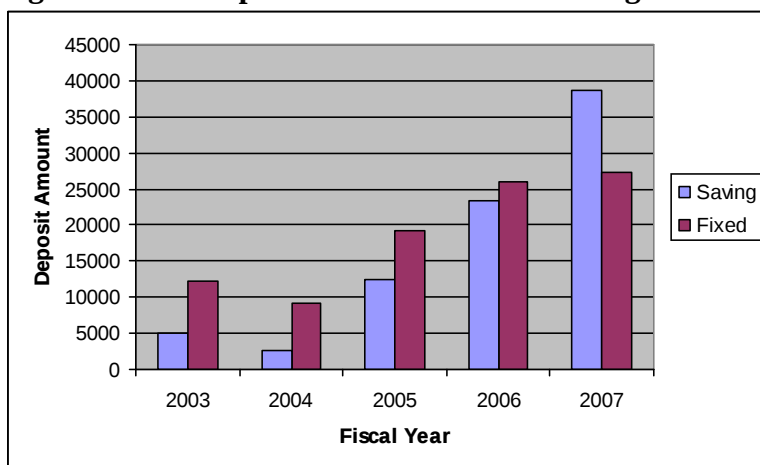
Table No 4-6: Relationship between Interest Rate and Deposit amount of MBL

Year (1)	Saving Deposit Interest Rate (2)	Saving Deposits Amounts (3)		Fixed Deposit Interest Rate(4)	Fixed Deposit Amounts (5)	
2003	6.00	4930.99		5.00	12272.80	
2004	5.00	2520.86		4.00	9216.32	
2005	4.00	12501.98		3.60	19147.63	
2006	4.00	23333.67		4.062	26048.98	
2007	4.00	38568.14		3.562	27333.59	
Correlation	r ₂₃ = -0.692615			r ₄₅ = -0.532297		
Coefficient of determination	r ² ₂₃ = 0.4797162			r ² ₄₅ = 0.2833398		
t-statistic	tcal=1.665	t-tab=2.571	insignificant	tcal=1.089	t-tab=2.571	insignificant

Source: Banking and Financial Statistics, NRB

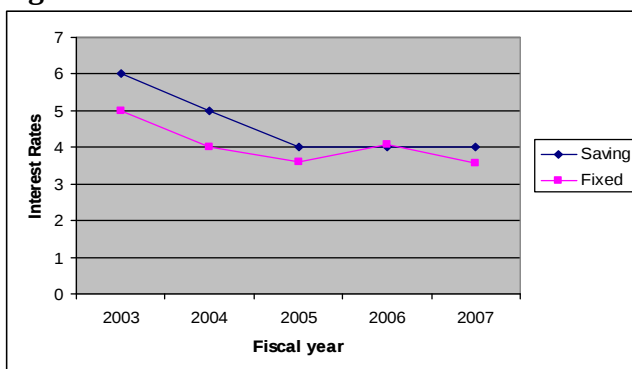
The table 4-6 shows the amount of saving deposit and its interest rate as well as amount of fixed deposit and its interest rate for five fiscal year. The table indicates that, in one hand deposit rates are declining where as in other hand deposit amount is increasing in each fiscal year. This suggests 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 4-11 in following ways:

Figure no 4-8: Deposit Amount of MBL during different FY



The graph shows saving deposit amount and fixed deposit amount is continuously rising each year except in year 2004. Similarly interest rate of fixed deposit and saving deposit can also be shown on figure 4-8 as:

Figure No 4-9: Interest Rates of MBL 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 -0.6926. It means that these two variables have very moderate 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 -0.5322,

which is also 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 0.4797 ($r^2_{23} = 0.4797$) which indicates that the relation between deposit and interest rate is tied up to the level of 47.97 percent and remaining other percentage by other factors. In same manner for fixed deposit the value of coefficient of determination is 0.2833

The value of t-statistics for saving deposit and saving interest is found to be 1.665 (t-cal = 1.665). 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 less than t-tabulated. So H_0 is accepted, which means that there is insignificant correlation between saving deposit and interest rate. Similarly for fixed deposit, the calculated value for t is 1.089 (t-cal = 1.089). This value is also less than t-tabulated. So in this case also the magnitude of correlation coefficient is highly insignificant.

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

4.2.4. Everest Bank Limited (EBL)

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 EBL on saving and fixed deposits for past five FYs are presented on table 4-7

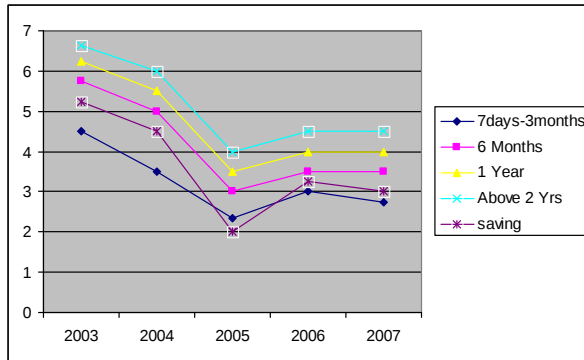
Table no 4-7 : Interest rate structure on deposit of EBL as on Mid July

Deposit	2003	2004	2005	2006	2007
Savings	5.25	4.50	2.00	3.25	3.00
Fixed					
7 Days	-	-	-	-	-
14 Days	3.75	3.00	2.25	-	-
1 Months	4.75	3.50	2.25	-	2.75
3 Months	5.00	4.00	2.50	3.00	3.00
6 Months	5.75	5.00	3.00	3.50	3.50
1 Years	6.25	5.50	3.50	4.00	4.00
Above 2Yrs	6.625	6.00	4.00	4.50	4.50
Whole Mean	5.338	4.50	2.785	3.65	3.458
Fixed Deposit Mean	5.354	4.50	2.916	3.75	3.55
Std. Deviation	.9964%				

The table 4-7 portrays the interest rate of EBL on saving deposit and fixed deposit. All the interest rate on deposit is on decreasing trend. But the tendency towards decrement is similar to all the sample banks because interest rate in first few FY were decreasing on large gap. But after 2005 the falling pace was very slow as they fell on gap of decimals.

In the five years fiscal periods, the interest rate is decline by 42.85% in saving deposit whereas it is 33.69% decline in case of fixed deposit. In 2005 both saving and fixed deposit interest rate slump down drastically .It decline by almost half. From 4.50% in 2004 it decreases to 2.00% in 2005 in case of saving deposit interest rate. This can be shown clearly if average of all interest rate is taken. The average interest rate for whole (both fixed and saving) account is 5.33%, 4.50%, 2.78%, 3.65%,and 3.45%, for the year 2003, 2004, 2005, 2006 & 2007 respectively. This tendency can be exhibited in the pictorial form as in figure no 4-8 as follows.

Figure No: 4-10: Interest Rate of EBL on Deposits during Different FY



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

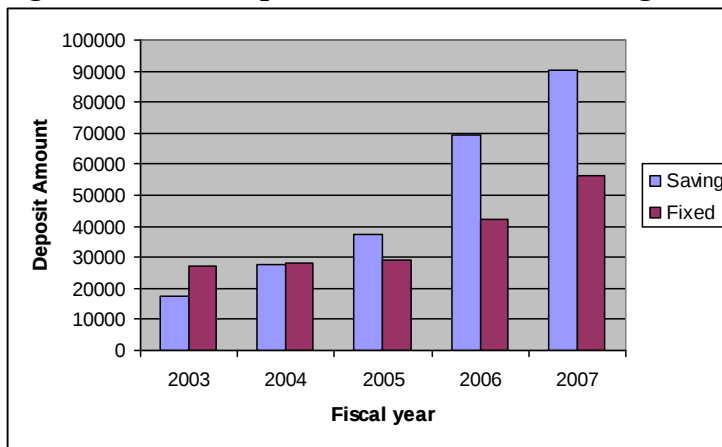
Table No 4-8: Relationship between Interest Rate and Deposit amount of EBL

Year (1)	Saving Deposit Interest Rate (2)	Saving Deposits Amounts (3)		Fixed Deposit Interest Rate(4)	Fixed Deposit Amounts (5)	
2003	5.25	17353.72		5.35	27115.83	
2004	4.5	27579.52		4.5	27947.41	
2005	2	37306.14		2.91	28979.61	
2006	3.25	69292.16		3.75	42423.51	
2007	3	90292.55		3.55	56266.61	
Correlation	$r_{23} = -0.541932$			$r_{45} = -0.401573$		
Coefficient of determination	$r^2_{23} = 0.29369$			$r^2_{45} = 0.1612611$		
t-statistic	tcal=1.116	t-tab=2.571	insignificant	tcal=.7593	t-tab=2.571	insignificant

The table no 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-

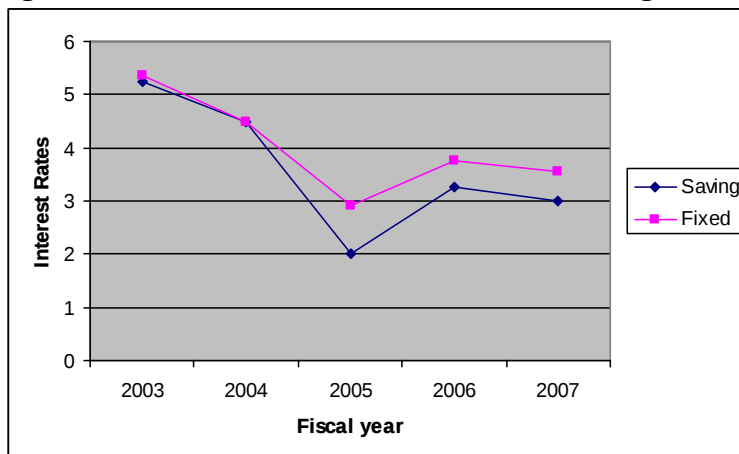
statistics is necessary. But prior to this it is effective if tabular value can be shown on graph as figure 4-11

Figure No 4-11: Deposit Amount of EBL during different FY



Similarly the relationship between interest rate of saving and fixed deposit can be shown in figure 4-12

Figure No 4-12: Interest Rates of EBL on Saving and Fixed Deposit



The figure no 4-11 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 no 4-12.

The relationship between interest rate and deposit amount is similar to that of MBL. The correlation coefficient of saving deposit amount and its interest rate is -0.5419. It means that these two variables have a very moderate negative relationship. Though the two variables don't have a direct relationship but the correlation coefficient tells that an increase in one variable results in a decrease in the other.

variables. The case is similar to fixed deposit also. The correlation coefficient for fixed deposit rate and amount is -0.4015, which is also 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 0.2936 which indicates that the relation between deposit and interest rate is tied up to the level of only 29.36 percent and remaining other percentage by other factors. In same manner for fixed deposit the value of coefficient of determination is 0.1612.

The value of t-statistics for saving deposit and saving interest is found to be 1.116 (t-cal = 1.116). 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 less than t-tabulated. So H_0 is accepted, which means that there is insignificant correlation between saving deposit and interest rate. Similarly for fixed deposit, the calculated value for t is .7593 (t-cal = 0.7593). This value is also less than t-tabulated. So in this case also the magnitude of correlation coefficient is highly insignificant.

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

4.3 Analysis of Lending and Interest Rate:

This is second area 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 and lending amount in Nepalese context.

4.3.1 Kumari Bank Ltd :

The sector where KBL grant its credit during last five FYs and their corresponding interest rate, average interest rate and lending amount are presented in the table 4-9 below.

Table 4-9: Lending Rate of KBL on Different Sectors during Five FYs.

Sector	2003	2004	2005	2006	2007
Overdraft	12.75	11.50	11.00	11.00	11.00
Export Credit	11.75	10.75	10.00	10.00	10.00
Import LC	10.75	9.87	9.5	9.5	8.00
HMG Bond	8.75	8.50	-	8.37	8.37
BG/CG	8.75	9.5	-	-	-
Other Guarantee	-	-	-	-	9.75
Industrial Loan	12.25	11.50	11.00	11.00	11.00
Commercial Loan	12.50	12.25	11.25	11.25	11.25
Priority Sector Loan	13.00	12.50	12.50	11.00	11.00
Working Capital	12.00	11.5	11.00	11.00	11.00
Hire Purchase	-	11.25	11.00	10.00	10.00
Others	13.50	10.87	11.25	10.50	10.50
Average Int. Rate(1)	11.60	10.90	10.94	10.36	10.17
Lending Amount(2)	1121.60	2146.40	3709.00	5519.00	6918.00
Correlation (r_{12})	-0.94687				
Coefficient of determination (r_{12}^2)	0.8964				
t-statistics	t-cal = 5.08		t-tab = 2.571		Significant.
Std. Deviation	0.5612%				

Source: Banking and Financial Statistics, NRB

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 4-9 it shows that interest rate on lending on different area are in declining stage. The table shows that the maximum interest rate is 13.50% in FY 2003 and, minimum rate is 8% on FY 2007. This shows that the interest rate is declining during the five FYs periods. The productive sector loan rate (like commercial loan, industrial loan, priority sector loan, working capital rate and so on) decline in same magnitude of non-productive sector loan like overdraft, loan against government bond, BG/CG rate and so on.. 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 some what costlier than other non productive loan.

If the average of each fiscal year is taken, then it shows average lending interest rate was 11.60% (2003), 10.90 % (2004), 10.94 % (2005), 10.36 % (2006), and 10.50% (2007). The standard deviation for average interest rate was .5612%, which shows the deviation from mean return. The average rate is also in decreasing trend. The decreasing tendency was slow. It means the rate declined each year with very less 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 KBL is also seen to be in decreasing tendency but with some fluctuation. These can also be present in figure no 4-13 and 4-14.

Figure no 4-13: Lending Amount Of KBL During Different FYs.

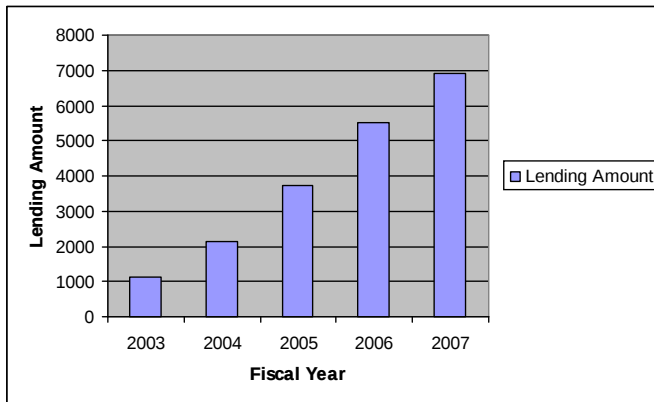
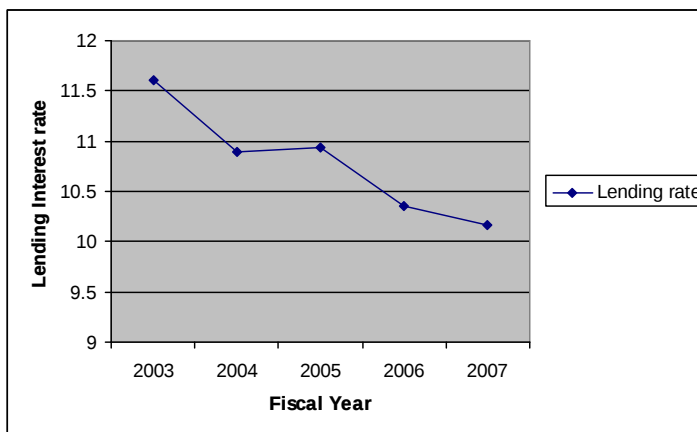


Figure no 4-14: Average Lending Rate of KBL during Different FYs



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

From table 4-9 the correlation coefficient (simple correlation) between lending rate and lending amount (r_{23}) is -0.946. According to our classification, this negative correlation is “Higher 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 KBL also. The simple determination of correlation coefficient (r_{12}^2) is 0.8964. When total lending amount is taken as dependent variable and lending rate as independent variables, then 89.64% 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 coefficient between lending rate and lending amount also verify the fact. The calculated value of t-statistics is 5.08 (t-cal = 5.08). This value is more than tabulated value, t-tab = 2.571 with level of significance 5% and d.f. 5. In this condition, H_0 is rejected. It means that there is significant correlation between the two variables. In other words their relation is significant. Therefore the correlation coefficient shows that these two variables have high level of correlation, and t-statistics also verify that their relation is significant. In conclusion, the inverse relationship between lending rate and lending amount is exactly applicable for KBL.

4.3.1 Standard Chartered Bank Limited :

The sector where SCBL grant its credit during last five FYs and their corresponding interest rate, average interest rate and lending amount are presented in the table 4-10 below.

Table 4-10 shows the lending interest rate structure of SCBL on different sectors. This interest rate is somewhat lower in value as compare to interest rate of KBL (table 4-10). It means that there was some difference in interest rate between the two banks. For example in overdraft the RBB quoted the interest rate 11% per annum on FY 2007 where as in same period the SCBL quoted the interest rate of 6.50% per annum for overdraft. In same manner the figure15 and figure16 indicates that the lending interest rate of SCBL was lesser the lending interest rate of KBLB. The average interest rate with standard deviation .7786% also verifies the above statement about two banks' lending interest rate.

Table 4-10: Lending Rate SCBL on Different Sectors during Five FYs.

Sector	2003	2004	2005	2006	2007
Overdraft	-	-	6.50	6.50	6.50
Export Credit	9.25	9.25	9.25	9.00	9.00
Import LC	10.50	9.75	9.75	8.25	8.25
HMG Bond	8.75	8.50	8.50	7.25	7.40
BG/CG	11.25	9.75	9.75	9.00	9.00
Other Guarantee	9.75	12.25	12.25	10.50	10.50
Industrial Loan	11.75	11.00	11.00	10.75	10.75

Commercial Loan	12.25	11.50	11.50	11.25	11.25
Priority Sector Loan	-	-	-	-	-
Working Capital	12.75	12.25	12.25	9.50	9.50
Hire Purchase	11.00	9.00	9.00	8.25	8.25
Others	11.00	10.50	10.50	9.75	9.75
Average Int. Rate(1)	10.82	10.37	10.02	9.09	9.10
Lending Amount(2)	5787.90	6080.7	6729.60	8214.0	8905.00
Correlation (r_{12})	-0.97211				
Coefficient of determination (r_{12}^2)	0.9447				
t-statistics	t-cal = 7.161		t-tab = 2.571		Significant .
Std. Deviation	0.7786%				

Source: Banking and Financial Statistics, NRB

According to the table 4-10, it is clear that all the lending interest rate fell down significantly. But the average interest rate in year 2006 and 2007 was almost same ,only 0.1%increases in year 2007.. During the period especially hire purchase rate, against government bond rate, BG/CG rate, import L/C rate, and overdraft lending rate fell drastically.. Whereas other sector lending rate of SCBL also fell but their magnitude was less. It means that commercial sector loan rate, industrial loan rate were not decreased by large percentage. So it can be said that only non-productive sector loan rates were reduce drastically during the five FYs as compare to productive sector loan. The case is similar with the SCBL. With rhythm to lending interest rate, the study of lending amount shows that, it is in increasing trend. In other words, it has increases in increasing rate since 2005. The average lending rate of each FY and their corresponding lending rate can be exhibited in the figures 4-15and figure 4-16as follows:

Figure no 4-15: Lending Amount Of SCBL during Different FYs.

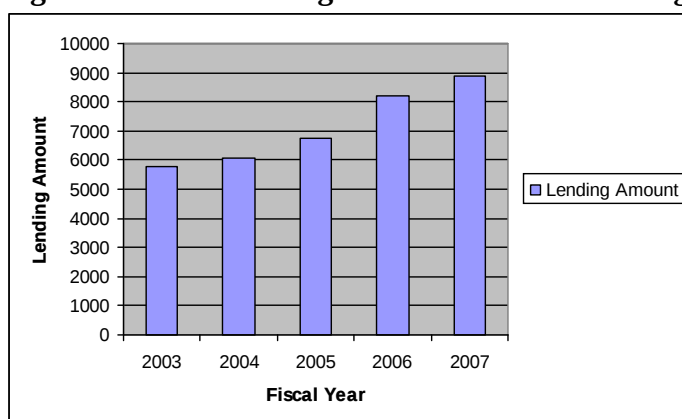
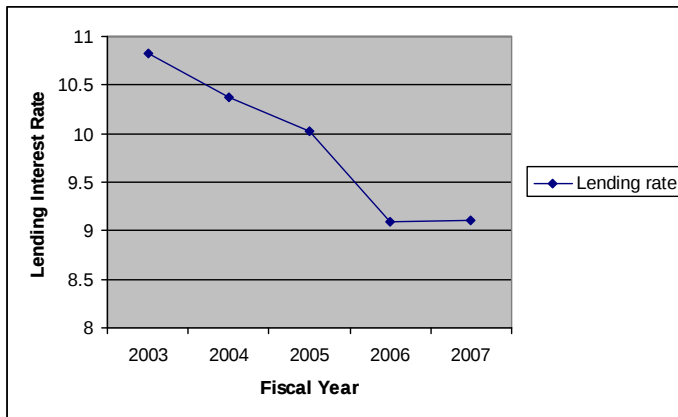


Figure no 4-16: Average Lending Rate of SCBL during Different FY



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

By using excel spread sheet, correlation coefficient, average, standard deviation and other necessary statistics can be calculated. The correlation coefficient between lending rate and lending amount for SCBL is -0.97211. 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 in interest rate stimulates the lending amount or vice versa. The coefficient of determination for correlation coefficient is 0.9447. It indicates that lending amount depends upon lending amount by 94.47%. In other words, the relationship between one variable is defined by another is up to the level of 94.47%.

To verify the correlation coefficient statistically, it is better if t-statistics is used. The calculated value for t is 7.161 i.e. $t_{\text{cal}} = 7.161$. Similarly the tabulated value for t at 5 degree of freedom with 5% level of significance is 2.571 i.e. $t_{\text{tab}} = 2.571$. Comparing t_{cal} and t_{tab} , it is found that $t_{\text{cal}} > t_{\text{tab}}$ 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 this analysis, it is verify that theory matches with the lending case of SCBL.

4.3.3. Machhapuchchhre Bank Limited (MBL):

MBL 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 4-11: Lending Rate MBL on Different Sectors during Five FYs.

Sector	2003	2004	2005	2006	2007
Overdraft	13.50	11.50	11.00	11.00	10.00
Export Credit	10.25	10.25	9.25	8.00	8.00
Import LC	11.62	10.25	9.25	8.25	8.25
HMG Bond	9.00	8.00	6.00	6.00	6.00
BG/CG	10.50	9.00	7.50	7.00	7.00
Other Guarantee	10.50	10.50	9.00	8.50	8.50
Industrial Loan	13.00	10.25	-	-	-
Commercial Loan	14.00	14.00	-	-	-
Priority Sector Loan	-	11.50	11.25	10.00	10.00
Working Capital	12.00	11.50	11.00	10.00	10.00
Hire Purchase	12.50	11.50	10.00	9.00	9.00
Others	15.00	13.00	10.12	8.75	8.75
Average Int. Rate(1)	11.98	10.93	9.43	8.65	8.55
Lending Amount(2)	682.60	1496.00	2544.40	5051.0	6033.00
Correlation (r_{12})	-0.9311				
Coefficient of determination (r_{12}^2)	0.866				
t-statistics	t-cal = 4.406		t-tab = 2.571		Significant.
Std. Deviation	1.499%				

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

The table 4-11 shows the interest rate of HBL on lending on five fiscal years granted in different sectors. With comparison to above aforementioned bank, MBL lending rate was somewhat lower than quoted by those above bank in last two years. This may be due to the competition. The maximum interest rate quoted by the MBL during five FYs was 15% on “other” categories. The interest rate of MBL is also in decreasing trend. But the decreasing magnitude is very little. During seven years period the interest rate falls to 8.55% on average. It means that interest rate falls by only 3.43% on average. Conversely, the lending amount of MBL is seen to be in increasing trend. With compare to 2003 lending, lending of 2007 is eight times more. So it can be said that lending of MBL was expanded rapidly within that five 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 no 4-17.

Figure no 4-17: Lending Amount Of MBL During Different FYs.

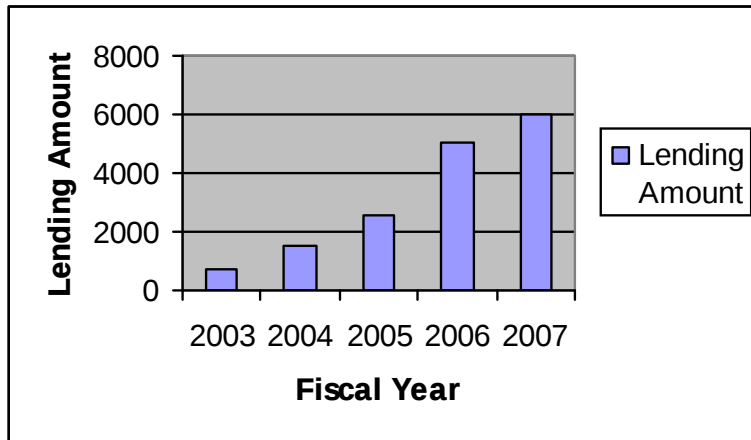
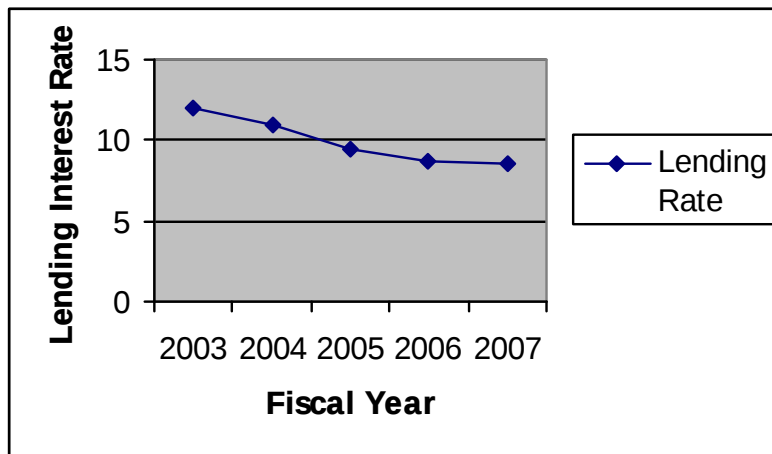


Figure no 4-18: Average Lending Rate of MBL during Different FY



The figure 4-18 shows that interest rate of lending falls rapidly up to FY 2005. It falls from average 12% to average 9%. But after FY 2005, the falling speed was very slow. It means the interest rate falls only by decimal percentage point.

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

The correlation coefficient of MBL between lending amount and lending rate is -0.93115. 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 MBL 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}) = 0.866. It means that the relationship between dependent variable and independent variable is defined up to the extent of 86.6%. In other words, the increase in lending amount by decrease in interest rate is defined up to the extent of 86.66% where as remaining percentage is due to other factors.

Similarly the t-statistics for MBL is 4.406 (i.e. $t_{\text{cal}} = 4.406$). 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 $t_{\text{cal}} > t_{\text{tab}}$, 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. Therefore, according to t-statistics, the lending rate is also another strong as well as important factor that shape the lending amount. In conclusion the inverse relation of MBL on two variables is accordance with theory.

4.3.4 Everest Bank Limited (EBL):

At last, another bank for analysis is Everest Bank Limited. This bank also grants the credit to its customers in different sectors. But according the EBL bulletin “Banking and Financial Statistics” the bank provided the loan to its customers on following sectors.

Table 4-12: Lending Rate EBL on Different Sectors during Five FYs.

Sector	2003	2004	2005	2006	2007
Overdraft	12.37	11.37	10.25	9.50	9.50
Export Credit	10.00	9.50	8.00	7.50	7.50
Import LC	10.62	10.37	8.75	8.37	8.37
HMG Bond	7.75	7.75	6.00	5.50	5.50
BG/CG	10.50	10.00	8.00	8.00	8.00
Other Guarantee	-	-	-	-	-
Industrial Loan	11.50	11.00	10.25	9.50	9.50
Commercial Loan	11.50	10.75	10.00	9.50	9.50
Priority Sector Loan	13.00	12.50	11.50	11.50	-
Working Capital	12.37	10.75	9.00	9.50	9.50
Hire Purchase	13.00	12.25	11.25	6.50	9.50
Others	9.75	10.50	8.00	7.75	7.75
Average Int. Rate(1)	11.12	10.61	9.18	8.46	8.46
Lending Amount(2)	3982.70	5049.60	6131.10	7914.0	10124.00
Correlation (r_{12})	-0.90472				
Coefficient of determination (r_{12}^2)	0.8184				
t-statistics	t-cal = 3.69		t-tab = 2.571		Significant.
Std. Deviation	1.23%				

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

The table 4-12 shows the lending interest rate structure of EBL on five FYs on different sectors. From table it is clear that the interest rates of EBL are in falling stage. But the falling speed is slow. This phenomenon can be seen clearly with the study of average interest rate. The average interest rate for FY 2003, 2004, 2005 2006 and 2007 are 11.12%, 10.61%, 9.18%, 8.46%, and 8.46% respectively. The average interest rate shows that the interest decreases by less percentage. In this bank also, lending interest of non productive loan falls more than lending interest of productive sector loan. In same manner, for lending amount, the lending amount of EBL increased each year. During the last FY the lending amount rises by more that 3 times. This shows that the lending amount and interest have negative relationship. But to get the exact numerical result of relationship correlation 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 no 4-19: Lending Amount Of EBL During Different FYs.

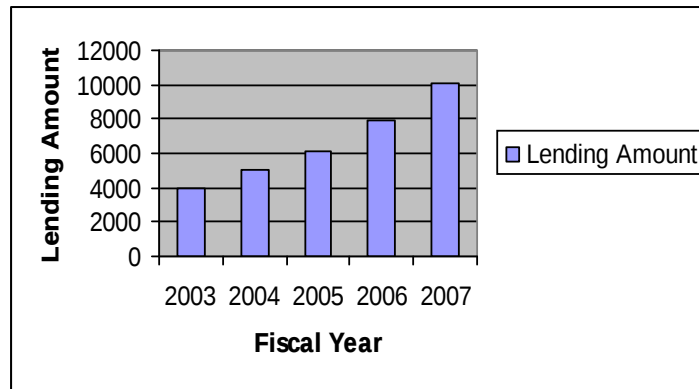
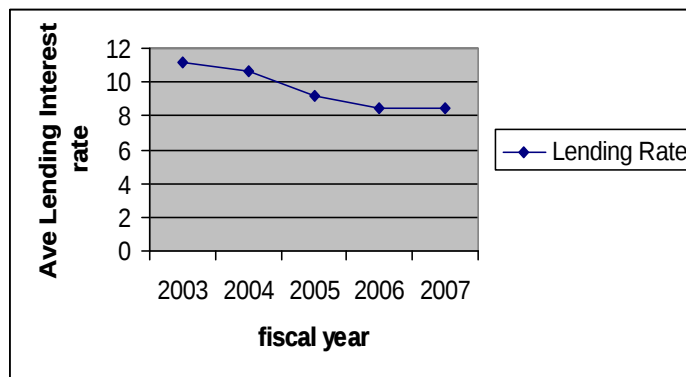


Figure no 4-20: Average Lending Rate of EBL during Different FY



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

The correlation coefficient of EBL between lending amount and lending rate is -0.9047. 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 MBL when bank reduced the lending interest rate. This condition matches with the theory. Similarly the coefficient of determination between two variable (r^2_{12}) = 0.8184. It means that the relationship between dependent variable and independent variable is defined up to the extent of 81.84%. The remaining percentage is due to other factors.

Similarly the t-calculate value for EBL is 3.69 (i.e. t-cal = 3.69). 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 correlation coefficient is highly significant. That is the inverse relation shown by two variables – lending rate & lending amount – is strong. In conclusion the inverse relation of EBL on two variables is accordance with theory.

4.4 Analysis of Inflation and Interest Rate (Deposit & Lending Rate)

Another variable that affects the interest rate in the economy is the inflation. In general condition, inflation and interest rate have positive effect. It means that, when inflation increases in the economy, the interest rate also increases. On this ground, different theory has been propounded like Fisher effect, Harrod-Keynes effect and so on. This all phenomenon have been already explained in the chapter two. To measure the actual relationship, the prevailing situation of each bank is going to observe.

4.4.1 Kumari Bank Limited

The interest rate on deposit, interest rate on lending of KBL and inflation of the country during the five FYs were tabulated on table 4-13.

Table no 4-13: Inflation Rate and Interest Rate of KBL

Fiscal Year	CPI (1)	Inflation (2) %	Deposit Rate(3)	Lending Rate (4)
2003	134.9	2.9	4.57	11.60
2004	138.1	4.8	3.85	10.90
2005	142.1	4.0	3.32	10.94
2006	148.9	4.5	3.48	10.36
2007	154.8	8.0	3.07	10.17
Correlation coefficient. r_{23}	-0.7391		Coefficient of Determination	0.5462
Correlation coefficient. r_{24}	-0.82029		Coefficient of Determination	0.6727
t-statistics	t-cal (Deposit) =1.9004		t-tab = 2.571	Insignificant
	t-cal (Lending) =4.34		t-tab = 2.571	Significant

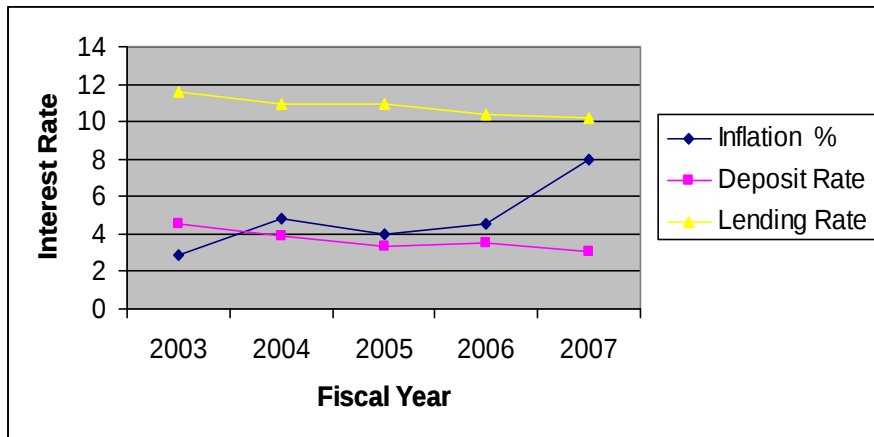
Source: NRB, Research Department

From table 4-16 it is clear that the inflation rate during the last five FYs was in fluctuating trend. It seems to be increasing but it has some variation. With similar to inclining inflation, the interest rate of both lending and deposit are seems to be declining. The relationship among these three elements can be portrayed in the figure no 4-26 as follows.

From figure no 4-21, it is clear that during the FY 2003 the inflation rate, 2.9%, was less than deposit interest rate, 4.57%. This inflation rate increases to 4.8% during 2004 and after that in year 2005 it slightly decline to 4.0%. But again in 2006 it increases to 4.5% and the increasing trend continues in 2007 as well which remain 8.0% ..which is the highest rate in these five year. All the inflation rate after 2003 are more than the deposit rates. These all indicates that the actual

earning or real rate or return for the deposit holder was negative. In those periods, when inflation rate exceed the deposit rate, the deposit holder loosed their income rather than earn. But for the case of lending rate, it was very much higher than the inflation rate. So bankers don't lose their income as compare to deposit holder.

Figure No 4-21: Inflation Rate, Deposit Rate and Lending Rate of KBL



If correlation coefficient of between deposit and inflation is taken, the value of r is -0.7391 i.e. $r_{23} = -0.7391$. This negative correlation indicates that the deposit rate and inflation have moderate level of opposite relationship. Increase in inflation decreases the deposit interest rate but very little in magnitude.

In order to verify the strength or weakness of relationship, calculation of t -statistics is necessary. The calculated value of t for given correlation coefficient is 1.9004 . The tabulated value for it with 5% level of significance with 5 d.f. is 2.571 . Here in this case tabulated value of t is greater than calculated value of t . In such case, alternative hypothesis is accepted which means that the correlation coefficient between deposit and lending is not significance. In other words, the deposit rate of KBL is not correlated with the inflation rate and movement in inflation rate does not affect the interest rate on deposit significantly.

In same manner, the correlation between lending rate and inflation is found to be -0.82029 . ($r_{24} = -0.82029$) This is also moderate level of negative correlation. It means the two variables move in opposite direction. In order to verify the significance of correlation coefficient, t -statistic is calculated. The calculated value of t is 4.34 and tabulated value is 2.571 . Here the case is opposite with deposit. It means that, are significantly correlated.

This concludes that fisher effect is practically applicable for KBL.

4.4.2 Standard Chartered Bank Limited (SCBL)

The interest rate on deposit, interest rate on lending of SCBL inflation of the country during the five year tabulated on table no 4-14.

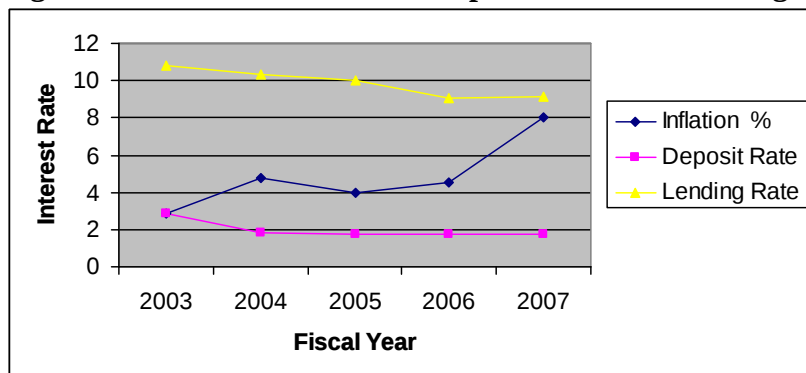
Table no 4-14: Inflation Rate and Interest Rate of SCBL

Fiscal Year	CPI (1)	Inflation (2) %	Deposit Rate(3)	Lending Rate (4)	
2003	134.9	2.9	2.89	10.82	
2004	138.1	4.8	1.85	10.37	
2005	142.1	4.0	1.75	10.02	
2006	148.9	4.5	1.75	9.09	
2007	154.8	8.0	1.78	9.10	
Correlation coefficient. r_{23}		-0.55896	Coefficient of Determination		0.3123
Correlation coefficient. r_{24}		-0.70651	Coefficient of Determination		0.4991
t-statistics	t-cal (Deposit) =1.167		t-tab = 2.571		Insignificant
	t-cal (Lending) =1.729		t-tab = 2.571		Insignificant

Source: NRB, Research Department

The relationship that is shown on table can be presented on the graph no 4-22. According to graph it is clear that, during the all the five FY period, the inflation rate. But the rate of lending was very higher than inflation during the five FYs. These rates are not fluctuating as KBL.\

Figure No 4-22: Inflation Rate, Deposit Rate and Lending Rate of SCBL



Similarly, the correlation coefficient between deposit interest rate and inflation, r_{23} , is found to be -.5589 and correlation coefficient between lending rate and inflation, r_{24} , is -0.7065. It indicates that they both have negative correlation between inflation rates. But their level of correlation is moderate. In other words, when inflation rises, then both interest rates decrease. To find out the strength or weakness of relationship, t-statistics is necessary.

The calculated value of t is 1.167 for deposit and 1.729 for lending. They both are lesser than the tabulated value of t at 5% level of significance with 5 d.f. In such condition null hypothesis is rejected and alternative hypothesis is accepted. That is coefficient of correlation is statistically insignificant. It can be inferred that the variables, both interest rate and inflation are not correlated even if analysis shows the negative correlation coefficient of -0.5589 and -0.7065 for deposit and lending respectively.

4.4.3 Machhapuchchhre Bank Limited (MBL):

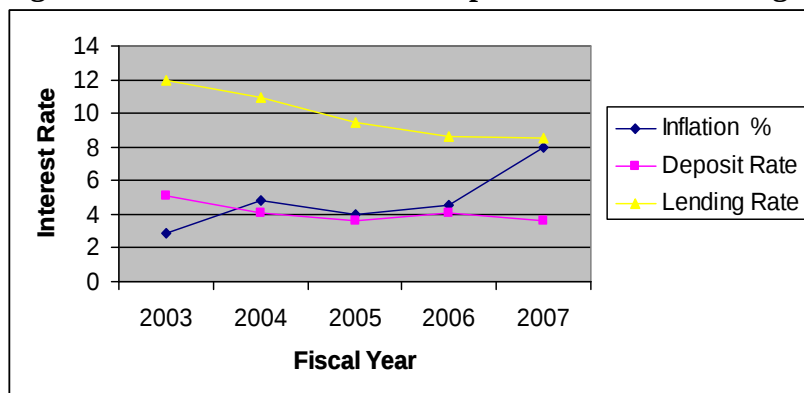
The inflation rate during the last five fiscal years, deposit rate of MBL, lending rate of MBL are tabulated in table no 4-15

Table no 4-15: Inflation Rate and Interest Rate of MBL

Fiscal Year	CPI (1)	Inflation (2) %	Deposit Rate(3)	Lending Rate (4)	
2003	134.9	2.9	5.12	11.98	
2004	138.1	4.8	4.12	10.93	
2005	142.1	4.0	3.66	9.43	
2006	148.9	4.5	4.05	8.65	
2007	154.8	8.0	3.65	8.55	
Correlation coefficient. r_{23}		-0.65878	Coefficient of Determination		0.433
Correlation coefficient. r_{24}		-0.65714	Coefficient of Determination		0.431
t-statistics	t-cal (Deposit) =1.515		t-tab = 2.571	Insignificant	
	t-cal (Lending) =1.512		t-tab = 2.571	Insignificant	

Source: NRB, Research Department

Figure No 4-23: Inflation Rate, Deposit Rate and Lending Rate of MBL



The correlation coefficient between interest rate on deposit and inflation rate, r_{23} is -0.6587 which means that these two variables are negatively correlated. An increment in inflation brings a decrement in interest rate on deposit and vice-versa. But in general concept, there is a positive correlation between these variables. The coefficient of determination $r^2_{23} = 0.433$ means that of the total variation in

dependent variable (deposit interest rate); only 43.3% has been explained by the variation in independent variable (inflation rate). Similarly the t-value for testing the significance of the correlation coefficient is 1.515 which is less than the tabulated t-value for the 5 degree of freedom at 5 percent level of significance, 2.571. Since the calculated value is less than the tabulated value the correlation coefficient is not significant which means that interest rate on deposit of MBL is not correlated with the inflation rate and movement in inflation rates doesn't affect the interest rate on deposit significantly.

Similarly the relationship of interest rate on lending of MBL with inflation has also been examined. The coefficient of correlation between inflation and interest rate on lending, r_{24} is -0.6571 which shows that the variables are negatively correlated. Movement in inflation rate leads movement in interest rate on lending in opposite direction. The t-value for testing the significance of correlation coefficient is 1.512. Since the calculated t-value is smaller than the tabulated t-value for 5 degree of freedom at 5 percent level of significance 2.57, the variables are not correlated significantly. This means that the lending rate of MBL is not significantly correlated with the inflation rate.

4.4.4 Everest bank Limited (EBL)

The inflation rate during the last five fiscal years, deposit rate of EBL and lending rate of EBL are tabulated in table no 4-16

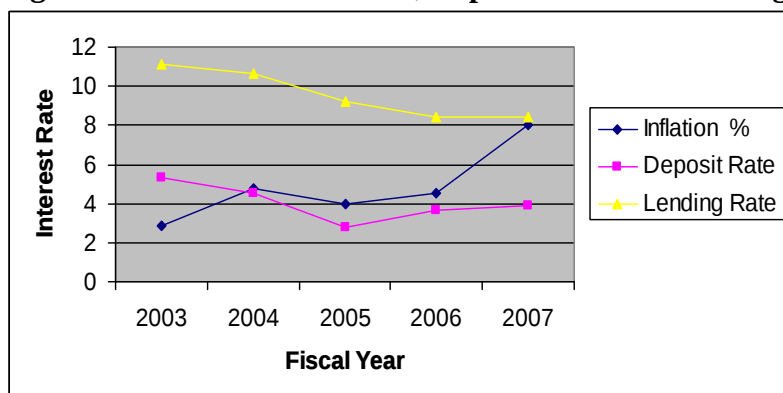
The table shows the structure of inflation, deposit rate and lending rate. During the five FYs, inflation rate exceed the deposit rate in all the year except year 2003 where inflation rate was 2.9% and deposit rate was 5.33%.. Similarly for lending rate, in all years, interest rate of lending exceeds the inflation rate. The two rates deposit and lending were in decreasing trend but inflation was somewhat fluctuating. If the value of the table 4-15 is plotted in the graph then it will be seen like figure no 4-24.

Table no 4-16: Inflation Rate and Interest Rate of EBL

Fiscal Year	CPI (1)		Inflation (2) %	Deposit Rate(3)	Lending Rate (4)
2003	134.9		2.9	5.33	11.12
2004	138.1		4.8	4.50	10.61
2005	142.1		4.0	2.78	9.18
2006	148.9		4.5	3.65	8.46
2007	154.8		8.0	3.90	8.46
Correlation coefficient. r_{23}			-0.24354	Coefficient of Determination	0.0592
Correlation coefficient. r_{24}			-0.6206	Coefficient of Determination	0.3851
t-statistics	t-cal (Deposit) =0.4348		t-tab = 2.571		Insignificant
	t-cal (Lending) =1.370		t-tab = 2.571		Insignificant

Source: NRB, Research Department

Figure No 4-24: Inflation Rate, Deposit Rate and Lending Rate of EBL



The correlation coefficient between interest rate on deposit and inflation rate, r_{23} is -0.2435 which shows that there is negative correlation between these two variables. When inflation increase, the interest rate on deposit offered by EBL decreases. The coefficient of determination, r^2_{23} is 0.0592 means that, of the total variation in dependent variable (interest rate on deposit) is explained by the variation in independent variable (inflation rate) to the extent of 5.9 percent and other variables are responsible for remaining variation. The value of t for testing the significance of the correlation coefficient is 0.4348 which is smaller than the table value. Since the calculated value is smaller than the tabulated value at 5 d.f. and 5% level of significance, 2.571, the variables are not significantly correlated. Even though there exists positive correlation, but it is statistically not significant. So we can say that change in inflation has not any significant impact on interest rate on deposit of EBL.

In same manner the correlation coefficient between inflation and interest rate on deposit r_{24} shows that the variables are correlated and relationship is negative. Increase in inflation causes decrease in interest rate on lending. But in similar manner the t-value for testing significance of correlation coefficient (t-cal = 1.37) is smaller than the tabulated value at 5 d.f and 5% level of significance (t-tab = 2.571). As the calculated value is smaller than the tabulated value, the correlation coefficient is insignificant which means that the variables, interest rate on lending and inflation rate, are not correlated even if the analysis shows a negative correlation.

4.5 CD (credit deposit) ratio, Profit deposit ratio and Profit lending ratio of KBL, SCBL, MBL and EBL.

Table no 4.17: CD (credit deposit) ratio, Profit deposit ratio and Profit lending ratio of KBL

Year	Deposit Interest rate	Lending interest rate	Profit	Deposit Amount	lending	CD ratio	profit/deposit	Profit/lending
2003	4.57	11.6	12.47	1180	1121.6	95.051	1.056	1.111
2004	3.85	10.9	48.69	2513	2146.4	85.412	1.937	2.268
2005	3.32	10.94	87.88	4816.5	3709	77.006	1.824	2.369
2006	3.48	10.36	103.67	6270.1	5519	88.021	1.653	1.878
2007	3.08	10.17	170.26	7800	6918	88.692	2.182	2.461

From above table we can analyze that CD ratio and interest rate of lending and deposit has direct and positive relation. 2003 to 2005 has declining interest rate and on the other hand CD ratio is also declining. And after 2006 CD ratio increases with increase in interest rate. This relation does not match with theory of decreasing interest rate increases the lending ratio.

In case of profit deposit ratio, it is fluctuating in this five year. This shows that the ratio is indifferent with interest rate.

Whereas the profit lending ratio shows inverse relation, i.e. as interest rate decreases the ratio increases. This concludes that decreases in interest rate in lending increases profit of the organization.

Table no 4.18: CD (credit deposit) ratio, Profit deposit ratio and Profit lending ratio of SCBL

Year	Deposit Interest rate	Lending interest rate	Profit	Deposit Amount	lending	CD ratio	profit/deposit	Profit/lending
2003	2.89	11.82	506.93	15835.7	5787.9	36.55	3.201	8.758
2004	1.85	10.37	537.8	18755.5	6080.7	32.421	2.867	8.844
2005	1.75	10.02	539.2	21161.4	6729.6	31.801	2.548	8.012
2006	1.78	9.09	658.75	19344	8214	42.463	3.405	8.019
2007	1.78	9.1	691.67	23050.5	8905	38.6	3.00	7.767

The analysis of SCBL is similar to the KBL except in year 2007 where CD ratio decreases as compare to 2006 with same interest rate .Here also decreasing interest rate did not increase the lending amount.

Profit deposit ratio is fluctuating which is similar to KBL.

And in case of profit lending ratio it shows inverse relation till 2004 and after that profitability ratio also decreases with decreasing lending rate of interest. This also does not support the theory.

Table no 4.19: CD (credit deposit) ratio, Profit deposit ratio and Profit lending ratio of MBL

Year	Deposit Interest rate	Lending interest rate	Profit	Deposit Amount	lending	CD ratio	profit/deposit	Profit/lending
2003	5.13	11.98	46.69	994.8	682.6	68.617	4.693406	6.840
2004	4.13	10.93	84.87	1778.7	1496	84.106	4.771462	5.673
2005	3.67	9.43	134.00	2754.6	2544.4	92.369	4.86459	5.266
2006	4.05	8.65	74.08	5586.5	5051	90.414	1.326054	1.466
2007	3.65	8.55	70.56	6322.1	6033	95.427	1.116085	1.169

From above table we can analyze that MBL's CD ratio is increasing with decrease in interest rate which is as per the theory that decrease in interest rate increases lending amount. This analysis is different from SCBL and KBL.

Profit deposit ratio is similar to KBL and SCBL which is fluctuating with decreasing in interest rate of deposit. The profit lending ratio has decrease with decrease in interest rate of lending so decreasing interest rate did not support profitability ratio.

Table no 4.20: CD (credit deposit) ratio, Profit deposit ratio and Profit lending ratio of EBL

Year	Deposit Interest rate	Lending interest rate	Profit	Deposit Amount	lending	CD ratio	profit/deposit	Profit/lending
2003	5.34	11.12	87.35	5461.10	3982.7	72.929	1.599	2.193
2004	4.5	10.61	94.18	6694.90	5049.6	75.425	1.406	1.865
2005	2.78	9.81	143.57	8064.00	6131.1	76.031	1.780	2.341
2006	3.65	8.46	296.41	10097.81	7914	78.373	2.935	3.745
2007	3.46	8.46	237.29	13802.5	10124	73.349	1.719	2.343

Similarly in case of EBL , CD ratio increases with decrease in interest rate except in year 2007 where CD ratio decrease with decrease in interest rate. This ratio supports the theory of decreasing interest rate increases credit.

Profit deposit ratio is indifferent from increase or decrease in interest rate.

Profit lending ratio is also fluctuating with decrease in interest rate of lending which shows that ratio is indifferent with interest rate.

4.6 Findings of this 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 inflation rate 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 rates on deposit 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 have inverse relationship. And all the banks have strong relationship as required by theory. The increment in demand of loanable fund for all sample banks is due to the decline in lending rate because they have very high value of t-statistics.
3. For deposits (fixed and saving), it is found that all sample banks have negative correlation with inflation rate. Similarly, all t-test values are insignificant. 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 except for KBL which shows significant relation of lending and inflation.

4. For CD ratio some sample bank shows positive relation which is not as per the theory whereas that of MBL has inverse relation which tallies with the theory of decreasing interest rate increases credit of the organization.

5. Profit deposit ratio of all sample bank is indifferent with the interest rate as it is fluctuating through out the year despite of decreasing interest rate. Whereas profit lending ratio increases with decreasing interest rate of KBL, SCBL and EBL which matches with the theory but of MBL is inspite of decreasing interest rate.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter is the important chapter for the research because this chapter is the extracts of all the previously discussed chapters. This chapter consists of mainly three parts: Summary, conclusion and recommendation. In summary part, revision or summary of all four chapters is made. In conclusion part, the result from the research is summed up and in recommendation part, suggestion and recommendation is made based on the result and experience of thesis. Recommendation is made for improving the present situation to the concerned parties as well as for further research.

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. As result, up to now 23 commercial banks, 58 development banks, 5 rural development banks, 79 finance companies, 12 micro credit development banks, 17 saving and credit co-operatives and 47 financial NGOs are established within the financial system of Nepal. 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 a large 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 slowly loosen the rigid ness to fixed the interest rate that financial intermediaries charge and offer. But time to time, NRB use to issue 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. 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, the in order to identity the relationship of interest rate and inflation, Fisher effect, Harrods-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 and ratio.

5.2 Conclusion

From the presentation and analysis of data; using different financial tools the major findings can be tabulated as follows:

Table No 5-1: Unified (Integrated) results of all data analysis.

Particulars		KBL	SCBL	MBL	EBL
Substitution Effect (Deposit and Interest Rate)	r (Saving rate & Deposit)	-0.993	-0.543	-0.692	-0.541
	r (Fixed rate and Deposit)	-0.841	-0.964	-0.5322	-0.401
	t-cal (Saving & Deposit)	14.58	1.12	1.665	1.116
	t-cal (Fixed & Deposit)	2.751	6.32	1.089	2.571
Lending and Interest	r (lending)	-0.9468	-0.972	-0.9311	-0.904
	t-cal (lending)	5.08	7.161	4.406	3.69
Inflation and Interest Rate. (Fisher Effects.)	r (inflation & deposit)	0.7391	-0.558	-0.6587	-0.2435
	r (inflation & lending)	-0.8202	-0.7065	-0.6571	-0.6206
	t-cal (inflation & deposit)	1.9004	1.167	1.515	0.434
	t-cal (inflation & lending)	4.34	1.729	1.512	1.370

- The interest rates on both deposit and lending of all sample banks are found to be in decreasing trend. But contrary to this, deposit amount and lending amount is increasing every year whereas the fixed deposit amount is not increasing at the same rate.
- All bank's saving deposit amount and saving interest rate have negative relationship. It means that they have highly inverse relationship, if one variable increases, other variable decreases and vice-versa. This case is against the theory of substitution effect. This may be due to the fact that, in last five FYs, people accumulated most of their funds on saving accounts though they don't get appropriate interest on it. It may be just because of unavailability of other acceptable investment opportunity, in which a separate study can be made. Similarly, the convenience of using saving accounts provokes the investor to deposit more on saving account. Similarly the excess supply of loanable fund (saving deposit) reduces the cost of fund (interest rate of saving account.)
- To clarify the aforementioned conclusion, the t-statistic of negative correlation between saving deposit amount and saving interest rate is insignificant except for KBL. It means that KBL have strong negative relationship as compare to other sample banks. Therefore it is concluded that for saving deposit, there is no substitution effect.
- Analysis of fixed deposit amount and fixed interest rate shows negative relationship. The correlation coefficient for KBL and SCBL is high whereas that of MBL and EBL is moderate. But negative correlation of all sample banks suggest that people deposit more money even if the bank offer the lower yield rate on fixed deposit. The magnitude of correlation is very high negative value for KBL and SCBL.
- Even though, the correlation coefficient of SCBL, MBL, and EBL for saving deposit amount and saving deposit interest rate is negative, the t-statistics clarify that their relationship is not strong. The calculated value of t is found to be less than the tabulated value of t, so t-test indicates that there is no significant relationship between those two variables. Thus the increase in deposit is not due to the decrease in interest rate but due to the other reasons. Therefore it is concluded that for saving deposit also, there is no substitution effect at all.
- One of the variables that affect the demand of fund (lending activity) is lending interest rate. Theoretically, there is negative relationship between lending interest rate and lending amount. In this study for the 4 sample bank, it is found that all sample banks have negative correlation between these two variables. By using correlation tools, it can be inferred that all the sample banks have inverse relationship as suggest by theory.

- The t-test for correlation coefficient of each sample banks for negative relationship between lending interest rate and lending amount shows that the t value for all sample banks is significant which means that the correlation coefficient showing the high negative relationship has strong relationship i.e. significant relationship. So Increase in lending amount is due to the decrease in lending interest rate. So it can be concluded that lending interest rate is also an important factor for expansion or contraction of lending amount.
- The relationship between interest rate on deposit and inflation rate is negative. It ranges from -0.7391 to -0.2435. The correlation coefficient for all sample organization is statistically insignificant. According to Fisher effect, there should be positive correlation between these two variables but the interest rate in Nepalese financial market is affected by inflation rate to some extent only. In conclusion it can be said that, the Fisher effect is not properly applicable in Nepalese financial market.
- The correlation between interest rate on lending and inflation rate is found to be negative too. The correlation coefficient among sample banks lies between -0.8202 to -0.6206. For all samples except KBL, the correlation coefficients are insignificant because their value lies below the tabulated value of t. So it can be said that lending interest rate in Nepalese financial market is affected by inflation only to some extent even though the theory says to exit a negative relationship.
- The real rate of return is found to be negative in some years. The negative real return indicates that depositor, instead of earning money, they loose their money in real sense, if they deposit in the bank paying certain percentage of interest. This is due to deposit interest rate lower than inflation rate. This condition hurts the depositors.
- During the study period, it is found that, there exist the high spread between deposit interest rate and lending interest rate. In the beginning of the five FY this spreads was large but on later years, the spread declined to some extent.
- It is also found that, lending interest rate of the productive sector loan such as commercial loan, industrial loan, trade credit, working capital loan were decreased lesser in magnitude in comparison to the non productive sector loan.
- It is also found that decreasing interest rate of lending has increases lending amount of most of the sample organization whereas some organization did not increases lending amount despite of decreasing interest rate. This shows that lending amount is not only the function of interest rate.

5.3 Recommendation

Based on the analysis, interpretation & conclusions, certain recommendation can be made here so that the concerned authorities, future researchers, academicians, bankers can get some insights on the present conditions on above topics. It is considered that this research will fruitful for them to improve the present condition as well as for further research. The major recommendations after this study are:

- ❖ In order to generate more capital for the development of the economy, more deposit need to be collected by the financial institutions. For this the financial institutions are suggested to quote higher deposit interest rate as far as possible. Though this situation reduces their profit opportunities, but it will enhance the economic condition of the country in the long run.
- ❖ The high spread between deposit interest rate and lending interest rate is another factor to be considered. Higher spread merely increases the profit figures of the banks but at the same time it reduces the deposit collection and investment in the country. So the financial institutions are suggested to reduce the interest spread as minimum as possible.
- ❖ As the central bank of the country, NRB has power to specify the range or spread between lending rate and deposit rate. So NRB is suggested to specify the spread when ever there is higher gap between two interest rates in the country.
- ❖ Though the interest rate in free market is determined by the interplay of demand and supply, the concerned parties who fixed the interest rates are suggested to include the inflation premium as far as possible while fixing the interest rates. If the rate of inflation is not considered & real rate comes out to be negative then depositors may withdraw their money and utilize it on non-productive sectors.
- ❖ While reducing the lending rate, it is suggested to reduce more on productive sectors than non-productive sectors. If not possible then bankers can reduce the rate of all sectors proportionately.

- ❖ The lending rates of same bank on same sector are found to be different i.e. quoted on range. These types of inconsistency may bring misconception about that organization. So banks are suggested to quote one consistent rate than on range.
- ❖ Lending institutions are suggested to invest on new areas as well as to introduce competitive customer oriented schemes on lending and borrowing so that more lending and borrowing can be promoted and over liquidity problem may be solved.
- ❖ From the experience of collecting the secondary data, it is suggested that NRB should pay special attention to publish detail information on timely manner. The untimely publication of the bulletins handicaps the research workers and students
- ❖ Sample institutions are also suggested to include their interest rate structure in their annual report as well as kindly requested for the co-operation and sincere support to the research students.
- ❖ As this research is made by highlighting only one variable- interest rate, it is suggested for further research.

BIBLIOGRAPHY

- Bhandari, D. Raj (2003), ***Principle and Practices of Banking and Insurance***, Asia Publications, Baghbazar, Kathmandu
- Cheney, John M & Moses, Edward A., ***Fundamental of Investment***, West publishing company, New York
- Cooper, S. Kerry and Fraser, R. Donald (1983), ***The Financial Marketplace***, Addison-Wesley Publishing Company, California.
- Famma and Miller, ***The Theory of Finance***, The Dryden Press, New York.
- Francis, J. Clark, (2003), ***Investment Analysis and Management***, Post Graduate Publications, Eleventh Edition
- Gupta, S.C. (2002), ***Fundamental of Statistics***, Himalayan Publishing House, Bombay
- Gupta, S.P. (2002), ***Statistical Methods***, Educational Publisher, Sultan Chand and Son's, New Delhi
- Wolff, Howard K. and Pant, P.R. (2005), ***Social Science research and Thesis writing***, Buddha Academic publishing and distributors, Kathmandu, Nepal
- Joshi, P.R. (2001), ***Research Methodology***, Buddha Academic Publishers and Distributors Pvt. Ltd, Kathmandu
- Joshi, Shyam, (2056), ***Micro & Macro Economic Analysis***, Taleju Prakashan, Bhotahity, Katmandu
- Kothari, C.R., (1994), ***Research Methodology, Methods and Techniques***, Vikash Publication House Pvt. Ltd, New Delhi
- Pant, G.D. & Chaudhary, A.K. (1999), ***Business Statistics and Mathematics***, Bhandupuran Prakashan, Kathmandu
- Pant, P. Raj (2003), ***Business Environment in Nepal***, Buddha Academic Publishers and Distributors Pvt. Ltd. Kathmandu, Nepal
- Paul, E. Green and Donald. S. Till; ***Research for Marketing Decisions***.

- Radhaswamy, M. and VasuDevan S.V. (1979), ***Text Book of Banking***, S.Chand & Company Ltd., New Delhi
- Rose, Peter S. (2003), ***Money and Capital Markets***, Financial Institution and Instruments in a Global Marketplace, Irwin, Chicago
- Sharma, P. K. and Chaudhary, A.K (2058), ***Statistical Methods***, Khanal Books Prakashan, Minbhawan, Kathmandu
- Sharma, P. Kumar and Silwal D. Prasad, (2058), ***Text Book of Business Mathematics and Statistics***, Taleju Prakashan, Bhotahity, Katmandu
- Sharpe, W.F, Alexander, G. J., Bailey, J.V. (2003), ***Investments***, Prentice Hall of India Private Limited, New Delhi
- Shrestha, M Krishna and Bhandari D. Bahadur (2004), ***Financial Markets and Institutions***, Asmita Books Publishers and Distributors, Kathmandu
- Shrestha, Sunity and Silwal, D. Prasad (2059), ***Statistical Methods in Management***, Taleju Prakashan, Bhotahity, Katmandu
- Thygerson, Kennith J. (1992), ***Financial Institutions and Capital Markets***, Harper Collings College Publisher, New York
- Vaidhya, S., ***Financial Market and Institutions***, Taleju Prakashan, Kathmandu
- Van Horne, J.C. (1998), ***Financial Management and Policy***, Prentice Hall of India Pvt. Ltd, New Delhi
- Weston, J. F. and Copeland, J.E. (1992), ***Managerial Finance***, The Dryden Press, Chicago
- Wolff, H.K. and Pant, P.R. (2005), ***Social Science Research & Thesis Writing***, Buddha Academy & Distributors, Kathmandu, Nepal.

Journals, Reports and Articles

Annual Reports of Sample Banks.

Nepal Rastra Bank, 2005 to 2006. “**Economic Report**”, Kathmandu

Nepal Rastra Bank. 2004. “**Quarterly Economic Bulletin**”, Volume 41, Mid-April 2007, Kathmandu

Nepal Rastra Bank. 2004. “**Quarterly Economic Bulletin**”, Volume 41, Mid-October 2006-Mid-January 2007, Kathmandu

Websites

www.nrb.org.np

www.kumaribank.com.np

www.standardcharteredbank.com.np

www.mbl.com.np

www.ebl.com.np