

**DETERMINANTS OF INTEREST RATE IN NEPALESE FINANCE  
COMPANIES**

**[With Reference to LUFC, UFCL, NFC, LFC, UFC and NMBF]**

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## RECOMMENDATION

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*And found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as the partial fulfillment of the requirement for the degree of*

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## DECLARATION

I hereby declare that the work reported in the thesis entitled Determinants of Interest Rate in Nepalese Finance Companies submitted to Office of the Dean, Tribhuvan University is my own work done in the form of partial fulfillment of the requirement of degree of Master of Business Studies (MBS) under the supervision of Mrs. Sneha Lata Kafle of Shanker Dev Campus.

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Karishma Shrestha  
Researcher

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## ABBREVIATIONS

B.S	=	Bikram Sambat
C.C	=	Correlation Coefficient
CRR	=	Cash Reserve Ratio
DF	=	Degree of Freedom
FCs	=	Finance Companies
FDR	=	Fixed Deposit Receipts
FY	=	Fiscal Year
HMG	=	His Majesty Government
IR	=	International Rates
LFC	=	Lalitpur Finance Company
LUFC	=	Lumbini Finance Company
MD	=	Multiple Determination
NA	=	Not Available
NADF	=	Nepal Awash Development
NEPSE	=	Nepal Stock Exchange Company Ltd.
NFC	=	Navadurga Finance Company
NMBF	=	Nepal Merchant Banking and Finance td
NRB	=	Nepal Rastra Bank
UFC	=	United Finance Company
UFCL	=	Union Finance Company Ltd

# CHAPTER: I

## INTRODUCTION

### 1.1 Background of the Study

Nepal is a small landlocked, South Asian country, situated between two big economic prosperities countries. Nepal is in slow development phase. Its economic condition is characterized by the declining interest rate, high inflation and less increase in per capita income, low income, low saving and low investment along with very low growth rate. Political unrest and capital inadequacy are the major barriers in the development process of Nepal. Because of unequal distribution of income, the gulf between haves and have not has increased. More than 80% people are engaged on agriculture while the contribution of this sector to gross domestic production (GDP) is only 40% and that of non agriculture is 60%. About 30% of people are still under absolute poverty.

The basic function of the economy is to allocate scarce resources to produce goods and services demanded by the society. The production of the goods and services require the transformation of the resources land, labor, capital, technology, managerial skill and information. Among these capital is considered as the most important and called as life blood of the business for the production of the goods and services. Capital formation and its proper utilization are essential for economic development on any country. In such a context, the players in the financial system (borrowers, depositors, and the intermediaries) play a prominent role. Financial institutions are business organization that acts as a mobilized and depositories of savings of and as suppliers of credit and finance. As a financial intermediary financial companies contribute for the economic development as they collect surplus fund from the nook and the corner of the country. And simultaneously making loan available to other customers who have cash shortage for investment and other usage by providing interest to the depositors and charging interest to the borrowers.

The slow growth and traditional attitude of commercial banks in mobilizing financial resources, lack of financial innovations and growing interest of public on Upahar or installment program are the major reasons among other for the establishment of financial companies. After the government adopted the open and liberal policies in financial sector,

among other institutions finance companies has been incorporated under company act 2053. Finance company is perhaps the fastest growing financial institutions in Nepal. The first of it was established in 1992 named Nepal Awash Development finance Co. Ltd. (NADF) but today there are 79 such finance companies. They are authorized to accept deposits under several schemes and to mobilize the funds in wide range productive sectors like agricultural, industrial, trade and commerce. Finance companies are popular between low income and middle class people for financing which also perform the varying roles of providing specialized services to their clients offering higher rate of interest and revenue generation. The finance company is defined by the dictionary of modern economy as " A finance intermediary not a bank which may obtain fund from its own capital resources by accepting deposit (usually for fixed periods)of even by borrowing from other institution which then lends for variety of purpose, especially to finance hire purchase contracts but leasing.

Nepal is rich in natural resources which are remained unutilized because of lack of capital. The problem of brain drain is increasing. The obstacle of the capital can be wiped out by the collection of more deposit from the savers (household / business and government). A key factor in the development of an economy is the mobilization process of domestic resources. Finance companies produce loans and innovations to facilitate trade and transactions. Most of the rural parts of Nepal still operate a barter system. Economic development is only possible if it is monetized. So finance companies as an important part of financial market play major role to monetize the economy.

One factor that significantly influences and ties all of them together is the rate of interest. The rate of interest is the price a borrower must pay to secure scarce loan able funds from a lender for an agreed upon period. An appropriate interest rate structure greatly affects the collection of deposit, mobilization of savings (in productive sector and profit positions of any financial institutions, which in turn affects the economic up-liftment of the whole country. "Higher interest rate generally brings a greater volume of savings and "stimulates the lending of funds. Lower rate of interest rate on the other hand tend to damp on the flow of savings and reduce lending activity. Interest rate sends price signals to borrowers, lenders savers and investors. So it is important to know and be familiar with interest rate charged on lending and interest provided on deposit and the factors influencing it.

### **1.1.1 Finance Companies in Nepal**

Finance companies in Nepal are licensed under the finance company act 1985 but recently they are incorporated under Company act, 2053 and the largest group of deposit taking financial institution after commercial banks and development banks. These commercial banks are the creation of early 1990's. Finance companies are established as public limited mainly for providing loans to procedure motor vehicles and other consumer durables on hire purchase terms, land acquisition and building construction and leasing plant and machinery. Finance companies lending operation have tended to complement the operation of commercial banks mainly on urban areas. These companies are not allowed to accept demand and saving deposit from public and have thus concentrated in mobilizing funds through fixed deposits. Thus finance companies are the institutions to perform non banking activities arrangement and operation of different schemes whereby they collect the fund under different arrangement they have made and disburse the funds to demanders of funds and meet their objectives.

Economic liberalization policy of the government has encouraged the establishment and growth of finance companies in the country. In 8th plan (1992-97), it has been clearly stated that "the vacuum in the present national financial system needs to be filled by institutionally developed capital market institutions like investment companies, finance companies, leasing and housing, finance in order to create healthy, competitive financial sector". In 10th plan (2002-07) it has been described that "encouragement will be made to establish finance companies in development regions where there are not yet established. At the same time the scope of service delivery will be expanded, where possible". In a situation when the existing financial institution, especially commercial banks to meet consumer need for credit, it is time to encourage the growth and operation of finance companies to meet individual credit needs, undertake fee / based merchant banking function and to gradually curtail the upahar and dhukuti programs which were run unofficial.

In purpose to government's economic liberalization policy, NRB took some policy majors for the healthy and complete development of commercial banks and finance companies dissuade hem from contracting in Kathmandu. The approval and permission of NRB to encourage the establishment and growth to finance companies started in Nepal after the first amendment in finance company act, 1985(2042). Within the period of years 1991 / 95 as per

available data, there had been 56 finance companies of various capital sizes registered in Nepal Government company registered office.

But in the year 1994, the wave of establishing finance companies reached to the maximum number. Altogether 32 finance companies were registered as per official record in company register. Moreover, four additional finance companies were registered in 1995. Out of the 56 finance companies, 23 finance companies were started operation in 1995. This finance company has authorized capital finance companies reached to 45 in mid January 1999. In the mid January 1999, the total resources of the finance companies amounted to Rs 9582 million. By the mid march 2003 the number of finance company licensed under the finance companies act 2042 BS totaled 55. The No. of finance companies reached 59 in mid April 2004 and they are already in operations.

In view of the growing numbers of finance companies registered and applying for license with NRB, a high level technical committee has been constituted for more serious and detailed study and analysis of feasibility report submitted by finance company under the management and leadership of NRB's deputy competitive environment in financial sector. Based on the recommendation of a high level committee, policy framework and guidelines will be published to help and direct the establishment and regulations of finance companies in the country.

The recommendation of this committee will also help to determine basic eligibility criteria to apply why issuing licensed to new finance companies and also in monitoring to those already established and had started operation. There is tremendous growth in the number of financial institutions in Nepal in the last two decades at the beginning of 1080's. It is where financial sector was not licensed there where only two commercial banks and two per basis performing banking activities in Nepal and there were no micro credit development, finance companies cooperatives and NGO's. Financial market has made hallmark progress in terms of financial institution. By mid July 2005 NRB, license bank and non bank financial institution totaled 170 out of them 60 finance companies. As of mid July 2009 NRB, license 205 financial institutions where 30 commercial banks, 78 development bank, 79 finance companies and 18 micro-credit development banks. It can be concluded that finance companies covers the large portions of the financial markets that collects the idle saving from the nook and corner of the country and make use of that in productive sector for the benefit of themselves and the welfare of the nation as a whole.

### **1.1.2 Interest Rate**

The rate of interest is the price a borrower must pay to secure scarce loanable funds from a lender for an agreed upon time period. It is the price of credit. The rate of interest is the ratio of two quantities, the money cost of borrowing divided by the amount of money actually borrowed, usually expressed on an annual percentage basis. The cost of borrowing money, measured in Rupee per year per rupee borrowed, is the interest rate. Interest rate sends price signals to borrower, lenders, savers and investors. For example, higher interest rate generally brings forth a greater volume of saving and stimulates the lending of funds. Lower rate of interest, on the other hand, tend to dampen the flow of saving and reduce lending activity. Higher interest rates tend to reduce the volume of borrowing and capital investment, and lower interest rates stimulate borrowing and investment spending.

### **1.1.3 Interest rate in Nepal: Historical Perspective**

While observing the brief historical background of the interest rate structure of Nepal, frequent change can be noticed. In the beginning the interest rate charged and offered by banks and financial institution was mentioned at a lower level, which view to stimulate real income and employment. However, dramatic change had been made time to time. A study of the annual report of Nepal Rastra Bank (NRB) avails the changes made, the objectives behind such changed and their justification.

On April 13, 1965 the interest of deposits was increased by 1% point which prevailed to August 30, 1966. Similarly, other two categories of fixed deposits 3 to 5 years and above five years were created and interest rates on those two types of deposits were 5% and 6% percent respectively. On the august 31, 1966 the interest rate on all type of deposits was increased approximately by one percentage point. The interest structure was again raised on April 14, 1947 the rate of interest saving the deposit was raised to 5% but the rate of interest on 3 month & 6 month deposits was reduced however, the rate of fixed deposits having the maturities of more than one year was raised varying by 1 to 1.75 percentage points. Another change in interest in structure was introduced on July 16, 1974 the interest rate in saving deposit was fixed at 6.5 percentage that on fixed deposits of three and six month maturities were kept constant and interest rate on all categories of fixed deposits were raised by 2 percentage points. The lending rates of commercial banks were also revised respectively. The lending rates were lowered in some cases. However, the loans for unproductive purpose were

made costlier by two percentage points. Giving different justifications, NRB issued directives to the bank and the financial institutions to apply new interest rates from April 18, 1975, which was a drastic change. The interest was increased from 6.5% to 8% on saving deposits and that on fixed deposits of 3 months to 6 months were increased to 4% and 10% respectively.

The interest rate on one year deposit was increased from 9.5% to 16% and all two year and above fixed deposit rate was increased from 9.75% to 16%. Prior to the revision there, were nine different categories of lending carrying the interest 8% to 15%. However the revision categorized the loan only in two categories 15% interest rate was applicable to the entire loan to small sectors, agriculture sector, industry, export credit against development bonds where as 18% minimum rate was fixed for other purpose. The interest rate on the loan against fixed deposits receipts was fixed 2% higher than on fixed deposits. On February 12, 1977 NRB revised interest rates again. The rate offered on saving 3 month fixed deposits was lowered to 9% (by one percent point). However, the interest rate on one year fixed deposits was lowered to 2% point to 12% and that on two years and above fixed deposits was also decline by 2% point. Next amendment in interest was made on June 15, 1982 and the interest rates on all type old deposit were increased by 0.5% Point.

And the lending rates on all type of loans by 1% point. NRB authorized the commercial bank and other financial institution to charge an add national 2.55 interest above the specific rate on all over due loan and minimum of 17% interest on misutilized loan to agriculture. Industry and services sectors a provision of 1% rebate for timely repayment was also made, NRB further revised the interest on August 17, 1982 which was slight change on lending rate only giving right in offering the interest rate on saving and time deposit to the extent of 1.5% & 1% respectively above prevailing rate. NRB issued direction to the commercial bank. On May 29, 1986 commercial banks and financial institution were given freedom in fixing the interest on deposit and loans. However higher limit and lower limit were fixed by NRB. The minimum of 8.5% interest rate was fixed for saving deposits. The rate on fixed deposits of less than one year's maturity needed to be at least not less that the rate on saving deposits.

Minimum of 12% interest rate was fixed on one year's fixed deposits. The interest rate on more than one year's fixed deposits could be fixed by the banks and financial institutions were given freedom to fix lending rate subject to a minimum of 15% for the priority sector.

On August 31, 1989, commercial banks and financial institution were granted complete freedom in determining their own deposits and lending rates. However, on August 22, 1992 NRB issued some directive to banks and financial institution to clearly spell out the interest on deposits of at least up to one year, not create the range of percentage in interest rates on credits of some types and purpose and to stop fixing the interest rate of flat basic in addition to this, NRB also instructed the bank and financial institutions in to limit their interest rate on deposits and credits at 6% within mid-December 1993. Then after NRB has not regulated interest directly but has given instructions in to time regarding the interest rate and term and condition of lending and keeping account. A last instruction to the bank and financial institution was issued in 2002. Currently interest rate spread required to be maintained by bank and financial institutions has also been removed.

As previously stated, the interest rate structure in the beginning was purely central bank's matter of concern. However considering the needs of the country, NRB took a flexible approach in making some adjustments in interest rates by putting control on it. However, the impact of economics liberalization in developing countries because of financial globalization began to influence Nepal. This ultimately brought be regulation in interest rate by leaving the interest rate to be determined by market forces.

## **1.2 Focus of the Study**

The finance company perhaps the fastest growing financial institution, are currently viewed as catalyst in the process of economic growth of a country as they help in efficient transformation of idle savings into productive investment.

This organization survives who can make profit in the long run. The profit for the organization is the interest spread between sources and uses of funds. The focus of this study is to examine the influencing factors of interest rate of Nepalese finance companies taking 6 (six) institutions as sample organization. Interest rate is believed as one of the most important factor for the development of finance companies and financial system as a whole. This study also attempts to analysis the methods used by various finance companies to calculate the interest. The study is also concentrate on whether the theories on interest rate propounded by various economists match in Nepalese context or not since interest rate is main concern of every individual who saves (deposits) and borrows money, it is important to study about

interest rate. Therefore, this study focuses on the interest rate of different finance companies and the central bank's role regarding interest rates.

### **1.3 Statement of the Problem**

Lack of financing has led the natural resources of Nepal being utilized. Nepal is importing raw materials for producing goods and services from foreign countries. If finance is available, many factories could be established to take benefit from utilization of resources which would increase the employment, standards of living and status of country's economy. Financial companies in Nepal are committed to avail the capital for different sectors. Different finance companies in Nepal are committed to avail the capital for different sectors. Different finance companies have been established targeting different groups. Interest charge and offered by the institution was regulated by central bank until before few years, but now these institutions are free to fix their interest rates. In various books of economics and financial institution, interest occupies a crucial part. While studying of the evolution of interest rate, many theories has been introduced as time spent and changes have taken place in market structures and expectations.

Assumptions of these theories were different and different factors were considered as crucial in different time. As a developing country, Nepalese market has not reached its maturity but in recent years institution is determining their interest rate themselves. Thus, it is important to know whether the interest rate is determined by market forces or by managerial discretion. Some of the previous researcher in their thesis had studied in the limited areas such as interest rate structure, impact of interest on portfolio of policies etc. these studies are also very old i.e. of 1980's . This type of study has not been found yet in current scenario. It seems to be not on public but also university graduates in commerce or business administration cannot calculate the true or effective rates. Bankers and other financial institutions use various methods of interest calculation. Correspondingly true affecting rates also differs. Therefore, this researcher has influenced analysis that what factors affect interest rates and what is the method used in interest calculation. More specifically this study is an attempt to answer the following questions:

- 1) What are the major qualitative factors that shape the interest rate finance companies of Nepal?
- 2) What is the relationship between the liquidity position and interest rates on deposit and lending?

- 3) What is the impact of liquidity position of organization on interest rate charged and offered by finance companies?
- 4) Is the interest rate charged and offered by finance companies affect by inflation?
- 5) Is the interest rate charged and offered by finance companies affected by maturity period and other economic factors?

#### **1.4 Objectives of the Study**

To identify the influencing factors of the interest rate charged and offered by Nepalese finance companies through examination of the relation between influencing factors and interest rate is the main aim of this study. The following (supportive) objectives have been;

- 1) To trace out relationship between the liquidity and interest rate on deposit and lending,
- 2) To identify impact of inflation on interest rate charged and offered by various Nepalese finance companies,
- 3) To find out the affect maturity period and other economic factors on the interest rates offered by Nepalese finance companies.
- 4) To explore the other major qualitative factors determining the interest rate charge and provided by finance companies.

#### **1.5 Importance of the Study**

Nepalese finance companies of financial system perform a number of activities that are essential for a modern private venture economy. Two most important functions that financial system performs consists of providing the means by which payment for transactions are accomplished and saving are accumulated and channeled it to investment users. The financial system determines both the cost of credit and how much credit will be able to pay for thousand of goods and services we purchase daily.

Playing for a good and services, saving, lending, borrowing and investing all activities are carried out within the framework of financial system. Which credit becomes more costly (that is higher interest rate) and available total spending for goods and services falls. As s result, unemployment rises and economic growth slows as business cut back their production. In contrast, when the cost declines (i.e. lower interest rates) and the loanable funds become more reality available, total spending economy increase, more jobs are created and economic

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

In modern world, the expenditure of both government and private sectors is increasing investment is needed at any of economy. However, the private sectors, in most of the developing countries including Nepal, are suffering from financial crisis. People are less aware about banking system. Financial intermediates are insufficient to mobilize the saving of the saving of the country some established institutions are also based small amount of saving is also utilize in productive investments rather than spending in construction of house, luxuries foods, ornaments etc. But the question is why the financial institutions of the country could not attract more saving? Are the monetary authorizes in this country wrong in determining the rate of interest? Alternatively, what the rate of interest can do lend more. On the other hand, inflation is troubling developing countries like Nepal can Keynes and modern economist paid special attention to the role of interest rate in the economic field.

Nepalese interest rate varies time to time, region and sector to sector. The function in interest rate is a regular phenomenon in developing countries. Therefore, it is quite necessary to develop some ideas about the impact of interest rate to the economy. Further more, it is important to know the policies of financial institutions regarding rate of interest and its impact on various financial institutions. This study is also considered useful to various parties such as further researchers, students, teachers, financial institutions and general individuals etc.

The study of interest rate seems worthwhile in the context of Nepal as it is the only factor that significantly influences and ties all finance companies, the components of the financial systems.

## **1.6 Limitations of the Study**

Every works have its own restriction and limitation due to lack of time, resources and knowledge. Despite the enough effort of researcher, this thesis is also not free from limitation. The study is present just for the partial fulfillment of M.B.S. (Master's of Business Studies) degree. The researcher has come across many problems while presenting the thesis. Following are the major limitations of the thesis.

1. This thesis is based on secondary data collected from concerned finance companies. Thus, the result of the analysis depends on the information provided by them.
2. As the samples have drawn at random for convenience there may exist some sampling errors.
3. This study covered only 5 Fiscal years.
4. Although there is other financial company's samples cover only few finance companies because of the unavailability of the data.
5. Only determining factors of interest rates are considered. Impact of interest rate on other aspects has not been studied.
6. The source of data i.e. published annual report and internet web site is assumed to be correct.

### **1.7 Organization of the Study.**

The research will be concluded in 5 chapters, which are as follows:

#### **Chapter 1 - Introduction**

- Background
- Statement of the Problem
- Focus of the Study
- Objective of Study
- Significance of the Study
- Limitation of the Study
- Organization of the Study

This chapter includes the general introduction of the financial system and its' role in developing the economy of the country. The development of financial system, the roles & functions of central bank and the commercial banks of Nepal shall be highlighted. A brief profile of sample Financial Institutes shall be given, as the research will be conducted on determinants of interest rate.

## **Chapter 2 - Literature Review**

This chapter includes reviewing of different available literature from various source. The prime focus for collecting external literacy information through various textbooks, research journals and research thesis. Various articles relating to different aspects of financial companies will help to the study smoothly. Review of literature is divided into two categories like (1) Theoretical Review (Review of related Books) and (2) Review of Past Related Studies.

## **Chapter 3 - Research Methodology**

The method of conducting the research would be done in this chapter. It consists of following sub-topics:

- Research Design
- Sample and Population
- Nature and source of information
- Data collection procedure
- Method of data analysis

## **Chapter 4 - Data Presentation and Analysis**

This chapter is the main body of the study which includes detailed presentation, analysis and interpretation of data relating to interest rate on deposit and lending, deposit collection and loan advance of each selected financial companies from Nepalese financial system. In this chapter relationship between variables i.e. between interest rate on deposit and deposit amount and lending interest rate and lending amount is presented analyzed and interpreted. This chapter consists of various calculations made for the analysis of interest rate and its impact on deposit amount, and inflation rate of the sample finance companies. To make our study effective and precise as well as easily understandable, this chapter is categorized into three parts; presentation, analysis and interpretation. The analysis is fully based on secondary data.

## **Chapter 5- Summary, Conclusion and Recommendation**

This is the final chapter of this research study. Here the outcomes would be highlighted based on the research study. Summary part includes revision of all four chapters. Conclusion part contains the summary of the result from the research and eventually in recommendations part suggestions or recommendations are made based on the result and experience of thesis. Recommendation is made to the concerned authorities and further researcher to improve or solve the problem on the basis of findings.

## **CHAPTER: II**

### **LITERTURE REVIEW**

Review of the literature is focused and directed towards specific purposes. It is a selective subject. A researcher has to select the kind of literature to be reviewed and determine the purpose. It starts with the selections of a problem for research, continues through the various stages of the research process and end with report writing.

Reviewing different available literature from various source are the major objective of this chapter. The prime focus for collecting external literacy information through various textbooks, research journals and research thesis. Various articles relating to different aspects of financial companies will help to study smoothly. Review of literature is divided into two categories (1) Theoretical Review (Review of related Books) and (2) Review of Past Related Studies.

#### **2.1 Theoretical Review**

##### **2.1.1 Interest Rate**

The rate of interest is the price a borrower must pay to secure scarce loanable funds from a lender for an agreed- upon time period. It is the price of credit. The rate of interest is the ratio of two quantities: the money cost of borrowing divided by the amount of money actually borrowed, usually expressed on an annual percentage basis. Interest rates send price signals to borrowers, lenders, savers and investors. For example, higher interest rates generally bring forth a greater volume of saving and stimulate the lending of funds. Lower rate of interest, on the other hand, tend to dampen the flow of saving and reduce lending activity. Higher interest rates tend to reduce the volume of borrowing and capital investment, and lower interest rates stimulate borrowing and investment spending.

The neo- classical economist, however, define it as a price for the user loanable funds but the modern economist in their effort to avoid these divergent and controversial views about the nature of interest, have explained it in terms of productivity, saving, liquidity preference and money. In other words, interest is simultaneously the pure yield of capital for saving, for the going of liquidity and supply of money.

### Gross and Pure Interest

The payment which the borrower pays to the lender excluding in the principle is known gross interest. Net interest is the payment for the use of capital money only. It is normally the same during a period even in different markets.

### Reward for Risk Taking

The lender exposes him to risk when he or she lends money gross interest includes the reward for risk taking. The greater the risk element the higher will be the rate of gross interest.

### Reward for Inconvenience

When a lender lends money, he or she forgoes its use for the duration of the loan. He / she will have to go undergo the inconvenience of arranging it from some other source. As such the rate of interest also includes the reward for such inconvenience.

### Reward for Management

The lender has to incur expenditure in keeping proper account to the borrowers. Therefore, the payment that the lender receives from borrowers includes the expenses for management. Pure interest is what remains with the lenders after deducting the reward for risk taking, management and inconvenience from gross interest.

## **2.1.2 Interest Rates as the Allocation Mechanism**

In market-based economy, price is the allocating mechanism. When it is the market for allocating savings, interest rate becomes the price mechanism. Borrowers with unusually productive investment opportunities, as measured in terms of risk and return, can pay a saver a higher income in the form of an interest rate on the savings they borrow than borrowers with less productive investors.

## **2.1.3 Function of the Interest rate in the Economy**

The rate of interest performs several important functions in the economy:

1. It helps guarantee that savings will flow into investment to promote economic growth.
2. It rations the available supply of credit, generally providing loanable funds to those investment projects with the highest expected returns.
3. It brings the supply of money into balance with the public's demand for money.

4. It is an important tool of government policy through its influence on the volume of savings and investments. If the economy is growing too slowly and unemployment is too high, the government can use its policy tools to lower interest rates in order to stimulate borrowing and investments. On the other hand, an economy experiencing rapid inflation has traditionally called for a government policy of higher interest rates to reduce borrowing and spending and encourage more savings.

#### **2.1.4 Theories of Interest Rates**

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

##### **Classical Theories of Interest Rates**

One of the oldest theories concerning the determinants of the pure or risk-free interest rate is the classical theory of interest rates, developed during the eighteenth and nineteenth centuries by a number of British economists and elaborated by Irving Fisher (1930) and others more recently. (1) The classical theory of saving derived mainly from households and (2) the demand for investment capital, coming mainly from the business sector.

##### **Saving by Households**

Most saving in modern industrialized economies is carried out by individuals 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 saving target, and the desired proportion of income to be set aside in the form of savings.

Generally, the volume of households saving rises with income. Higher income families and individuals tend to save more and consume less relative to their total income than families with lower incomes.

Although income levels probably dominate saving decisions, interest rates also play an important role. Interest rates affect an individual's choice between current consumption and saving for future consumption. The classical theory of interest assumes that individuals have a definite time preference for current 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 saved in the current period as the high rate of return, future consumption would be increased. For example, if the current rate of interest is 10% and a household save \$100 instead of spending it on current consumption, it will be able to consume \$110 in goods and services 5 years from now.

The classical theory considers the payment of interest a reward for waiting the postponement of current consumption in favor of greater future consumption. Higher interest rates increase the attractiveness of saving relative to consumption, spending, encouraging more individuals to substitute current saving 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 volume of current savings.

#### Saving by Business Firms

Not only households but also businesses save. 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 businesses each year is a key measure of the volume of current business saving, which supplies most of the money for annual investment spending by business firms.

The critical element in determining the amount of business savings is the level of business profits. If profits are exposed to rise, businesses will be draw more heavily on earnings retained in the firm and less heavily on the money and capital markets for funds. The result is reduction in the demand for credit and a tendency toward lower interest rate.

Although the principle determinant of business saving in profits, interest rates also play a role in the decision of what proportion of current operation costs and long term investment expenditures should be financed internally and what proportion externally. Higher interest rates in the money and capital typically encourage firms to use internally generated funds more heavily in financing projects. Conversely, lower interest rates encourage greater use of external funds from the money and capital markets.

## Saving by Government

Governments also save, though less frequently than household 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 funds is sum of above three elements as SS figure No. 2-1

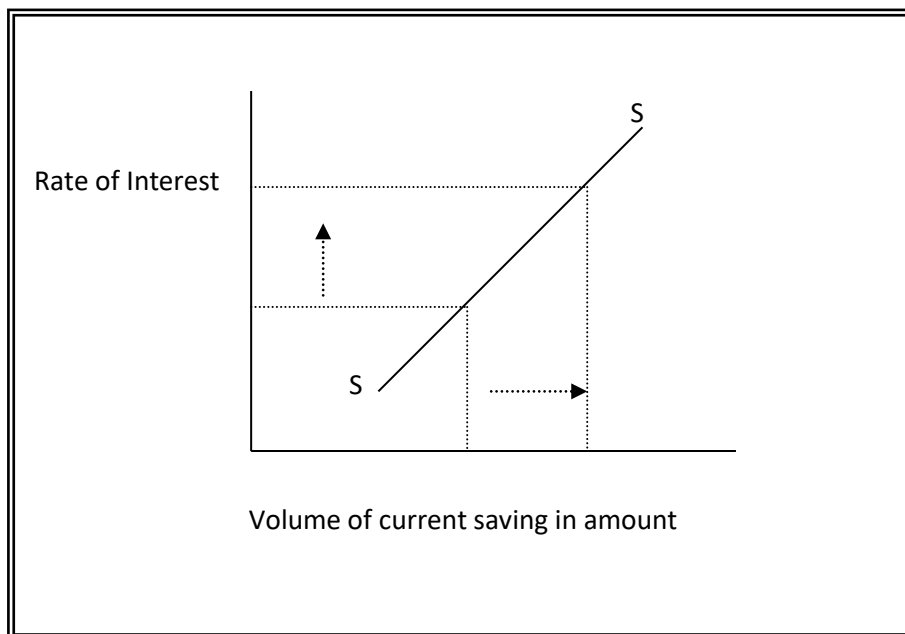


Fig No. 2-1 The Substitution Effect Relating Saving & Interest Rates.

## 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 of determinants. The factor is investment spending, made by business firms government and in some case households. Business requires huge amount of funds each year to purchase equipment machinery and inventories and support for construction of new buildings and other physical facilities. The majority of business expenditure for these purposes consists of what economist calls replacement investment. But

according to the classical economist, interest rate and investable fund have inverse relationship. At low rate of interest more investment project becomes economically viable. On the other hand, if the rate of interest is high fewer investment projects will be pursued and fewer funds will be required from the financial as shown on figure No. 2-2.

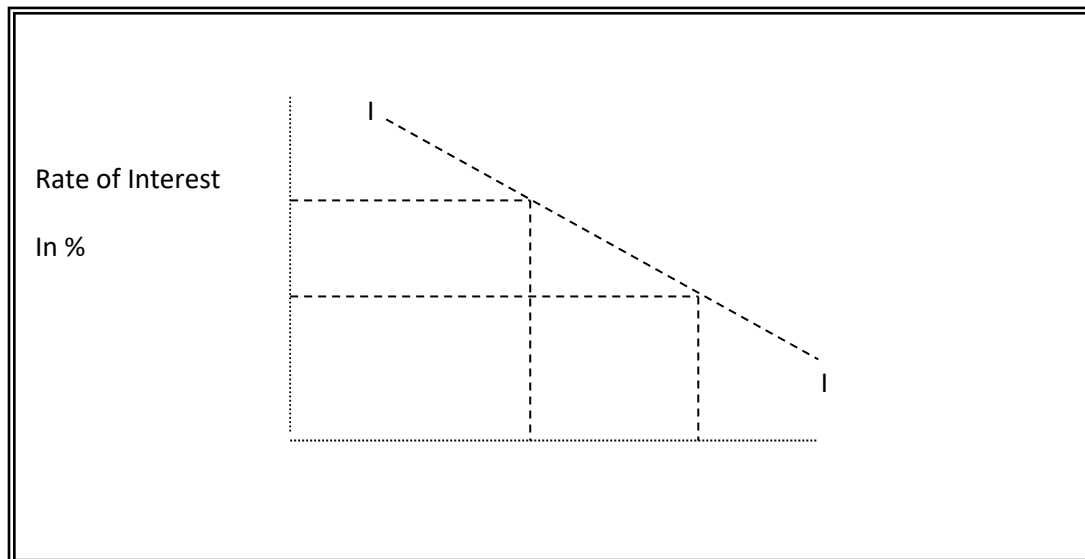


Fig No. 2-2 The demand for investment fund

### **The Equilibrium Interest Rate in the Classical Theory of Interest**

According to the classical economist, the interest in the financial markets was determined by the interplay of the supply of saving and demands for investment. Specially, 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 figure No. 2-3 this occurs at the point E where the equilibrium rate of interest is IE and the equilibrium quantity of capital fund traded in the financial markets is QE. 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, is probably above or below its true equilibrium level but moving toward that equilibrium. If the market rate is temporarily above equilibrium, the volume of savings exceeds the demand for investment capital creating excess supply of savings. Savers will save their fund at lower rates until the market interest rate approaches equilibrium. Similarly,

if the market rate is temporarily below equilibrium, investment demand exceeds the quantity of saving 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.

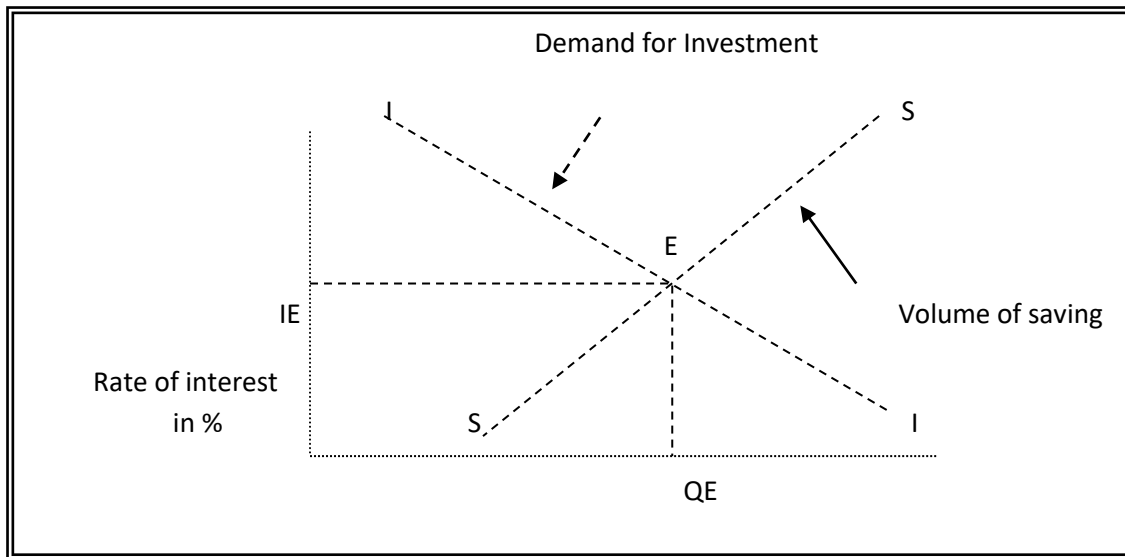


Fig No. 2-3 The Equilibrium Interest Rate in Classical Theory of Interest

### **Liquidity preference or Cash Balance Theory of Interest Rates**

During the 1930s British economist John Maynard Keynes (1936) developed a short- term theory of the rate of interest for that he, argued, was more relevant for policy makers and for explaining near term- changes in interest rates. This theory is known as the liquidity preferences (or cash balances) theory of interest rates.

#### **The Demand for Liquidity**

The rate of interest is really a payment for the use of a scarce resource, money. Businesses and individuals prefer to hold money for carrying out daily transactions and also a precaution against future cash needs even through money's yield is usually low or even nonexistent. Investors in fixed income securities, such as government bonds, frequently desires to hold money or cash balances as have against declining asset prices. Interest rates, therefore, are the price that must be paid to induce money holders to surrenders a perfectly liquid asset and hold other assets that carry more risk. At times the preference for liquidity grows very strong. Unless the government explains the money supply, interest rate will rise.

In the theory of liquidity preference, only two outlets for investor funds are considered bonds and money or cash balances. Money provides perfectly liquidity. Bonds pay interest but cannot be spent until converted into cash. If interest rates raise, the market value of bonds paying a fixed rate of interest falls, the investor would suffer a capital loss if those bonds were converted into cash. On the other hand, a fall in interest rate results, higher bond prices: the bond holder will experience a capital gain if his / her bonds are sold for cash.

### Motives for Holding Money

Public demands money for 3 different purposes. The transactions motive represents the demand for money to purchase goods and services. Some money also must be held as a motive for precautionary because future is uncertain and we cannot predict exactly what expenses or investment opportunities will arise in the future. The third motive is speculative motive that stems from uncertainty about the future prices of bonds.

### Total Demand for Money

The total demand for money or cash balances in the economy is simply the sum of transactions, precautionary and speculative demands. Because the principal determination of transactions and precautionary demand is income, not interest rates, these money demands are fixed at a certain level of national income. In the figure 2-4  $D_s$  is the aggregate demand for the money.

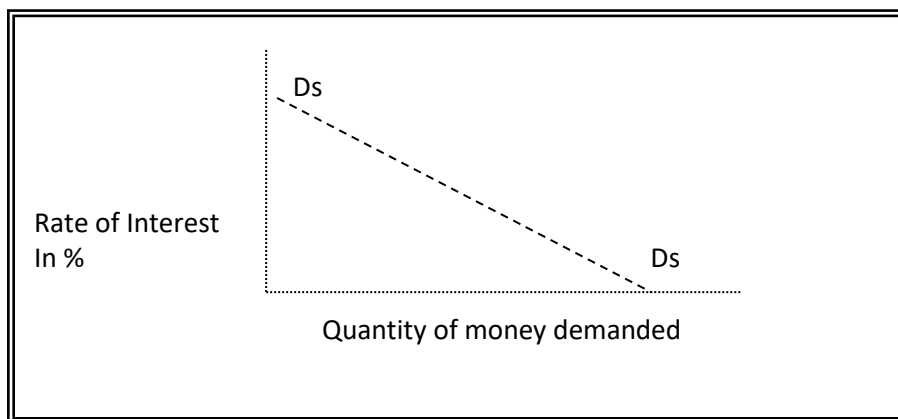


Fig No. 2-4 The Total Demand for More Money

### The supply of Money

The major element determining interest rates in liquidity preference theory is the supply of money. In modern economies, the money is controlled, or at least closely regulated by

government. Because government decisions concerning the size of the money supply presumably are guided by the public welfare, not by the level of interest rates, the supply of cash balances is inelastic to the rate of interest. Supply of money  $M_s$  is shown in the figure 2-5 below.

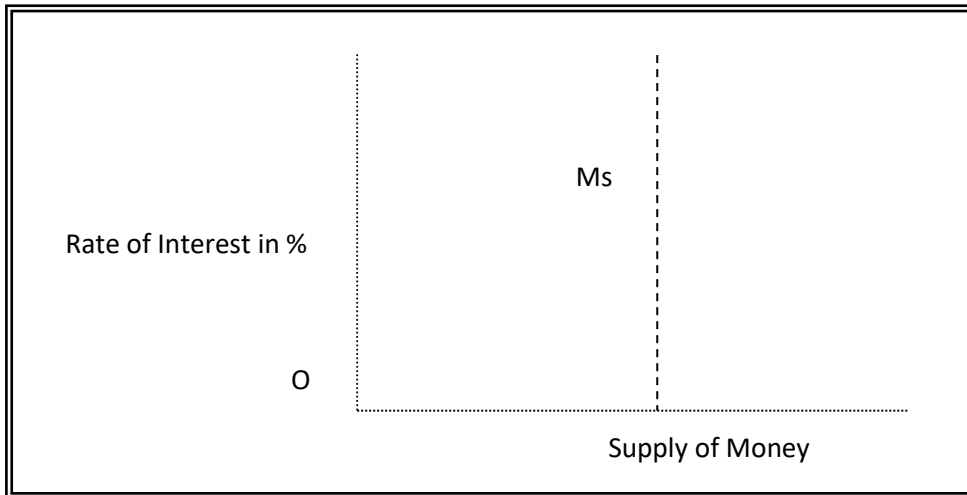


Figure No. 2-5 The Supply of Money in Liquidity preference Theory

#### The Equilibrium Rate of Interest in Liquidity Preference Theory

The interplay of the total demand for the supply of money or cash balances determines the equilibrium rate of interest in the short run. In the figure below IE is the point where the quantity of money demanded by the public equals the quantity of money supplied. The equilibrium rate of interest is shown in the following figure 2-6

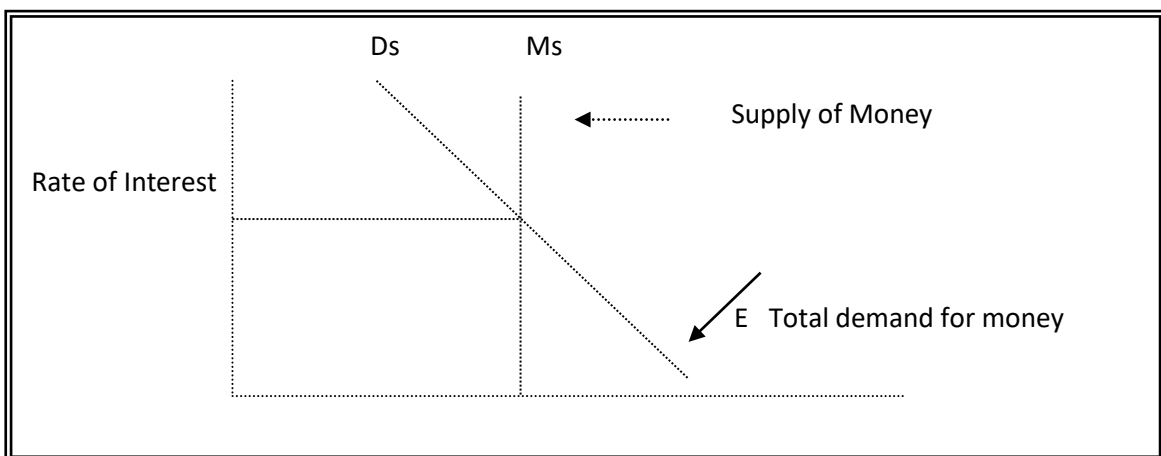


Fig No. 2-6 The Equilibrium Rate of Interest in the Liquidity Preference Theory

## **The Loan**

### **able Funds Theory of Interest Rate**

The loanable funds theory argues that the risk free interest rate is determined by the interplay of two forces: the demand for and supply of credit (loanable funds). The demand for loanable funds consists of credit demands from domestic businesses, consumers, and government, and also borrowing in the domestic market by foreigners. The supply of loanable funds stems from two sources domestic saving and new money.

#### **Consumer (Household) Demand for Loanable Funds**

Domestic consumers demand loanable funds to purchase a wide variety of goods and services on credit. Recent research indicates that consumers are not particularly responsive to the rate of interest when they seek credit focus instead principally on the non-price terms of loan, such as the down payment, maturity, and size of installment payments.

#### **Domestic Business Demand for Loanable Funds**

The credit demands of domestic business generally are most responsive to changes in the rate of interest than in consumer borrowing. Most business credit is for such investment purpose as the purchase of inventories and new plant and equipment. The quantity of loanable funds demanded by business sector increases as the rate of interest falls.

#### **Government Demand for Loanable Funds**

Government demand for loanable funds is growing 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 inelastic because many local governments are limited in their borrowing activities by legal interest rate ceilings. When open market rate rises above the ceiling, some state and local government are prevented from offering their securities to the public.

#### **Total Demand for Loanable Funds**

The total demand for the loanable fund is the sum of domestic consumer, business and government credit demands. These demand curves slopes downward and to the right with

respect to the rate of interest. Higher rate of interest lead some business, consumers and government to curtail borrowing plans, lower rates brings forth more credit demand. The total demand for loanable fund is shown in the following figure 2-7 where DT is total demand.

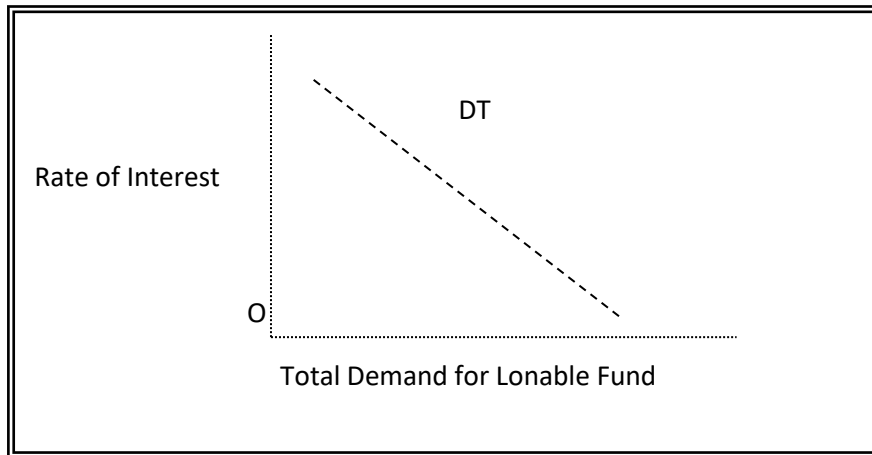


Figure No. 2-7 The Demand for Loanable Fund

#### Supply of Loanable Funds

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

#### Domestic Savings

Saving refers to the postponement of current consumption. The decision to save is decision to forgo current consumption in order to have a larger quantity of consumption in the future. Individuals or households 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 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 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 in interest rates. For government, the volume of saving is defined as the difference between revenues and expenditures such that saving exists when revenues exceeded expenditure (A Budget Surplus).

### Creation of New Money

Although the volume of saving is the principle source of loanable fund in the 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 through the credit creation process. However, the ability of commercial bank to create money is limited by the central banks through the use of its monetary policy tools like open – market operations, reserve requirement changes, and discount rate changes.

### Total Supply of Loanable Funds

The total supply of loanable funds, including domestic saving, foreign lending dishoarding of money, and new credit created by the domestic banking system. In the following figure 2-8, the total supply of Loanable Fund is given where ST is total supply.

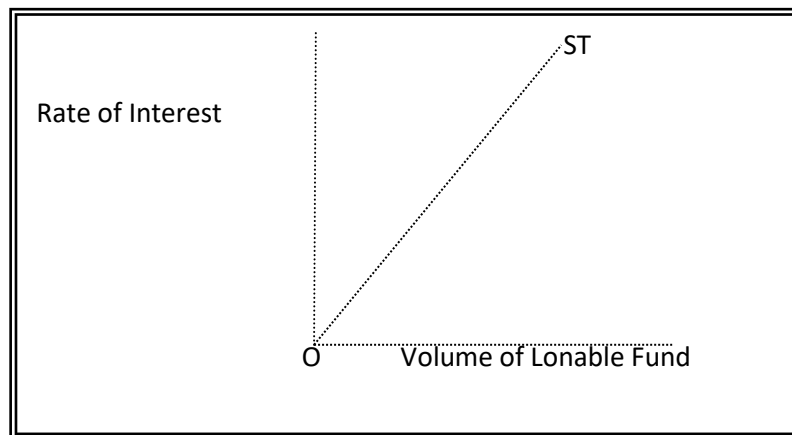


Figure No. 2-8 The supply of Loanable Funds (Credit)

### The Equilibrium Rate of Interest in the Loanable Funds Theory

The two forces of supply and demand for loanable funds determine not only the volume of lending and borrowing going on in the economy but also the rate of interest. The interest rate tends towards the equilibrium point which the supply of loanable funds equals the demand for

loanable funds. This point of equilibrium is shown in the following figure, 2-9 where IE is equilibrium rate of interest rate of interest rate and QE is volume of loanable funds. (Credit)

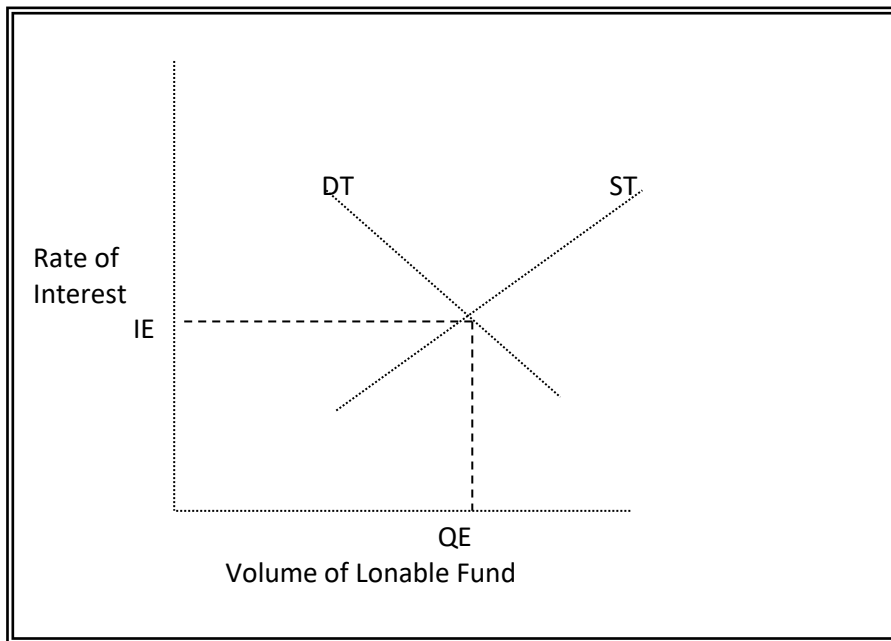


Figure No. 2-9 The Equilibrium Rate of Interest in Loanable Funds Theory

### **The Rational Expectations Theory**

The Rational Expectation Theory is new for the financial markets and institutions. This theory on a growing body of research evidence that the money and capital markets are highly efficient institutions in digesting new information affecting interest rates and security prices. This expectation theory assumes that business and individuals are rational agents who form expectation about the distributions of future assets prices and interest rates that do not differ significantly from optimal forecasts made from using all the available information that the marketplace provides. Rational agents attempt to make optimal use of the resources at their disposal to maximize their return. Moreover, a rational agent will tend to make unbiased forecasts of future asset prices, interest rate, and other variable.

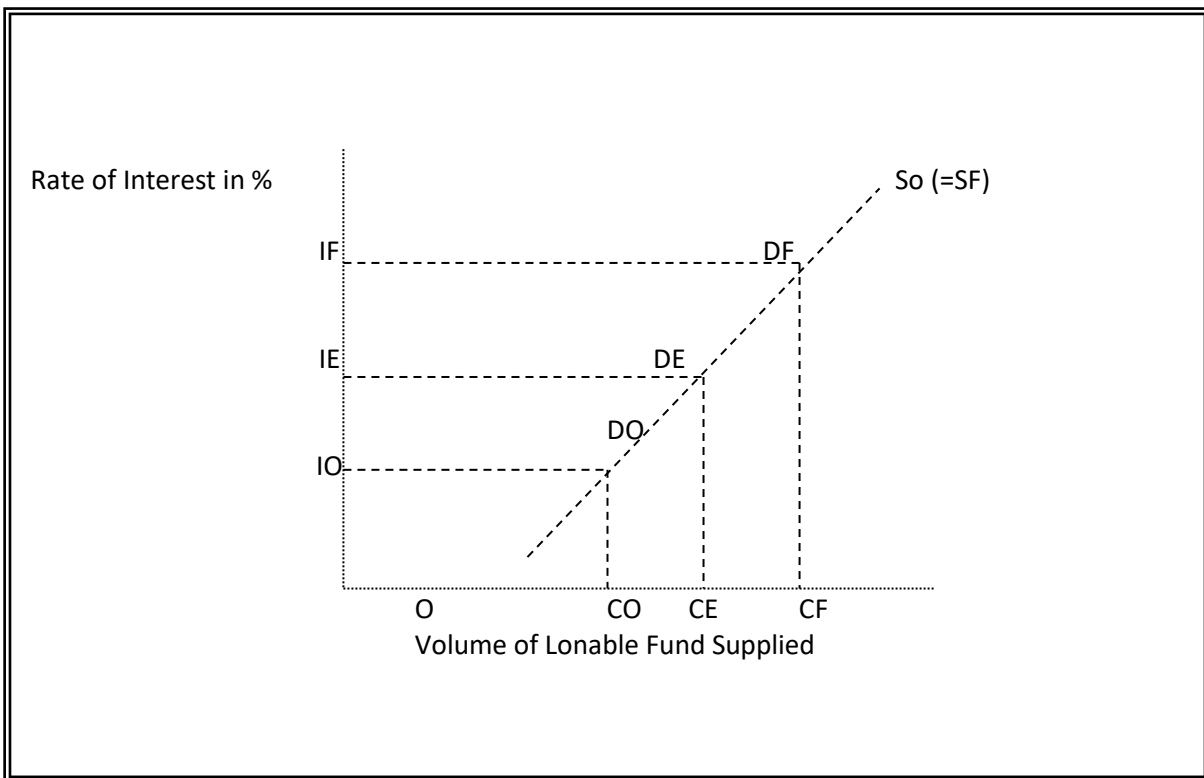


Figure 2-10 The expected Demand for and Supply of Loanable Funds

#### Under the Rational Expectations Theory

Suppose in the above fig 2-10,  $SO$  &  $SF$  represents the actual supply and demand for loanable funds in the current period, while  $DF$  reflects the actual demand for loanable fund that will prevail in the next time. The supply of loanable funds is assumed to be the same in both time periods. ( $SO=SF$ ).

Now imagine that during the current periods, the government makes unexpected announcement of its increased need to borrow more money in future period  $F$  due to an unusually large budget deficit. The result is new expected demand for loanable fund curve  $DE$ , projected to prevail in the next period  $F$  but as viewed by borrowers and lenders today in time periods  $0$ .

In these cases, the equilibrium interest rate in the current period will not be  $IO$ , but rather  $IE$ , where expected demand curve ( $DE$ ) intersects the actual supply curve  $SO$ . The equilibrium quantity of loanable funds traded in the current period then will be  $CE$  not  $CO$ . This is because, according to the rational expectations theory, borrowers and lenders will act as

rational agents, using all the information they possess to assets today. When the future period arrives, the equilibrium interest rate will rise to rate  $r_F$  and the quantity of loanable funds traded will be  $CF$ . The equilibrium rate moves upward because the demand for loanable funds in period  $F$  is more than expected future loanable funds demand as seen by market participants, in period  $0$ .

### **2.1.5 Interest Rate Movement and its Relevance**

Interest rate movements affect the values of securities, and therefore affect the performance of all types of financial institutions. It is critical for managers of financial institutions (including portfolio managers) to understand why interest rate change, how their movements affect performance, and how to manage according to anticipated movements.

Interest rate movements can affect the values of virtually all securities. They have a direct influence on the market values of debt securities such as money market securities, bond and mortgages. This is confirmed in the chapters on financial markets, when the main determinants of the market value of each security are identified. Interest rate has an indirect effect on values of stocks and exchange rates. Since the price movements in derivatives are partially influenced by the price of the underlying instruments, interest rate movements affected the prices of derivatives representing debt securities to benefit from any expected movements in interest rate also effect the value of most financial institutions.

Interest rate movements affect both the cost of funds to depository institutions and the interest received on same loans. In addition, the market value of securities (such as bonds) held by depository institutions closely monitor interest rate movements so they can capitalize on favorable movements or reduce their institutions exposure to unfavorable movements.

### **2.1.6 Economics Factors That Affect Interest Rates**

Although it is useful to identify those who supply or demand loanable funds, it is also necessary to recognize the underlying economic forces that causes a change in the supply of or the demand for loanable funds and therefore influence interest rates.

#### **2.1.6.1 Impact of Economic Growth on Interest Rates**

Assume that because of more optimistic economic projections, most increase their planned expenditures for expansion, which translates into additional borrowing. The aggregate

demand schedule would shift outward (to the right). The supply of loanable funds schedule may also shift, but it is more difficult to know how it should shift. It is possible that the increased expansion by business could lead to more income for constructing crew and other, who service the expansion. Thus the quantity of savings cause an outward shift in the supply schedule. Yet, there is no assurance that the volume of savings will truly increase. Even if a shift were to occur, it would likely be of a smaller magnitude than the shift in the demand schedule.

As an example we can consider how a slow down in economy would affect the demand and supply schedule of loanable fund and equilibrium interest rate.

The demand schedule would shift inward (to the left) reflecting less demand for loanable funds at any possible interest rate. The supply schedule could be possibly shifted a little, but it is questionable which way it would shift. One could argue that a slowdown should cause increased saving at any possibility of being laid off. Yet, the gradual reduction in labor income that occurs during an economic slowdown could reduce household's ability to save. Historical data support this latter expectation. Any shift that occurs would likely be minor relative to the shift in the demand schedule. Therefore, the equilibrium interest rate is expected to decrease.

#### 2.1.6.2 Impact of Inflation on Interest Rates

One of the most serious problems confronting economics around the globe in recent years is inflation. Inflation is defined as a rise in the average level of prices for all goods and services. Some prices of individual goods and services are always rising while others are declining. However, inflation occurs when an increase in some general index of price, such as the consumer price index or the broad based implicit Gross Product Deflator, takes place.

There is a positive correlation between inflation and interest rate in the market. Since inflation reduces purchasing power of consumer (investors) they must be compensated for the decreased purchasing power. Therefore, an increase in inflation leads to an increase in quoted market interest rate known as inflation premium. The implicit Gross National Product Deflator is sometimes referred to as the overall price index since it incorporates the prices on all components of the gross national product: consumption, investment, government spending and export.

### The Fisher Effects

A well-known economist Irving Fisher in 1996 developed a relationship between nominal and real rate of interest.

According to Fisher, if expected real interest rate is held fixed, changes in nominal rate will reflect shifting inflation premiums (i.e. exchanges in the public's view on expected real rate of return tends to stable over time because it depends upon the long term factors like productivity of capital, volume of savings in economy etc. in the short term, the nominal interest rate is only influenced by the change in the inflation premium. Therefore, rise in the expected inflation rate causes the same rise in the nominal interest rates.

### The Harrod- Keynes Effect of Inflation

A Fisher effect of inflation contradicts with the views developed by the British economist Sir Roy Harrods. Harrod's view is based on Keynesian liquidity preference theory of interest. According to him, real rate is affected by the inflation but nominal rate need not to be affected. Under liquidity preference theory rate is determined by the demand for and supply of money, the nominal rate must remain unchanged whatever may be the expectation of the real rate of interest.

There is less than one to one relationship between changes in expected inflation and nominal interest rates with the inflation caused wealth, income and depreciation effect. That is, a rise in expected inflation reduces the real rate of return to lender and derives to nominal interest rates higher but rise in nominal rate is less than the increase in expected inflation. Nevertheless, according to the inflation caused income tax effect, if investors desire to protect (i.e. hold constant) his or her expected real after tax rate of return, then nominal rate has to increase by a greater amount than any rise in the expected inflation rate because otherwise real after tax returns will decline when inflation increases.

#### 2.1.6.3 Impact of Price Deflation

Deflation tends to force real interests rates higher even as nominal interest rates drop downward zero.

These elevated real interest rates tend to slow investment spending and decrease the development of new jobs. Real economic output will decline as factors come to produce less and business profit fall. At the same time lenders gain at an expense of borrowers because the

formers purchasing power rises, and business trying to borrow money have to struggle to raise the capital they require to grow and put people back to work.

The price deflation can result lower output of goods and services, but forces real interest rates upward. However, business and the financial system are much better positioned to deal with moderate deflation, in part because of the development of so many risk management tools (such as financial futures contracts, swaps and option).

#### 2.1.6.4 Impact of Money Supply on Interest Rates

The central bank can affect the supply of loanable funds by increasing or reducing the total amount of deposit held by commercial banks or their depository institutions. When the central bank increases the money supply, which places downward pressure in interest rate. However, if the central bank's action affects inflator expectations, this would also increase the demand for loanable funds, which could offset the effect of the increase in the supply of loanable funds. Assuming no change in demand, this action places upward pressure on interest rates.

#### 2.1.6.5 Impact of Budget Deficit in Interest Rates

When the government enacts fiscal policies that result in more expenditure than tax revenue, the budget deficit is increased. How an increase in the government deficit would affect the interest rates, assuming no other changes in habits by consumers and firms occur a higher government deficit increases the quantity of loanable funds demand at any prevailing interest rates, causing an outward shift in the demand schedule. Assuming no offset increase in the supply schedule, interest rate will rise. Given a certain amount of loanable funds supplied to market (through savings), excessive government demand for these funds tend to "crowd out" the private demand for funds. The government may be willing to pay whatever is necessary to "crowding out effect."

The supply schedule might shift a counterargument outward, if the government creates more jobs by spending more funds than collects from the public (this is what causes the deficit in the first place). If this were to occur, the deficit might not necessarily place upward pressure on interest rates. Much research has investigated this issue (in USA) and, in general has shown that higher deficits place upward pressure on interest rates.

The increase in public debt refers to an increase in the government's demand for loanable funds. However, because other factors can offset this increased demand for loanable funds, the government does not always result in higher interest rates.

### **2.1.7 Term Structure of Interest Rates**

The relationship between the rates of return on financial instruments and their maturity is called the term structure on interest rates. This term structure may be presented visually by drawing a yield curve for all securities having the same credit quality. The yield curve considers only the relationship between the maturity or term of a loan or security and its yield at one movement in time. For example, we cannot draw a yield curve for securities bearing different degrees of credit risk or subject to different tax laws because both risk and tax laws affect relative yields along with maturity.

#### **2.1.7.1 Pure Expectation Theory**

According to the pure expectation theory, the term structure on interest rates is determined solely by expectations of future interest rates to understand how interest rate expectations may influence the yield curve, assuming that the annualized yields of short-term and long-term securities are similar, that if the yield curve is flat. Then investors begin to believe that interest rates will rise. They will respond by investing their funds mostly in the short term so that they can soon reinvest their funds at higher yields after interest rates increase. When investors flood the short-term market and avoid the long-term market, they may cause the yield curve to adjust. The large supply of funds in short-term markets will result in annualized yield down and the reduced supply of long-term yields up.

Even though the annualized short-term yields become lower than annualized long-term yields, investors in short-term funds are satisfied because they expect interest rates to rise. They will make up for the lower short-term yield when the short-term securities mature, and they invest at a higher rate at maturity.

Assuming that the borrowers who plan to issue securities also expect to increase, they would prefer to lock in the present interest rate over a long period of time. Thus, borrowers would generally prefer to issue long-term securities rather than short-term funds. There is also an increase in the demand for long-term funds. Overall, the expectations of higher interest rates

change the demand for funds and the supply of funds in different maturity markets, which forces original flat yield curve to pivot upward and become upward sloping.

#### 2.1.7.2 Liquidity Premium View of the Yield Curve

Security dealers who trade actively in the financial markets frequently argue that other factors besides interest rate expectations also exert a significant impact on the character and shape of the yield curve. Liquidity premium is one of them. Long-term securities tend to have more volatile market prices than short-term securities.

Therefore, the investors face a greater risk of capital loss when buying long term financial instruments. This greater risk of loss will be important to an investor who is risk averse. To overcome the risk of capital loss, investors must be paid an extra return in the form of an interest rate (term) premium to encourage them to purchase long term financial instruments. This additional rate premium for giving up liquidity would tend to give yield curves a bias toward a positive slope. The liquidity premium view does not preclude the important role of interest rate expectations in influencing the shape of the yield curve. Rather, it argues that other factors, such as liquidity, play an important role as well.

Liquidity argument may help explain why yield curves tend to flatten out at the longest maturities. There are obvious differences in liquidity between a 1 Year and 10 Year bond, but it is not clear the major differences in liquidity exist between a 19 Year bond and a 20 Year bond. Therefore, size of the required liquidity premium may decrease for securities bearing longer maturities.

#### 2.1.7.3 The segmented Markets of Hedging Pressure Argument

A strong challenge to the expectations theory appeared in the 1950's in the form of the market segmentation argument or hedging pressure theory of the term structure of interest rates.

The underlying assumptions are that all securities are not perfect substitutes in the mind of investors. Maturity preference exist among some investor groups, and these investors will stay from their desired maturity range unless induced to do so by higher yields or their favorable terms on longer or shorter term securities.

Why would some investors prefer one, maturity of security to other?

Market segmentation theorists find the answer in a fundamental assumption concerning investor behavior, especially the investment behavior of financial intermediaries, such as

investment companies, pension funds, and banks. Some investor groups often act as risk minimizers rather than profit maximizers as assumed under the expectations hypothesis. They prefer to hedge against the risk of fluctuations in the prices and yields of securities by balancing the maturity structure of their assets with the maturity structure of their liabilities. The portfolio strategy reduces the risks of fluctuating income and loss of principal. The existence of maturity preferences among investors groups implies that the financial markets are not one large pool of loanable funds but rather are segmented into a series of sub markets. Thus, the market for longer term securities is the segmented markets or hedging pressure theory does not rule out of the possible influence expectation in shaping the term structure of interest rates, but it argues that other factors related to maturity specific demand and supply forces are also important.

#### 2.1.7.4 Preferred Habitat Theory

The preferred habitat theory of term structure accepts the expectation theory premise of substitution and the segmentation theory premises that substitution is risky for borrowers and savers. However, this theory is not rigid as either of them. Simply put preferred habitat accepts the notion of maturity substitution, but only if the borrowers and savers are compensated with a more favorable interest rate. The additional return to the investor is known as liquidity premium.

The preferred habitat theory accepts the expectation theory but claims that the yield curve is not an accurate representation of market expectations. This is because the preferred habitat theory recognizes the existence of a liquidity premium built into the yields for bonds of certain maturities. This theory argues that investors seek at their preferred habitat along the scale of varying maturities of securities that matches their risk preferences, tax exposure, liquidity need regulatory requirements and planned holding period. Thus, according to the preferred habitat theory, factors other than expectations also play a role in shaping the character of the yield curve. Proponents of preferred habitat argue that investors derive their expectations about future interest rates on the basis of historical experience the recent trend of interest rates and what history suggests is "normal" range for rates.

In the short term, the majority of investors expect current interest rate trends to persist into the future; thus, rising interest rates in recent weeks often lead to the expectation that rates will continue to rise in the near term. However, investors generally expect that given sufficient time interest rates will return to their historical average.

### **2.1.8 Risk & Cost Factors Affecting Interest Rate**

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

#### **Marketability**

One of the most important considerations for an investor is whether a market exists for those assets he or she would like to acquire. This is the question of marketability and financial instruments traded around the world vary widely in terms of the ease and speed with which they can be converted into cash. Marketability is positively related to the size (total sales or total assets) and reputation of the institution issuing the securities and to the number of similar securities understanding. Not surprisingly, stocks and bonds issued in large blocks by the largest corporations and government units tend to find acceptance more readily in the global financial markets, and a consistent market price can be sold in the secondary market only with difficulty must be compensated for this inconvenience by a higher promised rate of return.

#### **Liquidity**

A desirable quality of assets that are to be part of precautionary reserve is liquidity. An asset is liquid if it can be turned into cash quickly without loss. Liquidity has two aspects. The second aspect might be called a well-behaved price. Even if an asset is marketable, it is not liquid if selling it immediately, rather than waiting to sell, involves an expected loss. Marketability is closely related to another feature of financial asset that influence their interest rate or yield; their degree of liquidity. A liquidity financial asset is readily marketable. In addition, its price tends to be stable over time and it is reversible, meaning the holder of the little risk of loss. Because the liquidity feature of financial assets tends to lower their risk, liquid assets carry lower interest rates than illiquid assets.

#### **Default Risk**

Another important factor causing interest rate to differ one from another is the degree of default risk carried by individual securities. Investor's securities face different kinds of risk, but one of the most important is default risk that a borrower will not make all promised

payments at the agreed upon times. All securities except government securities are subject to varying degree of default risk. The yield on a risky security is positively related to the risk of borrower default as perceived by investor's yield on risky security.

The higher the default risk associated with a risky security, the required rate of return (yield) that must be attached to the security as demanded by investors in the market place. And if risk free rate remains unchanged, the security's risky yield must rise and the price must decline.

#### Taxability

The returns earned by investors on financial assets are greatly affected by the taxes imposed by government. The income from most securities interest or dividends and capital gains is subject to taxation at the stipulated rate. This treatment reduces the investor's real income.

#### Prepayment Risk

A newer form of risk affecting the relative interest rates confronting modern investors arises when they acquire so called loan backed securities.

These loan backed securities are usually created when a lending institution, such as a bank or mortgage company, removes a group of similar loans from its balance sheet and places them with a trustee (such as a security dealer) who, using the loans as collateral sells securities to raise new capital for the lending institution. Each of these securities derives its value from the income earning potential of the pool of loans that backs the securities. As the loans in the pool generate interest and principle payments, these payments flow through to holders of the loan backed securities. In loan backed securities investors demand higher yields to compensate them for prepayment risk associated with it.

#### Exchange Rate Risk

As today's financial markets have become more global, there has been a significant growth in the borrowing manufacturing facility in Nepal might be inclined to issue shares and or bonds denominated in Nepalese rupees rather than U.S. Dollars. Investors also have available to them many investments involve exchange rate risk. This risk related to the potentiality that the rate of exchange between the domestic currency and foreign denominated currency will change as a result of any numbers of factors. The primary risk for the borrowers is that the value of the currency borrowed raises and relation to the domestic currency. This result in an unexpected cost on the international loans, since the loan would have to be repaid in the

foreign currency that has risen in value relative to the domestic. This potential change in currency values must be reflected in computing the cost of borrowing.

### **2.1.9 How open market operations affect interest rate?**

Even though most interest rates are market determined the central bank has considerable authority and powerful mechanisms to affect the level of interest rates by controlling the supply of loanable funds.

The primary tool is open market operation. Through open market operation, the central bank purchases the securities it adds to the supply of loanable funds, the sellers of the securities the central bank purchased can reinvest in other loans and investments. When the central bank sells securities, the opposite occurs.

When the central bank uses open market operation to increase bank funds, banks have a larger supply of excess funds to lend out. Second, banks with excess funds may offer new loans at lower interest rates in order to make use of these funds. Third, these banks may also lower interest rates offered on deposits because they have more than adequate funds to conduct existing operations.

As bank deposit rates declining household with available fund may search for alternatives investment such as treasury securities or other debt securities, the yield will decline. Thus, open market operation used to increase bank funds influence not only bank deposits and loan rates but the yields on other debt securities as well. The reduction in yields on debt securities lowers the cost of borrowing for the issuers of new debt securities as well. The reduction in yields on debt securities lowers the cost of borrowing for the issuers of new debt securities. This can encourage potential borrowers to borrow and make expenditure that might not have made if interest rates were higher.

If open market operation is used to reduce banks funds by, selling the treasury securities by increasing the level of discount rate and by increasing the reserve requirements the opposite affect occurs. More banks have different funds and fewer banks have any excess funds. Thus, there is upward pressure on the interest rate offered to bank deposits. A bank deposit rate rises, some investors may be there by increasing the yield offered on the instruments.

The actions of the central bank also affect the level of aggregate employment and inflation. The central bank tends to faster simulative open market policies when the economy has slack

resources and unemployment and restrictive during period of low employment and rising inflation.

## **2.2 Review of Past Relevant Studies**

### **2.2.1 Review of some Independent studies in Nepal**

Very few independent studies can be found in Nepal. Especially it is rare in the case of this research topic "Interest Rate". However, two such studies, conducted before two decades, have been found from the central library of T.U. & a brief review is presented here.

Mourti (1982) studied on the "*Demand for Money & the General Rate of Interest*". His hypothesis was that the demand for money could be explained by real income price level & rate of interest defined as the weighed average of all commercial bank's deposit rate. The focus of his study was more demand for money & less on interest rate. Therefore, only related aspects are reviewed here. The conclusions of his study related to these studies are as follows: -

Estimated demand, function, suggests that there is some abnormal pattern in the use of money in Nepal since the price elasticity has been found greater than one. However, the rate of interest and the level of real income have their usual implications.

The deposits rates are statistically significant. The results imply that the case balance ration does response the change in real income but responds change in prices and interest rates.

Demand for money has direct relation with real income with elasticity 8.33 and inverse relation with price level and the rate of interest with elasticity 1.5 & 0.66 respectively.

The estimated coefficient of interest rate is negative and significant

This implies on inverse relationship between the demand of money and the general rate of interest. This further implies that wealth holders are sensitive to change in interest's rate.

Dr. Panta(1993) in the title of "*Interest Rate Policy of Nepal*" conducted another study. The study concluded as follows: -

Changes in interest rate will increase time deposits through the route of balances of payment elasticity of money demand function. The real rate of interest has expected influence of

money demand, or the velocity of money, but the coefficient is too small to be statistically significant in that increase of 100% in real interest will lead to just 7% increase in savings.

Nepal adopted a high but flexible interest rate policy from April 1975, the changes in interest in April 1975 have generated three effects.

Time deposits increase at a higher rate for a year or two an increase in the resource based on the commercial banks. The change in deposits rate is expected to have diverted to the resource from rural to urban area.

The demand for credits actually declined or rose only at a moderated rate due partly to the failure of commercial banks to diversify its lending operation in non traditional area but, more importantly, on the slow growth in demand for investment from the private sector.

The profit position of commercial banks deteriorated sharply due to lack of any comprehensive credit plan to use the accumulated resources on the form of deposits liabilities.

Introduction of that an interest receipts has imposed unnecessary additional cost of commercial banks.

The authorities have failed to distinguish between policy instruments and policy goals; the interest rate has been used as both policy instruments and policy.

Basic theoretical postulates of real money strategy do not apply in Nepal is exogenously determined and as advocated by "real money" theorist, it cannot be used to attain internal objective, for e. g. Change in real income or domestic rate of inflation. An excess supply of money over money demanded is fully reflected in Nepal's balance of payments position with India.

### **2.2.2 Some related Unpublished Thesis**

Some studies have been conducted as thesis for the partial fulfillment of M.B.S. & M.B.A in T.U. which are related, to some extent, to this topic, are reviewed here.

A study made on the topics "Determinants of Interest Rates in Nepalese Financial Markets" by Pokharel (2004) also give some ideas about the interest rates in Nepalese markets. Though, this thesis tried to identify the factors that shape the interest rates in Nepalese

markets, it also tried to explore the relationship between the interest rate, deposits, credit rates and inflation. Among different objectives, some objectives that match to this study are:

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

According to 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.
- 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.”

Sharma (2007) in his thesis “Determinants of Interest Rate in Nepalese Finance Companies-with reference to UFCL, UFL and NMBL)” has presented following objectives:

- 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 finance companies.
- To find out the effect of maturity period and other economic factors on the interest rate offered by Nepalese finance companies.

The major finding of his study is as follows:

- Liquidity plays an important role to determine interest rate. There is negative relation of interest rate and liquidity.
- The correlation coefficient between interest rate on deposit and interest rate lending are found positive indicating that whatever may be deposit accepted or amount loaned, they are positively related with interest rate.
- The shape of interest rate is determined by the situation of competition between finance companies to a large extent, which has been drawn on the basis of interview taken with respondents of finance companies.
- Negotiation between customers and the companies may make the quoted rate according to the sector differ since the boundary to fix the interest rate for finance company has been made more liberal by NRB directives.

Parajuli (2009) in his thesis “Factors Affecting Interest Rate in Listed Nepalese Banks and Finance Companies” have presented following objectives:

- To identify whether there is any correlation between interest rate of lending and interest rate of deposit.
- To identify the effect of inflation on interest rate charged and offered by sample organization.
- To identify other major factors determining the interest rate charged and provided by listed companies.

His study concluded the following aspects:

- The correlation between interest rate on deposit and amount of deposit are negative. Theoretically there must be positive relation meaning higher interest rate attracts more deposit.
- The correlation between amount loaned and interest on lending is positive.

- The correlation between interest rate on deposit and inflation of 9 organizations are negative whereas 2 organizations are found to be positive.
- Violence, insecurity and political instability greatly affect the interest rate charged and offered by Nepalese banking and finance companies. Competition does also influence interest rate on lending and borrowing.

Pudasaini (2009) in his thesis “Factors Determining the interest rate of the commercial banks” has presented following objectives:

- To analysis the determinant factors and methods of interest rate.
- To identify the trend of deposit rate, lending rate, inflation and risk free rate.
- To identify the relationship of interest rate with deposit, lending, interest rate, inflation and risk free rate.

His major findings from the thesis are as follows:

- The main factors for determining interest rate are risk, return, inflation and risk free rate. Apart from this investment climate, tax rules and regulations also affect interest rates.
- Interest rate on deposit and lending is in decreasing trend whereas inflation and risk free rate is in increasing trend.
- The relation between deposit rate and deposit amount and lending rate and lending amount shows negative correlation and other factors shows positive correlation.

Lamichhane (2011) in her thesis “Determinants of interest rate in Nepalese commercial banks” has presented following objectives:

- To identify the trend of deposit rate, lending rate, inflation and risk free rate.
- To identify the determinant factors and methods of interest rate.
- To identify the relationship of interest rate with deposit, lending, interest rate, inflation and risk free rate.
- To analyze the environmental factors regarding interest rate.

Her major findings from the thesis are as follows:

- The interest rate on deposit and lending rate are decreasing whereas inflation and risk free rate shows up and down in different years.

- The correlation analysis between deposit rate and deposit amount, lending rate and lending amount shows the result of negative correlation and other factors shows positive correlation.
- The main factors for determining interest rate are risk, return, inflation and risk free rate. Most of the commercial banks used simple regular method.
- Maturity period, market competition, political instability also affect interest rate.

## **CHAPTER: III**

### **RESEARCH METHODOLOGY**

Research methodology refers to the four various sequential steps to be adopted by a researcher in studying a problem with certain objective in view. According to Dr. V. P. Michael, "Research is the process of systematic and in-depth study or search for any particular topic, subject, or area of investigation backed by collection, presentation, interpretation or relevant details or data." Research methodology describes the methods and process in the entire aspect of the study. In other words, research methodology is a systematized way to solve the research problem. It refers to the various sequential steps to be adopted by the researcher in studying problems with certain objects. It is the method or process applied to solve defined research process. A focus is given to research design, sample selection and size, data collection procedure, data processing etc. This chapter highlights the research methodology used for the study of Influencing factors of interest rates of Nepalese finance companies.

#### **3.1 Research Design**

The research design is the plan structure and strategy of investigation conceived so as to obtain answer to research questions and to control variances. In other words research design is the framework for a study that helps the analysis of data related to study topic.

Research design is needed because it facilitates the smooth scaling of the various research operations, thereby making research as efficient as possible yielding maximum information with minimum expenditure of effort, time and money.

Descriptive cum explorative research design were used in this dissertation to analyze and interpretation of findings with collecting data. Descriptive research design was used for more information and elaborated on condition, characteristics/features of particular finance companies. This design explored quantitative facts about the finance company and their interest rate influencing factors. Explorative research design used especially for quantitative data on what were the changes that occur in interest rate of finance company.

### 3.2 Research of Hypothesis

A quantitative statement about population parameter is called a hypothesis. It is an assumption that is made about population parameter and finally its validity is tested. The act of verifications involves testing the validity of such assumption which when undertaken on the basis of sample evidence is called statistical hypothesis. The hypotheses formulated for this study are as follows.

Is there any significance correlation coefficient between liquidity (Supply or deposits) and interest rate?

Null Hypothesis,  $H_0: P = 0$ , i.e. population correlation coefficient is zero. In other word interest rates on deposit and deposit amount are uncorrelated.

Alternative hypothesis,  $H_1: P \neq 0$ . The variable in population (amount deposited and market interest rate in deposit) are correlated.

Is there any significance co –relation in coefficient between interest rate on lending & lending amount?

Null Hypothesis,  $H_0 : p = 0$  population correlation is zero which means that the variable in population i.e. Amount loaned and interest rate on lending of Nepalese finance companies are not correlated.

Alternative hypothesis;  $H_1: p \neq 0$  amount loaned and interest rate on lending rates of Nepalese finance companies are co – related.

Is there any significance correlation coefficient between interest rate on deposit and lending?

Null Hypothesis;  $H_0: p = 0$ , i.e. there does not exist any correlation between interest rate on deposit and lending of Nepalese Finance Companies.

Alternative Hypothesis;  $H_1: p \neq 0$ , i.e. There does not exist any correlation between interest rate on deposit and lending of Nepalese Finance Companies.

Is there any significance correlation between inflation rate and interest rate on deposit?

Null Hypothesis:  $H_0: P = 0$ , population correlation coefficient is zero which means that the variable in population (inflation rates interest rate of deposit) of Nepalese Financial Companies are not correlated.

Alternative Hypothesis;  $H_1: P \neq 0$ , population correlation coefficient between inflation and interest rate on deposit are correlated.

Is there any significance correlation coefficient between inflation and lending rate?

Null Hypothesis:  $H_0: P = 0$ , population correlation coefficient is zero which means that variable in population (inflation and lending rate) are not correlated.

Alternative Hypothesis:  $H_1: P \neq 0$ , i.e. population correlation between inflation and lending rate of Nepalese Finance Companies are correlated.

### **3.3 Population & Samples**

A small portion chosen from the population for studying its properties is called a sample and the number of units in the sample is known as sample size. The method of selecting for study a small portion of the population to draw conclusion about characteristics of the population is known as sampling.

Sampling may be defined as the selection of part of the population on the basis of which a judgment or inference about the universe is made.

Here only 6 sample financial companies are taken out of 60 Financial Companies. For selecting the samples, non- random sampling method is used here among different methods. Organization under study and general introduction and major objectives of sample organizations are as follow:

#### **Organization Under Study of Finance Companies**

FC's came into operation under the finance companies act, 1985. They are registered as limited companies with the office of the register of company according to the provisions made in the Company act, 1965 they accept time deposits and advance loans to individuals, firms, companies, or institutions for as well as non- agriculture purposes in order to increase economic activities.

They have become populous among low income and medium class people as they make loans available for hire purchase and for the purchase of vehicle, machinery tools, equipments, durable household goods, and movable properties.

Subsequent to the adoption of financial liberalization, many FC's came into operation especially Katmandu and other urban areas. In FY 2005, the Nos. of FC's reached 59, out of which 39 Companies are out of Kathmandu valley.

### **Lumbini Finance & Leasing Company (LUFC)**

Lumbini Finance & Company Ltd. Commonly known as LUFC is a public limited finance and leasing company promoted by a group of highly committed and innovative persons. A group of well experienced and professional managers having excellent leadership are in the Management team. The company has the right combination of dedicated service – oriented staffs for which one can always trust for an excellent service. It is registered in the ministry of Industry and has obtained license from Nepal Rastra Bank (Central Bank of Nepal) under the sections 6. (A) of Finance Companies Act 2042. LUFC is operating its business as per the guidelines of Nepal Rastra Bank, provinces of finance company act 2042, company act 2053 and other related Nepalese Law. LUFC has started its operation from 12/03/2052 and has shown a very encouraging in each nine years of operations. LUFC's share is listed in Nepal Stock Exchange NEPSE (Index). Quote (LUFC) and it is being traded in the market as A grade share. It was registered by the collective efforts of reputed industrial personalities in 2051 B.S. It has also obtained the license of financial transaction from NRB in 2052 B.S.

### **Union Finance Company Ltd. (UFCL)**

Union Finance Company Limited (UFCL) is the first non-banking financial institution to introduce the leasing business in Nepal. It was established on 1993 in technical collaboration with BALL EQUIPMENT OF UECIC BANKS OF FRANCE whose leasing expertise is widely recognized throughout France. UFC was registered with company registrar office on March 25, 1993 with an authorized capital of Rs. 120 Million and issued and paid up capital of Rs. 60 Million and Rs 45 Million respectively. Its operation came into effect on December 12, 1994 after obtaining license on September 17, 1994 from Nepal Rastra Bank, its office is located at Kamaladi, Kathmandu.

### **Navadurga Finance Co. Ltd. (NFC)**

Navadurga Finance Co. Ltd. Is the oldest Finance Co. of Bhaktapur district situated at Itachhen-15, having its registered office in Bhaktapur. It is established with the aim of providing financial assistance especially the inhabitants of Bhaktapur district. In the years that NFC has been in business, it has provided financial solution to small and mid-sized.

Companies have both traditional & commercial finance markets. NFC has played a great role in channelizing savings into investment by the collection of scattered fund from the nook and corner. It authorized capital is 100 Million out of which 50 Million is the issued capital. Its share comprises of only ordinary share.

### **Lalitpur Finance Company (LFC)**

Lalitpur Finance Limited (Bittiya Sanstha) is the first Finance Company of Lalitpur District owned by private sector. Established under the finance Company Act 2042 and Company Act 2053 LFC has been performing its function effectively under the guidance of Nepal Rastra Bank (Central Bank).

The financial result of the company reflects its strong strength. The company was listed in the Nepal Stock Exchange on September 18, 1998 (2055/06/02). Transparency, accountability, information disclosures and stringent ethics practiced at Lalitpur Finance Ltd. (LFC), have now become its hallmark. The aforementioned principles have not only proven to be winning formulae, but in the years have also helped us win investor's confidence. LFC helps people in diverse business and family offering them innovative financial products and solution. And of course, helping them materializes their dreams.

### **United Finance Co. Ltd. (UFC)**

United Finance Company (UFC) started its operation in 1994 as the 9th finance company of the country and has been able to establish itself as a leading finance company. The company is promoted by Chaudhary Group, a conglomerate of the country with a global presence. The group has investment outlay of more than \$250 Million at present. The company has an authorized capital of NPR. 120 Million and paid up capital of 60 Million. The company is listed in Nepal Stock Exchange and its share is actively traded well above par value. Led by a team of young and enthusiastic professionals with sound knowledge of the financial sector, United Finance Company has laid unprecedented emphasis on the safety of the customer's deposits,, confidently, professionalism, transparency, good governance and sound business growth. The company has envisaged excellence in the field of consumer financing with a wide range of innovative products.

## **Nepal Merchant Bank & Finance Ltd (NMBF)**

Nepal Merchant Bank & Finance Ltd (NMBF), registered under a company Act 2071, on Aswin 29th, 2072. Its operation had started in December 1996 after getting permission from NRB on Poush 04, 2073. NMBF is the brain child of leading Nepali entrepreneurs with the dream of filming the ultimate in merchant banking and financial services.

NMBF has developed significant enterprises in financing to different market segments and also has large clients based. NMBF is also actively involved in introducing low cost debt instruments to the corporate clients and creating secondary market for the same.

### **3.4 Source of Data and Data Collection Procedure**

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

Secondary data are collected from various publications of financial companies, Nepal Rastra Bank, and even from websites of various financial companies. Thus, this study is based on secondary source of data to fulfill above-mentioned objective

### **3.5 Data Processing and Presentation**

Data obtained from various sources cannot be directly used in their original form, as they are raw data. When data is not presented in understandable and easier way there would be no use of conducting research study of analysis of data.

Analysis part would be difficult to understand to the readers without processing the data. So, to make the study understand at the sight data should be processed.

Presentation of data means to keep raw data into understandable form by editing, rechecking and using various tools such as tables, charts, figures and trend lines. In this study also data are presented using all the above-mentioned tools so as to make understand the analysis part in proper and easier way.

### 3.6 Data analysis tools

In order to get the concrete result from the research, data are analyzed by different types of tools. As per the topic requirement, in this study statistical tools are necessary. So for this study the following statistical tools are used.

#### Arithmetic Mean

Arithmetic mean of a given set of observations is their sum divided by the number of observations. In such a case all the items are equally important. In this study simple arithmetic mean is used. It is computed by using following formulae:

$$\text{Mean (X)} = \frac{\sum x}{n}$$

Where, X = Mean

$\sum x$  = Sum of all variable x

n = Variable Involved

#### Standard Deviation

The standard deviation is the best tool to measure fluctuation in any data. It is usually denoted by the Greek letter  $\delta$  (small sigma). The standard deviation is defined as the positive square root of the arithmetic mean of the square deviations from their arithmetic mean of the square deviations from their arithmetic mean of a set of values. It is also known as 'Root Mean – Square Deviation.

$$SD (\delta) = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

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

#### Correlation Coefficient

Correlation Coefficient is the statistical tool measures the degree of relationship of one variable with other variables.

Two or more variables are said to be correlated if change in the value of one variable appears to be related or linked with the change in the other variables. It refers the closeness of the relationship between two or more variables. Correlation says just degree of relationship between two or more variables. It does not tell us anything about cause and effect relationship.

Correlation may be positive or negative ranges from  $-1$  to  $+1$ . Simple correlation between interest rate on deposit and deposit amount, interest rate on lending or lending amount and interest rate and inflation is computed in this thesis.

The correlation between interest rate on deposit and deposit amount is positive interest rate on lending and lending amount is negative. 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  $+1$ , there is positive perfect correlation;  $r = 1$ , there is perfect negative correlation; when  $r = 0$  there is no correlation and when  $r < 1$  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 moderate degree of correlation.

The simple correlation coefficient is calculated by using following formulae.

$$\text{Simple correlation coefficient } r = \frac{n\sum xy - \sum x \sum y}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Where,

$n$  = Total Number of Observations

$x$  and  $y$  = Two variables, correlation between them are calculated.

$x$  = Deposit amount, Interest Rate on Deposit, Lending, Interest Rate on Deposit.

$y$  = Risk free Rate, Inflation Rate, Interest Rate on Lending, Interest Rate on Deposit.

Coefficient of Determination

The square of the simple correlation coefficient is called coefficient of determination and it is very useful in interpreting the value of simple correlation coefficient. The main significance of determines is to represent the portion of total variations due to independent variable.

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

t- Test for Significance of Simple Correlation Coefficient

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

$$t = \frac{(\sqrt{n-2})r}{\sqrt{1-r^2}} \text{ With df}(n-2)$$

Where,

'n' denotes the number of sampling

'r' denotes correlation of both variable.

't' denotes significance simple correlation coefficient .

Coefficient of Multiple Determinations

The square of the multiple correlation coefficients is called coefficient of multiple determination and it is very useful in interpreting the value of multiple correlation coefficient. The main significance of the multiple determinations is to represent the proportion of variations is the two independent variables.

$$\text{Coefficient of Multiple determinations (R 1.23) }^2 : \left( \sqrt{\frac{r_{12}^2 + r_{13}^2 - 2r_{12}r_{13}r_{23}}{1-r_{23}^2}} \right)^2$$

X<sub>1</sub> = Interest Rate on Deposit, Interest Rate on Lending.

X<sub>2</sub>= Deposit Amount, Interest Rate on Deposit Inflation Rate.

X<sub>3</sub> = Risk free Rate, Interest Rate on Lending, Loan Amount.

## **CHAPTER: IV**

### **DATA PRESENTATION AND ANALYSIS**

This part is the core of any research study. Without this part the study remains incomplete in a sense that the above set objectives in chapter one cannot be met and conclusion and findings cannot be drawn. Ignoring this part is not possible to know what the real problems are and what factors are affecting those problems in the real world.

This chapter is the main body of the study which includes detailed presentation, analysis and interpretation of data relating to interest rate on deposit and lending, deposit collection and loan and advance of each selected financial companies from Nepalese financial system. In this chapter relationship between variables i.e. between interest rate on deposit and deposit amount and lending interest rate and lending amount is presented analyzed and interpreted. This chapter consists of various calculations made for the analysis of interest rate and its impact on deposit amount, and inflation rate of the sample finance companies. To make our study effective and precise as well as easily understandable, this chapter is categorized into three parts; presentation, analysis and interpretation. The analysis is fully based on secondary data. Firstly data are presented in tabular and chart form according to the need. The presented data are then analyzed using various statistical tools as mentioned in chapter three according to the requirement of the study, at last following the analysis part and interpretation is made.

Data presentation analysis and interpretation of the study are made finance company wise i.e. one by one.

To show the response of interest rate towards inflation rate and real rate of interest, correlation between these variables has been analyzed and testing significance using t-statistics. The data and information gathered from different sources, as described in previous, have broadly grouped into the following two groups.

For the quantitative analysis various published data from NRB and concerned organizations have been analyzed for showing their relationship.

For qualitative analysis primary data collected by means of questionnaire and direct interview with respondent have been presented and analyzed.

Besides above analysis tables and diagram have been used to make the result clearly understandable.

#### **4.1 Qualitative Analysis (Questionnaire)**

There are various other qualitative factors that affect interest rates of Nepalese Finance Companies rather than responding demand, supply, inflation. A questionnaire (qualitative analysis tool) was made including the factors considered to be affecting the interest rate of Nepalese Finance Companies. Opinions and experiences of various related persons from various Financial Companies have been collected through questionnaire and direct interview, which are presented as below.

##### **4.1.1 Maturity Period and Interest Rate**

Theoretically, interest rate is affected by the maturity period of loan. The longer maturity Period, higher the default risk (i.e. failure to repay loan) and hence higher will be risk-premium added to prime interest rate. This principle is not significant in Nepalese context.

From the questionnaire and direct interviews, researcher found that most of the organizations do not consider maturity period of loan but few institutions are aware of maturity. Generally, institutions do not prove long term rather they renew frequently according to the borrowers credit worthiness in terms of size of their business or project, cash flow capacity and pattern, nature of loan, goodwill and trust worthiness of borrowers etc. Therefore, rate for other category is higher than prime. Institutions do not quote their rate according to maturity. They charge higher interest for longer maturity loan.

##### **4.1.2 Competition and Interest Rate**

Competition is the most important factor among the various factors affecting interest rate of Finance Companies of Nepal. Competition occupies a major place for development of Financial Institutions within the financial system of Nepal. Interest rate charged and offered by Nepalese Finance Companies competes within their group. Generally, interest rate on agriculture- loan is smaller than industrial loan. But the interest rates of finance companies are highly competitive as they are targeted to specific customer group.

### 4.1.3 Political Instability & Violence

Political Instability & Violence has become phenomenal in Nepal. Our main concern here is whether the violence and instability directly affect interest rate of Nepalese Finance Companies or not. From questionnaire and interview with respondent, researcher found that the instability and violence is directly affecting the interest rate charged and offered by the institutions. Most respondents said that interest is directly affected. According to them, instability and violence is affecting their operations.

Frequently organized strikes, bandhs, reduce the working hours of the institutions and the added operating cost burden (especially for a fixed price). According to respondent, the interest rate is affected by the activities of political parties and violence. Such activities dampen the overall economy that is why business growth rate decreases and lending opportunities are curtailed. This result is decreased demand of loan able markets are in decreasing trend. This may be because of slackness in economic growth. Similarly, frequently changing governments are also affecting overall operation of financial institutions including interest rate, through the decision of different government and governor of NRB regarding financial system of the country.

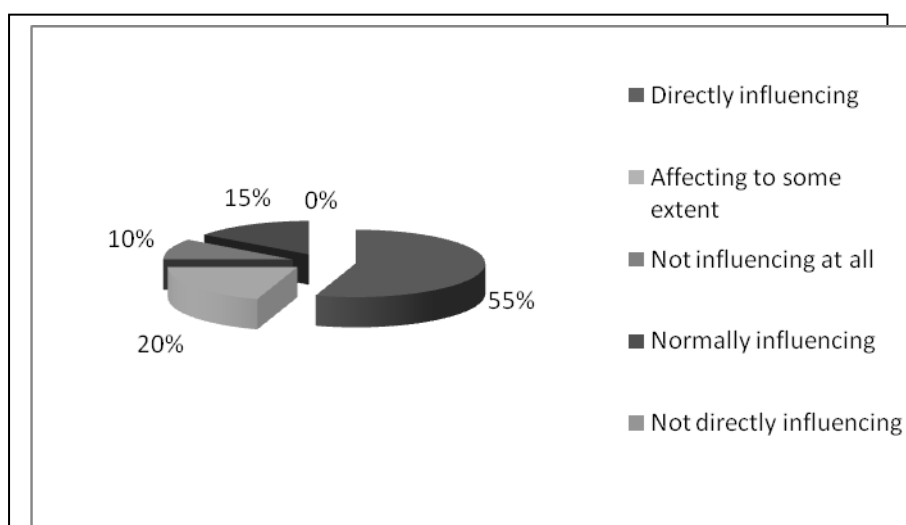
Violence also is reducing the investments opportunities of individuals. People are afraid to invest due to the lack of safety and security. With a fear that their return from investment may be uncertain, people deposit money at bank. Analysis of deposit trend in recent years in Nepalese financial market shows so, hence, supply of loanable fund in financial institution is increasing and returns on such fund to depositors (interest rate on deposit) is decreasing. Therefore, political instability and violence, in the experience of finance companies, have been directly influencing interest. Therefore, question was asked, "Does political instability and violence in our country influence interest rate charged and offered by your institution?" Following responses was found for this question.

**Table 4-1 Impact of Political Instability & Violence**

S.No.	RESPONSE	NOS OF RESPONDENTS	PERCENTAGE
1	Directly Influencing	11	55

2	Normally Influencing	4	20
3	Affecting to Some Extent	2	10
4	Not Directly Influencing	3	15
5	Not Influencing at All	0	0
Total		20	100%

**Figure 4-1 Impact of Political Instability & Violence**



#### 4.1.4 Open Border with India and Interest Rate

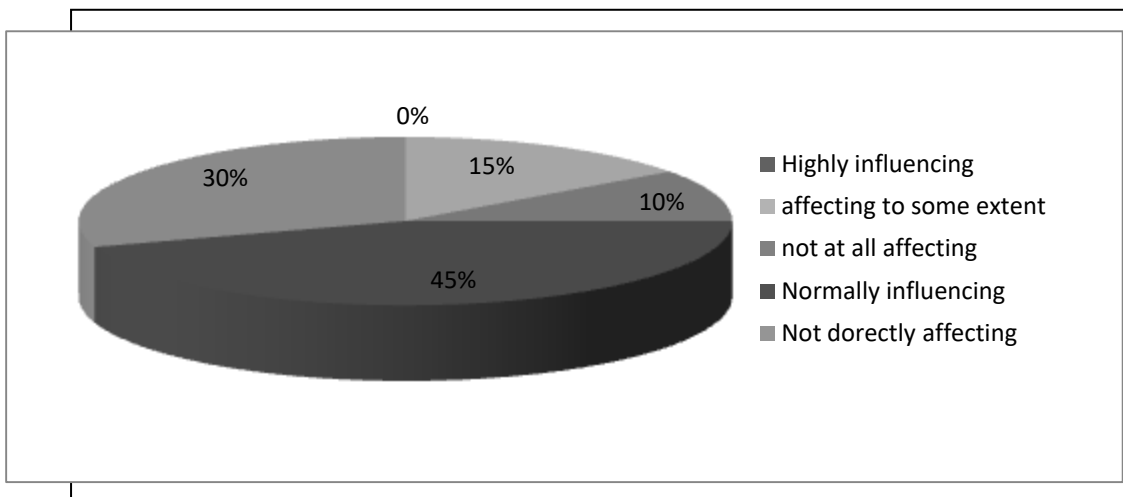
Nepal has long range of open border with India known as Dash Gajja. Any economic activity in India directly affects Nepalese economy. More 60% of total foreign trade (export & import) of Nepal is with India. Therefore, question was asked. "Does open border with India affect India affect interest rate on borrowing and lending?" Following responses was found for these questions.

**Table 4-2 Impact of Open Border with India**

S.No	RESPONSE	NUMBERS OF RESPONDENTS	PERCENTAGE
1	Directly Influencing	0	0
2	Normally Influencing	3	15

3	Affecting to Some Extent	2	10
4	Not Directly Influencing	9	45
5	Not Influencing at All	6	30
Total		20	100%

**Figure 4-2 Impact of Open Border with India**



How much open border with India affect interest rate?

From the analysis of above open border with India does not directly affect the interest rate charged and offered by Nepalese Finance Companies. Near the border area, some agents from Indian Financial Institutions collect deposit from Nepalese customers but it is not significant to reduce the loan able fund in Nepalese Finance Companies. In long- run open border with India influences the whole economy of Nepal, which also includes financial sectors (i.e. indirect impact)

#### **4.1.5 Seasonal Impact**

Nepal being the hilly country and probable victim of most natural calamities suffer from disasters like landslides and roads get blocked even for a week or month in rainy season. Trading and manufacturing business needs to keep more inventories for their regular operation in the situation of road block. Our institution was that business borrows more in the beginning of the rainy season to keep more inventories which increases the demand of loan

and interest rate on lending increases. But in reality our belief came false. No single organization from sample organizations has been experiencing such impact on interest. It is so because out of total lending of institution only small portion is occupied by working capital loan. Therefore, we can conclude that there is not any seasonal impact on interest rate charged and offered by Nepalese Finance Companies.

#### **4.1.6 NRB & Interest Rate**

Central bank has a sole authority affecting the level of interest rates by controlling the money supply and credit creation of finance Companies through monetary and fiscal policy. Central bank in Nepal, Nepal Rastra Bank (NRB) has the authority to fix the rate of bank and other financial institutions. But now due to liberal economic policy finance companies are free to fix their rate charged and offered. However, various other activities, Policy measures and directives issued by NRB influence the interest rate directly or indirectly in Nepalese financial market. Among these various measures, some are:

- a) Cash Reserve Ratio
- b) Refinance Facility
- c) Bank Rate
- d) Buying & Selling of Foreign Exchange
- e) Open Market Operation

The finance company must put certain percentage of their deposit in NRB and certain percentage in their own vault. This statutory reserve is called cash reserve ratio (CRR). NRB gives instructions from time to time for finance companies specifying the CRR to be maintained by them similarly NRB provides refinance facilities to the lending institution in necessity at certain rate to increase the liquid fund. Another monetary instruments used by central bank to influence money supply is Bank Rate. Buying & selling of foreign exchange is another monetary measure that NRB uses to adjust the liquidity. NRB reduces the market liquidity by selling foreign currency and increase liquidity from buying foreign currency from market. A primary tool to influence money supply (liquidity) is the open market operation of NRB.

#### 4.1.6.1 NRB Directives & Interest Rate

Besides taking various monetary measures, NRB also issued directives to commercial bank and other financial institutions regarding their activities and policies. Among various directives issued some of them which affect rate charged and offered by Nepalese Financial Institutions are mentioned here.

##### Single Borrower Limit

Single borrower limit is one of the directives issued by NRB that affects interest rate indirectly. As per the directives, Commercial Banks, Development Bank and Financial Companies can provide loan to single borrower (i.e. an individual or an organization or a firm or a company or members of single family) up to 25% of their core capital for fund based loan. But this limit for non-fund based loan 50% of core capital. However, loan on security of Government Bond / NRB Bond / Fixed Deposit Receipt is not restricted by this vision. Slight difference is made in the directives issued to saving and credit co-operatives. They can provide loan to single borrower up to 10% if borrower is in second time up to 20% of their core capital if borrower is borrowing in third time and or more. Similarly, co-operatives can provide loan to their member up to 80% of the project cost 20% must be the borrower's equity. Similar restriction reduce the amount loaned (demand of loan) which may influence the interest rate on lending. Similarly reduced loan-advanced also reduces the deposit requirement and reduction in the interest on deposit also occurs.

Limitation regarding fund collection i.e. deposit collection has also been made in directives issued. According to the directive, commercial banks can collect deposits from public not more than 15 times of their core capital. Development Banks can collect saving deposit up to 20% of total financial resources whereas finance companies and co-operatives can collect financial resources (deposit, borrowing and debenture) up to 10 times of their capital. Such type of limitations reduces the source of fund (fund collection) for the institutions which reduces the liquidity in institution and impact may be higher interest rate on lending because of low supply of loan able fund.

NRB issued directive directly to influence interest rates in financial market. A directive issued in 2000 had specified that the commercial banks could offer interest rates more than published rate by 50 basis point on the basis of negotiation with customer for the deposit up

to Rs.200 Million and 100 basis point for the deposit of more than Rs.200 Million over published lending rate for all type of loan banks could make adjustment up to 50 basis point on the basis of negotiation with the customers. Weighted average interest rate spread must not exceed was 5% but this restriction is already removed. Now, banks and other financial institution are free to fix their interest rate they are not allowed to charge interest on flat basis. Hence, instruction and directives issued by NRB in different time periods affect the interest rate level in the Nepalese Financial Markets.

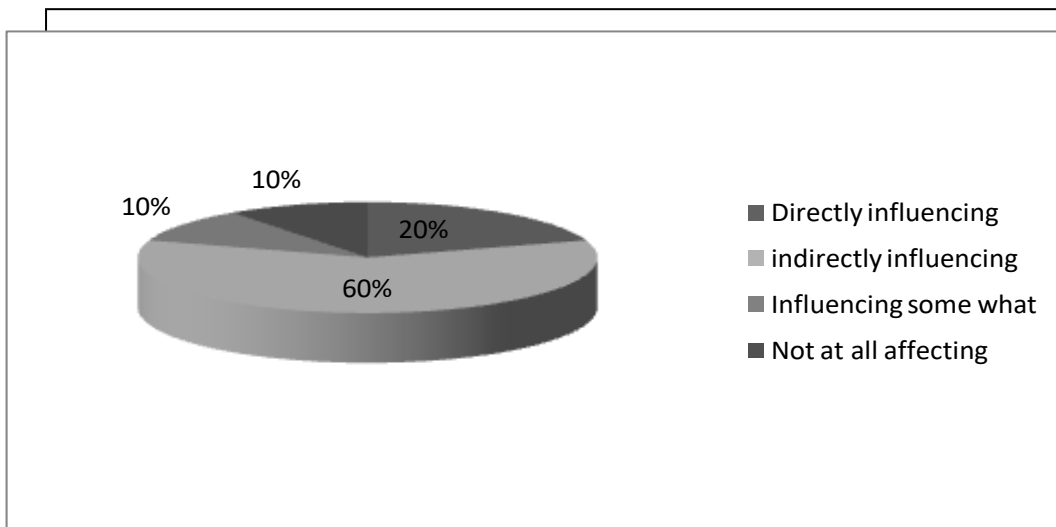
#### 4.1.6.2 Finance Companies Experience

When a question was asked "Does NRB directives influence the interest rate charged and offered by your institution?" Respondent's answer to this question is shown in the table and figure below:

**Table 4-3 Finance Companies Experience**

S.N	RESPONSE	NO. OF RESPONDENTS	PERCENTAGE
1	Directly Influencing	4	20
2	Influencing some what	12	60
3	Indirectly Influencing	2	10
4	Not at all Affecting	2	10
	Total	20	100

**Figure 4-3 Finance Company's Experience**



#### **4.1.7 Other Factors That Affects Interest Rates of Nepalese Finance Companies**

There are numerous factors that are considered to be affecting the interest rate charged and offered by finance companies of Nepal. There is lack of the investment opportunities to public and due to an increasing crime and robbery in Nepal people are depositing their money into finance companies and other financial institutions. These trends are increasing day by day. Foreign employments to Nepalese people are increasing in recent years and Nepalese employees in abroad remit their remuneration through money transfers or finance companies. Similarly Nepal gets many grants, loans, from other countries which also help to increase the liquidity in Nepalese financial market. Fund remitted from abroad is also adding the liquidity of Nepalese financial market which is giving the downward pressure on interest rate on deposit.

Interest rate charged by institutional lenders varies borrowers to borrowers because it is affected by borrower's specific factors. While approving the loan, lenders evaluate the performance of the borrowing company, volume of business, reputation and goodwill of the borrower's collateral base etc. If the performance of borrowing company is satisfactory to the lender, interest rate for such borrower will be lower. The borrowing company having good reputation and high goodwill can get loan at lower rate. Similarly the volume of business of borrower also affects the interest rate on lending. Generally, high volume business operates at lower cost compared to small businesses due to cost synergy effect. Thus they earn more profit and able to repay loan. On the other hand, larger business require large amount of loan. Lending cost (or service cost) to lender will be less for large amount loan rather than

maintaining various accounts for many loans of lower amount. Borrower who borrows regularly from same organizations gets the loan at lower rate because his / her trust worthiness towards institutions increase and institution also treat such customers as loyal customer. Considering all such factor institution categorized their customer in two categories viz: prime and other. The prime customer are charged lower rate of interest as compared to other customers.

Interest rate of Nepalese Finance Companies is also affected by broad economic factors. National and international economy, business cycle, to large extent is responsible for determining the interest rate of finance companies. Nepalese economy has been slowing down in recent years. Economic growth rate is very slow due to various factors like political instability, conflict, terrorist attacks etc. Thus, business in investing in productive sector because their return is uncertain. In this situation demand of loan able fund is decreasing. The effect of this is reflected in decreasing interest rate on lending. Similar impact can be seen in deposit rate. Reduced lending opportunities have been reducing the deposit requirement which is reflecting in interest rate on deposit.

#### **4.2 Quantitative Analysis**

Two or more variable are set to be correlated if change in the value of one variable appears to be related with the change in other variables. Thus, the correlation analysis is generally used to describe the degree to which one variable is related to another it helps to identify whether a positive or negative relationship exist the relation is significant or not and to established cause and effect relationship correlation analysis, statistical tool has been used here to the relationship between various variables assumed to be influencing factors of interest rate charged and offered by sample finance companies. Multiple correlation has also been computed to show the simultaneous effect of two factors on interest rate the coefficient of correlation is also tested using t-statistics of hypothesis to show whether it is statistically significant or not. Details analysis of individual finance companies is presented in coming section.

#### 4.2.1 Lumbini Finance & Leasing Company (LUFC)

**Table 4-4 Financial Detail of Lumbini Finance Company**  
in Million

Year	Deposit Amount(A)	Interest Rate on Deposit(B)	Loan Amount (C)	Interest Rate on Loan (D)	Inflation Rate(E)
2006	741.67	6.46	752.08	13	7.8
2007	789.77	6.14	812.61	12.75	8.6
2008	838.98	7.3	1058.25	13.29	6.4
2009	1071.21	8.36	1231.94	15.29	7.7
2010	1216.56	9.52	1525.09	16.75	13.2

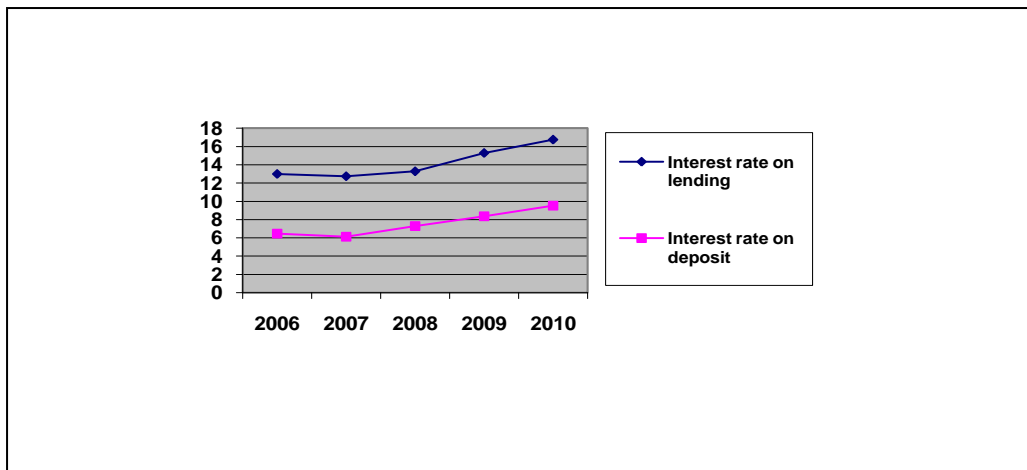
Source: - Annual Reports of LUFC & Various financial Statistics Published by NRB.

Table 4-4 depicts data of LUFC consisting of amount deposited, interest rate on deposit and interest rate on lending from the year 2006 to 2010. This table also presents inflation for some fiscal years. To show the relationship between variables various correlation coefficients are presented in table 4-5.

**Table 4.5 Correlation Analysis (LUFC)**

Variables	Correlation Coefficient	Coefficient Determinants	T-statistics	Table Value	Remarks
$r_{ab}$	0.9737	0.9481	7.4029	3.182	Significant
$r_{bd}$	0.9805	0.9614	8.6422	3.182	Significant
$r_{cd}$	0.9569	0.9157	5.7093	3.182	Significant
$r_{de}$	0.6676	0.4457	1.5531	3.182	Insignificant
$r_{bc}$	0.7547	0.5696	1.9926	3.182	Insignificant
Multiple Correlation Coefficient	$R_{b,ad} = 0.9834$		Coefficient of multiple determinants	$R^2_{b,ad} = 0.9671$	
	$R_{d,bc} = 0.9827$			$R^2_{d,bc} = 0.9657$	

**Figure 4-4 Relationship Between rate of LUFC**



Correlation Coefficient between deposit amount and interest rate on deposit of LUFC is positively correlated ( $r_{ab} = 0.9737$ ). This means when interest rate increase amount of deposit also increases and vice versa. The coefficient is statistically significant because calculated t-value is higher than tabulated value for 3 d.f at 5% level of significance ( $7.4029 > 3.182$ ). This means that deposit amount is significantly affected by interest rate on deposit. In the same way amount loaned and interest rate on loan are also positively correlated ( $r_{cd} = 0.9569$ ) and it is also statistically significant because calculated t-value is higher than table value ( $5.7093 > 3.182$ ). This means that interest rate on lending and lending amount is directly related. But in practice when interest rate on lending increases, amount of loan decreases and vice versa.

Interest rate on deposit and lending is positively correlated ( $r_{bd} = 0.9805$ ). This means when interest on deposit increases, interest on lending also increases and vice versa. In general the two interest rate are not related with each other. Since the calculated t-value is higher than table value at 5% level of significance for 3 degree of freedom ( $8.6422 > 3.182$ ), the correlation is statistically significant. 96.10% of total variation in interest rate on lending is the effect of interest rate on deposit as shown by the coefficient of determination,  $r^2_{bd}$ .

The relationship of inflation with interest rate on deposit and lending are both positive ( $r_{bc} = 0.6676$  &  $r_{de} = 0.7847$ ), which explains there is positive relationship of both the interest rate with the inflation. But the correlation coefficient between interest rate on deposit and inflation is insignificant because calculated t-value is significantly smaller ( $1.5531 < 3.182$ ) which means that there does not exist any significant relation with these variables. Similarly,

the correlation coefficient between interest rate on lending and inflation is also statistically insignificant as the calculated t-value is lower than table value ( $1.9926 < 3.182$ ).

Combined effect of independent variables on dependent variables has been analyzed through multiple correlations. The coefficient of multiple determination assuming interest rate on deposit as dependent and interest rate on lending and amount deposited as independent,  $R^2_{b.ad}$ , is 0.9671 which means that 96.71% of total variation in dependent variable is the effect of other two independent variables. Similarly the coefficient of multiple determinations assuming interest rate on deposit as dependent factor and interest on lending and amount of lending as independent variables,  $R^2_{dbc}$ , is 0.9657 which shows that 96.57% of total variation in dependent variables is explained by two independent variables.

#### 4.2.2 Union Finance Company Ltd (UFCL)

**Table 4.6 Financial Detail of Union Finance Company**

In Million

Year	Deposit Amount (A)	Interest Rate on Deposit (b)	Loan Amount (C)	Interest rate on Loan(D)	Inflation Rate(E)
2006	594.69	4.92	436.19	14.65	7.8
2007	669.98	5.8	599.95	14.3	8.6
2008	720.9	7.3	722.23	13.5	6.4
2009	816.94	8.75	984.46	16.39	7.7
2010	1037.84	9.06	1032.51	17.95	13.2

Source:- Annual Reports of UFCL and various financial statistics published by NRB.

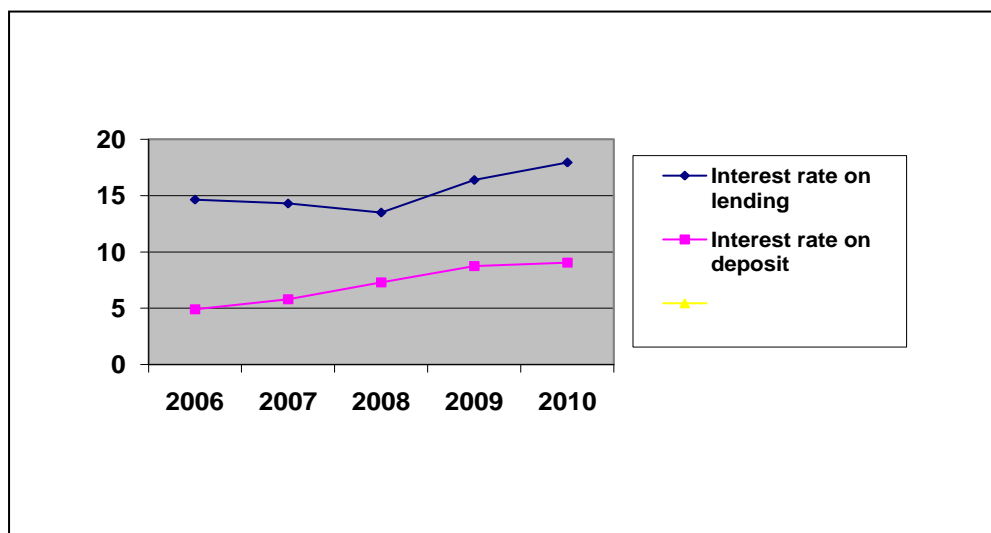
Table 4-6 shows that the amount deposit collected interest rate on such deposits, amount loaned and interest on loan of UFCL for five fiscal years 2006 to 2010. Inflation rate for the same period has also been presented. Simple and multiple correlation coefficients, coefficient of determination and t-values are presented in the table 4-7.

**Table 4-7 Correlation Analysis (UFCL)**

Variables	Correlation Coefficient	Coefficient Determinants	T-statistics	Table Value	Remarks

$r_{ab}$	0.8952	0.8014	3.4796	3.182	Significant
$r_{bd}$	0.7215	0.5206	1.8047	3.182	Insignificant
$r_{cd}$	0.7750	0.6006	2.1242	3.182	Insignificant
$r_{be}$	0.4655	0.2167	0.9109	3.182	Insignificant
$r_{de}$	0.8346	0.6966	2.6244	3.182	Insignificant
Multiple Correlation Coefficient	$R_{b.ad} = 0.9021$		Coefficient of multiple determinants		$R^2_{b.ad} = 0.8138$
	$R_{d.bc} = 0.8633$				$R^2_{d.bc} = 0.7453$

**Figure 4-5 Relationship between rate of Union Finance**



Correlation coefficient between amount deposit and interest rate on deposit is positive ( $r_{ab} = 0.8952$ ) which shows that when amount deposited increases, interest rate on deposit will also increases and vice versa. The coefficient of correlation is statistically significant because calculated t-values is greater than tabulated value for 3 d.f at 5% level of significance ( $3.4796 > 3.182$ ). Thus, interest rate on deposit of UFCL is affected by the amount of deposit collected. The correlation coefficient between that interest rate on lending and amount loaned is positive ( $r_{cd} = 0.7750$ ) which shows that when interest rate on lending increases the amount loaned will also increase and vice versa. But theoretically the amount loaned decreases when the interest on lending increases.

The coefficient is statistically insignificant as the calculated t-value, 2.1242 is relatively smaller than table value, 3.182. This means that amount loaned has least significant relation with the interest rate on lending as expressed by the coefficient of determination,  $r^2_{cd}$ .

The correlation coefficient between interest rate on deposit and lending is positive ( $r_{bd} = 0.7215$ ), which means when interest on deposit increases interest on lending also increases and vice versa. The coefficient is statistically insignificant since calculated t-value is lower than table value ( $1.8047 < 3.182$ ). This means both the rates are significantly not correlated with each other. The coefficient of determination between both the rates is 0.6006 which means 81.0% of variation in interest rate on lending has been explained by interest rate on deposit.

The relationship of inflation with interest rate on deposit,  $r_{be}$ , is positive i.e., 0.4655. But the correlation coefficient,  $r_{be}$ , is statistically insignificant since, calculated t-value is less than table value ( $0.9109 < 3.182$ ). Hence, it can be said that interest rate on deposit of UFCL is not influenced by inflation and there exists inverse relationship between these variables. At this point it can be said that general theories of interest rate contradict.

The relationship of inflation with interest rate on lending,  $r_{de}$ , is positive i.e., 0.8346. But the correlation coefficient,  $r_{de}$ , is statistically insignificant since, calculated t-value is less than table value ( $2.6244 < 3.182$ ). Hence, it can be said that interest rate on lending of UFCL is not influenced by inflation and there exists inverse relationship between these variables.

The coefficient of multiple determinations assuming interest rate on deposit as dependent and amount deposited and lending rate as independent,  $R^2_{b.ad}$ , is 0.8138 which means that 81.38% of total variation in dependent variable has been explained by two independent variables.

On the other hand the coefficient of multiple determination assuming interest rate on lending as dependent and amount loaned and interest rate deposit as independent,  $R^2_{d.bc}$ , 0.7453 which means that effect of two independent variables on the total variation in dependent variables is 74.53%.

### 4.2.3 Navadurga Finance Company Ltd. (NFC)

**Table 4.8 Financial Detail of Navadurga Finance Company**

In million

Year	Deposit Amount (A)	Interest Rate on Deposit (b)	Loan Amount ( C)	Interest rate on Loan(D)	Inflation Rate(E)
2006	274.24	7.65	198.89	11.62	7.8
2007	300.57	7.65	256.41	10.94	8.6
2008	416.08	6.48	393.68	10.94	6.4
2009	558.45	6.48	561.81	13.5	7.7
2010	802.11	9.75	744.73	16.37	13.2

Source: - Annual Reports of NFC and Various Financial Statistics Published by NRB.

Interest rate on deposit is taken as the average of the rates on various types of deposits which has been shown in Appendix A.

Interest rate on lending is taken as the average of quoted rates for various sectors and is shown in Appendix A.

Table 4.8 shows the amount collected interest rate on such deposits, amount loaned and interest on loan of NFC for 5 fiscal years from 2006 to 2010. Inflation rate for the same period has also been presented.

Simple and multiple correlation coefficients, coefficient of determination and t-values are presented in table 4.9.

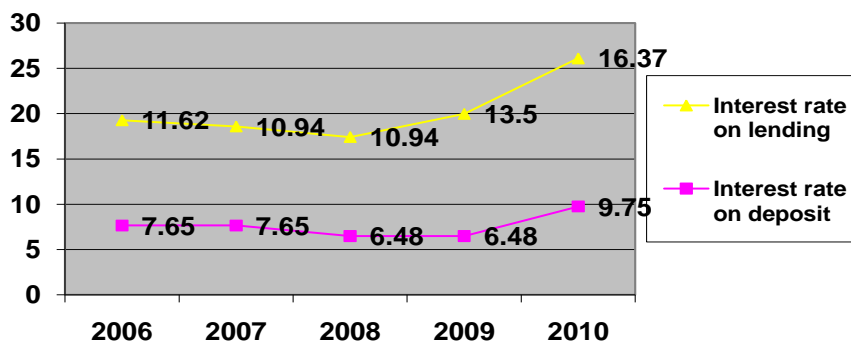
**Table 4.9 Correlation Analysis (NFC)**

Variables	Correlation Coefficient	Coefficient Determinants	T-statistics	Table Value	Remarks

$r_{ab}$	0.5675	0.3221	1.1938	3.182	Insignificant
$r_{bd}$	0.7133	0.5088	1.7626	3.182	Insignificant
$r_{cd}$	0.9043	0.8178	3.6696	3.182	Significant
$r_{be}$	0.9542	0.9105	5.5237	3.182	Significant
$r_{de}$	0.8634	0.7455	2.9641	3.182	Insignificant
Multiple Correlation Coefficient	Rb.ad=0.7799		Coefficient of multiple determinants	(Rb.ad) <sup>2</sup> =0.6082	
	Rd.bc=0.9645			(Rd.bc) <sup>2</sup> =0.9303	

Calculated values correlations have been shown in Appendix B.

**Figure 4-6 Relationship between Rate of NFC**



Correlation between amount of deposit and interest rate of deposit of Navadurga Finance Company is ( $r_{ab} = 0.5675$ ) which shows that there is positive relationship between them. When an amount deposited increases, interest rate on deposit will also increase and vice versa. But the coefficient of correlation is statistically insignificant because calculated t-values is lower than tabulated value for 3 d.f. at 5% level of significance ( $1.1938 < 3.182$ ). Thus, interest rate on deposit not significantly affected by the amount of deposit collected.

The correlation coefficient between interest rate on lending and amount loaned is also positive ( $r_{cd} = 0.9043$ ) which shows that when interest rate on lending increases the amount loaned will also increase and vice versa. The coefficient is also statistically significant as the calculated t-value, 3.6696 is greater than table value, 3.182. This means that amount loaned and interest rate on lending are significantly correlated which has been expressed by the

coefficient of determination,  $r_{cd}^2$ . But in practice when interest on loan decreases, amount of loan increases and vice versa.

But the correlation coefficient between interest rate deposit and lending is positive ( $r_{bd} = 0.7133$ ). The coefficient is statistically insignificant since calculated t-value is smaller than table value ( $1.7626 < 3.182$ ). This means that both the rates are not significantly correlated. The coefficient of determination between both the rates is 0.5088 which means 50.88% of variation in interest rate on lending has been explained by interest rate on deposit.

Another variable in economy that affects interest rate is inflation. The relationship of inflation with interest rate on deposit,  $r_{be}$ , and with interest rate on lending,  $r_{de}$ , is positive i.e. 0.9542 and 0.8634 respectively. The correlation coefficient,  $r_{be}$ , is statistically significant since, calculated t-value is greater than table value ( $5.5237 > 3.182$ ). Thus, there exists direct relationship between interest rate on deposit and inflation.

But the correlation coefficient  $r_{de}$  is insignificant as calculated value is lower than the tabulated value ( $2.9641 < 3.182$ ). Hence, it can be said that interest rate on lending not directly influenced by inflation and there exists indirect relationship between these variables.

The coefficient of multiple determination assuming interest rate on deposit as dependent and amount deposited and lending rate as independent  $R_{bad}^2$ , is 0.6082, which means that 60.82% of total variation in dependent variable has been explained by two independent variables.

On the other hand the coefficient of multiple determination assuming interest rate on deposit as dependent and amount deposited and lending rate as independent,  $R_{dbc}^2$ , 0.9303 which means that effect of two independent variables on the total variation in dependent variables is 93.03%.

#### 4.2.4 Lalitpur Finance Company (LFC)

**Table 4.10 Financial Detail of Lalitpur Finance Company**

in million

Year	Deposit Amount (A)	Interest Rate on Deposit (b)	Loan Amount ( C)	Interest rate on Loan(D)	Inflation Rate(E)
2006	798.35	8.42	781.13	13.28	7.8

2007	844.63	6.73	820.83	13	8.6
2008	948.3	7.35	1153.18	14.93	6.4
2009	1450.08	8.59	1913.65	15.69	7.7
2010	1902.6	9.21	2018.73	16.89	13.2

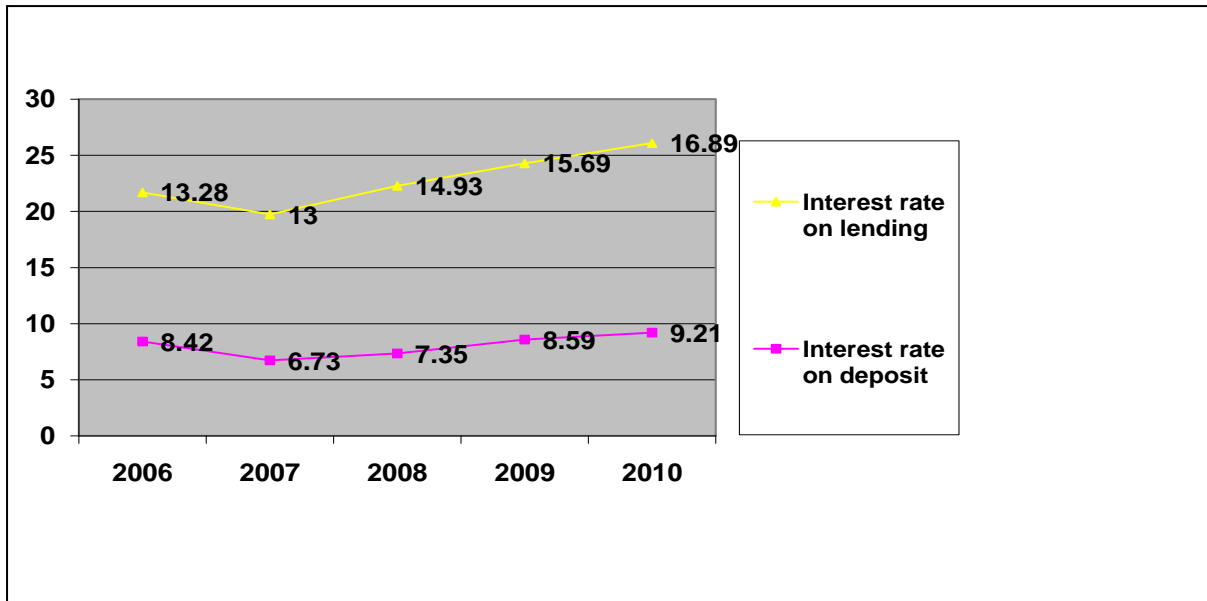
Source: - Annual Reports of LFC and various financial statistics published by NRB.

Table 4-10 depicts data of LFC consisting of amount of deposit collected, interest rate on such deposits, amount loaned and interest on loan for 5 fiscal years from 2006 / 2010. Inflation rate for the same period has also been presented. Simple and multiple correlation coefficients, coefficient of determination and t-values are presented in table 4-11.

**Table 4-11 Correlation Analysis (LFC)**

Variables	Correlation Coefficient	Coefficient Determinants	T-statistics	Table Value	Remarks
$r_{ab}$	0.7608	0.5788	2.0307	3.182	Insignificant
$r_{bd}$	0.7096	0.5035	1.7443	3.182	Insignificant
$r_{cd}$	0.9489	0.9004	5.2075	3.182	Significant
$r_{be}$	0.5826	0.3394	1.2415	3.182	Insignificant
$r_{de}$	0.5704	0.3253	1.2028	3.182	Insignificant
Multiple Correlation Coefficient		$R_{b,ad} = 0.7633$	Coefficient of multiple determinants		$R^2_{b,ad} = 0.5826$
		$R_{d,bc} = 0.9498$			$R^2_{d,bc} = 0.9021$

**Figure 4-7 Relationship between Rate of LFC**



The correlation coefficient between deposit amount and interest rate on deposit is positively correlated ( $r_{ab} = 7608$ ). The positive relationship shows that when amount deposited increases i.e. the supply of fund, interest rate ( return on deposit ) on such deposits also increases and vice versa. But the coefficient of correlation is statistically insignificant because calculated t-values is smaller than tabulated value for 3 d.f. at 5% level of significance. Thus, interest rate on deposit of LFC is not affected by the amount of deposit collected. The coefficient of determination between these two variables  $r^2_{ab}$  is 0.5788 which means that total variation in interest rate on deposit has been explained by the supply of deposit to the extent of 57.88% and remaining is the effect of other factors.

The correlation coefficient between interest rate on lending and amount loaned is also positive ( $r_{cd} = 0.9489$ ) which means that when interest rate on lending decreases the amount loan will decrease and vice versa. The coefficient is statistically significant as the calculated t-value, 5.2075 is greater than table value 3.182. Hence, we conclude that the variables, interest rate on lending and amount loaned are significantly correlated.

The correlation coefficient between interest rate on deposit and lending is positive ( $r_{bd} = 0.7096$ ). The coefficient is statistically insignificant since calculated t-value is lower than table value ( $1.7443 < 3.182$ ). This means that both the rates are not significantly correlated and changes in one rate doesn't directly affect the rate of other. The coefficient of determination between both the rates is 0.5035 which means 50.35% variation in interest rate on lending has been explained by interest rate on deposit.

The relationship of inflation with interest rate on deposit,  $r_{be}$ , is 0.5826, which explains the interest rate on deposit and inflation are positively correlated. But the correlation coefficient is statistically insignificant as calculated value of  $t$  is lower than the tabulated value ( $1.2451 < 3.182$ ).

The correlation between inflation and interest rate on lending,  $r_{de}$ , is 0.5704. But the correlation coefficient  $r_{de}$  is statistically insignificant since, calculated  $t$ -value is less than table value ( $1.2028 < 3.182$ ). Hence, it can be said that interest rate on lending of LFC isn't influenced by inflation and there exists inverse relationship between the variables (interest rate on lending and inflation). The coefficient of determination 0.3253 shows that 32.53% of total variation in interest on deposit is the effect of inflation.

To know the effect factors at once on interest rate, multiple correlations has been computed and presented at the lower part of the table 4-11. The coefficient of multiple determinations assuming interest rate on deposit as dependent and amount deposited and lending rate as independent and amount deposited and lending rate as independent  $R^2_{b,ad}$  is 0.5826 which means that 58.26% of total variation in dependent variable has been explained by two independent variables.

On the other hand the coefficient of multiple determinations assuming interest rate on lending as dependent variables has been explained by two independent variables. On the other hand the coefficient of multiple determinations assuming interest rate on lending as dependent and amount loaned and interest rate deposit as independent,  $R^2_{dbc}$ , 0.9021 which means that effect of two independent variables on the total variation in dependent variables is 90.21%.

#### 4.2.5 United Finance Company Ltd. (UFC)

**Table 4-12 Financial Detail of United Finance Company**

in million

Year	Deposit Amount (A)	Interest Rate on Deposit (b)	Loan Amount ( C)	Interest rate on Loan(D)	Inflation Rate(E)
2006	427.86	5.8	588.11	11.7	7.8
2007	494.27	6.25	815.97	13	8.6
2008	789.9	7.73	1249.4	14.93	6.4
2009	1262.1	8.97	1644.53	16.01	7.7
2010	2239.6	9.56	2159.54	17.18	13.2

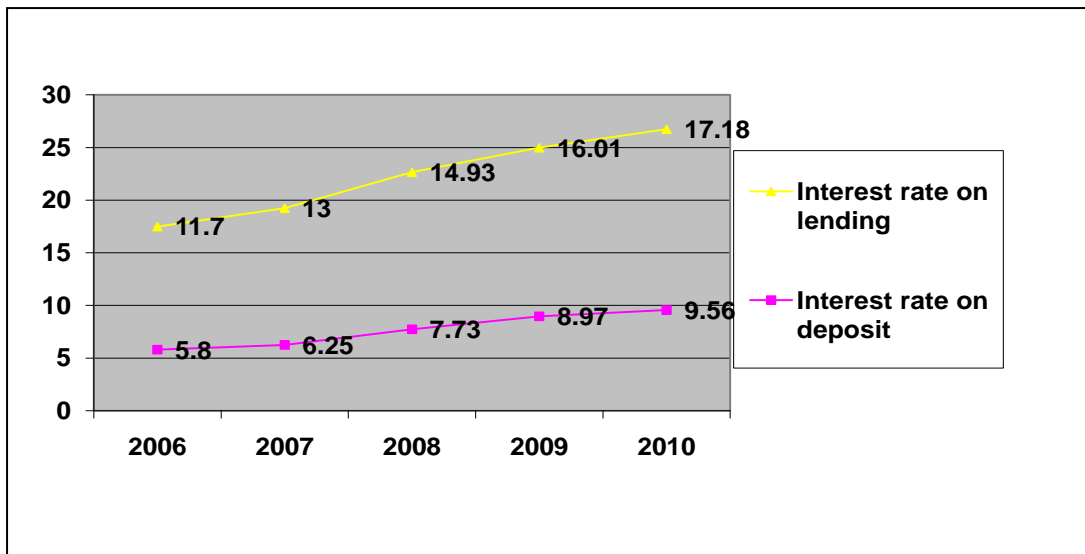
Source: - Annual Reports of UFC and Various Financial Statistics Published by NRB.

Table 4-12 shows the amount deposit collected, interest rate on such deposits, amount loaned and interest rate on loan of UFC for 5 fiscal years from 2006 to 2010. Inflation rate for the same period has also been presented. Simple and multiple correlation coefficients of determinations and t-values are presented in table 4-13.

**Table 4-13 Correlation Analysis (UFC)**

Variables	Correlation Coefficient	Coefficient Determinants	T-statistics	Table Value	Remarks
$r_{ab}$	0.9114	0.8306	3.835	3.182	Significant
$r_{bd}$	0.9894	0.9789	11.7935	3.182	Significant
$r_{cd}$	0.9832	0.9667	9.331	3.182	Significant
$r_{be}$	0.5179	0.2682	1.0458	3.182	Insignificant
$r_{de}$	0.5265	0.2772	1.0726	3.182	Insignificant
Multiple Correlation Coefficient		$R_{b,ad} = 0.9902$	Coefficient of multiple determinants		$R^2_{b,ad} = 0.9805$
		$R_{d,bc} = 1.8734$			$R^2_{d,bc} = 3.5096$

**Figure 4-8 Relationship between rates of UFC**



Correlation coefficient between amount deposited and interest rate on deposit,  $r_{ab}$  is 0.9114 which shows that there is positive relationship. In other words when amount deposited increases, interest rate on deposit will also increase and vice-versa. The coefficient of correlation is also statistically significant because calculated t-values is higher than tabulated value for 3 d.f.at 5% level of significance. Thus, interest rate on deposit of UFC is affected by the amount of deposit collected.

The correlation coefficient between interest rate on lending and amount loaned is negative ( $r_{cd} = 0.9832$ ) which shows that when interest rate on lending decreases the amount loaned will decrease and vice-versa. The coefficient is statistically significant as the calculated t-value, 9.3310 is higher than table value 3.182. This means that lending amount and interest on lending are significantly correlated which is completely different in general practice.

The correlation coefficient between interest rate on deposit and lending is positive ( $r_{bd} = 0.9894$ ). The coefficient is statistically significant since calculated t-value is greater than table value ( $11.7935 > 3.182$ ). This means that both the rates are significantly correlated and since in interest rate on deposit also brings change in interest rate on lending in the same direction. The coefficient of determinations between both the rates is 0.9789 which means 97.89% of variation in interest rate on lending has been explained by interest rate on deposit.

The relation of inflation with interest rate on deposit,  $r_{be}$  is positive i.e 0.5179 which means when inflation increases interest rate on deposit also increases and vice versa. The correlation coefficient is significantly insignificant as calculated value is lower than tabulated value ( $1.0485 < 3.182$ ). Hence, it can be said that interest on deposit doesn't have direct relationship with inflation rate.

Similarly interest rate on lending and inflation rate is also positively correlated  $r_{de} = 0.5265$ . In general the increase in inflation brings positive changes on both interest rates. The correlation coefficient  $r_{de}$  is statistically insignificant since calculated t-values is less than table values ( $1.0726 < 3.182$ ). Hence, it can be said that interest rate on lending of UFC has inverse relationship with the inflation.

The coefficient of multiple determinations assuming interest rate on deposit as independent and amount deposited and lending rate as dependent,  $R^2_{b,ad}$ , is 0.9805, which means that 98.05% of total variation in dependent variable has been explained by two independent variables.

#### 4.2.6 Nepal Merchant Banking and Finance Ltd. (NMBF)

**Table 4-14 Financial Details of Nepal Merchant Banking and Finance**  
in million

Year	Deposit Amount (A)	Interest Rate on Deposit (b)	Loan Amount ( C )	Interest rate on Loan(D)	Inflation Rate(E)
2006	856.26	5.3	1047.17	9.92	7.8
2007	1291.85	5.37	1452.23	10.8	8.6
2008	1661.6	7.5	1940	12.17	6.4
2009	6877.9	8.39	5194.2	14.58	7.7
2010	10110.69	9.57	7801.1	16.21	13.2

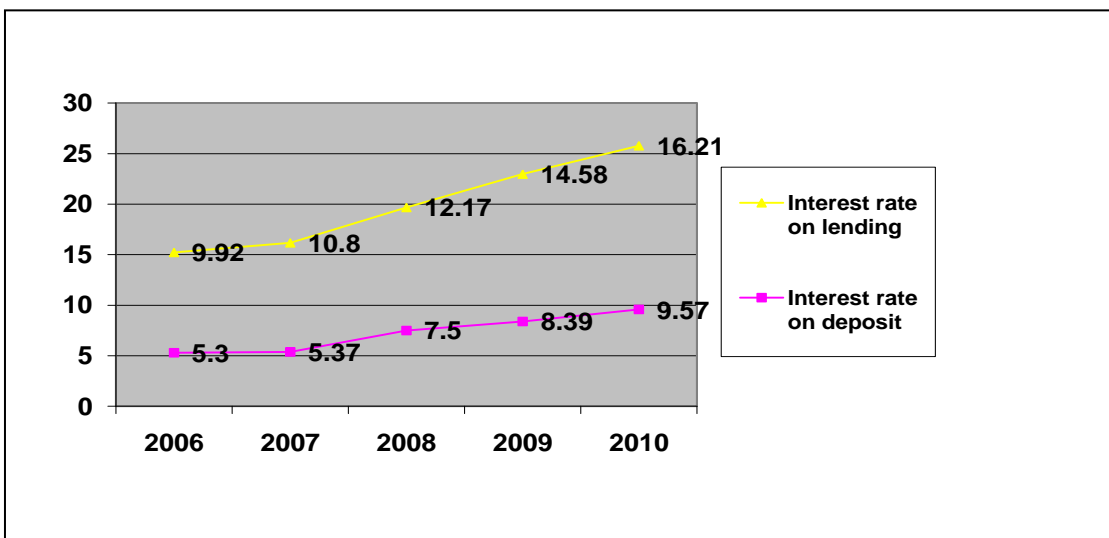
Source: - Annual Reports of NMBF and Various Financial statistics Published by NRB.

Table 4-14 shows the amount deposit collected interest rate on such deposits, amount loaned and interest on loan of NMBF for 5 fiscal years 2006 to 2010 inflation rate and risk free rate for the same period has been presented. Simple and multiple correlation coefficients, coefficient of determinations and t-values are presented in table 4-15.

**Table 4-15 Correlation Analysis (NMBF)**

Variables	Correlation Coefficient	Coefficient Determinants	T-statistics	Table Value	Remarks
$r_{ab}$	0.9074	0.8234	3.7401	3.182	Significant
$r_{bd}$	0.9752	0.9510	7.6287	3.182	Significant
$r_{cd}$	0.9756	0.9518	7.6979	3.182	Significant
$r_{be}$	0.5436	0.2955	1.1218	3.182	Insignificant
$r_{de}$	0.6503	0.4229	1.4826	3.182	Insignificant
Multiple Correlation Coefficient	$R_{b,ad} = 0.9875$		Coefficient of multiple determinants	$R^2_{b,ad} = 0.9752$	
	$R_{d,bc} = 0.9950$			$R^2_{d,bc} = 0.9900$	

**Figure 4-9 Relationship between rate of NMBF**



From the above table it can be known that deposit amount and interest rate on deposit are positively correlated ( $r_{ab} = 0.9074$ ) which shows that when amount deposited increases, interest rate on deposit will also increase and vice versa. The coefficient of correlation is statistically significant because calculated t-value is higher than tabulated value for 3.d.f at 5% level of significance. Thus, interest rate on deposit of NMBF is affected by the amount of deposit collected.

The correlation coefficient between interest rate on lending and amount loaned is positive ( $r_{cd} = 0.9756$ ) which shows that when interest rate on lending decreases the amount loaned will decrease and vice versa, which is very different in the real case. The coefficient is

statistically significant as the calculated t-value 7.6979 is higher than table value 3.812. This means that Null hypothesis (H0) is not accepted which means that there is significant difference between sample mean and population mean.

The correlation coefficient between interest rate on deposit and lending is positive ( $r_{bd} = 0.9752$ ). The coefficient is statistically significant since calculated t-value is higher than table value ( $7.6287 < 3.182$ ). This means that both the rates are significantly correlated.

The relationship of inflation with interest rate on deposit  $r_{be}$  is positive i.e.0.5436 which explains when inflation increases interest rate also increases and viceversa. The correlation coefficient is statistically insignificant as calculated t value is lower than the tabulated value (i.e.  $1.1218 < 3.182$ ).

The correlation coefficient of inflation with interest rate on lending,  $r_{de}$  is also positive i.e.0.6503 which means with the increase in inflation rate interest on lending also increases and vice versa. The correlation coefficient  $r_{de}$  is insignificant since calculated t-values is less than table value ( $1.4826 < 3.182$ ). Hence, it can be said that interest rate on lending of NMBF is not influenced by inflation an there exist inverse relationship between these variables.

To examine the combined effect of independent variables on interest rate on lending, the multiple correlations have been computed. The coefficient of multiple determinations assuming interest rate on deposit as dependent and an amount deposited and lending rate as independent,  $R^2_{b.ad}$ , is 0.9752 which means that 97.52% of total variation in dependent variable has been explained by two independent variables.

**Table 4-16 Deposit Amount of Sample Organization**

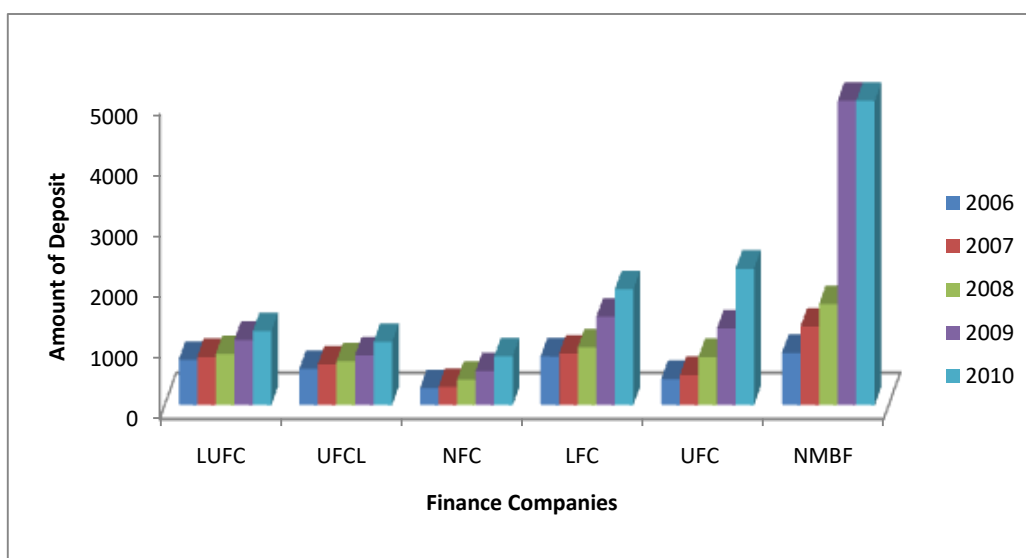
Rs. In million

Fiscal year	2005/06	2006/07	2007/08	2008/09	2009/10
LUFC	741.67	789.77	838.98	1071.21	1216.56
UFCL	594.69	669.98	720.9	816.94	1037.84
NFC	274.24	300.57	416.08	558.45	802.11
LFC	798.35	844.63	948.3	1450.08	1902.6

UFC	427.86	494.27	789.9	1262.1	2239.6
NMBF	856.26	1291.85	1661.6	6877.9	10110.69

The above table depicts the deposited amount of 6 financial companies. The deposits of sample organizations are seen in increasing trend. Similarly the size of deposit of NFC is relatively smaller in the F/Y 2006 & 2007. But the size of deposit of NMBF is the highest among the sample organizations while NFC has smallest size of deposit. It has also been presented in figure.

**Figure 4-10 Deposit Amount of Sample Organization**



**Table 4-17 Amount of Loan Disbursed by sample Organization**

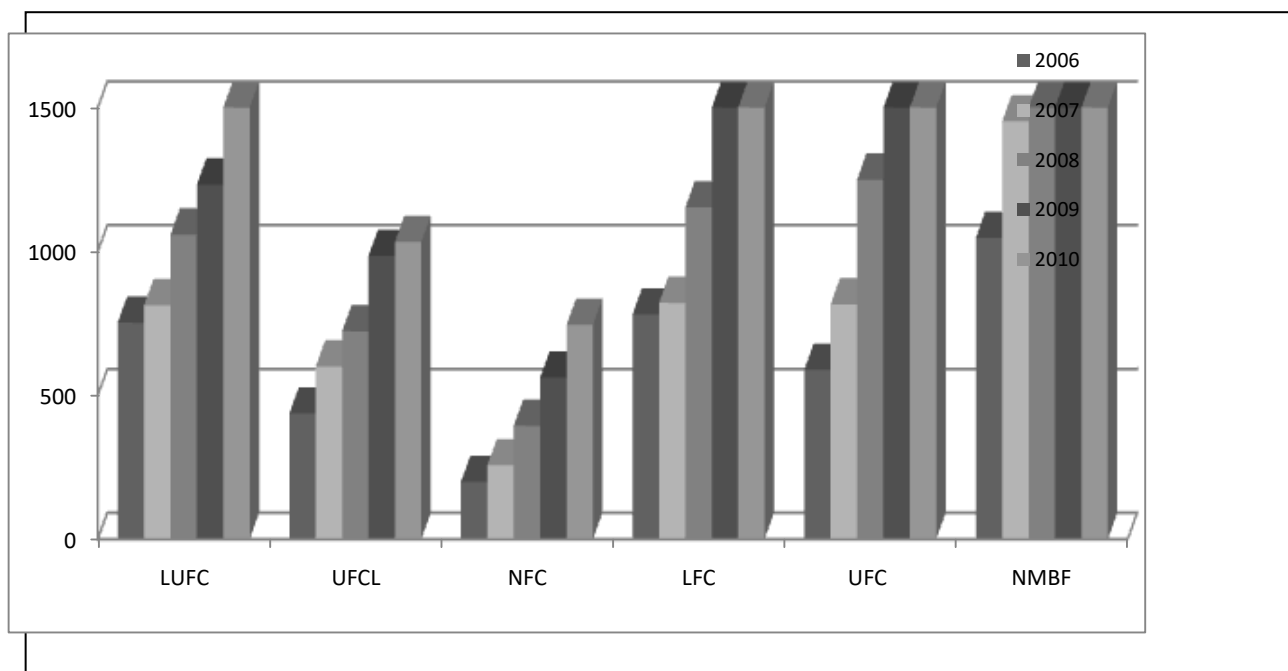
Rs. In million

Fiscal year	2005/06	2006/07	2007/08	2008/09	2009/10
LUFC	752.08	812.61	1058.25	1231.94	1525.09
UFCL	436.19	599.95	722.23	984.46	1032.51
NFC	198.89	256.41	393.68	561.81	744.73
LFC	781.13	820.83	1153.18	1913.65	2018.73

UFC	588.11	815.97	1249.4	1644.53	2159.54
NMBF	1047.17	1452.23	1940	5194.2	7801.1

The table 4.17 shows the amount of loaned by different sample financial companies. The amount loaned is found in increasing trend of almost all the sample organizations. This has been presented in the following figure.

**Figure 4-11 Loan Amount of Sample Organization**



**Table 4-18 Interest Rates on Deposit of Sample Organization**

**In percentage**

Year	LUFC	UFCL	NFC	LFC	UFC	NMBF
2006	6.46	4.92	7.65	8.42	5.8	5.3
2007	6.14	5.8	7.65	6.73	6.25	5.37
2008	7.3	7.3	6.48	7.35	7.73	7.5
2009	8.36	8.75	6.48	8.59	8.97	8.39
2010	9.52	9.06	9.75	9.21	9.56	9.57

The above table 4-18 shows the interest rate on deposit of all sample organizations. The interest rate on deposits of all sample organization is found in increasing trend. The increase in the interest rate on deposit is because of various qualitative factors which will be discussed in coming section. Among the sample organizations NFC has the highest rate of interest i.e.9.75% in FY 2009/10 and UFCL has the least interest rate in FY 2005/06 i.e. 1.29%. The interest rate on deposit of NFC has remained the same during the fiscal year from 2005/06 to 2006/07 i.e. 7.65 and also in FY 2007/08 to 2008/09 has remained unchanged i.e. 6.48.

**Table 4-19 Interest Rate on Lending of Sample Organizations  
in percentage**

Year	LUFC	UFCL	NFC	LFC	UFC	NMBF
2006	13	14.65	11.62	13.28	11.7	9.92
2007	12.75	14.3	10.94	13	13	10.8
2008	13.29	13.5	10.94	14.93	14.93	12.17
2009	15.29	16.39	13.5	15.69	16.01	14.58
2010	16.75	17.95	16.37	16.89	17.18	16.21

The above table 4-19 depicts the interest rate on lending different sample financial companies from FY 2006 to 2010. According to the table the interest rate on lending are seen to be in decreasing and then in increasing trend as the increment in interest rate on deposit brings the change interest rate on lending in the same direction. In the FY 2005/06 the interest rate on lending of UFCL is the highest i.e.14.65% that of NMBF is the least i.e.9.92% in FY 2005/06. The interest rate on lending of NMBF is more volatile than all the other finance companies.

### **4.3 Major Findings**

- Interest rate charged and offered by Nepalese Finance Companies is shaped by the competition among Finance Companies to a large extent as known by the direct interviews with the concerned persons of the Finance Companies.

- Negotiation between customers and the Finance Company may make the quoted rate according to the sector differ.
- Political instability, violence is responsible for economic slackness which ultimately affects interests' rate through influencing demand and supply force.
- Open Border with India does not directly affect the interest rate charged and offered by Nepalese Finance Companies.
- Various policies and directives (Fiscal & Monetary) are also the responsible factors for determining the interest rate charged and offered by Nepalese Finance Companies.
- The liquidity positioning is one of the important factors to determine interest rate. With the increase in amount of deposit, the interest rate also seems increasing.
- The correlation coefficient between interest rate on deposit and lending are found highly positive indicating that whatever may be deposit accepted or amount loan, they are related with the interest rate.
- Interest rate on both deposit and lending has found to move in the same direction with the inflation rate which contradicts with the general principle. The reason might be saving patterns and lack of investment opportunities due to political instability, lack of security, etc.

## **CHAPTER: V**

### **SUMMARY, CONCLUSION & RECOMMENDATIONS**

This chapter is the last part of the study which is the most important chapter for the research because this chapter is the extracts of all the previously discussed chapters. This chapter comprises summary, conclusion and recommendations. Summary part includes revision of all four chapters. Conclusion part contains the summary of the result from the research and in recommendations part suggestions or recommendations are made base on the result and experience of thesis. Recommendation is made to the concerned authorities and further researcher to improve or solve the problem on the basis of findings.

#### **5.1 Summary**

Nepal a small country sandwiched between two economically powerful countries China & India has the pace of economic development still in its infant stage. Rich natural resources are lying under the earth due to the lack of technical know how and financing. As the economic development of the country depends upon efficient transformation of savings from the hands of surplus units into deficit units in productive ways; this transformations takes largely through the intermediation of financial institutions. Finance Companies are perhaps, the fastest growing financial institution in Nepal. The growth of finance companies may be due to its flexibility and benefit to adjust the demand of the borrowers and the depositors of the growing economy of the country. They are authorized to accept deposits under several schemes and to mobilize the funds in wide range of productive sectors like agriculture, industries, trade and commerce. They perform the varying of providing specialized service to their clients, offering higher rate of interest, employment and revenue generation.

Finance companies of Nepal, licensed under the Finance Company act 1985, are the third largest group of deposit taking financial institutions after commercial banks and development banks. These finance companies are the creation of early 1910's. Finance companies are recently incorporated under company act 2053. Finance companies are the institutions that are incorporated under company act to perform non-banking activities arrangements and operation of different schemes. These institutions collect the funds under different arrangements they have made and disburse the funds and meet their objectives. The finance

companies survive by making profit which is the interest spread i.e. difference between interest received and interest charged.

Interest is the payment made for the use of money and interest rate is the amount of interest paid per unit of time expressed as a percentage of the amount borrowed. What are the responsible factors for the determination of interest rate of Nepalese financial companies was the main purpose of this study.

First chapter is followed by theoretical review in second chapter. Different views of interest and theories determining interest rate are presented. Interest rates have been reviewed in this chapter which offers insights into the functioning of the financial system. The classical theory of interest emphasizes saving and investment demand as interest rate determining forces, while the liquidity preference theories points to the demands and supply of cash balances.

Loanable fund theory views interest rate as determine by the total demand for and supply of credit while the rational expectations theory emphasizes the role played by public expectations regarding interest rate, economy and the impact of new information on the movement of interest rates to a new equilibrium. According to the fisher effect, if expected inflation rate rises, the nominal interest rate on a financial asset must also rise by exactly by the same amount, point for point.

The yield curve or term structure of interest rate expresses the relationship between the annual rate of return on a financial company and its term to maturity when all other factors are held constant. Regardless of which theory is valid yield curve can play a key role in management of financial companies, which borrow a substantial portion their funds are the short end of the maturity spectrum and lend heavily at longer maturities the price of security and its yield are inversely related. We have examined four different methods of calculating effective interest rate in chapter two. Interest rate is also affected by economic growth budget deficit, servicing cost exchange rate risk etc. Even the study on this topic is not available some thesis and independent studies relating to some aspect of the study have been reviewed in this chapter.

The factors affecting interest rate charged and offered by Nepalese financial companies are analyzed using statistical tools mentioned in chapter three. Out of the total financial companies only six are taken as samples. Primary data are collected using questionnaire

interview and secondary data are collected from various publications, websites, and annual reports of respective organizations. Collected are presented in tabular and graphic form and analyzed using various statistical tools like mean, correlation coefficient, t-statistics and coefficient of determinations in chapter four.

## 5.2 Conclusion

From the analysis of relevant data of sample finance companies under study using various statistical tools following conclusions have been drawn out which also has been expressed in tabular form in "Appendix C".

- The correlation coefficient between interest rate on deposit and amount of deposit ( $r_{ab}$ ) ranges from 0.9737 to 0.5675. The correlation coefficient of LUFC, LFC, UFC & NMBF are statistically insignificant. As the explanation of general theories of interest there should be positive relationship between these variables meaning that higher interest rate attracts more deposit, which is verified by the calculated correlation coefficient. The positive relationship shows that saving is increasing as rate of such deposit.
- The amount of loan is affecting interest rate on lending. The relation between these variables has been analyzed through correlation coefficient ( $r_{cd}$ ) between amount of loan and interest rate on lending of selected companies. The correlation is observed to be positive which means that less amount is loaned at lower rate. The contradict relationship of lending of fund with interest rate of six different finance companies might be due to the several factors like unsecured investment opportunities saving pattern of individuals households etc.
- The relationship between interest rate on deposit and on lending ( $r_{bd}$ ) for all sample organizations is highly positive. The correlation coefficient ranges from 0.98 to 0.70 among sample finance companies. These coefficients are statistically significant for three sample organizations. It means both rates are depended to each other the insignificant correlation of three sample organizations contradicts with general theory.
- The relationship between interest rate on deposit and inflation rate ( $r_{be}$ ) ranges from 0.9542 to 0.4655. The correlation coefficient for five samples is statistically insignificant. Theoretically there should be positive correlation between these two variables, which matches with correlation. Since correlation coefficient is statistically insignificant, this doesn't match with the general theory.

- Competition among the Financial Companies is most significant factor to determine interest charged and offered by such companies. Each Finance Company has targeted specific group of customers.
- Maturity period of loan seems not so significant factor to affect interest rate on lending but interest rate on deposit is influenced by the maturity period. Generally institution do not provide long term loan rather they renew frequently according to the borrowers credit worthiness.
- In spite of different interest rate quoted by Finance Companies for different sector loan, it is not as significant in determining interest rate as the rate may be higher or lower than quoted through the negotiation.
- Political instability and violence in country has great and significant impact on amount of deposits lending as well as interest charged and offered by Nepalese Finance Companies. From the questionnaire and direct interviews it is concluded that frequently changing governments are affecting overall operation of Finance Companies including interest rate. Similarly violence is also reducing investments opportunities.
- Open border with India is not significant factor to affect the interest rate directly charged and offered by the Finance Companies.
- The deposit amount all the sample finance company is in increasing trend so as the interest rate on deposit. This is due to unavailability of investment opportunities, market competition.
- The interest rate on lending is decreased by more percentage point in comparison to deposit interest rate. Finance Companies are willing to lend even in lower rate due to over liquidity.
- Seasonal impact has nothing to do with the interest rate charged and offered by Nepalese Finance Companies.
- Various regulatory and promotional roles played through various monetary measure and directives issued by NRB from time to time affect the interest rate to large extent. CRR, refinance rate, bank rate, buying & selling of foreign currencies and treasury securities are some of the measures use by NRB to influence interest rate.
- Performance of the borrowing company, collateral base goodwill and reputation of borrower, loyalty, size of business, volume of loan bargaining power etc are some of the specific factors influencing interest rate on lending. Beside it reduction in lending opportunity due to terrorism, conflict insecurity etc according to the respondent are

some long term economic factors that affects interest rate. The study shows that there is over liquidity with the Financial Companies which is shown by increasing trend of deposit.

### **5.3 Recommendations**

Financial market, the major part of which is occupied by financial companies, is growing with the snail's speed. It existing operational problems, fragile legal frame work and unnecessary political intervention and control of NRB and government are the responsible factors for it's under development.

The role of Financial Companies (The important component of Financial Market) should be efficient towards transformation of funds between savers and users from nook & corner for the productive uses. Capital and investment is essential as it is considered as the key to success of any organizations for good financial system. For the purpose proper decision making in the field of determining interest is very crucial. It is possible only by proper decision making of interest. So, all finance companies are suggested to set proper and practical interest rate policy.

Based on analysis, interpretation & conclusions the following recommendations can be made which would be helpful in near future for the finance companies, researchers and academicians.

- NRB, the information house for public and other concerned parties, has authority to control and stimulate the financial system. Financial information is a strong power. Therefore, NRB is suggested to provide and improve its mechanism in information dissemination activities so that all the concerned parties can make the correct decision at the right time and at the right place. Further more NRB directives and policies issued at different times are fragile and contradict sometime. Therefore, NRB is suggested developing stable legal frame work to formulate solid policies.
- There is inconsistency in payment and charging of interest rates. This may create misconception about the organizations regarding its financial position and profit. So, finance companies are suggested to fix concessional rates on lending so that it can increase investments opportunities and promote industrial sector.
- The concerned persons of the organizations under study hesitate to co-operate the researcher in providing necessary financial data and information. So, the concerned

persons are suggested to co-operate with further researchers. Further more, institutions are suggested to include their interest rate structure in their annual reports. Government and NRB should aim at promulgating suitable policies to enhance the development of economy and motivate financial intermediaries in canalizing the idle funds into productive sectors.

- Finance Companies are authorized to accept deposits under several schemes and to mobilize the funds in wide range of productive sectors like agricultural, industrial, trade and commerce. So, such organizations should perform varying roles of providing specialized services to their clients, introduce new schemes, offering higher rate of interest which may solve the problem of over liquidity.
- Financial Companies are suggested to consider inflation rate while quoting the interest rate on deposit. So that the depositors real rate of return comes in positive. Because the negative real rate of return hurts the deposit holder.
- There should be fair competition among the Financial Companies aiming at providing quality services but in the name of competition the financial companies are suggested not to exploit the customers. Similarly the clients are suggested to be aware about the fact that the effective interest rate differs with the quoted interest rate.
- The increasing trend of deposit that pressures down the interest rate shows that financial companies are facing over liquidity problem due to insecurity, lack of investment opportunities and political instability financial companies are suggested to manage the over liquidity through the application of various techniques of liquidity management.
- The economic activities are slacking down due to the political activities prevailing in the country for which the government has to provide security and develop infrastructure. Investment opportunities are curtailed and every financial company is facing over liquidity problem. To boost up the economy, the stable policies, sustainable peace in the country is the present need. So, the government should give a solid outlet to violence faced by the country for the last decade through proper arms management, peace talks under the keen monitoring of UNO.

## **Bibliography**

- Ahuja H.L (1992). "Advanced Economic Theory, Micro Economic Analysis" New Delhi: S. Chand and Company Ltd.
- Cheney, John M. and Moses Edward A (2005). "Fundamentals of Investments" St. Paul: West Publishing Company.
- Joshi, P. R. (2004). "Research Methodology" Kathmandu: Buddha Academic Publisher & Distributers Pvt. Ltd.
- Joshi, Shyam (2058). "Micro and Macro Economic Analysis" Kathmandu: Taleju Prakashan.
- Kohn, Meir (1998) "Financial Institution & Market" New Delhi: Tata Mc Graw Hill,
- K.C, F.B (2057) "Business Finance" Kathmandu: Sukunda Pustak Bhawan.
- Rose, Peter. S (2003) "Money & Capital Markets, Financial Institutions and Instruments in a Global Market Place" Chicago: Mc Graw Hill Irwin.
- Sharma, P. K. & Chaudhary, A.K. (2002). "Statistical Methods" Kathmandu: Khanal Books and Stationery.
- Shrestha Manohar Krishna & Bhandari, Deepak B (2004) "Financial Markets and Institution" Kathmandu: Asmita Books Publisher & Distributor.
- Van Horne, J.C (2000) "Financial Management and Policy" New Delhi: Prentice Hall of India.
- Weston, J.F and Brigham, E.F (1996) "Essentials of Managerial Finance" Chicago: The Dryden Press.
- Wolf, K.H and Pant, P.R (2005) "A Hand Book of Social Science Research and Thesis Writing" Kathmandu: Buddha Academy.

## **Dissertations**

Lamichhane, Nani M (2011) “Determinants of Interest Rate in Nepalese Commercial Banks”

An unpublished Thesis submitted to T.U.

Mourti, Hom (1982) “Demand for Money and the General Rate of Interest” An unpublished

Independent study.

Panta, Raghav D(1983) “Interest Rate Policy of Nepal” An unpublished study jointly

sponsored by the Institute of Development Studies and International Development Research Centre. Ottawa, Canada.

Parajuli, Aakash (2009) “Factors Affecting Interest Rate in Listed Nepalese Banks and

Finance Companies” An unpublished Thesis submitted to T.U.

Pokharel, Jhabindra (2004) “Determinants of Interest Rates in Nepalese Financial Market”

An unpublished Thesis submitted to T.U.

Pudasaini, Diwakar (2009) “Factors Determining the Interest Rate of the Commercial Banks”

An unpublished Thesis submitted to T.U.

Sharma, R.K (2007) “Determinants of Interest Rate in Nepalese Finance Companies” An

unpublished Thesis submitted to T.U.

## **Annual Reports, Journals**

Annual Reports of Sample Finance Companies (2006-2010)

Banking and Financial Statistics (2006-2010), Nepal Rastra Bank, Kathmandu.

## **Web sites**

[www.lalitpurfinco.com](http://www.lalitpurfinco.com)

[www.lufc.com](http://www.lufc.com)

[www.nfc.com](http://www.nfc.com)

[www.nmb.com](http://www.nmb.com)

[www.nrb.org.np](http://www.nrb.org.np)

[www.ufcl.com](http://www.ufcl.com)

[www.ufl.com](http://www.ufl.com)

## Appendix "A"

### Calculation of Average Interest on Deposit of NFC

Rate in Percentage

Year	Saving	Average	Fixed Deposit								
			3M	6M	9M	1 YR	2 YR	3 YR	4 YR	5 YR	6 YR
2006	6	7.77	5.5	6	6.5	7.5	8	8.5	9	9.5	10
2007	6	7.77	5.5	6	6.5	7.5	8	8.5	9	9.5	10
2008	5	6.48	4.5	5	5.5	6.5	7	7.5	7.75	8	8
2009	5	6.48	4.5	5	5.5	6.5	7	7.5	7.75	8	8
2010	8	9.83	6	6.5	7	10	10.75	11.25	12	12.75	14

$$\text{Average (2010)} = (8+6 + 6.5+7+10+10.75+11.25+12+12.75+14)/10$$

$$= 9.83$$

### Credit of NFC

Sectors	2006	2007	2008	2009	2010
Business Loan	17 – 18	16-17	16-17	13-14	16-18
Industrial Loan	16-17	16-17	16-17	13-14	17-18
Housing Loan	18	17	17	13-14	15-16
Hire Purchase Loan	16-18	15-17	15-17	13-14	15-17
13-14Agriculture Business Loan	18	17	17	13-14	16-17
Miscellaneous	18	17	17	13-14	15-18
Government Bonds	12	11	11	13-14	15-16
Loan Against Share Certificate	18	15	15	13-14	15-18
Loan Against FDR	(+) 3	(+) 2	(+) 2	(+) 2	(+) 2
<b>Average</b>	17.61	16.63	16.33	12.5	16.38

$$\text{Average (2007)} = [ (16 + 18) / 2 + (17 + 18) / 2 + (15 + 16) / 2 + (15 + 17) / 2 + (16 + 17) / 2 + (15 + 18) / 2 + (15 + 16) / 2 + (15 + 18) / 2 ] / 8$$

$$= 16.380 \%$$

## Appendix "B"

### Calculation of Correlation Coefficient on Deposit Amount (A) & Average Interest Rate on Deposit (B) of Navadurga Finance Company

Year	a	b	ab	a <sup>2</sup>	b <sup>2</sup>
2006	274.24	7.65	2097.94	75207.58	58.52
2007	300.57	7.65	2299.36	90342.32	58.52
2008	416.08	6.48	2696.20	173122.57	41.99
2009	558.45	6.48	3618.76	311866.40	41.99
2010	802.11	9.75	7820.57	643380.45	95.06
	$\sum a = 2351.45$	$\sum b = 38.01$	$\sum ab = 18532.82$	$\sum a^2 = 1293919.32$	$\sum b^2 = 296.08$

$$\begin{aligned}
 r_{ab} &= \frac{n \sum ab - \sum a \sum b}{\sqrt{n \sum a^2 - (\sum a)^2} \sqrt{n \sum b^2 - (\sum b)^2}} \\
 &= \frac{5 \times 18532.82 - 2351.45 \times 38.01}{\sqrt{5 \times 1293919.32 - (2351.45)^2} \sqrt{5 \times 296.08 - (38.01)^2}} \\
 &= \frac{92664.10 - 89378.61}{969.68 \times 5.97} \\
 &= \frac{3285.49}{5788.99} \\
 &= 0.5675
 \end{aligned}$$

The coefficient of determination between interest rate on deposit and deposit amount.

$$R^2_{ab} = 0.3211$$

**The Test of Significance of Correlation Coefficient Between Deposit Amount Deposit Rate.**

**T Statistic Under Null Hypothesis.**

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

$$= \frac{0.5675}{\sqrt{1-(0.5675)^2}} \sqrt{5-2}$$

$$\frac{0.5675}{\sqrt{0.6799}} \times 1.732$$

$$\frac{0.9829}{0.8233}$$

$$= 1.1938$$

$$t = 1.1938$$

**Calculation of Correlation Coefficient between Deposit Rate & Lending Rate.**

Year	b	d	bd	b <sup>2</sup>	d <sup>2</sup>
2006	7.65	11.62	88.89	58.52	135.02
2007	7.65	10.94	83.69	58.52	119.68
2008	6.48	10.94	70.89	41.99	119.68
2009	6.48	13.50	87.48	41.99	182.25
2010	9.75	16.37	159.61	95.06	267.98
	$\sum b = 38.01$	$\sum d = 63.37$	$\sum bd = 490.56$	$\sum b^2 = 296.08$	$\sum d^2 = 824.61$

$$\begin{aligned}
 r_{bd} &= \frac{5 \times 490.56 - 38.01 \times 63.37}{\sqrt{5 \times 296.08 - (38.01)^2} \sqrt{5 \times 824.61 - (63.37)^2}} \\
 &= \frac{2452.80 - 2408.69}{5.9699 \times 10.3582} \\
 &= \frac{44.11}{61.84} \\
 &= 0.7133
 \end{aligned}$$

The coefficient of determination between interest rate on deposit and deposit amount.

$$R^2_{bd} = 0.5088$$

**The Test of Significance of Correlation Coefficient Between Deposit Rate and Lending Rate.**

**T Statistic under Null Hypothesis.**

$$\begin{aligned}
 t &= \frac{r_{bd}}{\sqrt{1 - r^2_{bd}}} \sqrt{n - 2} \\
 &= \frac{0.7133}{\sqrt{1 - (0.7133)^2}} \sqrt{5 - 2}
 \end{aligned}$$

$$\frac{0.7133}{\sqrt{0.4912}} \times 1.732$$

$$\frac{1.2354}{0.7009}$$

$$= 1.7626$$

$$t = 1.7626$$

**Calculation of Correlation Coefficient Between Lending Amount & Interest on Lending of Navadurga Finance Company.**

Year	c	d	cd	c <sup>2</sup>	d <sup>2</sup>
2006	198.89	11.62	2311.10	39557.23	135.02
2007	256.41	10.94	2805.13	65746.09	119.68
2008	393.68	10.94	4306.86	154983.94	119.68
2009	561.81	13.5	7584.44	315630.48	182.25
2010	744.73	16.37	12191.23	554622.77	267.98
	$\sum c = 2155.52$	$\sum d = 63.37$	$\sum cd = 29198.74$	$\sum c^2 = 1130540.51$	$\sum d^2 = 824.61$

$$\begin{aligned}
 r_{cd} &= \frac{n \sum cd - \sum c \sum d}{\sqrt{n \sum c^2 - (\sum c)^2} \sqrt{n \sum d^2 - (\sum d)^2}} \\
 &= \frac{5 \times 29198.74 - 2155.52 \times 63.37}{\sqrt{5 \times 1130540.51 - (2155.52)^2} \sqrt{5 \times 824.61 - (63.37)^2}} \\
 &= \frac{145993.7 - 136595.30}{1003.21 \times 10.36} \\
 &= \frac{9398.40}{10393.26} \\
 &= 0.9043
 \end{aligned}$$

The coefficient of determination between interest rate on deposit and deposit amount.

$$R^2_{cd} = 0.8178$$

**The Test of Significance of Correlation Coefficient Between Lending Amount and Interest on Lending**

**T Statistic under Null Hypothesis.**

$$\begin{aligned}
 t &= \frac{r_{cd}}{\sqrt{1-r^2_{cd}}} \sqrt{n-2} \\
 &= \frac{0.9043}{\sqrt{1-(0.9043)^2}} \sqrt{5-2} \\
 &= \frac{0.9043}{\sqrt{0.1822}} \times 1.732 \\
 &= \frac{0.9043 \times 1.732}{0.4268} \\
 &= 3.6696
 \end{aligned}$$

$$t = 3.6696$$

**Calculation of Correlation Coefficient between Average Interest Rate on Deposit & Inflation Rate of Navadurga Finance Company**

Year	b	e	be	b <sup>2</sup>	e <sup>2</sup>
2006	7.65	7.8	59.67	58.52	60.84
2007	7.65	8.6	65.79	58.52	73.96
2008	6.48	6.4	41.47	41.99	40.96
2009	6.48	7.7	49.90	41.99	59.29
2010	9.75	13.2	128.70	95.06	174.24

	$\sum b = 38.01$	$\sum e = 43.70$	$\sum be = 345.53$	$\sum b^2 = 296.08$	$\sum e^2 = 409.29$
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$$r_{be} = \frac{5 \times 345.53 - 38.01 \times 43.70}{\sqrt{5 \times 296.08 - (38.01)^2} \sqrt{5 \times 409.29 - (43.70)^2}}$$

$$= \frac{1727.65 - 1661.04}{5.9699 \times 11.6944}$$

$$= \frac{66.61}{69.81}$$

$$= 0.9542$$

The coefficient of determination between interest rate on deposit and deposit amount.

$$\mathbf{R^2_{be} = 0.9105}$$

**The Test of Significance of Correlation Coefficient Between Interest on Deposit and Inflation Rate.**

**T Statistic under Null Hypothesis.**

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

$$t = \frac{0.9542 \times 1.732}{\sqrt{1-(0.9542)^2}}$$

$$= \frac{1.6527}{0.2992}$$

$$= 5.5237$$

$$t = 5.5237$$

**Calculation of Correlation Coefficient between Average Interest Rate on Lending & Inflation Rate of Navadurga Finance Company.**

Year	d	e	de	d <sup>2</sup>	e <sup>2</sup>
2006	11.62	7.8	90.64	135.02	60.84
2007	10.94	8.6	94.08	119.68	73.96
2008	10.94	6.4	70.02	119.68	40.96
2009	13.5	7.7	103.95	182.25	59.29
2010	16.37	13.2	216.08	267.98	174.24
	$\sum d = 63.37$	$\sum e = 43.70$	$\sum de = 574.77$	$\sum d^2 = 824.61$	$\sum e^2 = 409.29$

$$r_{de} = \frac{5 \times 574.77 - 63.37 \times 43.70}{\sqrt{5 \times 824.61 - (63.37)^2} \sqrt{5 \times 409.29 - (43.70)^2}}$$

$$= \frac{2873.85 - 2769.27}{10.3582 \times 11.6944}$$

$$= \frac{104.58}{121.13}$$

$$= 0.8634$$

The coefficient of determination between interest rate on deposit and deposit amount.

$$R^2_{de} = 0.7455$$

### The Test of Significance of Correlation Coefficient between Interest on Lending and Inflation Rate

#### T Statistic under Null Hypothesis

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

$$t = \frac{0.8634 \sqrt{5 - 2}}{\sqrt{1 - (0.8634)^2}}$$

$$= \frac{0.8634 \times 1.732}{0.5045}$$

$$= 2.9641$$

$$t = 2.9641$$

#### Calculation of Correlation Coefficient between Deposit amount and Interest on Lending

Year	a	d	ad	a <sup>2</sup>	d <sup>2</sup>
2006	274.24	11.62	3186.67	75207.58	135.02
2007	300.57	10.94	3288.24	90342.32	119.68
2008	416.08	10.94	4551.92	173122.57	119.68
2009	558.45	13.5	7539.08	311866.40	182.25
2010	802.11	16.37	13130.54	643380.45	267.98

	$\sum a = 2351.45$	$\sum d = 63.37$	$\sum ad = 31696.42$	$\sum a^2 = 1293919.32$	$\sum d^2 = 824.61$
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$$r_{ad} = \frac{5 \times 31696.42 - 2351.45 \times 63.37}{\sqrt{5 \times 1293919.32 - (2351.45)^2} \sqrt{5 \times 824.61 - (63.37)^2}}$$

$$= \frac{158482.10 - 149011.39}{969.68 \times 10.36}$$

$$= \frac{9470.71}{10045.88}$$

$$= 0.9427$$

The coefficient of determination between interest rate on lending and deposit amount.

$$R^2_{ad} = 0.8887$$

#### Calculation of Correlation Coefficient between Interest Rate on Deposit and Lending Amount

Year	b	c	bc	b <sup>2</sup>	c <sup>2</sup>
2006	7.65	198.89	1521.51	58.52	39557.23
2007	7.65	256.41	1961.54	58.52	65746.09
2008	6.48	393.68	2551.05	41.99	154983.94
2009	6.48	561.81	3640.53	41.99	315630.48
2010	9.75	744.73	7261.12	95.06	554622.77
	$\sum b = 38.01$	$\sum c = 2155.52$	$\sum bc = 16935.75$	$\sum b^2 = 296.08$	$\sum c^2 = 1130540.51$

$$r_{bc} = \frac{5 \times 16935.75 - 38.01 \times 2155.52}{\sqrt{5 \times 296.08 - (38.01)^2} \sqrt{5 \times 1130540.51 - (2155.52)^2}}$$

$$= \frac{84678.75 - 81931.31}{5.9699 \times 1003.2129}$$

$$= \frac{2747.44}{5989.08}$$

$$= 0.4587$$

The coefficient of determination between interest rate on deposit and lending amount.

$$R^2_{bc} = 0.2104$$

### Multiple Correlation Coefficient

$$\begin{aligned}
 R_{b.ad} &= \sqrt{\frac{(r_{ab})^2 + (r_{bd})^2 - 2r_{ab}r_{bd}r_{ad}}{1 - (r_{ad})^2}} \\
 &= \sqrt{\frac{(0.5675)^2 + (0.7133)^2 - 2 \times 0.5675 \times 0.7133 \times 0.9427}{1 - (0.9427)^2}} \\
 &= \sqrt{\frac{0.3221 + 0.5088 - 2 \times 0.5675 \times 0.7133 \times 0.9427}{1 - 0.8887}} \\
 &= \sqrt{\frac{0.8309 - 0.7632}{0.1113}} \\
 &= 0.7799
 \end{aligned}$$

### Multiple Determinations

$$R_{b.ad}^2 = (R_{b.ad})^2 = (0.7799)^2 = 0.6082$$

## Multiple Correlation Coefficient

$$\begin{aligned}Rd.bc &= \sqrt{\frac{(r_{bd})^2 + (r_{cd})^2 - 2r_{bd}r_{cd}r_{bc}}{1 - (r_{bc})^2}} \\&= \sqrt{\frac{(0.7133)^2 + (0.9043)^2 - 2 \times 0.7133 \times 0.9043 \times 0.4587}{1 - (0.4587)^2}} \\&= \sqrt{\frac{0.5088 + 0.8178 - 2 \times 0.7133 \times 0.9043 \times 0.4578}{1 - 0.2104}} \\&= \sqrt{\frac{1.3266 - 0.5920}{0.7896}} \\&= 0.9645\end{aligned}$$

## Multiple Determinations

$$Rd.bd^2 = (Rd.bc)^2 = (0.9645)^2 = 0.9303$$



C.C.R/ MD	LUFC	UFCL	NFC	LFC	UFC	NMBF
rab	0.9737 Significant	0.8952 Significant	0.5675 Insignificant	0.7608 Insignificant	0.9114 Significant	0.9074 Significant
rbd	0.9805 Significant	0.7215 Insignificant	0.7133 Insignificant	0.7096 Insignificant	0.9894 Significant	0.9752 Significant
rcd	0.9569 Significant	0.7750 Insignificant	0.9043 Significant	0.9489 Significant	0.9832 Significant	0.9756 Significant
rbe	0.6676 Insignificant	0.4655 Insignificant	0.9542 Significant	0.5826 Insignificant	0.5179 Insignificant	0.5436 Insignificant
R2b.ad	0.9671	0.8138	0.6082	0.5826	0.9805	0.9752
R2d.bc	0.9657	0.7453	0.9303	0.9021	3.5096	0.9900

### Appendix "C"