CHAPTER-I

INTRODUCTION

1.1General Background

Nepal is a small country sandwiched between two densely populated countries India and china. The level of economic development they have attained over the years and the current pace of their economic growth indicate that they have potential to compete in the international market. But the pace of the economic development of Nepal is still in its infant stage. For the economic growth and development, government has now initiated various economic policies with a hope that these policies will significantly change the industrial and business environment of the country in future. To accelerate economic development various policies like industrial policy, foreign investment policy, and trade policy have been formulated and are being implemented slowly.

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

Banking from the beginning was not in this form as it is now. Banking has come to its present advanced form through various stages. In Nepal goldsmiths and moneylenders known as "Sahu Mahajans" were the ancestors of the bank. During the tenure of the Prime Minister Ranodip Singh in 1993 B.S. "Tejarath Adda" was established. That was the first step towards the development of the banking system in Nepal. Tejarath Adda

did not collect deposit from public but disbursed loans against bullion. Banking in a true sense started with a inspection of Nepal Bank Limited on 1994 B.S. It was the first government bank of Nepal. Then Nepal Rastra Bank was established (2013B.S.) to formulate monetary policies and make rules and regulations regarding banking sector and to implement it.

Financial institution collects funds mainly from deposits (time and saving deposits), which are ultimately used as a part of capital investment in the 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 that of business and government. For household, saving equals to current income minus current expenditure. For business sector savings include current earnings retained inside business firms after payment of taxes, stockholder's dividend and other expenses. Government saving arise where there is a surplus of current revenue over expenditure. To induce more saving, financial institution can play a vital role by providing attractive interest rate and offer a different scheme.

The people of the least developed countries are not much concerned about saving as most parts of earnings are spent in hand to mouth consumption. Even if some people are able to save their money, they show their 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 provides loan to borrowers who are in need of money from the money accumulated in the form of deposit and capital of bank while granting loan. Bank charges a certain percentage of interest to the borrower and borrower has to pay the interest for using banks money. Interest on loan also varies according to the nature of loan, whether loan is of short term or long term. An appropriate interest rate structure greatly affects the collection of deposits, mobilization, which in turn, affects the economic uplift of the whole country.

1.2 Interest rate

Interest rate is one of the major tools for shaping economy. It plays important role in borrowing and lending. Simply, interest rate is defined as the price a borrower must pay to secure scarce loan able funds from lender for an agreed-upon period. Interest is usually paid only on the principal, that is, on the sum of money loaned, and it is called simple interest. In some cases, interest is paid not only on the principal but also on the cumulative total of past interest payment. This procedure is known as compounding the interest, and the amount so paid is called compound interest. The rate of interest is expressed as percentage for use of fund in an annual basis. Thus, a loan of Rs 100 at 10 percent per annum earns interest of Rs10 a year. The current, or market, rate of interest is determined primarily by the relation between the supply of money and demands of borrowers (see Supply and Demand). When the supply of money available for investment increases faster than the requirements of borrowers, interest rates tend to fall. Conversely, interest rates generally rise when the demand for investment fund grows faster than the available supply of funds to meet that demand. Business executives will not borrow money at an interest rate that exceeds the return they expect the use of the money to yield. '' (Paul & William p:469).

It is the price of credit. But unlike other prices in the economy, the rate of interest is really a ratio or two quantities: the money cost borrowing divided by the amount of money actually borrowed, usually expressed on an annual percentage basis. The cost of borrowing money, measured in rupee per year per rupee borrowed, is the interest rate.

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 borrow money. Financial institutions, as financial intermediaries, collect money from savers in the form o 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 determined theoretically, by the interplay of demand and supply in a market economy, the price of money- the interest rate- plays a vital role in the allocation of resources and in the decision making of consumers and 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, tends to reduce the volume of borrowing and capital investment, and lower rates stimulate borrowing and investment spending. Investment is the 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 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 saving or excess investment in each of the sectors. (Vaidya & Shakespeare: p17)

1.3 Structure of interest Rates (%age per annum)

Year	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Mid month	Jul	Jul	Jul	Jul	Jul	Jul
A.PolicyRate CRR	6.0	5.0	5.0	5.0	5.0	5.5
Bank rate	5.5	5.5	6.25	6.25	6.25	6.5
Refinance rate against loan to:						
Sick industries	2.0	1.5	1.5	1.5	1.5	1.5
RDB	4.5	3.0	3.5	3.5	3.5	2.0
Export credit in domestic currency	4.5	3.0	3.5	3.5	2.5	3.5
Export credit in foreign currency	2.0	2.0	3.25	3.25	3.25	LIBOR+0.25
Standard liquidity facility(SLF)penal rate	0.0	1.5	1.5	1.5	2.0	3.0
B.Government Securities						
T.Bills*(28days)	1.82	-	2.40	2.13	5.16	4.94
T.Bills*(91days)	1.47	3.94	3.25	2.77	5.13	6.80
T.Bills*(182days)	-	4.42	3.86	3.51	5.16	5.91
T.Bills*(364days)	3.81	4.79	4.04	4.00	6.47	6.55
Development Bonds	3.0-8.0	3.0-8.0	3.0-6.75	3.0-6.75	5.0-8.0	5.0-8.0
National/citizen SCs	6.5-13.06	6.5-13.0	6.0-8.5	6.0-8.5	6.0-7.75	6.0-8.0
C.InterBank Rate	0.71	4.71	2.13	3.03	3.61	3.44
D.CommercialBanks						
1.Deposit Rate:						
Saving Deposit	2.0-5.0	1.75-5.0	2.0-5.0	2.0-5.0	2.0-6.5	2.0-7.5
Time Deposit						
1 month	2.0-3.5	1.75-3.5	1.5-3.5	1.5-3.5	1.5-3.75	1.5-5.25
3 Months	2.0-4.0	1.5-4.0	1.5-4.0	1.5-4.0	1.5-6.75	1.5-6.0
6 Months	2.0-4.5	2.5-4.5	1.75-4.5	1.75-4.5	1.75-6.75	1.75-7.0

1Year	2.75-5.75	2.25-5.0	2.25-5.0	2.25-5.0	2.5-6.0	2.5-9.0
2 Yrs and above	3.0-6.0	2.5-6.05	2.5-6.4	2.5-5.5	2.75-6.75	2.75-9.5
2.Lending Rate:						
Industry	8.5-13.5	8.25-13.5	8.0-13.5	8.0-13.5	7.0-13.0	8.0-13.5
Agriculture	10.5-13.	10.0-13.	9.5-13.	9.5-13.	9.5-12	9.5-12.
Export Bills	4.0-11.5	4.0-12.0	5.0-11.5	5.0-11.5	5.0-11.5	6.5-11.0
Commercial loans	9-14.5	8-14	8-14	8-14	8-13.5	8-14
Overdrafts	10-16	5-14.5	6.5-14.5	6-14.5	6.5-13.5	6.5-13.5

*Weighted Average Discount Rate.

#The SLF rate is determined at the penal rate added to the latest weighted average discount rate of 91-days T-Bills.

1.4 Statement of the problem

There is a direct relationship of interest with economic growth and development. The economic theory says that low interest rate is advantageous for high investments (other things remains constant). High investments always bring high production, high employment, more income and ultimately the growth in economy. By the help of this study we are going to find out: 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 actors. Nepal's main export is basically raw materials. It means that Nepal is exporting raw materials instead of producing goods and services from these. If cheap financing is available, many factories could be established to reap benefits from utilization of resources, which would increase the employment, standard of living and status of country economy.

In same manner, market interest rate is the sum of real rate plus inflation premium. But this may or may not occur in real practice. So this study is going to identify: Is there

any positive relation of interest rate and inflation as per theory? Similarly, high interest rate is stimulus for high savings (deposits) but this may not the case in real world as people use to deposit more even in less interest rate due to security, convenience and other reasons. Thus through this thesis, it is going to discover: what is the relation of deposit and interest rate? Or Does substitution effect is truly applicable in Nepalese context.

More specifically, this study seeks to solve the answer for following research 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?

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 financial sector. To fulfill these main objectives, following sub-objectives have been formulated:

1) To show the relation of interest rate with deposit and lending amounts in Nepalese market.
2) To find out the relationship of interest rate with inflation in Nepalese market.
3) To provide suggestion and recommendation for the improvement on the basis of findings of the study.

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

3) Reliability of this study depends upon the accuracy of published data and the genuineness of respondent.
4) 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.
5) This study covers only five fiscal years.
6) The sample are taken only from commercial banks, other financial intermediaries are not included in the study.

1.8 Organization of the study

For the successful research work the study of problems and prospects of orthodox tea production in Guranse tea estate has been chapterized as follows:
Bibliography and appendices

First chapter deals and includes the background of the study, brief profile of the sample companies, statement of the problem, objectives of the study, significance of the study, limitations of the study, and organizations of the study.

Second chapter deals with the review of available literature. It takes in review of the related books, journals, articles and previous unpublished Masters Degree thesis etc.

Third chapter explains the research methodology used in the study. It includes research design, population and sampling, source of data, method of data analysis and research variables etc.

Fourth chapter, the most important chapter of the study, is the presentation and analysis of data as well as the major findings of the study.

The fifth and the last chapter cover the summary of the study, the main conclusions that flow from the study and some recommendations as well as suggestions for further improvement.

CHAPTER II

REVIEW OF LITERATURE

2.1 Introduction

The next step is to develop concepts and ideas about the selected topic by reviewing all the relevant materials regarding the study. In fact, review of literature begins with a search for a suitable topic and continues throughout the duration of the research work. It deals with a literature survey of the existing volumes of similar related subjects. Review of literature means reviewing research studies or other relevant propositions in the related area of the study so that all the past studies, their conclusions and deficiencies may be known and further research can be conducted. It is an integral and a mandatory process in research works .The main reason for a full review of research in past is to know the outcomes of those investigations in areas where similar concepts and methodologies had been used successfully. 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. 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 (Wolff &Pant (2005).

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:

Interest rate is one of the important variables in economics and financial system of the country. In common sense interest is a payment made by borrower to the lender for the money borrowed and is expressed as a rate percentage per year. But in economics widely different views have been put forth from the time of Aristotle to the present day. Aristotle recognized only animal husbandry and stock rising as two legitimate industries whose products could be lent and interest earned on them. Interest is regarded as the payment for the use or service of capital. As Carver said, "Interest is one income which goes to the owner of capital." 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 to 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.

2.2.1.1 Theories of Interest:

Various interest rate theories have been propounded by various economists, which describe how interest rate is determined in various situations. There are numerous interest rates in financial market. Such type of differences exists 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. In this study mainly four theories of interest are reviewed. They are:

2.2.1.1.1 The classical theories of interest rates

One of the oldest theories concerning the determinants of pure or risk-free interest rate is the classical theory of interest rates, 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 savings in modern industrialized economies are 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. Higher interest rates bring forth a greater current volume of savings. If the rate of interest in the financial markets rises from 5 to 10 percent, the volume of current savings by households is assumed to increase from $ 100 to $200 billion.

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 by raising it 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.

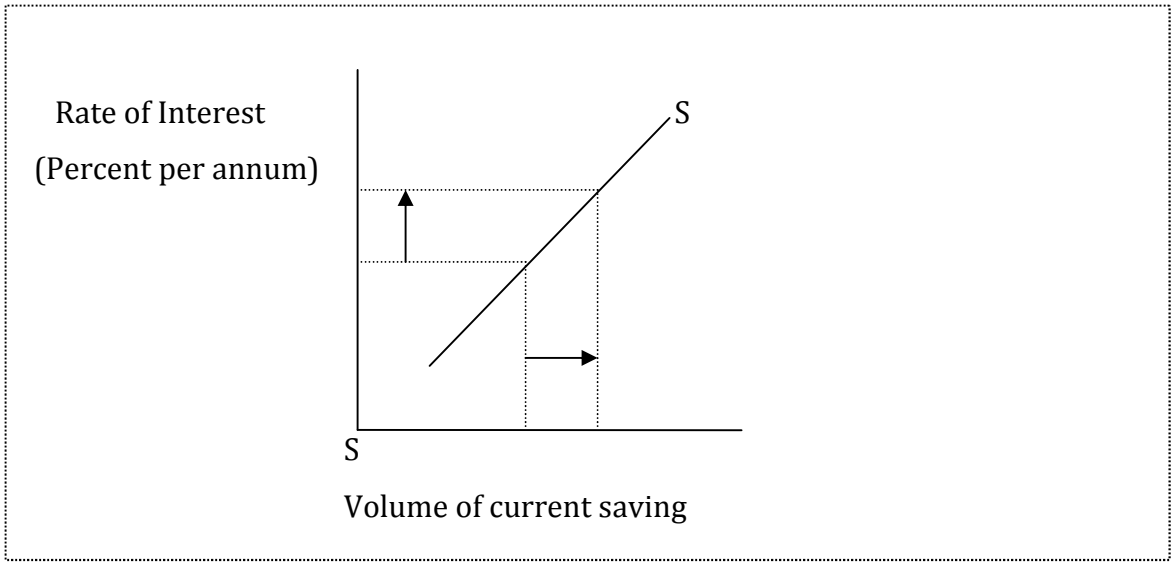

Fig No 2-1: The substitution effect relating saving and interest rates

The demand for investment funds:

The savings made by business, government and households are important determinants of interest rate but they are only one side. The other side is investment spending, made by business firms, government and in some cases households. Business requires huge amounts of funds each year to purchase equipment, machinery and inventories and to support the construction of new buildings and other physical facilities. The majority of business expenditures for these purposes consist of what economists call replacement investment. But according to the classical economist, interest rate and invest able fund have inverse relationship. At low rates of interest, more investment projects become economically viable. On the other hand, if the rate of interest rises to high levels, fewer investment projects will be pursued and fewer funds will be required from the financial markets as figure no 2-2.

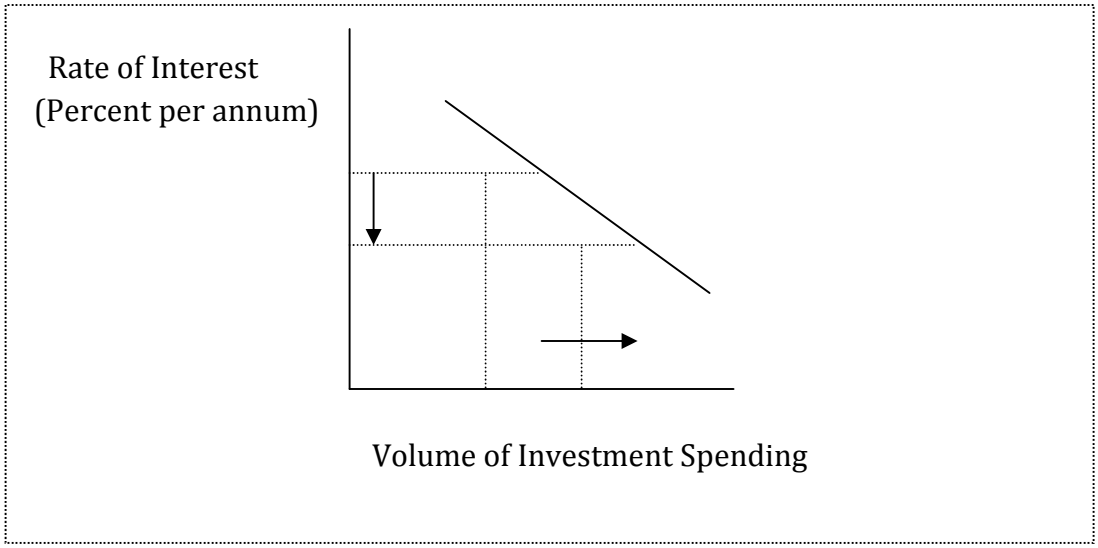

Fig No 2-2: The Investment Demand Schedule

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 to 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.

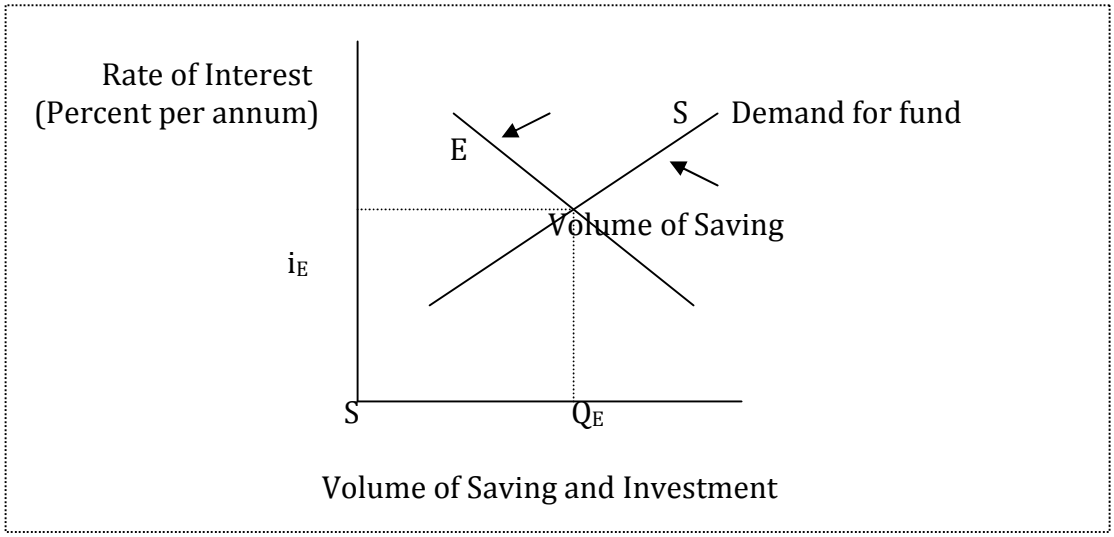

Fig No 2- 3: The Equilibrium rate of interest in the classical Theory

2.2.1.1.2 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 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 and 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. 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).

To summarize, saving (the postponement of current consumption) may be done by households, business, and governments. The volume of saving of each of these units is influenced by a variety of factors of which the interest rate is one. As a result, we might expect that the relationship between the interest rate and the volume of saving. 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.

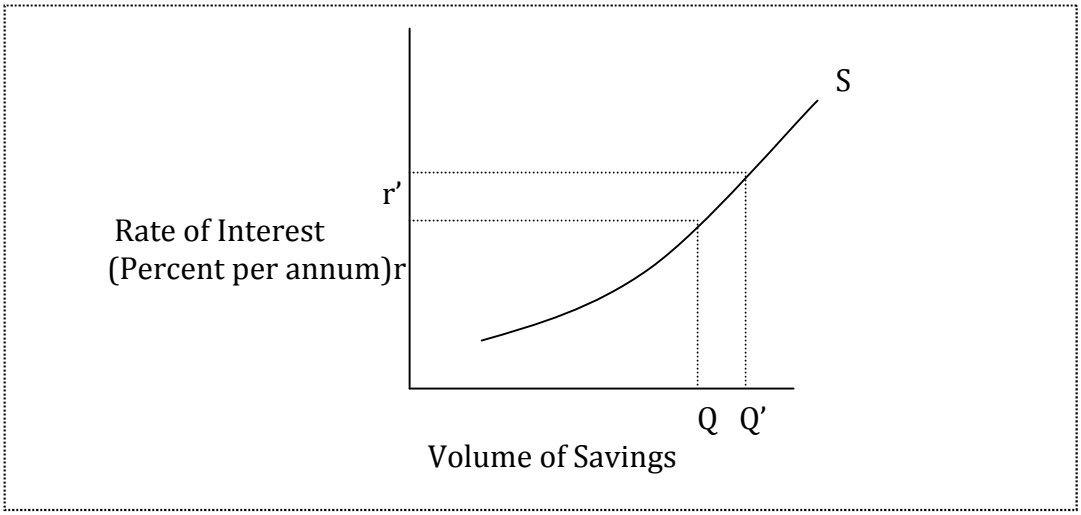

Fig no 2-4: The interest rate and volume of savings

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 could 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.

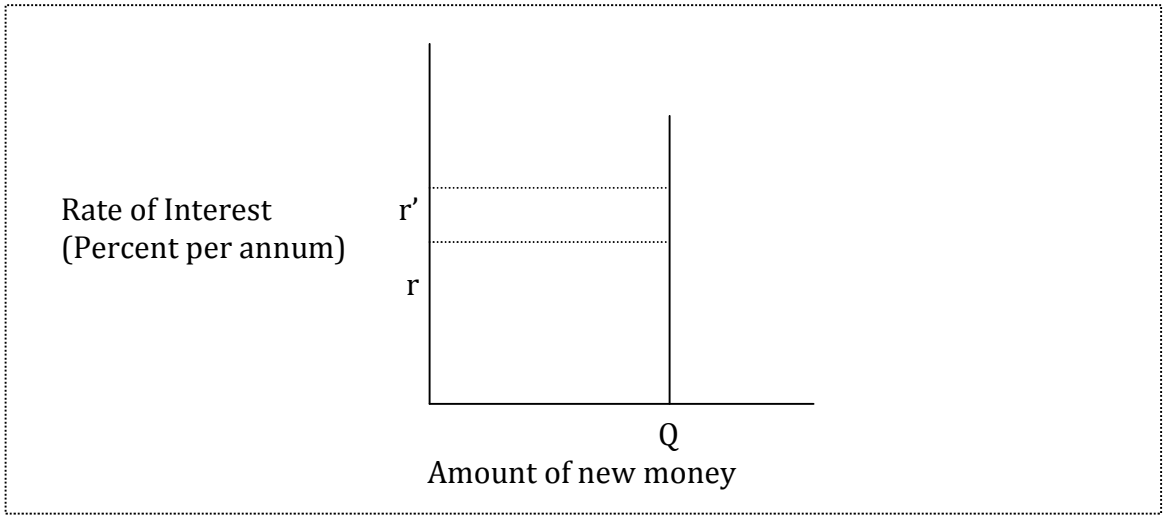

Fig No 2-5: The Supply of Loanable Funds

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 and 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.

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 service 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 or 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.

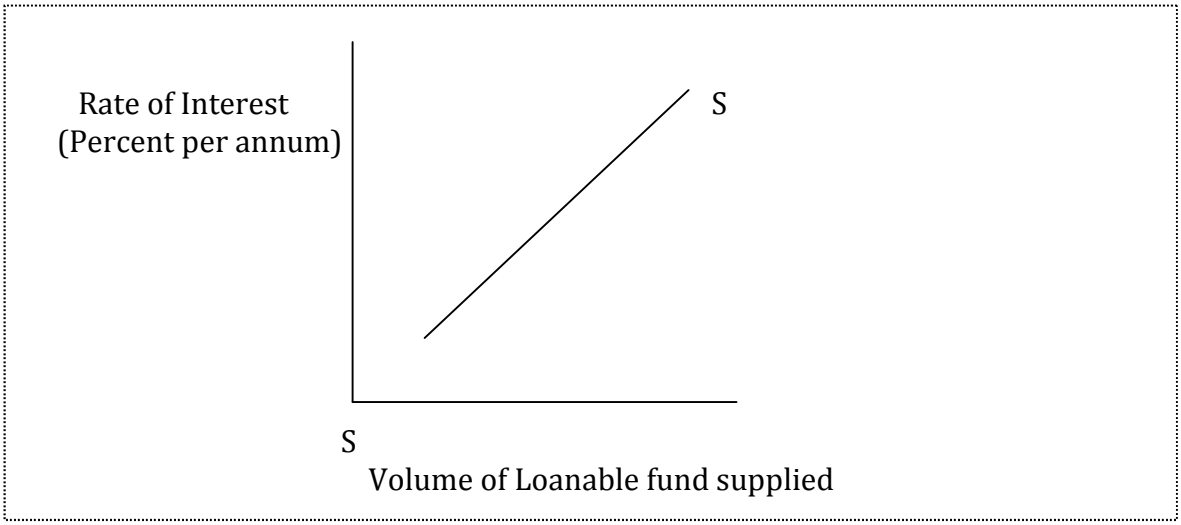

Fig No 2-7: The Supply of Loanable Funds

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.

2.2.1.1.3 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 on the liquidity preference instead of 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 which does not exist in the holding of idle money. Further, the 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

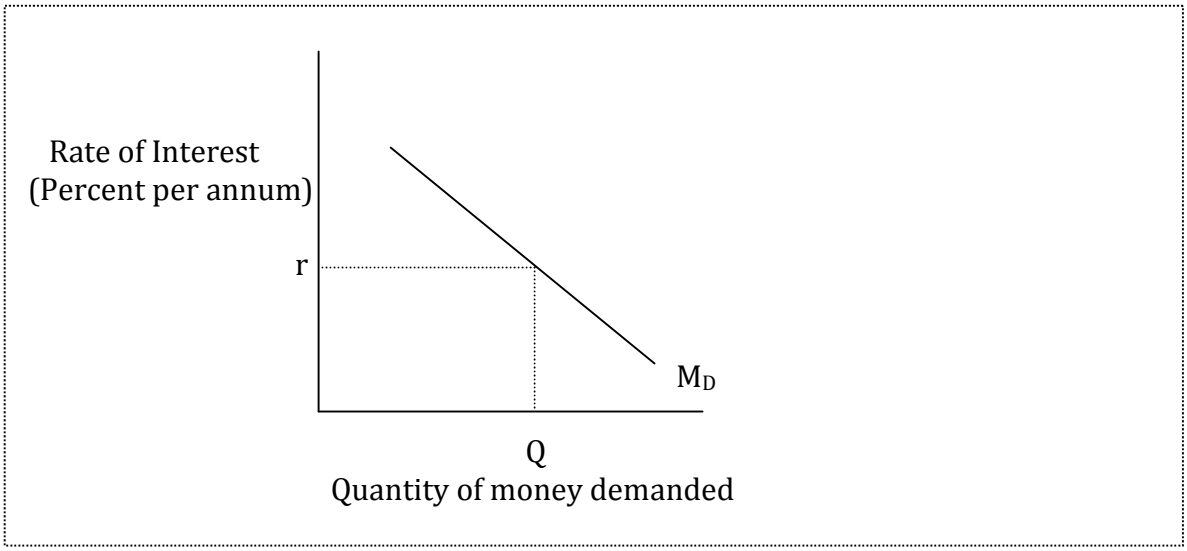

Fig No 2-9 The demand for money (M_D) as a function of the rate of interest

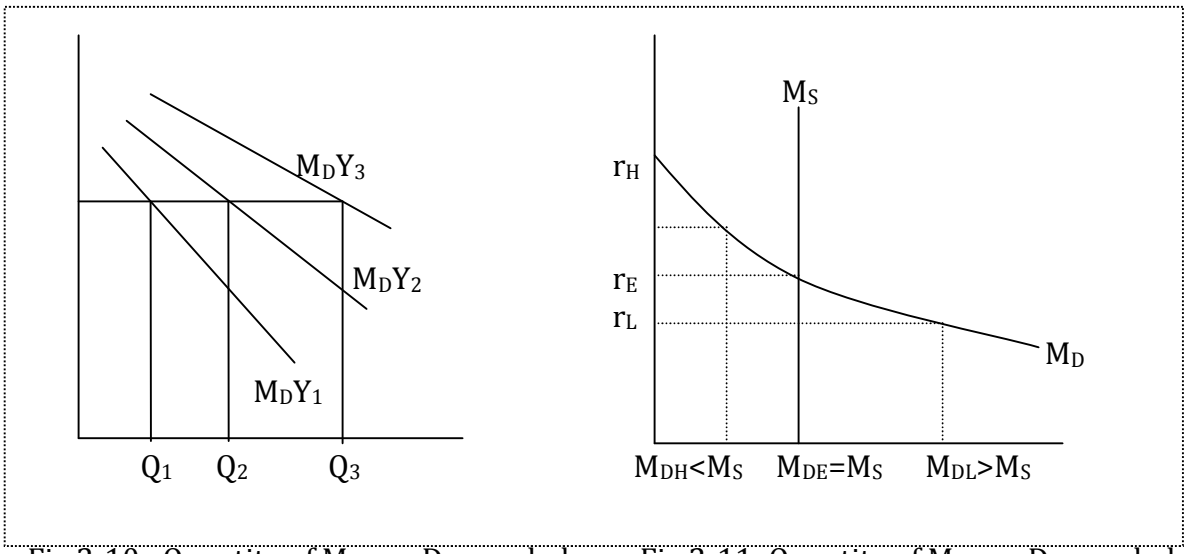

Fig 2-10: Quantity of Money Demanded Fig 2-11: Quantity of Money Demanded

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_DY_1, M_DY_2, M_DY_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 $M_{DE} = M_S$

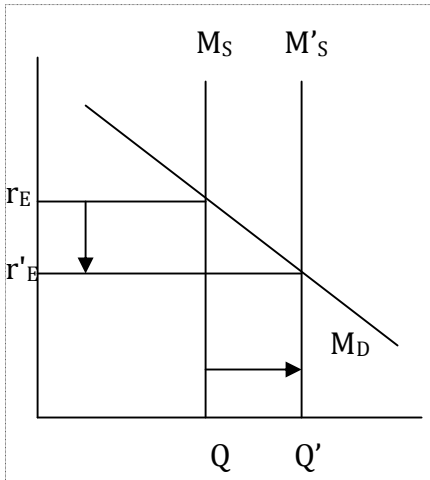

Fig 2-12: Effect of an increase in the money Supply on the rate of interest

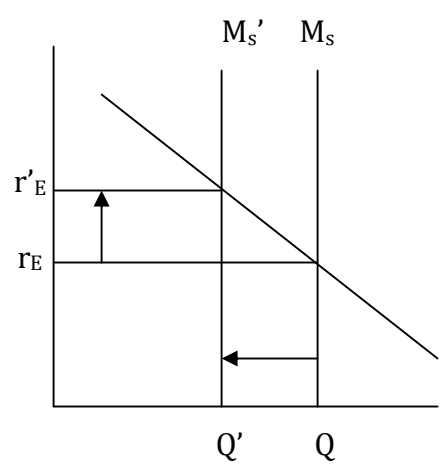

Fig 2-13: Effect of decrease in the money supply on the rate of interest

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 $M_D=M_S$

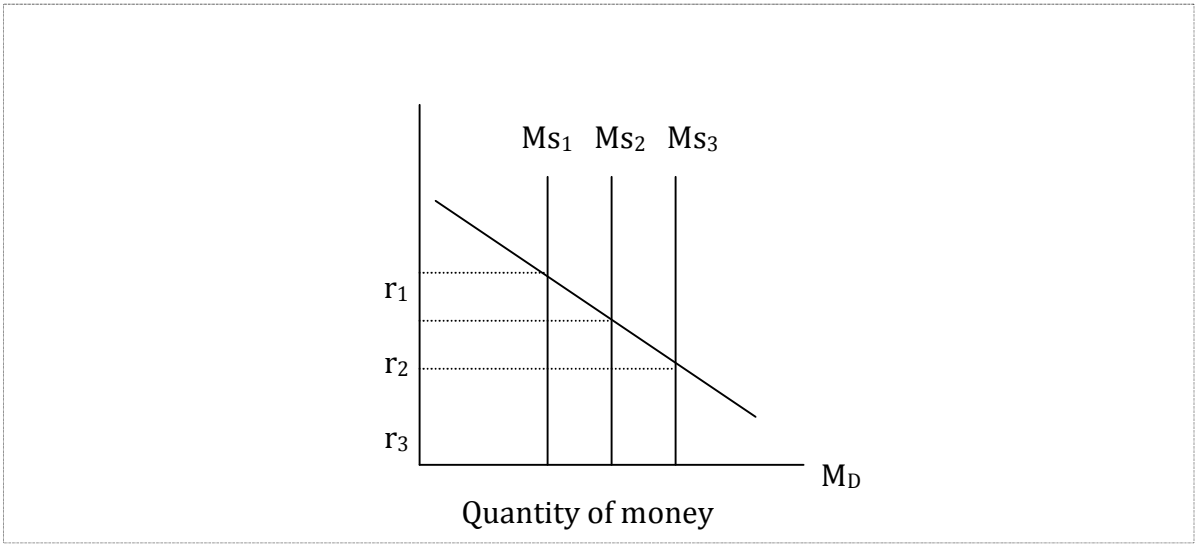

Fig- 2-14: Money supply and interest rate

2.2.1.1.4 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."(Peter S Rose (1997).

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 that 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 for 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_O=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_o'. The equilibrium quantity of loanable funds traded in the current period then will be 'C_e' not 'C_o'. This is because, according to the rational expectation theory, borrowers and lenders will act as rational agents, using all the information they posses (including expected events) to price financial assets today. When the future 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'.

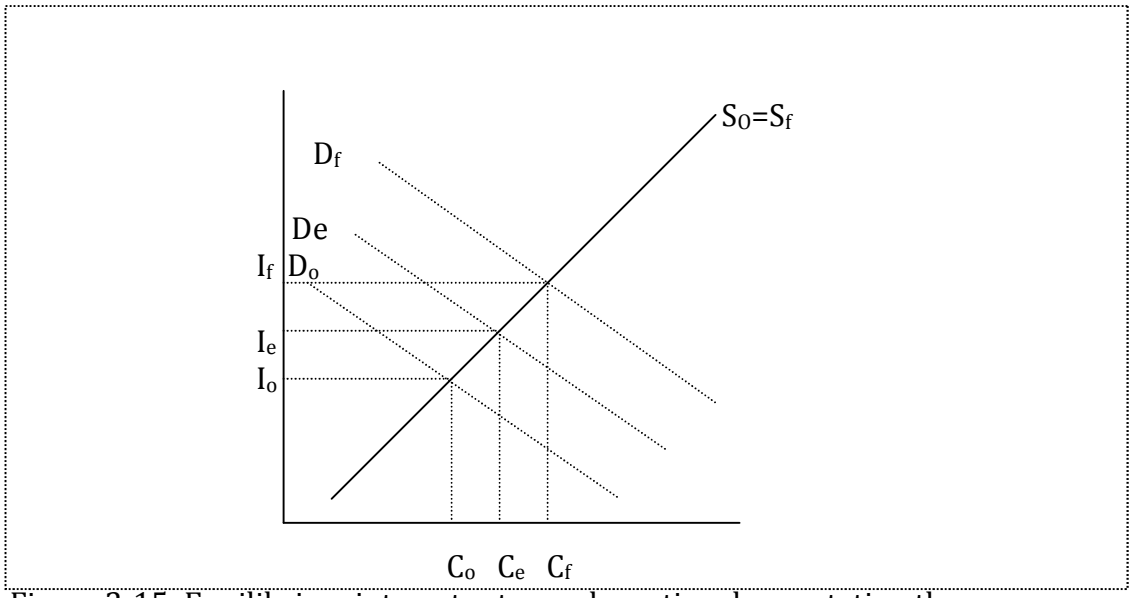

Figure 2-15: Equilibrium interest rates under rational expectation theory

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 'Io' and 'Ie'

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 to guarantee that current savings will flow into investment to promote economic growth.
- It rations the available supply of credit, generally providing loanable funds to the investment projects with highest expected returns.
- It brings into to 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.

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

The price of the security and interest rate has inverse relationship. It means that a rise in interest rate implies a decline in price; conversely, a fall in interest rate 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 in the financial marketplace and suppliers of loanable funds (lenders) demand securities for 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 figure 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

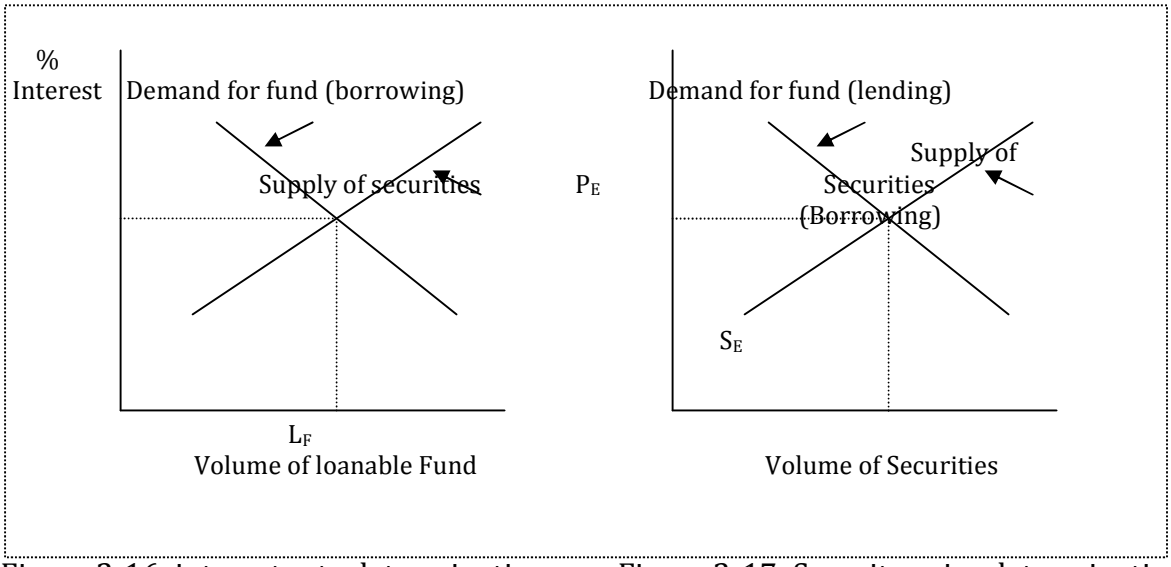

Figure 2-16: interest rate determination Figure 2-17: Security price determination

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.

2.3.2 Factors influencing the difference in interest rates:

Though it is assumed that deposit increases as interest increases but interest rate is affected by numerous factors. In real world, different financial institutions quote different interest rate. It means that the same types of instrument carries different interest rate at the same time, so there is presence of interest spread. For this, there are numbers of factors influencing the difference in interest rates.

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 or 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 with 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. Credit risk requires making estimates of the possibility of loss loss due to this reason. 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. 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 poorly marketable investments 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 repay the debt before the maturity date. The investor in such callable financial claim must accept repayment risk. The repayment risk is that if interest rates fall, the borrower will call the bond or prepay the mortgage. The investor receiving cash 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 offered as the call 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.

5) Exchange Rate Risk:

As our financial market has 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 many investment alternatives that are denominated in foreign currencies are available. This transaction involves exchange rate risk. This risk refers to the potentiality that the rate of exchange between the domestic currency and foreign denominated currency will change as a result of any factors. The primary risk for the borrower is the possibility of the devaluation of the domestic currency. This results loss 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. Thus higher the tax lower will be the cash flow and higher the interest rate and vice versa.

2.4 Concept of Deposit:

Deposit is the sum of money lodged with a bank, discount house or other financial institution. 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.

The deposits are subject to withdrawals by means of cheque on a short notice by customers. There are several restrictions on these deposits, regarding the amount of deposit, number of withdrawal etc. These are considered 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 save 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 as deposit.

2.4.1 Types of Deposit

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

Current Deposit:

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

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

2.4.2 Importance of Deposit:

Deposit arises from saving. An individual's income equals consumption plus saving. S/he deposits the saved part of income in the bank and gets interest from it. Banks in turn lend this money and earn profit by charging high interest rates. The borrowers from banks, invests this fund in productive sectors yielding more return than the interest on borrowed fund. This investment leads to create new employment opportunity in the economy. Ultimately due to new employment the purchasing power of the economy increases and finally GDP and growth of the economy 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 chanalize this in productive sector. So the importance of banks and financial intermediaries is larger in present context.

2.5 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. Bank loans are classified as: A) Loans and advances, b) Overdrafts c) cash credit d) discounting of bills and so on.'' 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 etc.

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

2.5.1 Factors affecting the volume of Lending.

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

1) Credit (Lending) Rate:

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

2) Rate of Return:

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

3) Investment Opportunity:

If the investment opportunity within the country is high, the volume of credit becomes high. The basic thing for investment stimulation is easy and cheap credit. More investment opportunity will be available when the interest rate is low.

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 from cheaper loan. If the banking facility 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.

2.6 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.

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.

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 income 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.

2.7 Inflation and Interest Rates:

Inflation occurs when the average price level in the economy rises. Interest rate represents the "price" of credit. Interest rate is affected by the inflation. 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 yet to be identified. On this regards, there are many theories. Here in this case, mainly two theories are 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"[i] 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. [ii]. 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:

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

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 money. This relationship was first formalized by economist Irvin Fisher and is referred to as the Fisher's effect.[iii] According to Fisher effect, nominal interest rate is related to the real rate by the following equation:

Nominal interest rate = Expected real rate + Inflation Premium + (Expected real ×Inflation Premium)

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

Nominal Interest rate = Expected real rate + Inflation Premium

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 means that an increase in expected inflation automatically increase 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 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 Harrod-Keynes Effect of Inflation:

There is another view about **inflation-interest rate relationship** propounded originally by British economist Sir Roy Harrod. This view conflict with that of Fisher's effect. It is based upon the Keynesian liquidity preference theory of interest rate. Harrod 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, Harrod 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.

2.8 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.[iv]) 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.

Similarly most governments compute a number of alternative price indices in order 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 tools 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.

$$q = \frac{CPI_1 \text{ Z} CPI_0}{CPI_0}$$

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 tools to measure inflation in the country taking 1995/96 fiscal year as base index

2.9 Review of Journals

Inflation and Interest Rates

Whenever it is heard that 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 of the significant factor discussed while making 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 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. ***(The Federal Reserve System, The Federal Reserve Bank of San Francisco).***

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. **(Bank of Biz/ed).**

2.10 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 Nepal 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.

2.11 Review of Previous 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 made by **Pandey, R. (1979)** on "*An analytical study of money supply, level of prices and interest rate structure-A case study of Nepal*" in with the objectives as follows:

- To study the trend of money supply in Nepal and thereby to find out the factors responsible for it.
- To study the price level of Nepal.
- To analyze the interest rate structure of NRB.
- To see the relationship among money supply prices and interest rate Structure of Nepal.

With the above-mentioned objectives he concluded that the time deposits are positively and significantly correlated with the interest rates. There is significant correlation between the savings deposits and the rate of interest and particularly between the fixed deposits and the rate of interest is most significant. The relation between the interest rates and the loans and advances has come significant. Among all sectors the private sectors seems most sensitive to interest rate revision. The net interest earning depends upon interest coverage. The total interest received and the total interest paid is significantly correlated in the case of both the banks i.e. Nepal Bank Limited and Rastriya Banijaya Bank. By manipulating the rate of interest Nepal Rastra Bank can well monitor the credit flow and profits of the commercial banks in Nepal. It can manipulate demand for and supply of funds by manipulating interest rates and by contracting or expanding money supply.

Another study was made by **Bhatta, S. (2004)** in the topic *"Interest Rate and its effect on Deposit and Lending"*. In this study, the disseminator tries to portrait the relation of interest rate with deposit and lending amount. Her findings and the findings made by Mr chettri are seems to be different. According to Mr chettri's finding, all the relation matches with the theory but Mrs Bhatta's finding on deposit was not as per theory. But other matters are same as Mr Chettri's. The conclusions drawn by Mrs Bhatta are:

- Deposit rates of all sample banks under study are in decreasing trend; meaning that every year deposit rates of sample banks under study have decreased.
- Lending rates of all sample banks under study are also in decreasing trend; means that every year lending rates of sample banks under study have decreased.
- Analysis shows that interest rates on lending are far higher than deposit rates of sample banks. The correlation coefficient between these two variables, (deposit rate and lending rate) of sample banks comes highly positive.
- The simple correlation coefficient between deposit rate and deposit amount of sample banks were highly negative. But out of them, correlation coefficient analysis of one sample bank is found to be negative. It means that in that case the theory doesn't match the analysis. So writer conclude that the result appears in that study was different than the theory.
- The correlation analysis between lending rate and lending amount of all sample banks under study comes highly negative. This relation between two variables (lending rate and lending amount) of sample banks matches with the theory which says with the increase in lending rate, lending amount decreases and vice-versa. So she concluded that lending rate is the most important determinant of loan and advances of all commercial banks. This makes clear that borrower's seem more interest conscious.

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

A study made **Pokharel, J. (2005)** on the topics *"Determinants of Interest Rates in Nepalese Financial Markets*", also give some ideas about the interest rates in Nepalese markets. Though, this thesis tried to identify the factors that shape the interest rates in Nepalese markets, it also tried to explore the relationship between the interest rate,

deposits, credit rates and inflation. Among different objectives, some objectives that match to this study are:

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

During the study, Mr. Pokharel found similar result as discovered by the Mrs. Bhatta. According to Mr. Pokharel, the major findings of the study are:

The correlation coefficient between interest rate on deposit and amount of deposit collected by all sample organizations were highly negative. It means that, deposit amount of all sample banks are found to increase even if the interest rate of deposit, the attracting factors for deposit, is decreasing. This is against the theory. According to theory, there must be positive relationship. Similarly in case of lending rate and lending amount, Mr. Pokharel found the result as suggested by the theory. It means, the correlation coefficient between amount loaned and interest rate on lending of 10 sample bank is found to be highly negative. In other words, negative coefficient of other organizations means that more amounts is demanded at lower interest which means that when demand increases, price (interest rate on lending) also increases.
Similarly considering about the relationship between interest rate on deposit and on lending for all sample banks, disseminator found it to be highly positive correlated. In his own words, it is "Variation in one rate also brings variation in another rate in same direction." Therefore it is concluded both interest rate are determining factor of each other.

In same manner, the researcher explored that the relation between interest rate on deposit and inflation rate is little positive. Theoretically there should be positive correlation between these two variables. Due to little positive correlation, it is

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

Another Study conducted by **Dangol, N. (2006)** on the *"Impact of Interest Rate on Financial Performance of Commercial Banks"* concludes:

i) Most of the commercial banks contradict the general financial theories.

ii) 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.

iii) 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.

iv) Correlation between interest rate and inflation is not significant.

v) Not only interest rate is responsible to shape the profitability of banks but also the operating efficiency also has major influence on it.

Bhusal, **Y.L. (2007)** carried out a study entitled *"An Analysis of Causes of Inflation in Nepal"*. He has shown the relationship of inflation with various factors like growth rate, Indian Inflation and price level, income level, cost of holding money, deficit financing. But all of these, he didn't mentioned any relationship of inflation with interest rate.

Rajbhandari (2009) was conducted a study on *"The interest rate structure of commercial Banks in Nepal"*. The objective of the study was to show the relation of interest rate with saving and fixed deposit; with loan and advances; and interest earning (i.e. interest received on loan minus interest paid on deposits).

His analysis concludes that the time deposits are positively and significantly correlated with the interest rates. There is significant correlated between the saving deposits and the rate of interest. Fixed deposit is more sensitive to the interest rate revision done by NRB. The correlation between the growth of fixed deposit and interest rate particularly from 1974 to 1977 is most significant. But the relationship between the interest rates and the loan and advance is less significant. Among all the sector, the private sector seems most sensitive to interest rate change. Most of the loans to correlated positive if absolute cumulative figures are taken. But the growth rate of total loans and advances except investment in HMG securities is negative correlated more with the weighted average rate of interest since 1971. The growth of loans to private sector is also negatively correlated with interest rate since 1971. Negative correlation between loans and interest rate mean that loan decrease at higher interest rate and vice versa.

The net interest earning is depended upon interest coverage. The total interest received and the total interest paid significantly correlated in the case of both of the bank i.e. Nepal Bank Limited and Rastriya Banijya Bank, the sample organization of the study. He is in view that NRB can well monitor the credit flow and profits of the commercial banks in Nepal by manipulating the rates of interest. It can also manipulate the demand for and supply of money.

Bhandari, N.B (2010) conducted his master's thesis on *"The impact of Interest rate structure on investment portfolio of Commercial Banks in Nepal"*. The objective of the study is given below:

a. To cast a glance at the historical background of interest rate structure of commercial banks, policies, decision and strategies regarding it and their impact.

b. To present and analysis interest rate structure of commercial banks in different time period.
c. To assess the impact of interest rate structure of commercial banks of their investment portfolio by analyzing their deposits, loans, advances, interest spread, investment and bills purchased and discounted.

In his analysis two commercial banks and three joint venture banks are taken for the purpose of the study. Most of data and information and data have been collected from discussion and interview; both the financial and technical tools are used for the analysis of data. Finally he has concluded follows:

a. Rates of commercial banks have been fluctuating. Deposit and lending rate were increased immediately after liberazation of the interest rate on august 31, 1989, but however started to decline which have helped in increasing the credit flow.
b. Interest rate structure has direct influence on profitability of commercial banks. Decreasing lending rates helps to increase the profitability through increasing the credit.
c. Deposit is more interest rate conscious and positively co-related.
d. Loan and advance of commercial banks have been found to be continuously increasing with the decline in interest rates.
e. Effective interest rate structure helps in proper utilization of resources as measured by loan to deposit ratio.
f. Most of the banks are having similar interest rate structure, which lesions the importance of linearization of interest rate.

2.12 Research Gap

If the previous studies are looked carefully it is seen that the research variable are not constant in all the related study. Some have considered single variable like interest rate, inflation on performance and deposit of commercial banks. Some have considered the interest on investment of commercial banks. As this research problem clearly states that it seeks the clear answer on the impact of interest rate on deposit, lending and inflation, it is clear that there is a gap between this research study and previously done.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

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

3.2 Research Design

Research design is a plan, structure and strategy of investigation. It is a blue print for the collection, measurement and analysis of data. A research design is the arrangement of conditions and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. A research design is the specification of methods and procedures for acquiring the information needed. It is the overall operational pattern of framework for the project that stipulates what information is to be collected, form which sources and by what procedures. ''E. Green Paul and Donald. S. Till; Research for Marketing Decisions''.

Thus a research design is a plan for the collection an analysis of data. For research there exits different types of research design like; Historical research, Descriptive research, Case study research, Field study research, analytical research, True experimental research and so on. This study mainly concerned with historical research. If applicable, sometime descriptive and analytical approach may also be used. But generally, to show the relationship of interest rate with deposit amount, 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.

3.3 Population and Samples:

The term "population" or universe for research means the universe of research study in which the research is based (Wolf & Pant, 2000).

Due to unavailability of data from all sectors, only commercial banks are chosen for this study. 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 31 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. Organization under study are as follows, whose general introduction and major objectives are presented in chapter one.

- Nepal Bank Limited
- Rastriya Banijya Bank
- Himalayan Bank Limited
- Nepal Bangladesh Bank Limited

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.

The hypotheses formulated for this study are as follows:

First Hypothesis:

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

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

Fourth Hypothesis:

Null hypothesis H_o: $\rho = 0$. 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.

Fifth Hypothesis:

Null hypothesis H_o: $\rho = 0$. 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 correlate.

3.4 Sources of data and Collection Procedure:

Basically this study is based on published source of information. These published sources of information are called secondary data. These secondary data are collected mainly from 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 converts it into required form. After then only, the data are presented for this study. This process is called data processing. For this study, only required data are taken from

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:

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

Mean ($\overline{X}$) = $\frac{X}{n}$ Where $\overline{X}$ = Mean

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.

It can be computed by using following formula.

$$S.D \int \Omega A X \sqrt{\frac{1}{n} \quad \int X \; Z \; \overline{X} \; \acute{A}}$$

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.

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.

- 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:

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

Alternately,

$$r = \frac{Cov(X_1 X_2)}{VarX_1, VarX_2}$$

Where,

Covariance (X_1, X_2) = $\frac{1}{n}$ $(X_1 \text{ Z}\overline{X}_1)(X_2 \text{ Z}\overline{X}_2)$

n = Total number of observations.

X_1 and X2 = two variables, correlation between them are calculated.

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

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

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

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

Multiple correlations are used for the measure of degree of association between one variable and a group of other variables taken 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.

Coefficient of Multiple Determinations:

The square of the multiple correlation coefficients is called coefficient of multiple determination. It is very useful tools to interpret the value of multiple correlation coefficients. The main significance of the coefficient of multiple determinations is to

represent the portion of total variation sin the dependent variable which is explained by the variations in the two independent variables.

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

T-test for significance of sample correlation coefficient:

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

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

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

$$r \pm t_\alpha (n\text{-}2) \times S.E. (r)$$

$$= r \pm t_\alpha (n\text{-}2) \times \frac{1 Z r^2}{\sqrt{n}}$$

CHAPTER IV

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 4 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 Rastriya Banijya Bank:

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 RBB as on Mid-July

Deposit	**2006**	**2007**	**2008**	**2009**	**2010**
Savings	2	2	2	2	2.5
Fixed:					
1 Months	-	-	-	-	-
3 Months	2.25	2.25	2.25	2.25	5.5
6 Months	2.5	2.5	2.5	2.5	6
1 Years	3.25	3.25	3.25	3	7
Above 2Yrs	3.5	3.5	3.5	3.25	8
Mean	**2.7**	**2.7**	**2.7**	**2.6**	**5.8**
Fixed Deposit Mean	**2.875**	**2.875**	**2.875**	**2.75**	**6.625**
Std Deviation	**0.12374**	**0.1237**	**0.124**	**0.106**	**0.5834**

Source: Banking and Financial Statistics, NRB

Table no 4-1 shows the deposit interest rate of RBB in 5 different FY. For this study 2006 is taken as initial year & 2010 as final years. The table portraits the interest rate that were prevailed in the Nepalese financial markets during last past 5 FYs. The data shows the increasing tendency of interest rate. The interest rate on saving deposit in the beginning year was 2% and increased to 2.5% in 2010. 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. If the mean is taken of all (both fixed and saving) then average interest rate on deposit was 2.7% for 2006, 2.7% for 2007, 2.7% for 2008, 2.6% for 2009, and 5.8% for 2010. 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 2.87%, 2.87%, 2.87%, 2.75%, and 6.62 % respectively for the year 2006, 2007, 2008, 2009, and 2010. The average figures also show the increasing tendency in interest rate except in the year 2009. At that period, the interest rate was slightly lower than previous year but ultimately rise to the 6.62% in the 2010.

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

Table No 4-2:
Relationship between Interest Rate and Deposit amount of RBB

Year	Saving Deposit Interest Rate (2)		Saving Deposits Amounts (3)	Fixed Deposit Interest Rate Mean (4)		Fixed Deposit Amounts (5)	
2006	2		294,949.00	2.66667		81,038.00	
2007	2		317502.0	2.66666667		77072.0	
2008	2		402130.0	2.66666667		44798.0	
2009	2		461028.0	2.66666667		32078.0	
2010	2.5		404793.5	6.16666667		82581.0	
Correlation	r_{23} 0.23454			r_{45} 0.45523484			
Coefficient of determination	0.0550128			0.20723876			
t-cal	0.482557303	t-tab= 2.571	Insignificant	1.022572915	t-tab= 2.571		Insignificant

Source: Banking and Financial Statistics, NRB

According to table no 4-2, the interest rate on saving deposit has been increased from 2% to 2.5% during five FYs. In the same period the deposit amount was Rs 2, 94,949.00 lakhs but this amount increases to Rs. 104793.5 lakhs in the fiscal year 2010.

Similarly, for fixed deposit the table 4-2 shows that total amount of fixed deposit and interest rate on fixed deposit offered by RBB on five consequent FY started from 2006 to FY 2010. The table reveals that average fixed interest rate has been increased drastically during the FY 2010. At the FY 2006 the average interest rate was 2.67% on fixed deposit but later on this interest rate started to increase by 231% at 2010. On effect of this increment, the amount of fixed deposit also increased to 82581in the FY 2010.

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}) = 0.23454. This positive correlation coefficient indicates that they have low degree of correlation and positive relationship among each other. This shows that the substitution effect in case of RBB for saving account is applicable. The coefficient of determination between these two variables is r^2_{23} = 0.0550, which means that total variation in dependent variable (saving deposit amount) has been explained by independent variable (interest rate) to the extent of 5.5% and remaining is the effect of other factors. The t-value for testing the significance of the correlation coefficient between variables is 0.482 (/t/ = 0.182). Since the calculated t-value at 5% level of significance for 5 degree of freedom (t-tab = 0.452) is less than tabulated value (t-cal = 2.751), the correlation coefficient is Insignificant. This means the variables mentioned (interest rate on saving deposit & amount of saving deposit) for RBB are insignificantly correlated.

In the same manner, the correlation coefficient between interest rate on fixed deposit and fixed deposit amount (r_{45}) is 0.455. This means that these two variables are positively correlated but in small proportion. When interest rate on fixed deposit decreases (increases) the deposit amount also decreases (increases). This is exactly the matter what the theory (substitution effects) says. The coefficient of determination

between these two variables is r^2_{45} = 0.2072, which means 20.72 % of total variables in dependent variables (deposit unit) is explained by the independent variable (interest rate) & remaining is due to the effect of other factors in the economy. Similarly test of significance of correlation coefficient between deposit rate and deposit amount gives the value of t = 1.022. The tabulated value at 5% significant level with d.f. 5 is 2.571 (i.e. t-tab = 2.571). Here $t_{cal}<t_{tab}$ So H_0 is accepted which means that the interest rate on deposit and deposit amount of RBB are not significantly correlated.

4.2.2 Nepal Bank Limited:

The general structure of deposit interest rate of Nepal Bank Limited (NBL) is shown below on table no 4-3. The table shows the interest rate of NBL during the last five FYs. The trend of interest rate on saving shows that it is in decreasing trend. The interest rate on saving deposit shows that it was 2.5% in 2006 and increases by 25% on 2010. Similarly the interest rate on fixed deposit also declined during the five fiscal years 2007, 2008, and 2009.But the interest rate raised to4.56 on average in the year 2010.

Table 4-3:
Interest rate structure on deposit of NBL on Mid-July

Deposit	2006	2007	2008	2009	2010
Savings	2.5	2	2	2	2
Fixed:					
1 Months	-	-	-	-	-
3 Months	3	2.25	2.25	2.25	3.25
6 Months	3.25	2.5	2.5	2.5	3.5
1 Years	3.75	3	3.5	3.5	5
Above 2Yrs		3.5			6.5
Mean	**3.125**	**2.65**	**2.5625**	**2.5625**	**4.05**
Fixed Deposit Mean	**3.33333**	**2.8125**	**2.75**	**2.75**	**4.5625**
Std Deviation	**0.14731**	**0.11490485**	**0.13258252**	**0.13258252**	**0.36239223**

Source: Banking and Financial Statistics,

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

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

Year	Saving Deposit Interest Rate (2)		Saving Deposits Amounts (3)	Fixed Deposit Interest Rate(4)		Fixed Deposit Amounts (5)
2006	2.5		235,479.50	**3.333**		57,908.90
2007	2		167784.5	2.8125		62039.2
2008	2		285450.8	2.75		47579.2
2009	2		310796.5	2.75		35793.6
2010	2		263251.0	4.5625		48528.0
r_{23} =	-0.1737713		r_{45} =	0.05625036		
r^2_{23} =	0.03019646	t-tab= 2.571	r^2_{45} =	0.0031641	t-tab= 2.571	
t-statistic	t-cal =	-0.353	Insignificant	t-cal =	0.1127	Insignificant

In table no 4-4 saving amount and deposit rates are arranged in systematic order. The outlook of the table shows that the interest has been fell to 2% in 2010. Whereas saving amount increased to 263251 in the same fiscal year. But the amount of fixed deposit has been decreased whereas the interest rate on fixed deposit is high in the fiscal year 2010 in comparing with previous three fiscal years.

The correlation coefficient (using excel program) for saving interest rate and deposit amount, r_{23}, is found to be negative of = -0.173. This value indicates that they two have very high negative or inverse relationship. Increase in one variables lead to decrease in other variables. This is extremely against the theory suggested by the "substitution effect". Similarly, the coefficient of determination between two variables, r^2_{23}, is 0.030, which means that total variation in interest rate on deposit has been explained by supply of deposits to the extent of 3% percent and remaining is the effect of other factors in the economy. The t-value for testing the significance of the correlation

coefficient between variables is -0.353 (t-cal=0.353), which is less than tabulated t value (t-tab = 2.571) at 5 percent level of significance with 5 degree of freedom. Since the calculated value is less than tabulated value, the conclusion is drawn that correlation coefficient between variables is insignificant. This means that the interest rate on saving deposit and deposit amount of NBL are insignificantly correlated. That is the substitution theory is applicable for the saving deposit of NBL. Similarly, correlation coefficient for fixed deposit interest rate and fixed deposit amount, r_{45}, is found to be 0.056. This shows that they have positive but low degree of correlation. It means that the increase in deposit interest rate stimulates saving on fixed deposit. This relation can be clearly explained by the coefficient of determination, which is 0.003, means that total variation in interest rate on fixed deposit has been explained by supply of deposits to the extent of 0.3 percent and remaining is the effect of other variables. The t-value for testing the significance of the correlation coefficient between variables is 0.1127 (t-cal=0.1127), which is significantly lesser than tabulated t value (t-tab = 2.571) at 5 percent level of significance with 5 degree of freedom. Since the calculated value is significantly less than tabulated value, the conclusion can be drawn that correlation coefficient between variables is insignificant. This means that though the correlation between interest rate on saving deposit and fixed deposit amount of NBL shows the very less positive correlation, the t-test indicates that there is no significant correlation between them.

4.2.3 Himalayan Bank Limited (HBL):

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

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

Deposit	2006	2007	2008	2009	2010
Savings	2	2	2	2.25	3
Fixed:					
1 Months	-	-	-	-	-
3 Months	2.5	2.5	2.5	3.75	4.75
6 Months	3	3	3.25	4.5	10
1 Years	3.75	3.75	5	6.5	10.25
Above 2Yrs	3.75	3.75	5.34	7.62	11.25
Mean	**3**	**3**	**3.618**	**4.924**	**7.85**
Fixed Deposit Mean	**3.25**	**3.25**	**4.0225**	**5.5925**	**9.0625**
Std Deviation	**0.17678**	**0.1767767**	**0.28602469**	**0.47270088**	**0.85736697**

Source: Banking and Financial Statistics, NRB

From table 4-5 it is clear that the interest rate on deposit of HBL is also in increasing trend. Similarly the average fixed deposit rate is 3.25%, 3.25%, 4.02% 5.59% and 9.06% in FY 2006, 2007, 2008, 2009 and 2010 respectively. It means that increase speed of deposit interest rate of HBL geared up after FY 2007.

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

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

Year	Saving Deposit Interest Rate (2)		Saving Deposits Amounts (3)	Fixed Deposit Interest Rate(4)		Fixed Deposit Amounts (5)
2006	2		145,828.60	3.25		63,502.00
2007	2		152854.3	3.25		81511.8
2008	2		179349.6	4.0225		64238.7
2009	2.25		200610.5	5.5925		63771.3
2010	3		162161.6	9.0625		112967.2
r_{23} =	0.0552951		r_{45} =	0.79455149		
r^2_{23} =	0.00305755	t-tab= 2.571	r^2_{45} =	0.63131207		
t-cal=	0.110759657	Insignificant	t-cal=	2.617113653	t-tab= 2.571	Significant

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 years. The table indicates that, deposit amount is increasing in every fiscal year covered by the study. This suggests that interest rate and deposit amount may have positive relationship, i.e. when one variable is found to be increased, other variable is also found to be increased and vice versa.

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 0.055. It means that these two variables have positive and low degree of correlation. The case is similar to fixed deposit also. The correlation coefficient for fixed deposit rate and amount is 0.794 (r_{23} = 0.794), which is also very high positive correlation. Therefore for both saving and fixed deposit, the case is for the substitution effect. The coefficient of determination of correlation

coefficient of saving deposit is 0.0030 (r^2_{23} = 0.0030) which indicates that the relation between deposit and interest rate is tied up to the level of 0.3 percent and remaining other percentage by other factors. In same manner for fixed deposit the value of coefficient of determination is 0.6313 which means 63.13% of total variation in fixed deposit has been explained by dependent variable i.e. interest rate on fixed deposit and remaining is due to the effect of other factor in the economy.

The value of t-statistics for saving deposit and saving interest is found to be 0.110 (t-cal = 0.110). 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 alternative hypothesis is rejected, which means that there is insignificant correlation between saving deposit and interest rate. Similarly for fixed deposit, the calculated value for t is 2.617 (t-cal = 2.617). This value is greater than t-tabulated. So in this case the magnitude of correlation coefficient is highly significant. Therefore null hypothesis is rejected.

4.2.4 Nepal Bangladesh Bank (NBB):

As similar to previous part, it is better to present the general interest rate structure before entering to the main analysis. The interest rate structure for NBB on saving and fixed deposits for past five FYs are as presented on table 4-7.

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

Deposit	2006	2007	2008	2009	2010
Savings	4.5	4.5	4.5	4.5	4.5
Fixed:					
1 Months	3.5	3.5	3.5	3.5	3.5
3 Months	4	4	4	4	4
6 Months	4.5	4.5	4.5	4.5	4.5
1 Years	4.75	4.75	4.75	4.75	4.75
Above 2Yrs	5	5	5	5.37	5.37
Mean	**4.375**	**4.375**	**4.375**	**4.436666667**	**4.436666667**
Fixed Deposit Mean	**4.5625**	**4.5625**	**4.5625**	**4.655**	**4.655**
Std Deviation	**0.13258**	**0.13258252**	**0.13258252**	**0.15438498**	**0.15438498**

Source: Banking and Financial Statistics, No: 38-44, NRB

The table 4-7 portrays the interest rate of NBB on saving deposit and fixed deposits. All the interest rate on saving deposit is on constant during the study period.

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

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

Year	Saving Deposit Interest Rate (2)		Saving Deposits Amounts (3)	Fixed Deposit Interest Rate(4)		Fixed Deposit Amounts (5)	
2006	4.50		74148.30	4.56		28669.10	
2007	4.50		54796.70	4.56		16110.90	
2008	4.50		68672.01	4.56		11667.11	
2009	4.50		70992.88	4.66		8132.22	
2010	4.50		57746.98	4.66		5685.23	
r_{23} =	0.5695			r_{45} =		-0.71951	
r^2_{23} =	0.32433025			r^2_{45} =		0.517694	
t-cal=	1.385659381	t-tab= 2.571	Insignificant	t-cal=	-2.072	t-tab= 2.571	Insignificant

Source: Banking and Financial Statistics, NRB

The table 4-8 also shows both deposits amount are fluctuated every year. If the excel sheet is used to compute the correlation coefficient, then the value for correlation between saving deposit and interest rate is 0.5695 (r_{23} = 0.5695). This is high degree of positive correlation. The coefficient of determination r^2_{23} = 0.3243 which means that 32.43% of total variation in saving deposit amount has been explained by dependent variable i.e. interest rate on saving deposit and remaining is due to the effect of other factors in the economy. Similarly the calculated value for t is 1.3856 for saving account. The value of tabulated t at 5 d.f. and 5% level of significance is only 2.571. So for saving account t-cal <t-tab, and hence alternative hypothesis is rejected. It means that there is insignificant relationship between two variables (deposit amount and interest rate).

In same manner for fixed deposit, the value of correlation coefficient is r_{45} = -0.71951, which indicates that the two variables have very high negative relationship. In other words, when increment occurs on one variable then there occurs decrement on other variables. To identify the significance or insignificance of this correlation, it is necessary to calculate the value of t-statistics. The calculated value of t is -2.072. Similarly the tabulated value for t is 2.571, which is less than calculated t. As a result null hypothesis is accepted and alternate hypothesis is rejected. It means that the correlation coefficient is highly insignificant. Thus from the both study it reveals that substitution effect is applicable for NBB.

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 attempted to study. 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 by the user of fund. 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 economy.

4.3.1 Rastriya Banijya Bank:

The sector where RBB supplied credit during last 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 RBB on Different Sectors during Five FYs.

Sector	2006	2007	2008	2009	2010
Overdraft	11	11	11	11	13.75
Export Credit	8	11	8	8	10.5
Import LC	8.5	8	8	7.5	0
HMG Bond	7	8	7	6	9
BG/CG	8.5	8	7	7	9.5
Other Guarantee	0	5	6	7	0
Industrial Loan	0	8.5	0	0	13
Commercial Loan	0	0	0	0	12.5
Priority Sector Loan	11.5	10	11.5	11.5	12.5
Working Capital	0	10	0	0	9
Hire Purchase	11	10.5	9	9	13.25
Others	8	8	8.75	9	11.5
Average Int. Rate(1)	6.125	8.16666667	6.35416667	6.33333333	9.54166667
Lending Amount(2)	268638	234173	273536	314641	331395.39
Correlation (r_{12})	0.264073429				
Coefficient of determination (r_{12}^2)	0.069734776				
t-statistics	t-cal =	0.547584703	t-tab =	2.571	Insignificant
SD(Avg.Int rate)	**1.498813188**				

Source: Banking and Financial Statistics, NRB

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

Lending activity of commercial banks can be diversified into different sectors. But according to the publication of Nepal Rastra Bank- Banking & Financial statistics- the

loan of commercial banks are classified in different sub-sectors like overdraft, export credit, Import LC, commercial loan and so on. Besides this there are other section (area) where 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 average lending interest rate on 2006, 2008, 2009 are nearly the same but in the year 2008 it has been increased to 8.16% and in 2010 by 9.54% which is slightly higher than the previous year. The table shows that the maximum interest rate is 13.75 % in FY 2010 and, minimum rate is 5% on FY 2007.Generally the productive sector loan rate (like commercial loan, industrial loan, priority sector loan, working capital rate and so on) fluctuated than non-productive sector loan like overdraft, loan against government bond, BG/CG rate and so on.

The standard deviation for average interest rate was 1.49%, which shows the deviation from mean return. The average rate is also in increasing trend. The increasing tendency was not smooth. It means that the rate fluctuate each year with different rate.

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

From table 4-9 the correlation coefficient (simple correlation) between lending rate and lending amount (r_{12}) is 0.2640. In this case it is clear that interest rate on lending & lending amount has positive relationship but low degree of correlation. It means they move in same direction i.e. increase in lending rate result increase in total lending amount. This situation do not 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 not true for RBB. The simple determination of correlation coefficient (r_{12}^2) is 0.069. When total lending amount is taken as dependent variable and lending rate as independent variables, then 6.9 % 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 verify the fact. The calculated value of t-statistics is 0.5475 (t-cal = 0.5475). This value is less than tabulated value, t-tab = 2.571 with level of significance 5% and d.f. 5. In this

condition, H_0 is accepted. It means that there is no significant correlation between the two variables. In other words their relation is insignificant. Though the correlation coefficient shows that these two variables have moderate level of correlation, but t-statistics verify that their relation is insignificant. In conclusion, the inverse relationship between lending rate and lending amount is not exactly applicable for RBB.

4.3.2 Nepal Bank Limited:

The sector where NBL granted its credit during last five FYs and their corresponding interest rate, average interest rate and lending amount are presented in the table 4-12 below.

Table 4-4 shows the lending interest rate structure of NBL on different sectors. This interest rate is somewhat lower in value as compared to interest rate of RBB (table 4-9). It means that there was some difference in interest rate between the two government run banks. For example in overdraft the RBB quoted the interest rate 13.75% per annum on FY 2010 where as in same period the NBL withdrew the overdraft service. The average interest rate also verifies the above statement about two banks' lending interest rate.

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

Sector	2006	2007	2008	2009	2010
Overdraft	10	10	10	10	0
Export Credit	8	8	0	0	9
Import LC	0	0	0	0	0
HMG Bond	6.5	6.5	0	0	9
BG/CG	7	7	7	7	8.5
Other Guarantee	0	0	0	0	7.5
Industrial Loan	0	0	0	0	0
Commercial Loan	0	10	0	0	0
Priority Sector Loan	10	7.5	10	11.5	0
Working Capital	10	10	10	8.5	11.5
Hire Purchase	10.5	10.5	7.75	7.75	11.5
Others	8	8	8	8	10.5
Average Int. Rate(1)	5.83333333	6.45833333	4.39583333	4.39583333	5.625
Lending Amount(2)	**121804**	**117002.6**	**154806.2**	**192610.0**	**254116.0**
Correlation (**r_{12})**	-0.31700787				
Coefficient of determination **(r_{12}^2)**	0.10049399				
t-statistics	t-cal =	-0.668494754	t-tab =	2.571	Insignificant
SD(Avg.Int rate)	**0.91626412**				

According to the table 4-10, it is clear that during first phase of five FYs, the average interest rate increased quite fastly with greater magnitude but in middle of the FY it decline to 4.39%. During the period especially hire purchase rate, against government

bond rate, BG/CG rate, import L/C rate, and overdraft lending rate fluctuated drastically. So it can be said that only non-productive sector loan rates were fluctuated drastically during the five FYs as compared to productive sector loan.

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

To find the exact relationship between the lending interest rate and lending amount, it is necessary to use some of the statistical tools like correlation coefficient, coefficient of determination. Similarly, to verify the correlation coefficient, student t-statistics is applied. For this case, the correlation coefficient between NBL's average interest rate and lending amount is 0.317 (r_{12} = 0.317). It means that, this is low degree of positive correlation. Increase in one variable result the increase in other variables but in low magnitude. In other words, if one variable increases by one percentage, then other variable increases by 0.100%. The result of correlation is against the theory. Because according to theory there should negative correlation. In other word, decrease in interest rate should be followed by increase in lending amount. But this case doesn't happen for NBL. The coefficient of determination r_{12}^2 = 0.10049, which means that the relationship between two variable (lending amount and rate) is defined up to 10% only. Similarly, the calculation of t statistics gives the value to t as -0.6684 i.e. t-cal = -0.6684. The tabulated value for t at 5 d.f. and 5% level of significance is 2.571. Therefore, in this case t-calculated is less than t-tabulated. Hence, null hypothesis is accepted. It indicates that the relationship shown by correlation coefficient is not significant.

In conclusion, it can be said that the lending interest rate and lending amount don't have relationship. This is not as per theory suggests.

4.3.3. Himalayan Bank Limited (HBL):

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

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

Sector	2006	2007	2008	2009	2010
Overdraft	10.5	9	9	9.75	14.75
Export Credit	8.5	7.375	8.5	9.625	13.25
Import LC	9.575	7.75	8.25	9.375	13.5
HMG Bond	5.5	6.5	7	9.5	13.5
BG/CG	8.75	7.25	7.5	9	13.5
Other Guarantee	0	0	0	0	0
Industrial Loan	10.5	0	0	0	0
Commercial Loan	10.375	0	0	0	0
Priority Sector Loan	11.625	10	0	10	0
Working Capital	0	0	0	0	0
Hire Purchase	10.25	8.5	8.5	10.75	14.75
Others	9.75	9	7.75	9.875	14.5
Average Int. Rate(1)	7.94375	5.44791667	4.70833333	6.48958333	8.14583333
Lending Amount(2)	155157.1	1781154.4	**199851.9**	**252920.7**	**300337.4**
Correlation (**r_{12})**	-0.39062648				
Coefficient of determination **(r_{12}^2)**	0.15258904				
t-statistics	t-cal =	-0.848681306	t-tab =	2.571	Insignificant
SD(Avg.Int rate)	**1.50824024**				

Source: Banking and Financial Statistics, 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, HBL lending rate was somewhat lower than quoted by other bank. This may be due to the competition because those aforementioned banks are government owned bank where as HBL is private sector leading commercial bank. The maximum interest rate quoted by the HBL during five FYs was 14.75% on "overdraft and Hire purchase" categories. All the interest rate of HBL increased drastically in 2010. During five years period the interest rate falls to 4.70% on average. Conversely, the lending amount of HBL is seen to be in increasing trend. So it can be said that lending of HBL was expanded rapidly within that 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

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

The correlation coefficient of HBL between lending amount and lending rate is -0.390. It is perfect negative correlation. It indicates that increment in one variable result the decrement in other variables or vice versa. In this case decrease in lending interest rate increases the lending amount. People preferred more credit from the HBL when bank reduced the lending interest rate. This is similar with the slaying of theory. Similarly the coefficient of determination between two variable (r^2_{12}) = 0.1525. It means that the relationship between dependent variable and independent variable is defined up to the extent of 15.25%. In other words, the increase in lending amount by decrease in interest rate is defined up to the extent of 15.25% where as remaining percentage is due to other factors.

Similarly the t-statistics for HBL is 0.848 (i.e. t-cal = 0.848). The tabulated value at 5% level of significance with 5 d.f. is 2.571. Comparing the t-tab and t-cal, it is clear that t-cal < t-tab, so alternative hypothesis is rejected and null hypothesis is accepted. It means that the relation shown by correlation coefficient is highly insignificant. The decrease in demand of lending amount is due to the increase 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 positive relation of HBL on two variables is not in accordance with theory.

4.3.4 Nepal Bangladesh Bank (NBB):

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

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

Sector	**2006**	**2007**	**2008**	**2009**	**2010**
Overdraft	0	0	0	0	0
Export Credit	9.25	9.25	9.25	9.25	9.25
Import LC	0	0	0	0	0
HMG Bond	7.5	7.5	7.5	7.5	7.5
BG/CG	8	8	8	8	8
Other Guarantee	0	0	0	0	0
Industrial Loan	11	11	10.25	10.25	10.25
Commercial Loan	8.75	8.75	8.75	8.75	8.75
Priority Sector Loan	10	10	10	10	10
Working Capital	0	0	9	9	9
Hire Purchase	9.5	9.5	9.5	9.5	9.5
Others	8.25	8.25	9	9	9
Average Int. Rate(1)	6.02083333	6.02083333	6.77083333	6.77083333	6.77083333
Lending Amount(2)	90107.1	89224.7	**84199.7**	**85078.8**	**90078.3**
Correlation ($\mathbf{r_{12}}$)	-0.61383059				
Coefficient of determination ($\mathbf{r_{12}^2}$)	0.37678799				
t-statistics	t-cal =	- 1.555108212	t-tab =	2.571	Insignificant
SD(Avg.Int rate)	**0.41079192**				

Source: Banking and Financial Statistics, NRB

The table 4-12 shows the lending interest rate structure of NBB on five FYs on different sectors. From table it is clear that the average interest rates of NBB are in constant stage in the first two fiscal year and remaining three fiscal year. The average interest rate for FY 2006, 2007, 2008, 2009 and 2010 are 6.02%, 6.02%, 6.77%, 6.77% and 6.77% respectively. In the same manner, for lending amount, the lending amount of NBB decreased each year. To get the exact numerical result of relationship correlation should be necessary to calculate.

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

The correlation coefficient of NBB between lending amount and lending rate is -0.613. It is the perfect negative correlation. It indicates that increment in one variable result the decrement in other variables or vice versa. Decrement in lending interest rate increases the lending amount because people preferred more credit from the HBL when bank reduced the lending interest rate. This condition matches with the theory. Similarly the coefficient of determination between two variable (r^2_{12}) = 0.3767. It means that the relationship between dependent variable and independent variable is defined up to the extent of 37.67%. The remaining percentage is due to other factors in the economy.

Similarly the calculate value for NBB is -1.555 (i.e. t-cal = -1.555). 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 rejected and null hypothesis is accepted. It means that the relation shown by correlation coefficient is highly insignificant. In conclusion the positive relation of NBB on two variables is not 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 Rastriya Banijya Bank (RBB):

The interest rate on deposit, interest rate on lending of RBB and inflation of the country during the five FYs were tabulated on table 4-16.

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

Fiscal Year	Inflation	Deposit Rate(3)	Lending Rate (4)	
	2	**3**	**4**	
2006	11.4	2.5	6.125	
2007	11.2	2.5	8.16666667	
2008	12.2	2.5	6.35416667	
2009	13.1	2.5	6.33333333	
2010	13.2	5.25	9.54166667	
Correlation coefficient. r_{23}	0.59006	Coefficient of Determination	0.34817285	
Correlation coefficient. r_{24}	0.25953	Coefficient of Determination	0.06735393	**Decision**
t-cal (Deposit)	1.46171	**t-tab**	**2.571**	
t-cal (Lending)	0.537469	**t-tab**	**2.571**	Insignificant

Source: NRB, Research Department

Note: The average interest rate of deposit and lending is taken from "Whole Mean" and "average lending rate" respectively. (For this case, values are taken from table 4-1 and table 4-11)

From table 4-13 it is clear that the inflation rate during the last five FYs was in increasing trend. In those periods, when inflation rate exceed the deposit rate, the deposit holder lost their income rather than earn. But in the case of lending rate, it was very much higher than the inflation rate. So bankers don't lose their income as compared to deposit holder. Due to this the interest spread between the deposit and lending was very high during period the five FYs.

If correlation coefficient of between deposit and inflation is taken, the value of r is 0.59006 i.e. r_{23}=0.59006. This positive correlation indicates that the deposit rate and inflation have moderately positive relationship. Increase in inflation increases the deposit interest rate but very little in magnitude. The coefficient of determination r^2_{23} = 0.34817 which means that of the total variation in dependent variable (deposit interest rate); only 34.81 % has been explained by the variation in independent variable (inflation rate) and remaining other is due to the effect of other factors in the economy.

In order to verify the strongness or weakness of relationship, calculation of t-statistics is necessary. The calculated value of t for given correlation coefficient is 1.46171. 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 rejected which means that the correlation coefficient between deposit and lending is not significance. In other words, the deposit rate of RBB 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 0.25953 (r_{24} = 0.25953). This is low degree of correlation. It means the two variables move in same direction but not in similar rate. Their movement is weak. In order to verify the significance of correlation coefficient, t-statistic is calculated. The calculated value of t is 0.537 and tabulated value is 2.571. Here the case is similar with deposit. It means that, whatever the correlation coefficient reveals for the relationship of two variables, but the two variables are not significantly correlated. This concludes that fisher effect is not practically applicable for RBB.

4.4.2 Nepal Bank Limited (NBL):

The interest rate on deposit, interest rate on lending of NBL and inflation of the country during the five FYs were tabulated on table no 4-14.

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

Fiscal Year	Inflation	Deposit Rate	Lending Rate	
	2	**3**	**4**	
2006	11.4	3.125	5.83333333	
2007	11.2	2.65	6.45833333	
2008	12.2	2.5625	4.39583333	
2009	13.1	2.5625	4.39583333	
2010	13.2	4.05	5.625	
Correlation coefficient. r_{23}	0.38352	Coefficient of Determination	0.14709059	
Correlation coefficient. r_{24}	-0.6107	Coefficient of Determination	0.37289593	**Decision**
t-cal (Deposit)	0.83056	**t-tab**	**2.571**	Insignificant
t-cal (Lending)	-1.54225	**t-tab**	**2.571**	

Source: NRB, Research Department

From table 4-14 it is clear that the inflation rate during the last five FYs was in increasing trend. In those periods, when inflation rate exceed the deposit rate, the deposit holder lost their income rather than earn. But in the case of lending rate, it was very much higher than the inflation rate. So bankers don't lose their income as compared to deposit holder. Due to this the interest spread between the deposit and lending was very high during period the five FYs.

Similarly, the correlation coefficient between deposit interest rate and inflation, r_{23}**,** is found to be 0.38352 and correlation coefficient between lending rate and inflation, r_{24}, is -0.6107. It indicates that these variables have negative correlation between inflation and lending rates. The coefficient of determination r^2_{23} = 0.147090 which means that of the total variation in dependent variable (deposit interest rate); only 14.70 % has been explained by the variation in independent variable (inflation rate) and remaining other is due to the effect of other factors in the economy.

The calculated value of t is 0 .83056 for deposit and -1.542 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 accepted and alternative hypothesis is rejected. That is coefficient of correlation is statistically insignificant. It can be inferred that the variables, both interest rate and inflation are not correlated.

4.4.3 Himalayan Bank Limited (HBL):

From table 4-15 it is clear that the inflation rate during the last five FYs was in increasing trend. In those periods, when inflation rate exceed the deposit rate, the deposit holder lost their income rather than earn. But in the case of lending rate, it was very much higher than the inflation rate. So bankers don't lose their income as compared to deposit holder. Due to this the interest spread between the deposit and lending was very high during period the five FYs.

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

Fiscal Year	**Inflation (2)**	**Deposit Rate(3)**	**Lending Rate (4)**	
	2	**3**	**4**	
2006	11.4	3	7.94375	
2007	11.2	3	5.44791667	
2008	12.2	3.618	4.70833333	
2009	13.1	4.924	6.48958333	
2010	13.2	7.85	8.14583333	
Correlation coefficient. r_{23}	0.84842	Coefficient of Determination	0.71981674	
Correlation coefficient. r_{24}	0.27295	Coefficient of Determination	0.07449926	**Decision**
t-cal (Deposit)	3.205678	**t-tab**	**2.571**	Significant
t-cal (Lending)	0.567437	**t-tab**	**2.571**	Insignificant

Source: NRB, Research Department

The correlation coefficient between interest rate on deposit an inflation rate, r_{23} is 0.8484 which means that these two variables are positively and have a high degree of correlation. An increment in inflation brings increment in interest rate on deposit and vice-versa. In general concept also, there is positive correlation between these variables. The coefficient of determination r^2_{23} = 0.7198 means that of the total variation in dependent variable (deposit interest rate); only 71.98 % has been explained by the variation in independent variable (inflation rate). Similarly the t-value for testing the significance of the correlation coefficient is 3.205 which is more than the tabulated t-value for the 5 degree of freedom at 5 percent level of significance, 2.571. Since the calculated value is more than the tabulated value the correlation coefficient is significant which means that interest rate on deposit of HBL is correlated with the inflation rate and movement in inflation rates affect the interest rate on deposit significantly.

Similarly the relationship of interest rate on lending of HBL with inflation has also been examined. The coefficient of correlation between inflation and interest rate on lending, r_{24} is 0.27295 which shows that the variables are positively correlated. Movement in inflation rate leads movement in interest rate on lending in same direction. The t-value for testing the significance of correlation coefficient is 0.5674. Since the calculated t-value is smaller than the tabulated t-value for 5 degree of freedom at 5 percent level of significance 2.571, the variables are not correlated significantly. This means that the lending rate of HBL is not significantly correlated with the inflation rate.

4.4.4 Nepal Bangladesh Bank (NBB):

From table 4-17 it is clear that the inflation rate during the last five FYs was in increasing trend. In those periods, when inflation rate exceed the deposit rate, the deposit holder lost their income rather than earn. But in the case of lending rate, it was very much higher than the inflation rate. So bankers don't lose their income as compared to deposit holder. Due to this the interest spread between the deposit and lending was very high during period the five FYs.

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

Fiscal Year	Inflation (2)	Deposit Rate(3)	Lending Rate (4)	
	2	3	4	
2006	11.4	4.375	6.02083333	
2007	11.2	4.375	6.02083333	
2008	12.2	4.375	6.77083333	
2009	13.1	4.436666667	6.77083333	
2010	13.2	4.436666667	6.77083333	
Correlation coefficient. r_{23}	0.91441	Coefficient of Determination	0.83613689	
Correlation coefficient. r_{24}	0.90457	Coefficient of Determination	0.81825213	**Decision**
t-cal (Deposit)	4.517811	**t-tab**	**2.571**	significant
t-cal (Lending)	4.243644	**t-tab**	**2.571**	significant

Source: NRB, Research Department

The correlation coefficient between interest rate on deposit and inflation rate, r_{23} is 0.91441 which shows that there is positive and high degree of correlation between these two variables. When inflation increases, the interest rate on deposit offered by NBB also increases. The coefficient of determination, r^2_{23} is 0.8361 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 83.61 percent and other variables are responsible for remaining variation. The value of t for testing the significance of the correlation coefficient is 4.5178 which are greater than the tabulated value. Since the calculated value is greater than the tabulated value at 5 d.f. and 5% level of significance, 2.571, the variables are significantly correlated. So we can say that change in inflation has significant impact on interest rate on deposit of NBB.

In same manner the correlation coefficient between inflation and interest rate on deposit r_{24} shows that the variables are correlated and relationship is positive. Increase in inflation causes increase in interest rate on lending. But in similar manner

the t-value for testing significance of correlation coefficient (t-cal = 4.243) is greater than the tabulated value at 5 d.f and 5% level of significance (t-tab = 2.571). As the calculated value is greater than the tabulated value, the correlation coefficient is significant which means that the variables, interest rate on lending and inflation rate, are correlated.

4.5 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 mainly focuses on three objectives. First one is to determine the actual situation of substitution effect in the context of Nepalese financial markets. Similarly, second objective is to determine the relationship between lending rate and corresponding lending amount. And lastly, the third objective is to explore the actual relationship of inflation rate and interest rate.

From the study, the following three major findings are obtained.

- The analysis of substitution effect for both fixed and saving deposit shows that substitution effect do not exist for all sample banks. In other words there is no significant relationship between deposit and interest rate.
- 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 which indicates insignificant relationship between variables under study.
- For Inflation, deposit interest rate and lending interest rate. It is found that there is no any significant relationship in sampled banks except in NBB. This shows that deposit rate and inflation rate are not related significantly though the Fisher theory suggests that there should be positive relationship.

CHAPTER-V

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter mainly consists of 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 or the study. Recommendation is made for improving the present situation to the concerned sector 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 financial system is hoped to develop the economy and help to raise the living standard of the people. Financial intermediaries mobilize the fund by collecting the scattered resources from the savers and provide the collected funds to the users. The intermediaries of financial systems sustain by lending the fund on higher interest rate and paying the deposit holder a little interest. It means that such organization survive by making profit through an interest spread on deposit and lending. The decision made to charge and provide interest on lending and deposit affects the profit position of the organization. Depositors are generally attracted by offering the higher interest rates. Similarly high credit rates de-motivate the investors as a result investment in the country shrinks down. Though there are various factors in the economy that affects the deposit amount and lending amount; interest rate is one of the major factor that affect deposit and lending amount. With the major objective of showing relationship between deposit rate and deposit amount i.e. substitution effect, lending rate and lending amount, inflation and interest rate, this study is undertaken.

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

In second chapter, theoretical review as well as review of previous research has been made. Different views about interest, function of interest, theories of interest, factors affecting interest rate and so on are reviewed on that chapter. On the theories of interest, mainly four theories- The Classical Theory, Liquidity Preference Theory, Loanable Fund Theory and Rational Expectancies Theory - are reviewed. Similarly the factor affecting interest rate like default risk, marketability risk, exchange rate risk and so on are explained. Similarly, in order to identity the relationship of interest rate and inflation, Fisher effect, Harrod-Keynes effect are also studied on the second chapter.
Research design used is mainly analytical. Out of the total financial system, five commercial banks are chosen for sample purpose; mainly secondary data are used for the analysis. These all are made on third chapter. Lastly on fourth chapter, collected data are presented in tabular and graphic form and analyzed using various statistical tools like mean, standard deviation, correlation coefficient and t-statistics.

5.2 Conclusion

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

- The interest rates on both deposit and lending of all sample banks are found to be in increasing trend. But, on the contrary to this, deposit amount and lending amount is increasing every year except on fixed deposit of RBB and NBL. The government run bank's fixed deposit is found to be increasing every year.
- The 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.)
- Analysis of fixed deposit amount and fixed interest rate shows negative relationship. 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 decrease in deposit is not due to the decrease in interest rate but due to other reasons. Therefore it is concluded that for fixed 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. 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 sampled banks are insignificant which means that though the correlation coefficient shows the moderate relationship but their relationship is not strong i.e. not

significant relationship. So Increase in lending amount is not due to the decrease in lending interest rate but due to the other reason

- The relationship between interest rate on deposit and inflation rate is negative. 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. In conclusion it can be said that, the Fisher effect is not properly applicable in Nepalese financial market.
- During the study period, it is found that, there exist the high spread between deposit interest rate and lending interest rate. 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 increased lesser in magnitude in comparison to the non productive sector loan.

5.3 Recommendation

Based on the above findings and 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 be fruitful for them to improve the present condition as well as for further research. The major recommendations of this study are as under.

- In order to generate more capital for the development of the economy, more deposits are needed 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 whenever 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 overall 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 such information may cause negative impact on the efficiency of those whose workings are based on these information.
- 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.

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