

**IMPACT OF INTEREST RATE ON STOCK  
MARKET IN NEPAL**

**A Thesis**

**By**

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T.U. Regd. No.: 7-2-558-18-2012

*Submitted in partial fulfillment of the requirement for the degree of*

**Master of Business Studies (MBS)**

In the

**Faculty of Management**

**Tribhuvan University**

**Kirtipur, Kathmandu**

**December, 2018**

## **CERTIFICATION OF AUTHORSHIP**

I certify that the work in this thesis has not previously been submitted for a degree or has it been submitted as part of requirement for a degree except as fully acknowledge within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the reference section of the thesis.

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Sangam Neupane

December, 2018

## **RECOMMENDATION LETTER**

It is certified that thesis entitled an **IMPACT OF INTEREST RATE ON STOCK PRICE IN NEPAL** submitted by **SangamNeupane** is an original piece of research work carried out by the candidate under my supervision. Literary presentation is satisfactory and the thesis is in a form suitable for publication. Work evinces the capacity of the candidate for critical examination and independent judgment. Candidate has put in at least 60 days after registering the proposal. The thesis is forwarded for examination.

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Date: December, 2018

## APPROVAL SHEET

We, the undersigned, have examined the thesis entitled an **IMPACT OF INTEREST RATE ON STOCK MARKET IN NEPAL** presented by **Sangam Neupane**, a candidate for the degree of **Master of Business Studies (MBS)** and conducted the viva voce examination of the candidate. We here by certify that the thesis is worthy of acceptance.

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## ACKNOWLEDGEMENTS

I would like to graciously thank several individuals for making the completion of this thesis possible. First and foremost I would like to thank my thesis supervisor Lecturer Dr. Bal Ram Duwal. He has provided me with invaluable advice, guidance, insight, and encouragement without which this thesis would not be a success. Thank you for believing in my ability to create a finished product worth being proud of.

I would like to express my gratefulness to Prof. Dr. Bhoj Raj Aryal, Head of the Central Department of Management, who provided me the opportunity to write this thesis.

Valuable thanks go to large number of staff from the different offices who cooperated by providing available data and information, special to SEBON, NEPSE, NRB and Central Library of TU, Kirtipur.

Finally, to my family and friends: there are not enough words to express my deep gratitude for all of your love and support. I could not have persevered without having all of you to lean on. Thank you for always being there for me.

SangamNeupane  
Researcher

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## ABBREVIATIONS

|       |   |   |
|-------|---|---|
| INF   | : | Inflation                                     |
| NEPSE | : | Nepal Stock Exchange                          |
| NRB   | : | Nepal Rastra Bank                             |
| SCs   | : | Securities                                    |
| SEBON | : | Security Exchange Board of Nepal              |
| WADR  | : | Weighted Average Deposit Interest Rate        |
| WALR  | : | Weighted Average Lending Interest Rate        |
| WATBR | : | Weighted Average Treasury Bills Interest Rate |

## ABSTRACT

The stock market index is taken as a barometer of an economy. Growth in stock index is normally considered as a good sign since it implies the investors are confident about the future prospect of the economy. For this, it is necessary to understand the relationship between the stock market index and the factors that influence it. Bank rate, deposit interest rate, lending interest rate and short term risk free interest rate may affect stock market. Good investors always look for investing in an efficient market. In an inefficient market few people are able to generate extra ordinary profit causes of confidence losses of general people about the market. In such cases, if the rate of interest paid by banks to depositors increases, people switch their capital from share market to bank. This will lead to decrease the demand of share and to decrease the price of share and vice versa. On the other way, when rate of interest paid by banks to depositors increases, the lending interest rate also increases lead to decrease the investments in the economy which is also another reason of decreasing share price and vice versa. So, theoretically as per the theory of pricing inverse relationship between share price and interest rate.

The objective of the study is to find the impact between interest rate and stock market. some specific objectives are to find the impact of bank rate on stock market return, the nature of investors on share investment, the differential between stock market return and risk-free short term interest rate, impact of deposit interest rate on stock market return, impact of lending interest rate of stock market return on share market of Nepal.

A majority of earlier studies mostly indicated that there is significant and negative relationship between interest rate and share market. Some of them has used deposit interest rate where as some of them has used T-bill rate to find out the relationship between interest rate and share prices. In this report, which have used four independent variables to define relationship between interest rate and share prices. This study has investigated these implications in the context of our country to see whether the results support the previous studies or not.

# CHAPTER I

## INTRODUCTION

### 1.1 Background of the Study

The history of stock market is not long in Nepal. Securities Exchange Centre (SEC) was established in 1976 with an objective of facilitating and promoting the growth of capital market (Gurung, 2004). However, it opened its floor for secondary trading of shares only in 1981, which was only for government bonds (NRB, 1996). With enactment of Securities Exchange Act 1984, SEC opened its floor for corporate share trading also, but it was very limited. The organized and full-fledged stock market began with the conversion of Securities Exchange Centre into Nepal Stock Exchange (NEPSE) Limited in 1993. The NEPSE opened its trading floor in the beginning of 1994. Till now, it is the only stock exchange in Nepal. Hence, the stock market in Nepal is still in evolving stage but of special interest as it has grown significantly since its establishment. It was established in order to mobilize capital alternative to traditional banking sector for promoting economic growth and development in the country.

Normally, the stock market index is taken as a barometer of an economy. Growth in stock index is normally considered as a good sign since it implies the investors are confident about the future prospect of the economy. It helps promote investment in the economy. However, a rapid increase in the stock market index is always a matter of concern. If the increase in the index is not justified by the fundamentals, such a rise cannot be sustained eventually the index will plummet endangering the economic and financial stability. Hence, it is essential that the policymakers keep eyes on the stock market development and be ready to take appropriate measures, if needs arise, to prevent the buildup of bubbles and collapse in the market. For this, it is necessary to understand the relationship between the stock market index and the factors that influence it. Several factors may affect the stock market. Any factors that have an effect on cash flows of firms or discount rate will have impact on the stock market. However, which factors affect to what degree will vary from country to country, depending on the size, type and other characteristics of the economy and the market.

In this context, this paper aims to analyze the relationship between the NEPSE index and interest rate variables in Nepal using yearly data that span from mid-July 2003 to mid-July 2017. In addition to main variables, this paper also assesses the impact of changes in price. It is expected that the findings of this study would provide some meaningful insights to understand the determinants behind the performance of Nepalese stock market, useful for both policymakers and investors.

Equity markets enhance corporate efficiency, spur innovation, and provide a valuable source of capital for long-term economic development. They also provide a useful mechanism for governments to raise capital through the sale of state-owned enterprises. Moreover, equity market investments constitute an important element of individuals' assets, particularly as governments shift their pension systems toward the private sector. In short, it is clear that equities constitute an increasingly important capital market in the world economy (Mosley & Singer, 2008).

Interest rate is one of the important macroeconomic variables, which is directly related to economic growth. Generally, interest rate is considered as the cost of capital, means the price paid for the use of money for a period of time. From the point of view of a borrower, interest rate is the cost of borrowing money (borrowing rate). From a lender's point of view, interest rate is the fee charged for lending money (lending rate).

## **1.2 Statement of the Problems**

Interest rate can only affect, but not determine the stock market (Mueller, 2006). When the interest rate is increased, borrowing will become difficult. Company will have less money to expand the business and the profit will be affected. Bonuses and dividends will be cut and the investors will be affected eventually. Stock market will then become a less attractive instrument for investment. However, interest rate is not the only factors that affect the stock market. Stock market index might be trending upward due to other factors like economic growth, political issues and monetary policies even when the interest rate is high.

There is no uniform finding about the study. The most studies have been conducted by focusing the macroeconomic variables effect on the stock market. In Nepal, there is no study has done in the impact of interest rate on share market of Nepal. Therefore this study is important in order to determine the impact of interest rate (deposit interest, lending interest, bank rate and T-bills rate) on share market of Nepal.

The general problem of the study is that it is focus on the impact of interest rate on stock market of Nepal.

The specific statements of problems are as follows:

1. What is the relationship between bank interest rate and stock market return?
2. What is the impact of deposit & lending interest rate on stock market return?
3. What is the effect of short term interest rate and stock market return?

### **1.3 Purpose of the Study**

The general objective of the study is to find the relationship between interest rate and stock market. Here are some specific objectives of the study:

1. To find the relationship between bank interest rate and stock market return.
2. To find the impact of deposit & lending interest rate on stock market return.
3. To reveal the effect of short term interest rate and stock market return.

### **1.4 Hypothesis**

1. H<sub>1</sub>: There is no impact of deposit interest rate on share price.
2. H<sub>1</sub>: There is no impact of lending interest rate on share price.
3. H<sub>1</sub>: There is no relationship between risk free short term interest rate and stock prices.
4. H<sub>1</sub>: There is no impact of bank rate on share price.

### **1.5 Significance of the Study**

Stock exchange and interest rate are two crucial factor of economic growth of a country. The impact of interest rate on stock exchange provides important implication for monetary policy, risk management practices, financial securities valuation and government policy towards financial markets. The study will seek the existence of market efficiency on the Nepal Stock Exchange (NEPSE). In order to receive the confidence of the investors and to ensure the level playing field for all the market participants, this study will be useful to make efficient market mechanism for investors.

In addition, the study would also be useful to students, academicians and stock analysts. This paper would be helpful for further study about the stock price. The study has analyze the impact of interest rate on stock market by considering the above all issues. So, the study is significant to investors, brokers, students, academicians, policy makers, government officers, stock analyst, bankers and managers in order to make rational decisions, effective policies and to make further studies related to stock price.

### **1.6 Limitations of the Study**

The limitations of the study are:

1. The deposit and lending interest rate are used from the commercial banks of Nepal. It does not include interest rate of other financial institutions like development banks and finance companies.
2. The model used in this study is limited on regression.
3. This study has used closing price of shares of every fiscal year.
4. There are other interest variables such as; government securities like development bonds rate, inter-bank rate and other macro and non macro economic variables are not used in this report.

## **1.7 Organization of the Study**

On this research, the study is carried out in different stages and procedures, as it needed. As well as study organized on following chapters in order to make the study easy to understand.

### **Chapter I Introduction**

Chapter I introduce the major impact of interest rate on stock market in Nepal, statement of problems, objectives, significance and limitations of the study.

### **Chapter II Literature Review**

This chapter is the brief review of literature related to this study. It includes a discussion on the conceptual framework and review of the major studies. It gives an overview of the related literature done in the past related to this study.

### **Chapter III Methodology**

Chapter III Research Methodology, describes the different methodologies employed in this study, sources of data are mentioned and described in this chapter.

### **Chapter IV Results**

This chapter is the major part of the whole study in which all collected relevant data are analyzed and interpreted by the help of different financial and statistical tools. In this chapter we explained the major findings of the study.

### **Chapter V Conclusions**

This chapter includes the summary, conclusions and the implication of the study. The findings are included in this chapter along with the suggestions and their recommendations.

The References and Appendices have been given at the end of the study.



## **CHAPTER II**

### **LITERATURE REVIEW**

#### **2.1 Literature Review**

It is the act of analyzing as well as critically finding the similarities and differences in the previous related studies. It also entail about major findings as well as reviewing the tools and techniques used by the previous studies on impact of interest rate on share market of Nepal. The review of literature in this study has been organized as follow:

2.1.1 Conceptual Review

2.1.2 Empirical Review

##### **2.1.1 Conceptual Review**

###### **Theory of Pricing**

Marshall (1990), from the classical economic theory and early neoclassical economics' theory point of view asserted that equilibrium market-price would be determined by the forces of demand and supply under the perfect market competition model assumption. This position does not have any divergence from the classical value theory. Clarke (1982), defines price as the assigned numerical monetary value of a good, service or asset. If there is excess supply of money in the market, this will exert a downward pressure on prices and similarly if there is excess demand for money there will be a built up on the prices. Mishkin (1986), while noting that interest rate is the price lender charge on borrowed funds, further contended that the forces of demand and supply in the market would attain the market equilibrium interest rate. This position is in conformity with the classical economic theory. The supply side of this money market represents the supply of loanable funds while the demand side represents the demand for loanable funds. Therefore the interest rate determination is at equilibrium at the point of intersection of the supply and demand.

### **Fishers Theory**

Suggest that changes in the short term interest rate occur principally because of the changes in expected rate of inflation. Going further we assume that the expectations held by the market agents about rate of inflation are broadly correct. A principle reason for the changes in the interest rate becomes changes in the rate of inflation. Thus we write  $r=i-p$  where  $r$  is the real interest rate,  $I$  is the nominal interest rate and  $p$  is the rate of inflation (Mishkin, 2010). Named after the American economist Fisher (1930), this is the most well-known theory and forms the basis of the standard recommendation on real interest rate. Argues that competitive financial markets would establish the nominal interest rate on deposits that, are positive in real terms, because savers must be induced to hold financial rather than real assets and on average real assets grow in nominal terms at the rate of inflation. Thus the nominal interest must equal the expected inflation rate plus a small underlying real rate. Lending rate will in turn be positive in real terms since they are based on the cost of deposits plus a small margin covering the cost of intermediation, cost of the reserve requirement, taxes and risk. Consequently many economists recommend that inflation must be kept low if we want to keep nominal interest rates low. Main criticism of the fishers theory is that it has deficiency because it has partial equilibrium theory that confines itself to the analysis of the capital markets and works with the assumption that the prices of goods and services are already determined (Mishkin, 2010).

### **Loanable Funds Theory of Real Interest Rate**

Loanable funds theory of interest rate determination views the level of interest in the financial market as resulting from the factors that affect the supply and demand of loanable funds. (Saunders, 2010) interest rate in this theory is determined just like the demand and supply of goods is determined, supply of loanable funds increases as interest increases, other factors held constant. He goes further to explain that the demand for loanable funds is higher as interest rate fall, other factors held constant. Saunders (2010), identifies two factors among others causing demand curve for loanable funds to shift; economic conditions. Refers to the sum of money offered for

lending and demanded by consumers and investors during a given period. The interest rate model is determined by the interaction between potential borrowers and potential savers. According to the loanable funds theory, economic agents seek to make the best use of the resources available to them over their life time. One way of increasing future real income might be to borrow funds now in order to take advantage of investment opportunities in the economy. This will only work if the rate of return available from the investment were greater than the cost of borrowing. These borrowers would not be willing to pay higher real rate of interest than the rate of return available to capital. Savers are willing to save and lend only if there is a promise of real return on their savings that will allow them to consume more in future than they would otherwise be able to do. The extent to which people are willing to postpone consumption depends upon their time preferences (Saunders and Cornet, 2011)

### **Keynes Liquidity Preference Theory of Interest Rate**

According to the theory investors will always prefer short term securities to long term securities. In uncertain world, then saving and investment may be much influenced by expectations and exogenous shocks than by the underlying real forces Keynes (1973), defined liquidity preference theory as the rate of interest set forth in the general theory of employment, interest and money. The rate of interest depends on the present supply of money and the demand schedule for the present claim on money in terms of a deferred claim. Says that, "The rate of interest depends on the demand and supply of money "(Keynes 1937, 1973). In Keynes view, the primary way that interest rates affect the level of aggregate output is through their effects on their planned investment spending. Profit seeking organizations make investments in physical capital (machines, factories and the raw materials) as long as they expect to earn more from the physical capital than the interest cost of a loan to finance investment. Interest rates play a major role in the investment demand schedule.

Keynes advocates government 'monetary policy directed at influencing the rate of interest "He however believes that the other factors that influence the investment demand schedule are too powerful for such "monetary policy" alone to achieve levels

of investment sufficient to maintain full employment. There is a well-recognized relationship between investment demand and interest rates. According to classical theory interest rates sensitively adjust to allocate all available funds for investment purposes. With growth of consumer credit- already recognized factor in the 1920s- the investment demand is not the only major use of funds available for loans. Keynes omits the fact that interest rates allocate available funds not just for various investment purposes but also for consumption purposes as well.

### **Classical Theory of Interest Rate**

One of the oldest theories concerning; the determinants of pure or risk free rate. It was developed during the nineteenth and the twentieth centuries by a number of British economists and elaborated by the Irving Fisher (1930). It argues that the interest rate is determined by two forces; the supply of savings determined mainly from the household, demand for investment and capital mainly from the business sector. Classical theories consider the payment of interest rate a reward for waiting the postponement of the current consumption in favour of greater consumption. Higher interest rate increase the attractiveness of the savings relative to consumption spending encouraging more individuals to substitute current savings for some quantity of current consumption. This so called the substitution effect calls for positive relationship between interest rate and the volume of savings.

### **2.1.2 Empirical Review**

#### **2.1.2.1 Review of Nepalese Literature**

Gurung (2004) stated securities market plays a pivotal role in mobilizing savings and channeling them in productive purposes and many more like providing liquidity on securities so that one can minimize the risk and maximize the returns. The study on the securities market performance reveals that there is no synchronization among different securities market performance indicators, but it is true that they almost have depicted an erratic trend during the observed period. This indicates the unstable and poor performance of securities market. Relative to the overall economy, the size of securities market is very small and the liquidity of securities also is poor. These facts

suggest that the Nepalese capital market now is passing through a bearish situation. The growth and performance of Nepalese securities market, even after the introduction of new mechanism in 1993/94, are not satisfactory though it is improving gradually.

Regmi (2012) mentioned stock market in Nepal promoted economic growth of the Nepalese economy. Since stock market is a vehicle for economic growth in context, the stock market should be integrated into the whole economic system of the country while designing economic policies. Hence, meaningful efforts are required on the part of the government to ensure well-organized and competent operation of stock market because the more efficient the market, the more possibility it will attract investors. The government should remove impediments to stock market development in the form of tax, legal and regulatory barriers because they are sometimes disincentives to investment, should invest more and develop the nation's infrastructure in order to create an enabling environment for businesses to grow, increase the productivity and efficiency, and the rate of returns of firms, should employ appropriate trade policies that promote the inflow of international capital and foreign investment so as to enhance the production capacity of the nation, and should strengthen the capacity of the Nepal Stock Exchange so as to check and prevent sharp practices by market operators in order to safeguard the interest of shareholders. Moreover, the Nepal Stock Exchange should improve the trading system in order to increase the ease with which investors can purchase and sell shares, thus guaranteeing liquidity on the stock market. Besides, stock market reformation policies may give a further support to the economy and may act as a key enabler and catalyst of economic growth.

Effect of interest rate in stock market; Where will the market go in future? Universally there is an inverse relationship between interest rate and stock price. The connection goes like this- When interest rates fall, fixed income investment like bank deposit become less competitive because of their lower yields and stocks become more attractive as a result. Conversely, when interest rate rise, fixed income investment become more competitive because of its higher yields, therefore stocks become less attractive in turn. No doubt Interest rate and NEPSE index is interrelated with each other. In the above mentioned graph from the year 2013 to 2016, every time

when interest rate rises, NEPSE has moved in an opposite direction. In Nepalese context, interest rate and NEPSE are inversely related. When BFIs' offer higher interest rate, people go for a safer alternative i.e. fixed deposits. In recent time, most of the banks are offering attractive interest rate on fixed deposit than few months back which signals liquidity shortage in the market. When interest rate rises there is dual effect which can affect stock market negatively. One is risk-averse investors exist market and move for safer investment – fixed deposit and trader or speculator who are using bank money for investment also tries to exist market since bank now charges higher interest rate on loan. Rational Investors always compare the company return with bank return- fixed deposit rate. Investor cannot assume that increasing interest rate in recent time will lead to complete downward trend or crash in NEPSE. We should first determine the longevity of interest rate- is it for long term or for short duration of time? If the interest rate increment is only for short period of time there is no any strong evidence for market to decline. Present scenario of Nepalese stock market is completely different from the past. There is higher involvement of retail investors at present. The influence of big investors which we felt in past has significantly decreased as market capitalization has drastically increased.

Reform activities such as evolution of central depository system, dematerialization of shares, supportive rules and regulations, shorter settlement time are some positive aspects of this market. Paper based share transactions is being completely replaced by the help of Central Depository System and dematerialization of shares. The dematerialization of shares has also been successfully implemented which has shortened the settlement time. We are also heading towards online trading system in near future. Investment of institutional investors like insurance companies, mutual fund, private equity fund etc in the stock market has also provided some strength in market.

Mutual funds, insurance companies, BFIs', investment companies are some of the institutional investors for our stock market. There are 3 mutual funds which are set to launch in near future. Mutual Funds, generally invest around majority of the collected money directly in the stock market So many companies are issuing right shares and Further Public Offerings (FPO) in the market at present. Initial Public Offering (IPO),

FPO, And Right issue adjustment is one of the causes of declining market. Every year market declines in between Dashain and Tihar festival as investors need more liquid cash in hand for festive purpose. Minor correction is normal in this period of the year. This period of time is also taken as 'Wait and Watch' period Positive things such as investment of NRN's, online trading, issuance of broker license to commercial banks , increased number of mutual funds, accessibility of brokerage facility outside valley etc in near future can provide new dimension to Nepalese stock market.

Pradhan and Dahal (2014) found many studies have been undertaken to study on factors affecting the share price in development countries. This study investigates the relationship between share price, bank specific and micro-economic variables of selected Nepalese commercial banks. The stock price in the market is not static rather it changes every day. The most obvious factor that influence are demand and supply factors. The price of any commodity is affected by both micro-economic and macro-economic factors. This study aims at examining the relationship between bank specific and macroeconomic variables and MPS in Nepal's banking sector. It determines the effect of earnings per share, dividend per share, price earnings ratio, book value per share, return on assets, size, gross domestic product, inflation and money supply on MPS. As first approximation to the theory, this study hypothesizes that the MPS depends on several bank specific and macroeconomic variables such as earnings per share, dividend per share, price. Earnings ratio, book value per share, return on assets, size, gross domestic product, inflation and money supply.

The study reveals that average market price of share is Rs. 1001.9. The average earnings per share is Rs. 35.92. Likewise, the average dividend per share is Rs.25.52. The study also reveals that the average Price earnings ratio, book value per share, ROA and size are 26.53 percent, Rs.210.11, 1.59 percent Rs. 1408.1billion respectively. Similarly, the average macroeconomic variables such as GDP, inflation and money supply are 4.32 percent, 7.87 percent and Rs. 17.83 billion respectively. The Variables like earning per share, price earnings ratio, book value per share and return on assets are very weak effect in determining market price per share. The implication of this study suggests a rational investor's need to consider dividend per share, firm size and

money supply before making investment decision along with signalling and asymmetric information in context of imperfect stock market like Nepal.

Shrestha and Subedi (2014) stated the determinants of stock market performance in Nepal, which has been passing through up and down in recent years. Since stock market tends to be highly sensitive and volatile, we examine the determinants of stock market index on monthly data. We have found the Nepalese stock market has been behaving as we expected theoretically. It has strong positive relationship with inflation and growth of money supply, and negative response to interest rate. It shows that people have been gradually taking stock market as a hedge against inflation and invest in this market when there is ample liquidity available at a low interest rate. More importantly, the stock market performance has been found to be influenced by political changes similar to finding of Dangol (2008) and the NRB's policy. The positive outlook for political stability has positive impact on stock market index. Similarly change in NRB's policy on lending against share collateral has significant impact on the movement of stock market index. A number of policy implications can be drawn from this study. First, Nepalese stock market has been quite responsive to macroeconomic development, especially monetary sector development. Second, a loose monetary policy could trigger an asset price bubble in share market, which is mainly dominated by banks and financial institutions. Third, share investors seem to watch the political development closely. Hence, a positive political development with stability can promote share market further which can play a vital role for financial intermediation and resource mobilization through capital market. Fourth, NRB's policy on lending against share collateral has been effective in influencing the share market. This indicates the significant role of NRB's policy in the share market. As our results reveal that share market is also influenced by rumors, news and speculations, transparency should be increased in this market by making information related to listed companies easily accessible. Transparency and communication should, in fact, be enhanced by the concerned authorities in order to clear gossips and rumours in the market.



### **2.1.2 Review of Foreign literature**

Chutang and kumara (2009) found the relationship between short-term interest rates and stock prices of Sri Lanka study used three time series data relating to short-term Treasury bill rates (TB91, TB182 and TB364 days) and two time series relating to price indices of the Colombo Stock Exchange (ASPI and MPI). These all the time series are non-stationary time series with unit root problems as per the Dickey-Fuller Unit Root Test. However Durbin-Watson statistic reveals that these time series do not have an autocorrelation problem. In the process of converting non-stationary time series in to stationary time series TB364, ASPI, and MPI become stationary at their first difference and TB91 and TB182 become stationary at their second difference. Non-existence multicollinearity problem among TB91, TB182 and TB364 enhances the validity of applying both regression models in the study. However these explanatory variables just account for 7.2 percent of the variation in the ASPI and 5.3 percent of the variation in the MPI. It means that 92.8 percent of the variation in the ASPI and 94.7 percent of the variation in the MPI is due to other sources or variables not included in the analysis. In the both multiple regression models coefficients of correlation relating to TB91 and TB182 show a weak positive relationship with ASPI and MPI and that is of TB364 reflects a weak negative relationship with both ASPI and MPI. In applying the sample results in to the entire population of each variable the null hypothesis says that there is hardly relationship between short-term interest rates measured by Treasury bill rates and stock prices in Sri Lanka. Granger and Sims's Causality Test suggests that 364 days Treasury bill rate cause both All Share Price Index and Milanka Price Index.

The study has observed that the banking sector in Kenya is very dynamic and highly profitable as an investment avenue in the NSE. The sector has been found to be performing well in the recent past despite dwindling performance in the global financial sector. The outcomes of the review of a few competitive performance rankings have shown that the best performing commercial banks are mainly those listed in the NSE and therefore investing in them is equated to investing in the best companies are also competitors in the NSE bourse and these are able to 43 n the country.

The study further found that the lending interest rate has been widely varying for last 5 years, changes that have been mimicked by the commercial banks' share prices. The lending rate is highly dependent on the variability of the commercial bank borrowing rate that is set by the Central Bank of Kenya (financial sector regulators) which has also been changed widely over time. The share prices have also been observed to vary widely over the period.

The study found the relationship between the average lending rate and the individual banks' share prices in the NSE strongly correlated with high correlation coefficient and high coefficients of determination that indicated that the lending rate was able to explain a huge chunk of the Commercial Banks' share prices. This relationship was found to be inverse since both the correlation and regression coefficients were negative. Therefore, it can be concluded that the prevailing lending rate in the Kenyan financial sector is able to greatly affect the share prices of commercial banks in Kenya with an increase in lending rate causing a decrease in share prices and vice versa.

Somoye et al.(2009) examined the factors influencing equity prices in the Nigerian stock market for the period 2005-2007 and examined the impact of earning per share, GDP, interest rate, dividend per share and oil price on equity price and return. The study concluded that dividend per share, earning per share and GDP exerts a positive correlation to stock prices but are not significant determinants of stock return.

Mahmudul and Gazi (2009) performed a study on 15 developed and developing countries and showed that interest rate has significant negative relationship with share price. Mukherjee and Naka (1995) found that for the long run, interest rate has negative impact on the stock market index in Japan.

Interest rate has negative impact on the stock market in Ghana. On the other hand, Kyereboah-Coleman and Agyire-Tettey (2008) showed that lending rates charged by the banks have negative impact on stock market performance in Ghana, which prevents the business growth. Cointegration can be tested for a pair of variables from period to period. There is a co integrating relationship between macroeconomic variables in a study by Adam and Tweneboah (2008) in Ghana. Using Johansen's

cointegration and innovation accounting techniques, they have shown that a long run relationship exists between the variables studied

Kyereboah-Coleman and Agyire-Tettey (2008) showed that lending rates charged by the banks have negative impact on stock market performance in Ghana, which prevents the business growth.

In the property stocks research, Liow and Huang (2004) found that in the pre Asian financial crisis period from December 1987 to July 1997, a highly significant negative long run relationship exists between interest rate and the monthly excess return of the property stocks for United Kingdom, Hong Kong and Japan. They suggested that this negative relationship between the interest rate and return of the property stock should be carefully considered by the investors in their portfolio construction and management to reduce the interest rate exposure.

## 2.2 Conceptual Framework

In this study it has identified dependent and independent variables which have assisted as a foundation for the entire work. It has been assuming that variables are Stock Market; i.e. dependent and independent variable are bank rate, weighted average deposit interest rate, weighted lending interest rate, risk free short term interest rate. Based on the literature reviewed following conceptual framework is derived.

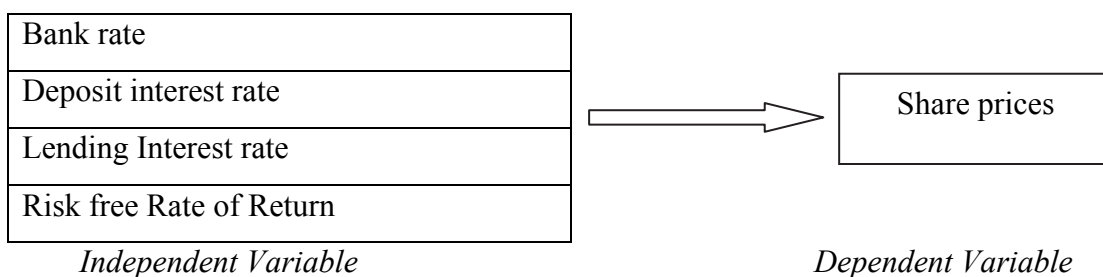


Figure 2.1 Conceptual Framework

This figure shows the conceptual framework of the study by showing the dependent and independent variables.

## **1.5 Variables Define**

### **1.5.1 Bank Rate**

Bank rate, also referred to as the discount rate which is the rate of interest which a central bank charges on its loans and advances to a commercial bank. The bank rate is known by a number of different terms depending on the country, and has changed over time in some countries as the mechanisms used to manage the rate have changed. Whenever a bank has a shortage of funds, they can typically borrow from the central bank based on the monetary policy of the country.

The borrowing is commonly done via repos: the repo rate is the rate at which the central bank lends short-term money to the banks against securities. It is more applicable when there is a liquidity crunch in the market. In contrast, the reverse repo rate is the rate at which banks can park surplus funds with the reserve bank. This is mostly done when there is surplus liquidity in the market.

The interest rate that is charged by a country's central or federal bank on loans and advances controls the money supply in the economy and the banking sector. This is typically done on a quarterly basis to control inflation and to stabilize the country's exchange rates. A change in bank rates may trigger a ripple effect, as it impacts every sphere of a country's economy. For instance, stock markets prices tend to react to unexpected interest rate changes. A change in bank rates affects customers as it influences prime interest rates for personal loans.

### **1.5.2 Deposit interest rate**

It is paid by financial institutions to deposit account holders. Deposit accounts include certificates of deposit, savings accounts and self-directed deposit retirement accosunts. Deposit accounts are attractive places to park cash for investors who want a safe vehicle for maintaining their principle, earning a small amount of fixed interest and taking advantage of insurance.

Financial institutions typically offer better rates for accounts holding larger balances. This is used as an incentive to attract high-value clients with considerable assets. By

virtue of attaining a higher interest rate, naturally the greater the sum that is deposited, the larger the return over time. While this may still be seen as a slower growth approach to generating returns, such accounts can offer more stability compared with more volatile, high-risk financial products.

The fixed interest rates guaranteed with certain deposit accounts tend to be smaller compared with the more variable returns of other financial vehicles. The trade off is that the account holder is assured of gradual gains to their deposit versus the potential for sudden profits or even losses at even higher scales. For instance, a certificate of deposit with a fixed rate is assured to furnish the stated return when it the account reaches maturity. Banks, credit unions, and other financial institutions tend to offer competitive interest rates for these deposits in order to better attract customers. Depending on the product, premium deposit interest rates may only be available under certain terms such as balance minimums, and possibly maximums. Certain accounts also require a set length of time, which may be six months, one year, or multiple years, that the money must remain deposited and cannot be accessed by the account holder. If the deposit is accessed early, there may be penalties and fees incurred, including the potential loss of the agreed upon interest rate if the balance remaining in the account falls below the minimums.

Financial institutions encourage long-term deposits not only for the client's benefit from the extended interest that is garnered, but because it offers more liquidity to the institution. By having more cash on deposit, an institution can make more lending services such as loans and credit cards available to its customers.

### **1.5.3 Lending interest Rate**

Lending Interest rate is one of the important terms in the lending decision process of commercial banks. Commercial banks are independent business entities that set their own lending rates. The lending interest rate is the percentage of the loan amount that the lender charges to lend money. When banks lend money to customers, interest is charged on it for a number of reasons, including value preservation, compensation for risk, and profits among others.

Commercial banks can increase their profit margins through higher lending rates and lower deposit rates. Banks do not charge loan rates that are too low because the revenue from the interest income will not be enough to cover the cost of deposits, general expenses and the loss of revenue from non-performing loan portfolio. On the other hand, they cannot charge too high loan rates because they will not be able to keep the banking relationship with the borrowers with high lending rate. Thus, determination of the appropriate lending rates usually becomes a major issue in banking industry. Moreover, the factors that determine the level of commercial banks' lending rates are important concerns not only for specific banks but also to policy makers, the banking industry and the public at large. Lending interest rate of commercial banks may be influenced by a number of factors. The classical theory argues that the rate of interest is determined by two forces. Firstly the supplies of savings, derived mainly from households, and second the demand for investable capital, coming mainly from the business sector. Moreover, the loanable funds theory considers the rate of interest as the function of four variables: savings, investment, the desire to hoard money and supply of money. Rational expectation theory posits that the best estimation for future interest rates is the current spot rate and that changes in interest rates are primarily due to unexpected information and or changes in economic factors.

#### **1.5.4 Short term interest rate**

If the required return rises, the stock price will fall, and vice versa. This makes sense: if nothing else changes, the price needs to be lower for the investor to have the required return. There is an inverse relationship between required return and the stock price investors assign to a stock.

The required return might rise if the risk premium or the risk-free rate increases. For instance, the risk premium might go up for a company if one of its top managers resigns or if the company suddenly decides to lower its dividend payments. And the risk-free rate will increase if interest rates rise.

So, changes in interest rates impact the theoretical value of companies and their shares: basically, a share's fair value is its projected future cash flows discounted to the present using the investor's required rate of return. If interest rates fall and everything else is held constant, share value should rise.

### **1.5.5 Stock Price**

According to financial theory, a stock's value proposition starts there: stocks are risky assets, even riskier than bonds because bondholders are paid their capital before stockholders in the event of bankruptcy. Therefore, investors require a higher return for taking on extra risk by investing in stocks instead of Treasury notes, which are guaranteed to pay a certain return.

The extra return that investors can theoretically expect from stocks is referred to as the "risk premium". Historically, the risk premium runs at around 7%. This means that if the risk-free rate (the Treasury note rate) is 4%, then investors would demand a return of 11% from a stock. Therefore, the total return on a stock is the sum of two parts: the risk-free rate and the risk premium. If we want higher returns, we must invest in riskier stocks because they offer a higher risk premium than, say, stronger blue chip companies. In theory, rational investors will select an investment with a return that is high enough to compensate for the lost opportunity of earning interest from the guaranteed Treasury note and for taking on additional risk.

## **2.3 Research Gap**

Earlier studies and researches on the determinants the impact of interest rate on stock market in Nepal. During the review of previous literature, it was found that no research has been conducted by taking nepse data. Researcher has taken sample banks from Nepalese stock market. Present study is based on the data's taken from Nepalese stock market.

By reviewing earlier literature it was found that researchers only analyzed the market trend of interest rate with other financial indicators but this study has examined those internal factors that play important role in determining interest rate of Nepalese

financial sectors. This study also examines the impact and relationship of stock price with other financial indicators like bank rate, deposit interest rate, lending interest rate and risk free rate of return. Previous researches have analyzed only the qualitative factors affecting stock price but this research is based on quantitative factors affecting stock price. The researcher has conducted research on stock price movement and stock price behavior by taking secondary data. To find out the subjective facts and to fulfill the gaps the present study is conducted.



## **CHAPTER III**

### **METHODOLOGY**

This chapter puts lights on the research process and methods design to meet the stated objectives of the study. The research methodology explores the research process regarding the impact of interest rate on share market of Nepal. The broad process of research methodology has been further categorized for simplicity into various subtopics which consists of research plan and design, description of the sample, instrumentation, data collection procedure and time frame, method of data analysis, analysis plan and limitation of the study. Since the study is undertaken basically to analyze the impact of interest rate on share market of Nepal.

#### **3.1 Research Design**

Research plan and design is a process to conduct the research, which help to identify the relationship between the dependent and independent variables. It is a master plan specifying the methods and procedures for collecting and analyzing the required information. Research design helps to explore the effect of one variable on another variable.

The quantitative approach is done through descriptive and analytical research design. Under the descriptive, it has selected the different years to find out the relationship between interest and share prices. The researcher observed trend analysis of NEPSE index along with different interest rate like: bank rate, deposit rate, lending rate, short term interest rate.

#### **3.2 Population and Sample**

For this research project, population is based on NEPSE index and different interest rate like: bank rate, deposit rate, lending rate, short term interest rate. In order to take sample for the study, study has included different interest rate like: bank rate, deposit rate, lending rate, short term interest rate & NEPSE closing price of each fiscal years starting from July 2003 to July 2017 of 15 years of commercial banks, development banks, finance companies, insurance companies, manufacturing and processing,

hotels, trading, hydropower, others. This table shows the list of companies and Market capitalization of Nepal Sock Exchange, these are the data from end of fiscal year 2016/17.

**Table No. 1.1 Listing companies of NEPSE**

| Particulars                | No. of listed company<br>Mid July 2017 | Share Value | Share % |
|----------------------------|--|-------------|---------|
| <i>Commercial Banks</i>    | 27                                     | 979490      | 52.75   |
| <i>Development Banks#</i>  | 80                                     | 258428      | 13.92   |
| <i>Finance Companies</i>   | 36                                     | 52361       | 2.82    |
| <i>Insurance Companies</i> | 22                                     | 295802      | 15.93   |
| Manufacturing & Processing | 18                                     | 41990       | 2.26    |
| Hotel                      | 4                                      | 29356       | 1.58    |
| Trading                    | 4                                      | 1238        | 0.07    |
| Hydropower                 | 14                                     | 77197       | 4.16    |
| Others                     | 3                                      | 120967      | 6.51    |
| Total                      | 208                                    | 1856829     |         |

Data Source: [www.nepse.gov.np/market\\_capitalization](http://www.nepse.gov.np/market_capitalization)

# Including Class "D" Bank and Financial Institutions

### 3.3 Nature and Sources of data

The study is based on secondary data in nature. This section elaborates on how data are analyzed for this study. Without any data, nothing can be studied. So for any statistical investigation, the collection of data of data is more important. Availability of data about various aspects of financial information and macroeconomic variables in Nepal is still constrained as in other developing countries because of low capability of data generation and management.

### 3.4 Data Collection Procedures

Data for this study gather from the authorized sources namely, Nepal Rastra bank, Nepal stock exchange, economic survey, Central Bureau of Statistics e.t.c. In

addition to these, different published articles, report, book, journal, and graduate research project are also analyzed.

### 3.5 Data Processing and Analyzing Procedure

It is necessary to follow certain steps and procedures in analyzing data in order to understand the results and generalize the findings. The analysis of secondary data intends to study the relationship and cause and effect between the variables. This section is divided into various subsections first of which deals with the descriptive statistics of the sample observations including the mean, standard deviation, minimum and maximum values of the observations. Correlation analyses have been carried out in the second section followed by the stepwise regression analysis. Test of significance, standard error of estimate and multi-co linearity have also been tested to make the results more valid.

The main purpose of data analysis of this study is to explore impact of interest rate on share market of Nepal. This study includes the quantitative data which are analyzed through the descriptive, co-relation and regression methods. Excel has been used to analyze the data and to get required information and results. This sections deals with statistical models for analyzing of secondary data.

$$\text{Stock price} = a + b_1BR + b_2DIR + b_3LIR + b_4TIR + e$$

i.e Stock Price (NEPSE Index) = f (Bank rate, Weighted Average Deposit Interest rate, Weighted Average Lending Interest rate, Weighted Average T-bills Interest rate)

NEPSE Index include the closing price of mid July of every fiscal year, similarly all independent variables are also the closing interest rate of every fiscal year. Weighted Average Deposit Interest rate and Weighted Average Lending Interest rate are the average of all commercial banks deposit and lending interest rates. Weighted Average T-bills Interest rate is the average of 28 days, 91 days, 182 days and 364 days of Treasury bills interest rate.

### **3.6 Instrumentation**

Secondary data for the study were collected via various sources as mentioned in earlier section of this chapter. The data regarding the dependent and independent variables were arranged in Microsoft excel from the pooled data from different government published articles, report, journal e.t.c. These data are analyzed through excel and SPSS. Descriptive, Correlation and Regression analysis were used to explain the relationship between the interest rate variables and Stock prices. Similarly in order to find the reliability and validity, t-test and F-test is used to find the significance level of individual model and to find out the overall significance of the model is done.

### **3.7 Validity and Reliability**

Validity is the extent to which the results from a study are trustworthy and if the measurement of a concept measures what it is supposed to measure. There are many different measurements of validity but in order to evaluate the quality of our study we have focused on internal and external validity.

Internal validity refers to the relationship between the variables used in the study and the result (Bryman & Bell,2007). In order to support conclusion previous studies are reviewed in order to make sure that the chosen factors are the most important determinants of the share market. The external validity refers as if it is possible to generalize the result of the study to other contexts and research settings (Saunders et al, 2009). Based on the large number of companies and have relatively long period time period of the study, the results of the study are applicable among Nepalese market.

Reliability deals with the question of whether the findings from a study are consistent if another study would be made based on the same conditions and same topic. If the result from a study is stable, it is seen as reliable. On the other hand, if the results are unstable it is possible to question the reliability of the study. This study employed the data from 2003 A.D to 2017 A.D which prove that the study is highly reliable. The time period is the most recent and also employed from different government authorized sources.

This research project is based on secondary data sources. Data are collected from different government authorities like: Nepal Rastra bank, Nepal stock exchange, Economic survey, Central Bureau of Statistics e.t.c. For data validity and reliability, we have gone through different sources to check the available data. We have found the same data from all authorized sources.

### 3.8 Statistical Tools

Statistical tools are the measures or the instruments to analyze the collected data from different sources. In statistics, there are numerous statistical tools to analyze data of various natures. In this study, the researcher has used the following statistical tools to analyze the data.

#### 1. Mean ( $\bar{X}$ )

Among different measures of central location, the best known and the most widely used is the arithmetic mean, or simply the mean. It is the sum of the values divided by their number. It can be calculated for any set of numerical data, so it always exists. The mean can be expressed symbolically as,

$$\text{Mean } \bar{X} = \frac{\sum X}{n}$$

Where,

$\bar{X}$  = Arithmetic mean

$\sum X$  = Sum of all the values of the variable X

n = Number of observations

#### 2. Standard Deviation ( $\sigma$ )

The standard deviation ( $\sigma$ ) measures the absolute description. It is defined as positive square root of the mean of the square of the deviations taken from the arithmetic mean. If the standard deviation is greater, the magnitude of the deviations also is greater. A small standard deviation means a higher degree of true/ fact and vice-versa. This can be symbolically as:

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

Where,

$\sigma$  = Standard deviations

$n$  = number of observations

$\bar{X}$  = Arithmetic mean

### 3. Coefficient of Variation (C.V.)

Coefficient of variation (C.V.) is a relative measure of dispersion, which can be obtained by expressing the standard deviation as a percentage of mean. The CV is applicable for the comparison of variability's of two or more distributions. It is relative measure and is independent of units. The greater the value of CV, the higher the variability and the smaller the value of CV, the lower will be the variability. This is given by:

$$\text{Coefficient of Variation (C.V.)} = \frac{\sigma}{x} \times 100$$

Where,

CV = Coefficient of Variation

$\sigma$  = Standard deviations

$\bar{X}$  = Arithmetic mean

### 4. Bivariate Correlation Analysis

The bivariate correlation analysis is used to assess the relationship between two variables. Pearson correlation is a bivariate measure of association (strength) of the relationship between two variables. Correlation coefficients,  $r$ , vary from 0 (no relationship) to 1 (perfect linear relationship) or -1 (perfect negative linear relationship). Positive coefficients indicate a direct relationship, indicating that as one variable increases, the other variable also increases. Zero correlation coefficients indicate that there is no relationship between the two variables. Negative correlation

coefficients indicate an indirect relationship, indicating that as one variable increases, the other variable decreases.

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

## 5. Regression Analysis

Regression analysis is the development of the statistical model that can be used to predict the values of the dependent variable based upon the values of at least one independent variable. Regression analysis helps us to know the relative movement in the variables.

### Simple regression analysis

The simple regression equation of Y on X, which is used to describe the variation in the value of Y of given change in the value of X.

$$Y = a + bx$$

Where,

Y = dependent variable

X = independent variable

a = Regression constant

b = Regression coefficient

### Multiple Regression Analysis

Multiple regression is an extension of simple linear regression. It is used when we want to predict the value of a variable based on the value of two or more other variables. The variable we want to predict is called the dependent variable (or sometimes, the outcome, target or criterion variable). The variables we are using to predict the value of the dependent variable are called the independent variables (or sometimes, the predictor, explanatory or regression variables).

Multiple regressions also allow you to determine the overall fit (variance explained) of the model and the relative contribution of each of the predictors to the total variance explained. For example, you might want to know how much of the variation in exam performance can be explained by revision time, test anxiety, lecture attendance and gender "as a whole", but also the "relative contribution" of each independent variable in explaining the variance.

Stock Price (NEPSE Index) = f (Bank rate, Weighted Average Deposit Interest rate, Weighted Average Lending Interest rate, Weighted Average T-bills Interest rate)

i.e. stock price =  $a + b_1BR + b_2DIR + b_3LIR + b_4TIR + e$



## **CHAPTER IV**

### **RESULTS**

Data analysis is the process of developing answers to questions through the examination and interpretation of data. The basic steps in the analytic process consist of identifying issues, determining the availability of suitable data, deciding on which methods are appropriate for answering the questions of interests, applying the method and evaluating, summarizing and communicating the results.

This chapter deals with the interpretation, analysis and presentation of secondary data to deal with different interest rates and their impact on share prices. Various statistical models described in chapter three have been used for this purpose. This chapter is divided into five sections. The first section deals with structure and pattern analysis of data, second section deals with descriptive statistics, third section deals with the correlation analysis, fourth section deals with step wise regression analysis and the final section wraps up this chapter with concluding remarks based on result derived for the secondary data analysis. Excel is used for the data analysis to examine the relationship between interest rate and stock prices.

#### **4.1 Data presentation**

Data are collected from government authorizes. Different interest rate like: bank rate, deposit rate, lending rate & government securities interest rate are tabulated and presented through line charts. Similarly, closing prices NEPSE of each fiscal year are tabulated and presenting through trend line charts.

NEPSE (share prices) index is dependent variable, which is obtained from official websites of Nepal Stock Exchange. Theses closing prices are from each fiscal year of Mid July of each year from 2003 A.D to 2017 A.D. Similarly we have different interest rate available from different government authorities. Weighted average deposit interest rate and lending interest rate are based on commercial banks.

Table 4.1: Different interest rate and NEPSE closing index

This table shows the time series data of different interest rate and NEPSE index from 2003 A.D to 2017 A.D.

| Year | NEPSE Index | W.A Deposit Rate | W.A Lending Rate | Bank Rate | T-bills rate |
|------|-------------|------------------|------------------|-----------|--------------|
| 2003 | 204.86      | 4.63             | 11.25            | 5.5       | 2.79         |
| 2004 | 222.04      | 4.5              | 11.25            | 5.5       | 1.78         |
| 2005 | 286.67      | 3.44             | 10.88            | 5.5       | 3.68         |
| 2006 | 386.83      | 3.57             | 10.75            | 6.25      | 3.39         |
| 2007 | 683.95      | 3.57             | 10.75            | 6.25      | 3.1          |
| 2008 | 963.36      | 3.57             | 10.25            | 6.25      | 5.48         |
| 2009 | 749.1       | 4.63             | 10               | 6.5       | 6.05         |
| 2010 | 477.73      | 6.83             | 11.3             | 6.5       | 8.1          |
| 2011 | 362.85      | 6.83             | 11.05            | 7         | 8.45         |
| 2012 | 389.74      | 6.17             | 12.4             | 7         | 1.48         |
| 2013 | 518.3       | 5.25             | 12.09            | 8         | 1.52         |
| 2014 | 1036.1      | 4.09             | 10.55            | 8         | 0.29         |
| 2015 | 961.2       | 3.94             | 9.62             | 8         | 0.37         |
| 2016 | 1718.2      | 3.28             | 8.86             | 7         | 0.27         |
| 2017 | 1582.7      | 6.15             | 11.33            | 7         | 0.6          |

Source: [www.nepse.gov.np/closingprice](http://www.nepse.gov.np/closingprice)

Bank rate is the interest rate provide by the Nepal Rastra bank to the commercial banks. Similarly treasury bills, development bonds. These government securities are issued by the NRB as per to meet the financial requirement and control of money flow in the market. Therefore, interest rate are varies in different years due to different monetary policy adopted by NRB.

#### 4.1.1 Weighted Average Deposit Interest rate

Weighted average deposit interest rate is the interest rate provided by commercial banks. It includes the sum of all fixed deposit and saving interest rate of commercial banks.

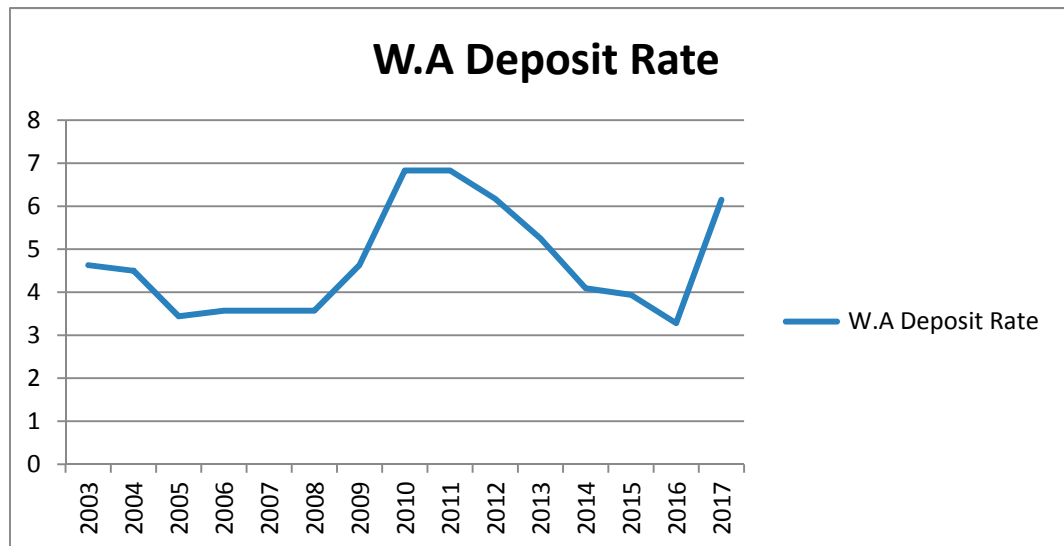


Figure 4.1: Structure of Weighted Average Deposit Interest rate

From figure 4.1, Commercial banks have provided lowest interest rate of 3.44% at 2005 A.D. Similarly banks have provided highest interest rate of 6.83% at 2010 and 2011 A.D.

#### 4.1.2 Weighted Average Lending Interest rate

Weighted average lending interest rate is the interest rate provided by commercial banks. It includes the sum of all lending interest rate of commercial banks.

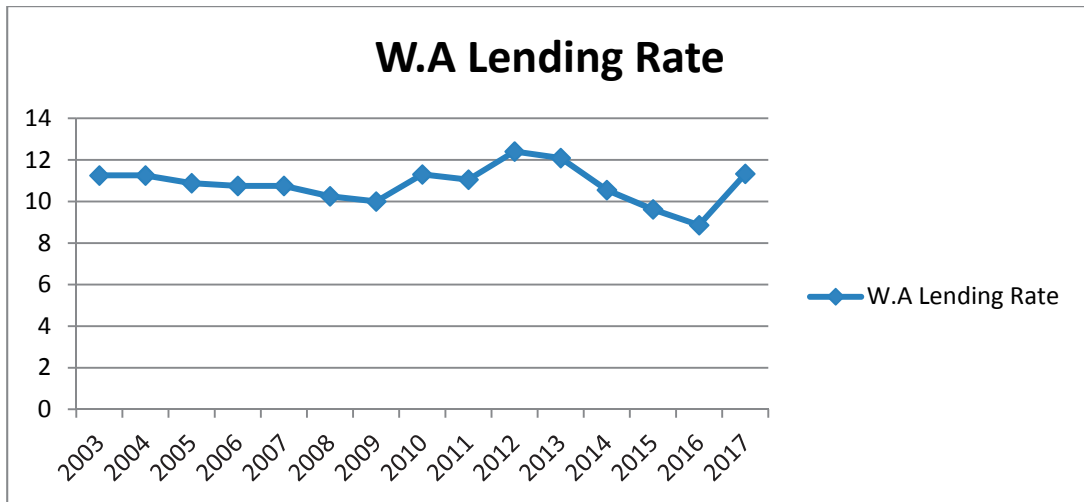


Figure 4.2 Structure of Weighted Average Lending rate

From figure 4.2, Commercial banks have provided lowest interest rate of 8.86% at 2016 A.D. Similarly banks have provided highest interest rate of 12.40% at 2012 A.D.

#### 4.1.3 Bank Rate

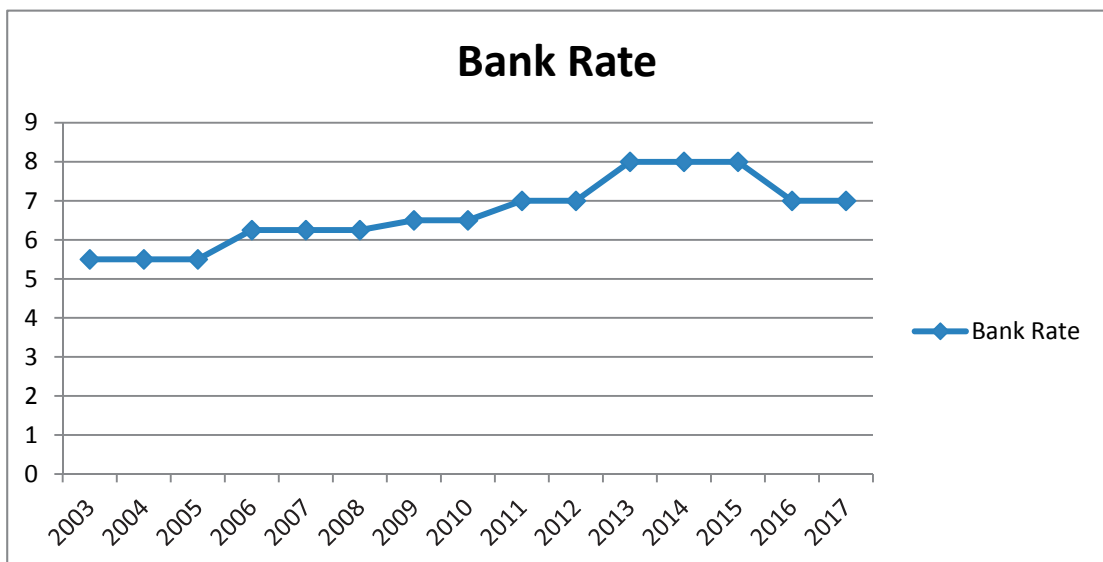


Figure 4.3: Structure of Bank rate

Bank rate is the interest rate provided by Nepal Rastra Bank to the commercial banks in order to borrowing fund from NRB. Interest rate provided by commercial banks to their customers is also determined by bank rate.

From figure 4.3, the highest interest provided by NRB is 8% at 2013, 2014 & 2015 A.D. Similarly NRB has provided lowest interest rate of 5.5% at 2003, 2004 & 2005 A.D.

#### 4.1.4 Treasury Bills rate

This table includes the time series data of different Treasury bills interest rate from 2003 A.D to 2017 A.D, 28 days, 91 days, 182days and 364 days Treasury bills are converted into Weighted Average Treasury bills

Table 4.2: Different T-bills rate from 2003 A.D to 2017 A.D

| Year | T-bills* (28 days) | T-bills* (91 days) | T-bills* (182 days) | T-bills* (364 days) | Weighted Average T-Bills |
|------|--------------------|--------------------|---------------------|---------------------|--------------------------|
| 2003 | 3.26               | 2.98               | -                   | 4.93                | 2.79                     |
| 2004 | 1.82               | 1.47               | -                   | 3.81                | 1.78                     |
| 2005 | 1.57               | 3.94               | 4.42                | 4.79                | 3.68                     |
| 2006 | 2.40               | 3.25               | 3.86                | 4.04                | 3.39                     |
| 2007 | 2.13               | 2.77               | 3.51                | 4.00                | 3.10                     |
| 2008 | 5.16               | 5.13               | 5.16                | 6.47                | 5.48                     |
| 2009 | 4.94               | 6.80               | 5.91                | 6.55                | 6.05                     |
| 2010 | 8.70               | 8.13               | 8.28                | 7.28                | 8.10                     |
| 2011 | 8.08               | 8.52               | 8.59                | 8.61                | 8.45                     |
| 2012 | 0.10               | 1.15               | 1.96                | 2.72                | 1.48                     |
| 2013 | 0.55               | 1.19               | 1.60                | 2.71                | 1.52                     |
| 2014 | 0.01               | 0.02               | 0.42                | 0.72                | 0.29                     |
| 2015 | -                  | 0.1739             | 0.5648              | 0.7579              | 0.37                     |
| 2016 | -                  | 0.05               | 0.33                | 0.72                | 0.27                     |
| 2017 | -                  | 0.71               | 1.71                | -                   | 0.60                     |

Source: [www.nrb.gov.np/tbills](http://www.nrb.gov.np/tbills)

Nepal government issue treasury bills with the help of NRB to meet the short term financial deficit as well as to control money supply to the market. Generally Treasury bills of 28 days, 91 days, 182 days and 364 days issued by NRB. We have presented

the weighted average Treasury bill interest rate of four different treasury bills at this report.

Weighted Average T-bills Interest rate is the average of 28 days, 91 days, 182 days and 364 days of Treasury bills interest rate. Some years or months government hasn't issued the treasury bills and rates aren't published by the NRB.

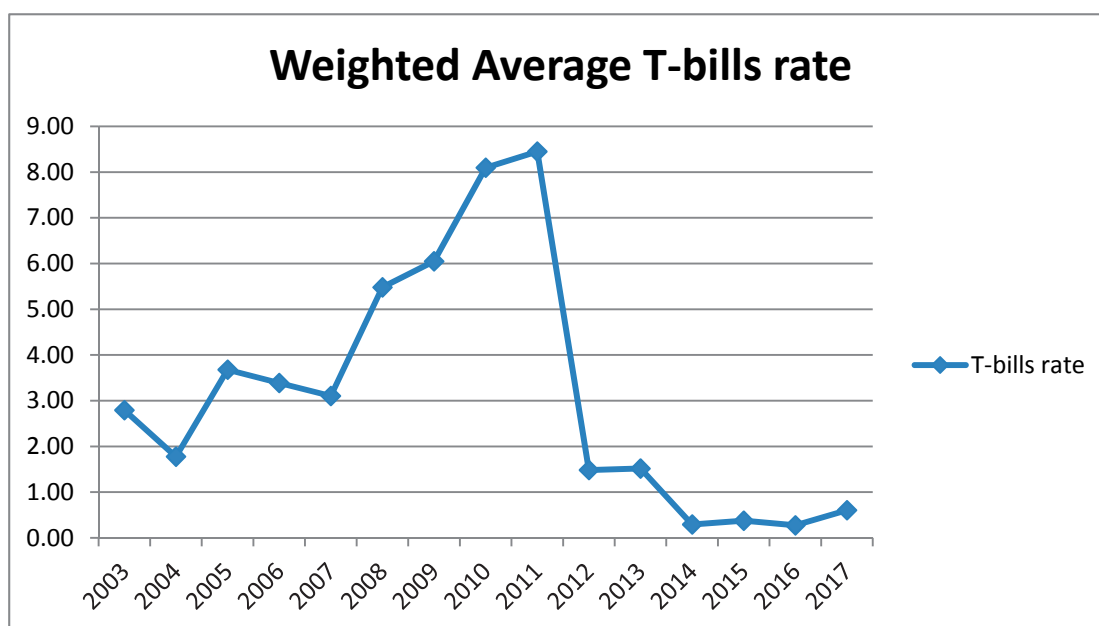


Figure 4.4: Structure of Weighted Average T-bills rate

In the figure 4.4, NRB has provided the highest interest rate of Treasury bill of 8.45% at 2011 A.D. Similarly, NRB has provided lowest interest rate of Treasury bill of 0.27% at 2016 A.D.

#### 4.1.5 NEPSE Index

The numbers of companies listed in Nepal stock Exchange are 230 numbers. These companies are categorized in to 9 groups. These are Banks, Development Bank, Finance Company, Insurance Company, Hotel, Hydropower Company, Trading Company, Manufacturing & processing Company and others category. Nepal Stock Exchange at the end of the day published the transaction index which is called Nepse Index.

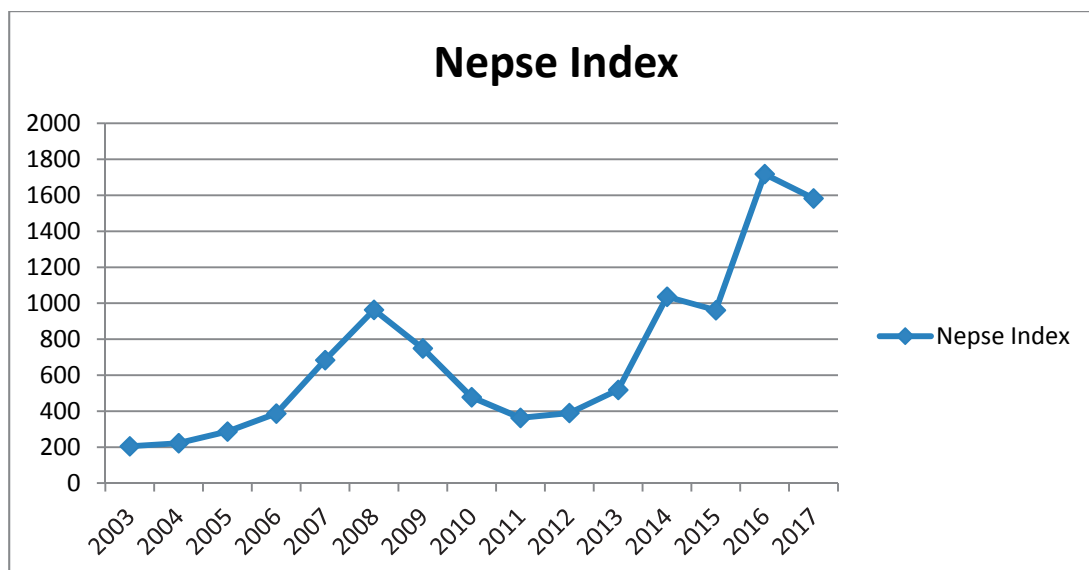


Figure 4.5 Structure of NEPSE Index

From figure 4.5, the NEPSE index on y-o-y basis has lowest point of 204.86 at Mid July 2003 A.D. Similarly, there is highest point of 1718.2 at Mid July 2016 A.D. The NEPSE index is increasing ratio, with increasing number of listed companies. With the rise in credit growth, the stock market also took a leap. There was an increase in margin lending too in the portfolio of banks. Since bank shares make up the majority of the stock market, the prices went up to facilitate margin lending. When prices of bank shares went up, the stock market gained points and reached peak in 2008. But as credit growth slowed and real estate market started cooling down, banks struggled because of their investments in real estate sector. The share prices also came crashing down after a steep climb. The overvalued stocks fell to their real value.

#### 4.1.6 Listed Companies and Market Capitalization

From fiscal year closing of 2016/17 at Mid July, the list of companies in NEPSE index is of 208. Similarly total share value of market capitalization is Rs 18 million. The largest market capitalization is occupied by financial institutions. Among the financial institution, commercial banks have occupied share value of Rs 0.9 million in market capitalization. Similarly, development banks have occupied of Rs 0.2 million in market capitalization. Finance and Insurance companies have occupied Rs 0.05 million and Rs 0.2 million respectively. In the same way, manufacturing, hotel,

trading, hydropower and others have occupied the market by few share value in Nepal stock Exchange respectively.

## 4.2 Descriptive Analysis

Table 4.3 Descriptive analysis

|          | Nepse Index | W.A Deposit Rate | W.A Lending Rate | Bank Rate | T-bills rate |
|----------|-------------|------------------|------------------|-----------|--------------|
| Mean     | 702.91      | 4.7              | 10.82            | 6.68      | 3.16         |
| Median   | 518.33      | 4.5              | 10.88            | 6.68      | 3.16         |
| S.D      | 470.84      | 1.26             | 0.9              | 0.86      | 2.74         |
| Kurtosis | 0.4         | -1.01            | 0.62             | -0.79     | -0.36        |
| Skewness | 1.08        | 0.67             | -0.41            | 0.22      | 0.84         |
| Minimum  | 204.86      | 3.28             | 8.86             | 5.5       | 0.27         |
| Maximum  | 1718.15     | 6.83             | 12.4             | 8         | 8.45         |
| Count    | 15          | 15               | 15               | 15        | 15           |

From the table 4.3, the mean and median value of NEPSE index is 702.91 and 518.33 respectively which lies between 204.86 to 1718.15 points. Similarly, Standard deviation is of 470.84 points. Deposit interest rate has the mean and median value of 4.70% & 4.50% respectively; these rates are lies between 3.28% and 6.83%. Similarly, Standard deviation is of 1.26%.

Similarly, Lending interest rate has the mean and median value of 10.82% & 10.88% respectively; these rates are lies between 8.86% and 12.40%. Similarly, Standard deviation is of 0.90%. Bank rate has the mean and median value of 6.68% & 6.68% respectively; these rates are lies between 5.50% and 8.00%. Similarly, Standard deviation is of 0.86%.

T-bills interest rate has the mean and median value of 3.16% this rates is lies between 0.27% and 8.45%. Similarly, Standard deviation is of 2.74%.

Data in the above table shows that NEPSE index is highly skewed to the positive where as other variables data are moderately skewed to the positive except Lending



interest rate variable. Similarly, variables like NEPSE index, Lending indicate the peaked distribution and other variables like: Deposit interest rate, bank rate and T-bills rate indicate the flat distribution according kurtosis analysis.

### 4.3 Correlational Analysis

Having indicated the descriptive statistics, the Pearson correlation coefficients have been computed. The correlation coefficients show the magnitude and direction of the linear relationship between two variables if that of the original data should change or remain unchanged. Table: 4.4 Correlation output

(This table is the outcome of the Correlation analysis carried out from excel, it has correlate with each dependent and independent variables to check the inter relationship between variables like NEPSE Index, average deposit interest rate, average lending interest rate, average Treasury bills, bank rate)

Table 4.4 Bivariate Correlation Analysis

|                  | Nepse Index | W.A Deposit Rate | W.A Lending Rate | Bank Rate | T-bills rate |
|------------------|-------------|------------------|------------------|-----------|--------------|
| Nepse Index      | 1           |                  |                  |           |              |
| W.A Deposit Rate | -0.193      | 1                |                  |           |              |
| W.A Lending Rate | -0.583      | 0.618            | 1                |           |              |
| Bank Rate        | 0.465       | 0.196            | -0.08            | 1         |              |
| T-bills rate     | -0.423      | 0.401            | 0.084            | 0.34      | 1            |

\*\* Correlation is significant at the 0.05 at two-tailed

Correlation enables a researcher to predict the effect of one variable on the direction of the other which is worth pointing out that correlation does not suggest causality, rather, the direction of the change or movement.

According to above table, there is negative relation between weighted average deposit interest rate and NEPSE Index which indicate that the higher deposit interest rate, lower would be the NEPSE Index and vice versa. Likewise, there is negative relation between weighted average lending interest rate and NEPSE Index which indicate that the higher lending interest rate, lower would be the NEPSE Index and vice versa.

On the other hand, bank rate is positively associated with NEPSE Index which indicates higher the bank rate higher would be the NEPSE Index and vice versa. Likewise T-bills rate has negative relation with NEPSE index which indicate that the higher interest rate of T-bills lower would be the NEPSE index and vice versa.

Observing correlation between independent variables, we can find that bank rate, lending interest rate and T-bills interest rate are positively associated with Deposit interest rate. This indicates that the higher bank rate, lending interest rate and T-bills would decrease the Deposit interest rate and vice versa.

Similarly, there is negative relation between bank rate and lending interest rate. This indicates that higher bank rate lower would be the lending rate and vice-versa. Similarly, variables like T-bills has positive relation with Bank rate. This indicates that the high interest rate of T-bills would increase the bank rate and vice versa.

#### **4.4 Regression Analysis**

In order to test the statistical significance and robustness of the results, this study relies on secondary data analysis based on the regression model specified in the chapter three. It basically deals with regression results from various specifications of the model to examine the estimated relationship of stock price (NEPSE Index) dependent variable and interest rate as independent variables with profitability along with stock return. The regression results have been presented in tables below.

This table is the outcome of regression analysis outcome from the excel, dependent variable is NEPSE Index where as independent variables are weighted average deposit interest rate, weighted average lending interest rate, weighted average Treasury bills, bank rate

Table 4.5: Regression Statistics

| <i>Regression Statistics</i> |         |
|------------------------------|---------|
| Multiple R                   | 0.891   |
| R Square                     | 0.794   |
| Adj. R Sq.                   | 0.679   |
| Std. Error                   | 266.728 |
| Obs.                         | 15      |

a. Predictors:(constant) DR, LR, SFTR, STIR

As shown as the table 4.7 of model summary, which explain the total variation in share price explained by bank rate, deposit rate, lending rate and short term risk free interest rate. The value of coefficient of multiple determinants R square is 0.794. This implies that the variation in share price can be explained by 79.4% independent variables (Bank rate, Deposit interest rate, Lending interest rate, short term risk free interest rate) at 95% confident interval. The chance of error of the estimate is 266.728. In other word, finding of the coefficient of multiple determination R square shows that 79.4% changes in share price of Nepalese stock market could be accounted to changes in bank rate, deposit rate, lending rate, short term risk free interest rate and remaining 20.6% are contributes by other factors. R is the correlation coefficient which shows the relationship between the study variables, from the findings shows in the table 4.5 there was a highly significantly positive relationship between the study variables as shown by 0.891<sup>a</sup> this result is complimented by the adjusted R- square of about 67.9%.which is essence of the proportion of total variance that is explained by the model. The table no 4.6 below shows the analysis of variance (ANOVA).

Table 4.6 Goodness of fit of Regression (ANOVA<sup>a</sup>)

| ANOVA      |           |           |            |          |               |
|------------|-----------|-----------|------------|----------|---------------|
|            | <i>Df</i> | <i>SS</i> | <i>MS</i>  | <i>F</i> | <i>Sig. F</i> |
| Regression | 5         | 2463419   | 492683.797 | 6.925    | 0.006         |
| Residual   | 9         | 640293.7  | 71143.746  |          |               |
| Total      | 14        | 3103713   |            |          |               |

a. Dependent variable: share price

b. Predictors: constant, BR, DR,LR,STIR

From the ANOVA statistics in table no 4.6 above the processed data which is the population parameters, had a significance level of 0.6% which shows that the data is ideal for making a conclusion on the populations parameters as the value of significance (p-value) is less than standard 5%. The calculated value was greater than the critical value ( $6.925 > 1.984$ ) an indication that independent variables ( Bank rate, Deposit interest rate, Lending interest rate and Short term risk free interest rate) of Nepalese stock markets significantly influence by on share price on Nepalese stock market. In other words, The F value is about 6.925 and a P-value or F(sig) that is equal to 0.6% this invariably suggests clearly that simultaneously the explanatory variables are significantly associated with the dependent variables. That is strongly determine the behavior of the share price of Nepalese stock market. The regression results for independent effect of Bank rate, Deposit Rate, Lending rate and short term risk free interest rate on share price is shown in table no. 4.7 below.

Table 4.7 Regression result for independent effect of bank rate, deposit rate, lending rate, short term risk free interest rate on share price (Coefficient<sup>a</sup>)

|           | <i>Coeff.</i> | <i>Std Error</i> | <i>t Stat</i> | <i>P-value</i> | <i>Lower 95%</i> | <i>Upper 95%</i> | <i>Lower 95.0%</i> | <i>Upper 95.0%</i> |
|-----------|---------------|------------------|---------------|----------------|------------------|------------------|--------------------|--------------------|
| Intercept | 7399.326      | 1897.518         | 3.899         | 0.004          | 3106.842         | 11691.811        | 3106.842           | 11691.811          |
| W.A D. R  | 262.838       | 100.989          | 2.603         | 0.029          | 34.386           | 491.290          | 34.386             | 491.290            |
| W.A L R   | -439.409      | 114.145          | -3.850        | 0.004          | -697.623         | -181.196         | -697.623           | -181.196           |
| B R       | -126.202      | 133.751          | -0.944        | 0.370          | -428.768         | 176.364          | -428.768           | 176.364            |
| T-B.R     | -142.801      | 42.115           | -3.391        | 0.008          | -238.072         | -47.530          | -238.072           | -47.530            |

a. Dependent Variables: Share price

Analyzing above table, first come the adjusted R square; as it is regression of stock market index and interest rate of fifteen years of each fiscal year. After test we found that the value of R Square is 0.679 which means that 67.9% variation of stock market is determined by Interest rate variables i.e. by Weighted Average Deposit interest rate, Weighted Average lending interest rate, Bank rate, T-bills rate. Stock market is being affected by 32.1% by other variables.

#### 4.5 Hypothesis Testing

Going through overall F test, we have use 95% level of confidence .i.e. is alpha value is 0.05. Our regression model is:

Stock price (NEPSE) = (f (Bank rate, Weighted Average Deposit Interest rate, Weighted Average Lending Interest rate, Weighted Average T-bills Interest rate).

i.e. stock price =  $a + b_1BR + b_2DIR + b_3LIR + b_4TIR + e$

The F-Value is less than 0.05, which indicates that the whole model is acceptable. The model is predictable to find out the stock market prices through interest rate variables. In the same way, P-value has been used to test the significance of each individual model.

H1:  $B_1$  (There is impact of deposit interest rate on share price).

The P-value is less than 0.05, we accept null hypothesis.

H2:  $B_2$  (There is impact of lending interest rate on share price).

The P-value is less than 0.05, we accept null hypothesis

H3:  $B_3$  (There is relationship between risk free short term interest rate and stock prices).

The P-value is less than 0.05, we accept null hypothesis

H4:  $B_4$  (There is impact of bank rate on share price).

The P-value is more than 0.05, we reject null hypothesis

From all hypotheses it has found that except bank rate all other variable like weighted deposit rate, weighted lending rate, T-bills. It means that weighted deposit rate, weighted lending rate, T-bills rate would affect the stock prices whereas bank rate will not impact the stock price from above analysis.

Table 4.8 Testing of Hypthesis

| S.N | Alternative Hypothesis  | P-Value | Remarks |
|-----|---|---------|---------|
| 1   | There is impact of deposit interest rate on share price                           | 0.029   | Accept  |
| 2   | There is impact of lending interest rate on share price                           | 0.004   | Accept  |
| 3   | There is relationship between risk free short term interest rate and stock prices | 0.008   | Accept  |
| 4   | There is impact of bank rate on share price                                       | 0.37    | Reject  |

From above table 4.8 table, it shows that beta coefficient is positive and significant for weighted deposit interest rate. It indicates that an increase in deposit interest rate leads to increases on share prices. Likewise, beta coefficient is negative and significant for weighted lending interest rate. It indicates that a decrease in lending interest rate leads to increases on share prices.

On the other hand, beta coefficient is negative and insignificant for bank rate. This indicates that there is no impact of bank rate on share prices. Similarly, beta coefficient is negative and significant for weighted T-bills interest rate. It indicates that a decrease in T-bills interest rate leads to increases on share prices

#### 4.6 Major Findings are:

1. The value of adjusted R Square is 0.679 which means that 67.9% variation of stock market is determined by Interest rate variables i.e. by Weighted Average Deposit interest rate, Weighted Average lending interest rate, Bank rate, T-bills rate. Stock market is being affected by 32.1% by other variables.
2. Variables like deposit rate, lending rate, T-bills rate have negative relationship with Share prices (NEPSE Index).
3. There is no significant relationship between bank rate and Share prices.
4. Lending interest rate and T-bills interest rate are positively associated with Deposit interest rate.
5. T-bills rate is positively associated with lending interest rate.
6. There is negative relation between bank rate and lending interest rate.

7. T-bills rate has positive relation with Bank rate..
8. The result reveals that beta coefficient is positive and significant for weighted deposit interest rate. But the beta coefficient is negative and significant for weighted lending interest rate.
9. Beta coefficient is negative and insignificant for bank rate. Similarly, beta coefficient is negative and significant for weighted T-bills interest rate.

## **CHAPTER V**

### **CONCLUSION**

This chapter presents the brief summary of the entire study and highlights of major findings of the study. In addition, the major conclusions are discussed in separate section of this chapter which is followed by some implications and the recommendations regarding the impact of interest rate on share market of Nepal. Finally, the chapter ends with the scope of the future research in same field.

#### **5.1 Summary**

The stock market index is taken as a barometer of an economy. Growth in stock index is normally considered as a good sign since it implies the investors are confident about the future prospect of the economy. It helps promote investment in the economy. However, a rapid increase in the stock market index is always a matter of concern. If the increase in the index is not justified by the fundamentals, such a rise cannot be sustained eventually the index will plummet endangering the economic and financial stability. It is necessary to understand the relationship between the stock market index and the factors that influence it. Several factors may affect the stock market. However, which factors affect to what degree will vary from country to country, depending on the size, type and other characteristics of the economy and the market. In the same way the interest rate variable like deposit interest rate, lending interest rate, bank rate and T-bills rate were used in this research project to determine the impact of interest rate on share market of Nepal.

A majority of earlier studies mostly indicated that there is significant and negative relationship between interest rate and share market. Some of them has used deposit interest rate where as some of them has used T-bill rate to find out the relationship between interest rate and share prices. In this report, we have used five independent variables to define relationship between interest rate and share prices. This study has investigated these implications in the context of our country to see whether the results support the previous studies or not.



## 5.2 Conclusion and Discussion

The major conclusion of this study is that deposit rate, lending rate, T-bills rate have significant impact on Share prices (NEPSE Index). The value of adjusted R Square is 0.679 which means that 67.9% variation of stock market is determined by Interest rate variables i.e. by Weighted Average Deposit interest rate, Weighted Average lending interest rate, Bank rate, T-bills rate. Stock market is being affected by 32.1% by other variables. Similarly, correlation analysis shows that Variables like deposit rate, lending rate, T-bills rate have negative relationship with Share prices (NEPSE Index). There is no significant relationship between bank rate and Share prices. Lending interest rate and T-bills interest rate are positively associated with Deposit interest rate. T-bills rate has positively associated with lending interest rate. There is negative relation between bank rate and lending interest rate.

Finally, the study concludes that deposit rate, lending rate, T-bills rate have significant negative impact on Share prices (NEPSE Index). But there is no impact of bank rate on share price.

In this report, it has used five independent variables to define relationship between interest rate and share prices. This study has investigated these implications in the context of our country to see whether the results support the previous studies or not.

There is no significant relationship between bank rate and Share prices. Lending interest rate and T-bills interest rate are positively associated with Deposit interest rate. T-bills rate is positively associated with lending interest rate. There is negative relation between bank rate and lending interest rate. T-bills rate has positive relation with Bank rate. The result reveals that beta coefficient is positive and significant for weighted deposit interest rate. But the beta coefficient is negative and significant for weighted lending interest rate.

### 5.3 Implementations

This research is useful for different stakeholders such as investor, regulatory bodies, etc. Deposit rates and lending rate affects the share price which can be fruitful for investor. Regulatory bodies like NRB issues T-bills by analyzing interest rate.

- The NRB should plan the monetary policy 2017/18 carefully to boost up the share market.
- The study observed a negative relationship of interest rate with share prices. Hence, policy makers should consider the fluctuation of interest rate and should use the effective tool to control the money market.
- The NRB should use the government securities like development bonds, foreign saving bonds e.t.c. to solve the liquidity problem.
- The government and policy makers should make the policy to increase the confidence level of investors and shareholder.
- There should be financial stability and transparency.
- Government's inability to spend capital expenditure and huge revenue collection has affected the liquidity status of the banks. Government should spend capital expenditure in time.

### 5.4 Scope for the future research

The study examined the impact of interest rate on share market of Nepal. The study has produced some interesting facts and findings. Future researcher can use this research as guidelines for their future studies because there is a gap in this research such as:

1. The deposit and lending interest rate are used from the commercial banks of Nepal. Thus, the future study may include interest rate of other financial institutions like development banks and finance companies to investigate impact of interest rate on share market of Nepal.
2. This study has used closing price of shares of every fiscal year. Annual closing prices and stock indexes are suffered from high deviations and

thus increase the annual returns. Therefore, future studies should be directed towards computing returns from daily or weekly or monthly observations of closing prices.

3. There are other interest variables such as; government securities like development bonds rate, inter-bank rate, which shows the study is insufficient in itself. Thus, the future study can include these variables that will further filter their study and make time worthy.
4. This study is based only on secondary data and does not include the preference of different investors. Therefore, future studies can be conducted using primary data.

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## APPENDIX

| <b>T-bills* (28 days)</b> | <b>T-bills* (91 days)</b> | <b>T-bills* (182 days)</b> | <b>T-bills* (364 days)</b> |
|---------------------------|---------------------------|----------------------------|----------------------------|
| 3.26                      | 2.98                      |                            | 4.93                       |
| 1.82                      | 1.47                      |                            | 3.81                       |
| 1.57                      | 3.94                      | 4.42                       | 4.79                       |
| 2.40                      | 3.25                      | 3.86                       | 4.04                       |
| 2.13                      | 2.77                      | 3.51                       | 4.00                       |
| 5.16                      | 5.13                      | 5.16                       | 6.47                       |
| 4.94                      | 6.80                      | 5.91                       | 6.55                       |
| 8.70                      | 8.13                      | 8.28                       | 7.28                       |
| 8.08                      | 8.52                      | 8.59                       | 8.61                       |
| 0.10                      | 1.15                      | 1.96                       | 2.72                       |
| 0.55                      | 1.19                      | 1.60                       | 2.71                       |
| 0.01                      | 0.02                      | 0.42                       | 0.72                       |
|                           | 0.1739                    | 0.5648                     | 0.7579                     |
|                           | 0.05                      | 0.33                       | 0.72                       |
|                           | 0.71                      | 1.71                       |                            |

Source: NRB 2017

Treasury bill rates from 2003 to 2017

Quarterly detail of Interest rate ( Source NRB)

| <b>Year</b> | <b>BANK</b> | <b>FDIYR</b> | <b>LEND</b> | <b>SAV</b> |
|-------------|-------------|--------------|-------------|------------|
| 2001Q1      | 7.50        | 6.88         | 12.75       | 5.00       |
| 2001Q2      | 7.50        | 6.63         | 12.25       | 4.75       |
| 2001Q3      | 7.50        | 6.13         | 12.25       | 4.75       |
| 2001Q4      | 6.50        | 6.13         | 11.00       | 5.00       |
| 2002Q1      | 6.50        | 5.88         | 10.75       | 4.63       |
| 2002Q2      | 5.50        | 5.75         | 10.75       | 4.63       |
| 2002Q3      | 5.50        | 5.25         | 10.75       | 4.38       |
| 2002Q4      | 5.50        | 5.25         | 10.75       | 4.38       |
| 2003Q1      | 5.50        | 5.25         | 10.75       | 4.38       |
| 2003Q2      | 5.50        | 5.00         | 11.25       | 4.25       |
| 2003Q3      | 5.50        | 5.25         | 10.75       | 4.38       |
| 2003Q4      | 5.50        | 5.00         | 11.25       | 4.25       |
| 2004Q1      | 5.50        | 5.00         | 11.25       | 4.00       |
| 2004Q2      | 5.50        | 5.00         | 11.25       | 4.00       |
| 2004Q3      | 5.50        | 4.38         | 11.25       | 3.63       |
| 2004Q4      | 5.50        | 4.25         | 11.00       | 3.63       |
| 2005Q1      | 5.50        | 3.63         | 11.00       | 3.25       |
| 2005Q2      | 5.50        | 3.63         | 10.88       | 3.25       |
| 2005Q3      | 5.50        | 3.63         | 10.88       | 3.13       |
| 2005Q4      | 5.50        | 3.63         | 10.88       | 3.38       |
| 2006Q1      | 6.00        | 3.63         | 10.75       | 3.50       |
| 2006Q2      | 6.00        | 3.63         | 10.75       | 3.50       |
| 2006Q3      | 6.25        | 3.63         | 10.75       | 3.50       |
| 2006Q4      | 6.25        | 3.63         | 10.75       | 3.50       |
| 2007Q1      | 6.25        | 3.63         | 10.75       | 3.50       |
| 2007Q2      | 6.25        | 3.63         | 10.75       | 3.50       |
| 2007Q3      | 6.25        | 3.63         | 10.75       | 3.50       |
| 2007Q4      | 6.25        | 3.63         | 10.75       | 3.50       |
| 2008Q1      | 6.25        | 3.63         | 10.75       | 3.50       |
| 2008Q2      | 6.25        | 3.63         | 10.25       | 3.50       |
| 2008Q3      | 6.25        | 4.00         | 10.00       | 4.25       |
| 2008Q4      | 6.25        | 4.13         | 10.00       | 4.25       |
| 2009Q1      | 6.25        | 4.75         | 10.00       | 4.38       |
| 2009Q2      | 6.50        | 4.75         | 10.00       | 4.50       |
| 2009Q3      | 6.50        | 5.00         | 10.75       | 4.50       |
| 2009Q4      | 6.50        | 5.75         | 10.75       | 4.75       |

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

### Structure of Interest Rate

(Percent per annum)

| Year   | 2010 | 2011 | 2012  | 2013  | 2014  | 2015   | 2016  | 2017  |
|--|------|------|-------|-------|-------|--------|-------|-------|
| Mid-month  | Jul  | Jul  | Jul   | Jul   | Jul   | Jul    | Jul   | July  |
| <b>A. Policy Rates</b>                                     |      |      |       |       |       |        |       |       |
| CRR  |      |      |       |       |       |        |       |       |
| Commercial Banks   |      | 5.5  | 5.0   | 6.0   | 5.0   | 6.0    | 6.0   | 6.0   |
| Development Banks  | 5.5  | 5.5  | 5.0   | 5.5   | 4.5   | 5.0    | 5.0   | 5.0   |
| Finance Companies  | 5.5  | 5.5  | 5.0   | 5.0   | 4.0   | 4.0    | 4.0   | 4.0   |
| Bank Rate  | 6.5  | 7.0  | 7.0   | 8.0   | 8.0   | 8.0    | 7.0   | 7.0   |
| Refinance Rates  |      |      |       |       |       |        |       |       |
| Against Loans to:  |      |      |       |       |       |        |       |       |
| <b>B. Government Securities</b>                            |      |      |       |       |       |        |       |       |
| T-bills (28 days)*   | 8.70 | 8.08 | 0.10  | 0.55  | 0.01  | -      | -     | -     |
| T-bills (91 days)*   | 8.13 | 8.52 | 1.15  | 1.19  | 0.02  | 0.1739 | 0.05  | 0.71  |
| T-bills (182 days)*  | 8.28 | 8.59 | 1.96  | 1.60  | 0.42  | 0.5648 | 0.33  | 1.71  |
| T-bills (364 days)*  | 7.28 | 8.61 | 2.72  | 2.71  | 0.72  | 0.7579 | 0.72  | -     |
| <b>Development Bonds</b>                                   | 5.0- | 5.0- | 5.0-  | 5.0-  | 3.25- | 2.65-  | 2.65- | 2.65- |
| <b>C. Interbank Rate of Commercial Banks</b>               | 9.0  | 9.5  | 9.5   | 9.5   | 9.5   | 9.5    | 9.0   | 9.0   |
|  | 6.57 | 8.22 | 0.86  | 0.86  | 0.16  | 1.01   | 0.69  | 0.64  |
| <b>D. Weighted Average Deposit Rate (Commercial Banks)</b> |      |      | 6.17  | 5.25  | 4.09  | 3.94   | 3.28  | 6.15  |
| <b>E. Weighted Average Lending Rate (Commercial Banks)</b> |      |      | 12.40 | 12.09 | 10.55 | 9.62   | 8.86  | 11.33 |

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



# **IMPACT OF INTEREST RATE ON STOCK MARKET IN NEPAL**

**A Thesis Proposal**

**By**

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Exam Roll No.:805/16

T.U. Regd. No.: 7-2-558-18-2012

*Submitted in partial fulfillment of the requirement for the degree of*

**Master of Business Studies (MBS)**

In the

**Faculty of Management**

**Tribhuvan University**

**Central Department of Management**

**Kirtipur, Kathmandu**

**Nepal**

**Aug, 2018**

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# CHAPTER I

## INTRODUCTION

### 1.1 Background of the Study

The history of stock market is not long in Nepal. Securities Exchange Centre (SEC) was established in 1976 with an objective of facilitating and promoting the growth of capital market (Gurung, 2004). However, it opened its floor for secondary trading of shares only in 1981, which was only for government bonds (NRB, 1996). With enactment of Securities Exchange Act 1984, SEC opened its floor for corporate share trading also, but it was very limited. The organized and full fledged stock market began with the conversion of Securities Exchange Centre into Nepal Stock Exchange (NEPSE) Limited in 1993. The NEPSE opened its trading floor in the beginning of 1994. Till now, it is the only stock exchange in Nepal. Hence, the stock market in Nepal is still in evolving stage but of special interest as it has grown significantly since its establishment. It was established in order to mobilize capital alternative to traditional banking sector for promoting economic growth and development in the country.

Normally, the stock market index is taken as a barometer of an economy. Growth in stock index is normally considered as a good sign since it implies the investors are confident about the future prospect of the economy. It helps promote investment in the economy. However, a rapid increase in the stock market index is always a matter of concern. If the increase in the index is not justified by the fundamentals, such a rise cannot be sustained eventually the index will plummet endangering the economic and financial stability. Hence, it is essential that the policymakers keep eyes on the stock market development and be ready to take appropriate measures, if needs arise, to prevent the buildup of bubbles and collapse in the market. For this, it is necessary to understand the relationship between the stock market index and the factors that influence it. Several factors may affect the stock market. Any factors that have an effect on cash flows of firms or discount rate will have impact on the stock market. However, which factors affect to what degree will vary from country to country,

depending on the size, type and other characteristics of the economy and the market. In this context, this paper aims to analyze the relationship between the NEPSE index and interest rate variables in Nepal using yearly data that span from mid-July 2003 to mid-July 2017. In addition to main variables, this paper also assesses the impact of changes in  $p$ . It is expected that the findings of this study would provide some meaningful insights to understand the determinants behind the performance of Nepalese stock market, useful for both policymakers and investors.

Equity markets enhance corporate efficiency, spur innovation, and provide a valuable source of capital for long-term economic development. They also provide a useful mechanism for governments to raise capital through the sale of state-owned enterprises. Moreover, equity market investments constitute an important element of individuals' assets, particularly as governments shift their pension systems toward the private sector. In short, it is clear that equities constitute an increasingly important capital market in the world economy (Mosley & Singer, 2008).

Interest rate is one of the important macroeconomic variables, which is directly related to economic growth. Generally, interest rate is considered as the cost of capital, means the price paid for the use of money for a period of time. From the point of view of a borrower, interest rate is the cost of borrowing money (borrowing rate). From a lender's point of view, interest rate is the fee charged for lending money (lending rate).

## **1.2 Statement of the Problems**

Interest rate can only affect, but not determine the stock market (Mueller, 2006). When the interest rate is increased, borrowing will become difficult. Company will have less money to expand the business and the profit will be affected. Bonuses and dividends will be cut and the investors will be affected eventually. Stock market will then become a less attractive instrument for investment. However, interest rate is not the only factors that affect the stock market. Stock market index might be trending upward due to other factors like economic growth, political issues and monetary policies even when the interest rate is high.

There is no uniform finding about the study. The most studies have been conducted by focusing the macroeconomic variables effect on the stock market. In Nepal, there is no study has done in the impact of interest rate on share market of Nepal. Therefore this study is important in order to determine the impact of interest rate (deposit interest, lending interest, bank rate and T-bills rate) on share market of Nepal.

The general problem of the study is that it is focus on the impact of interest rate on stock market of Nepal.

The specific statement of problems will be as follows:

1. What is the impact of bank rate on stock market return?
2. What is the impact of deposit & lending interest rate on stock market return?
3. What is the effect between the stock market return and risk free short term interest rate?

### **1.3 Purpose of the Study**

The general objective of the study is to find the relationship between interest rate and stock market. Here are some specific objectives of the study:

1. To find the impact of bank rate on stock market return.
2. To find the impact of deposit & lending interest rate on stock market return
3. To find the effect between the stock market return and risk free short term interest rate?

### **1.4 Significance of the Study**

Stock exchange and interest rate are two crucial factor of economic growth of a country. The impact of interest rate on stock exchange provides important implication for monitory policy, risk management practices, financial securities valuation and government policy towards financial markets. The study will seek the existence of market efficiency on the Nepal Stock Exchange (NEPSE). In order to receive the confidence of the investors and to ensure the level playing field for all the market participants, this study will be useful to make efficient market mechanism for investors.

In addition, the study would also be useful to students, academicians and stock analysts. This paper would be helpful for further study about the stock price. The study has analyzed the impact of interest rate on stock share market by considering the above all issues. So, the study is significant to investors, brokers, student, academicians, policy makers, government officials, stock analyst, bankers and managers in order to make rational decisions, effective policies and to make further studies related to stock price.

### **1.5 Limitations of the Study**

The limitations of the study are:

1. The deposit and lending interest rate are used from the commercial banks of Nepal. It does not include interest rate of other financial institutions like development banks and finance companies.
2. The sample size and time period taken for the study is limited.
3. The model used in this study is limited on regression.
4. This study has used closing price of shares of every fiscal year.
5. There are other interest variables such as; government securities like development bonds rate, inter-bank rate and other macro and non macro economic variables are not used in this report.
6. This study is based only on secondary data and does not include the preference of different investors.

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **2.1 Literature Review**

It is the act of analyzing as well as critically finding the similarities and differences in the previous related studies. It also entail about major findings as well as reviewing the tools and techniques used by the previous studies on impact of interest rate on share market of Nepal. The review of literature in this study has been organized as follow:

2.1.1 Review of Nepalese literature

2.1.2 Review of Related literature

##### **2.1.1 Review of Nepalese literature**

Growth and Performance of Securities Market in Nepal (Gurung, 2004) Securities market plays a pivotal role in mobilizing savings and channelling them in productive purposes and many more like providing liquidity on securities so that one can minimize the risk and maximize the returns. The study on the securities market performance reveals that there is no synchronization among different securities market performance indicators, but it is true that they almost have depicted an erratic trend during the observed period. This indicates the unstable and poor performance of securities market. Relative to the overall economy, the size of securities market is very small and the liquidity of securities also is poor. These facts suggest that the Nepalese capital market now is passing through a bearish situation. The growth and performance of Nepalese securities market, even after the introduction of new mechanism in 1993/94, are not satisfactory though it is improving gradually.

Stock Market Development and Economic Growth: Empirical Evidence from Nepal (Regmi, 2012) Stock market in Nepal promoted economic growth of the Nepalese economy. Since stock market is a vehicle for economic growth in our context, the stock market should be integrated into the whole economic system of the country while designing economic policies. The key policy implication is that the country requires a well-built and enabling stock market in order to accelerate and maintain

strong growth of the economy. Hence, meaningful efforts are required on the part of the government to ensure well-organized and competent operation of stock market because the more efficient the market, the more possibility it will attract investors. The government should remove impediments to stock market development in the form of tax, legal and regulatory barriers because they are sometimes disincentives to investment, should invest more and develop the nation's infrastructure in order to create an enabling environment for businesses to grow, increase the productivity and efficiency, and the rate of returns of firms, should employ appropriate trade policies that promote the inflow of international capital and foreign investment so as to enhance the production capacity of the nation, and should strengthen the capacity of the Nepal Stock Exchange so as to check and prevent sharp practices by market operators in order to safeguard the interest of shareholders. Moreover, the Nepal Stock Exchange should improve the trading system in order to increase the ease with which investors can purchase and sell shares, thus guaranteeing liquidity on the stock market. Besides, stock market reformation policies may give a further support to the economy and may act as a key enabler and catalyst of economic growth.

Factors Affecting the Share price: Evidence From Nepalese Commercial Bank (Pradhan and Dahal, 2014) Many studies have been undertaken to study on factors affecting the share price in development countries. This study investigates the relationship between share price, bank specific and micro-economic variables of selected Nepalese commercial banks. The stock price in the market is not static rather it changes every day. The most obvious factor that influence are demand and supply factors. The price of any commodity is affected by both micro-economic and macro-economic factors. This study aims at examining the relationship between bank specific and macroeconomic variables and MPS in Nepal's banking sector. It determines the effect of earnings per share, dividend per share, price earnings ratio, book value per share, return on assets, size, gross domestic product, inflation and money supply on MPS. The study is based on pooled cross-sectional analysis of secondary data of 14 commercial banks for the period 2002/03-2013/14. As first approximation to the theory, this study hypothesizes that the MPS depends on several bank specific and macroeconomic variables such as earnings per share, dividend per



share, price, earnings ratio, book value per share, return on assets, size, gross domestic product, inflation and money supply.

Determinants of Stock Market Performance in Nepal (Shrestha and Subedi, 2014)

This paper examines the determinants of stock market performance in Nepal, which has been passing through up and down in recent years. Since stock market tends to be highly sensitive and volatile, we examine the determinants of stock market index on monthly data. We have found the Nepalese stock market has been behaving as we expected theoretically. It has strong positive relationship with inflation and growth of money supply, and negative response to interest rate. It shows that people have been gradually taking stock market as a hedge against inflation and invest in this market when there is ample liquidity available at a low interest rate. More importantly, the stock market performance has been found to be influenced by political changes similar to finding of Dangol (2008) and the NRB's policy. The positive outlook for political stability has positive impact on stock market index. Similarly change in NRB's policy on lending against share collateral has significant impact on the movement of stock market index. A number of policy implications can be drawn from this study. First, Nepalese stock market has been quite responsive to macroeconomic development, especially monetary sector development. Second, a loose monetary policy could trigger an asset price bubble in share market, which is mainly dominated by banks and financial institutions. Third, share investors seem to watch the political development closely. Hence, a positive political development with stability can promote share market further which can play a vital role for financial intermediation and resource mobilization through capital market. Fourth, NRB's policy on lending against share collateral has been effective in influencing the share market. This indicates the significant role of NRB's policy in the share market. As our results reveal that share market is also influenced by rumours, news and speculations, transparency should be increased in this market by making information related to listed companies easily accessible. Transparency and communication should, in fact, be enhanced by the concerned authorities in order to clear gossips and rumours in the market.

### **2.1.2 Review of Related literature**

Impact of short term interest rate on stock price: evidence from srilanka (Chutang and kumara, 2009) To determine the relationship between short-term interest rates and stock prices of Sri Lanka study used three time series data relating to short-term Treasury bill rates (TB91, TB182 and TB364 days) and two time series relating to price indices of the Colombo Stock Exchange (ASPI and MPI). These all the time series are non-stationary time series with unit root problems as per the Dickey-Fuller Unit Root Test. However Durbin-Watson statistic reveals that these time series do not have an autocorrelation problem. In the process of converting non-stationary time series in to stationary time series TB364, ASPI, and MPI become stationary at their first difference and TB91 and TB182 become stationary at their second difference.

Non-existence multicollinearity problem among TB91, TB182 and TB364 enhances the validity of applying both regression models in the study. However these explanatory variables just account for 7.2 percent of the variation in the ASPI and 5.3 percent of the variation in the MPI. It means that 92.8 percent of the variation in the ASPI and 94.7 percent of the variation in the MPI is due to other sources or variables not included in the analysis. In the both multiple regression models coefficients of correlation relating to TB91 and TB182 show a weak positive relationship with ASPI and MPI and that is of TB364 reflects a weak negative relationship with both ASPI and MPI. In applying the sample results in to the entire population of each variable the null hypothesis says that there is hardly relationship between short-term interest rates measured by Treasury bill rates and stock prices in Sri Lanka. Granger and Sims's Causality Test suggests that 364 and days Treasury bill rate cause both All Share Price Index Milanka Price Index.

The study has observed that the banking sector in Kenya is very dynamic and highly profitable as an investment avenue in the NSE. The sector has been found to be performing well in the recent past despite dwindling performance in the global financial sector. The outcomes of the review of a few competitive performance rankings have shown that the best performing commercial banks are mainly those listed in the NSE and therefore investing in them is equated to investing in the best

companies are also competitors in the NSE bourse and these are able to 43 n the country. Commercial banks be competitive in their might of wooing investors willing to cash in on the sector's lucrative edge. The study found no evidence that the share prices affect the lending rates in the Kenyan commercial banks.

The study further found that the lending interest rate has been widely varying for last 5 years, changes that have been mimicked by the commercial banks' share prices. The lending rate is highly dependent on the variability of the commercial bank borrowing rate that is set by the Central Bank of Kenya (financial sector regulators) which has also been changed widely over time. The share prices have also been observed to vary widely over the period.

The study found the relationship between the average lending rate and the individual banks' share prices in the NSE strongly correlated with high correlation coefficient and high coefficients of determination that indicated that the lending rate was able to explain a huge chunk of the Commercial Banks' share prices. This relationship was found to be inverse since both the correlation and regression coefficients were negative. Therefore, it can be concluded that the prevailing lending rate in the Kenyan financial sector is able to greatly affect the share prices of commercial banks in Kenya with an increase in lending rate causing a decrease in share prices and vice versa.

Somoye et al.(2009) examined the fact0rs influencing equity prices in the Nigerian stock market for the period 2005-2007 and examined the impact of earning per share, GDP, interest rate, dividend per share and oil price on equity price and return. The study concluded that dividend per share, earning per share and GDP exerts a positive correlation to stock prices but are not significant determinants of stock return.

Mahmudul and Gazi (2009) performed a study on 15 developed and developing countries and showed that interest rate has significant negative relationship with share price. Mukherjee and Naka (1995) found that for the long run, interest rate has negative impact on the stock market index in Japan.

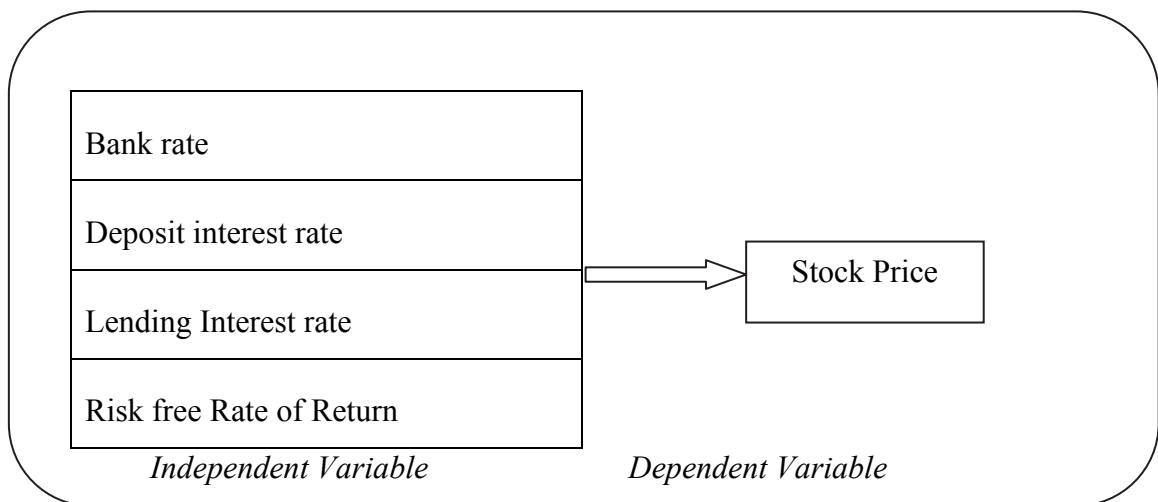
Interest rate has negative impact on the stock market in Ghana. On the other hand, Kyereboah-Coleman and Agyire-Tettey (2008) showed that lending rates charged by

the banks have negative impact on stock market performance in Ghana, which prevents the business growth. Cointegration can be tested for a pair of variables from period to period. There is a co-integrating relationship between macroeconomic variables in a study by Adam and Tweneboah (2008) in Ghana. Using Johansen's cointegration and innovation accounting techniques, they have shown that a long run relationship exists between the variables studied

Kyereboah-Coleman and Agyire-Tettey (2008) showed that lending rates charged by the banks have negative impact on stock market performance in Ghana, which prevents the business growth.

## **2.2 Conceptual Framework**

In this stride I have narrate Variables; dependent and independent variables which have assist me as a foundation for the entire work. As I am assuming that variables are Stock Market; i.e. dependent and independent variable are bank rate, weighted average deposit interest rate, weighted lending interest rate, risk free short term interest rate, development and national/citizen SCs interest rate.



**Figure 2.1 Conceptual Framework**

This figure shows the conceptual framework of the study by showing the dependent and independent variables.

## **CHAPTER III**

### **RESEARCH METHODOLOGY**

This chapter puts lights on the research process and methods design to meet the stated objectives of the study. The research methodology explores the research process regarding the impact of interest rate on share market of Nepal. The broad process of research methodology has been further categorized for simplicity into various subtopics which consists of research plan and design, description of the sample, instrumentation, data collection procedure and time frame, method of data analysis, analysis plan and limitation of the study. Since the study is undertaken basically to analyze the impact of interest rate on share market of Nepal.

#### **3.1 Research Design**

Research plan and design is a process to conduct the research, which help to identify the relationship between the depended and independent variables. It is a master plan specifying the methods and procedures for collecting and analyzing the required information. Research design helps to explore the effect of one variable on another variable.

The quantitative research is done through descriptive research design. Under the descriptive, we have selected the different years to find out the relationship between interest and share prices. We have observed trend analysis of NEPSE index along with different interest rate like: bank rate, deposit rate, lending rate, short term interest rate, interbank interest rate.

#### **3.2 Description of the Sample**

For this research project, population is based on NEPSE index and different interest rate like: bank rate, deposit rate, lending rate, short term interest rate, interbank interest rate. In order to take sample for the study, study has included different interest rate like: bank rate, deposit rate, lending rate, short term interest rate & NEPSE closing price of each fiscal years starting from July 2003 to July 2017 of 15 years and Taking help from NRB website.

### **3.3 Nature and Sources of data**

The study is based on secondary data in nature. This section elaborates on how data are analyzed for this study. Without any data, nothing can be studied. So for any statistical investigation, the collection of data of data is more important. Availability of data about various aspects of financial information and macroeconomic variables in Nepal is still constrained as in other developing countries because of low capability of data generation and management.

### **3.4 Data Collection Procedures**

Data for this study will gather from the authorized sources namely, Nepal Rastra bank, Nepal stock exchange, economic survey, Central Bureau of Statistics e.t.c. In addition to these, different published articles, report, book, journal, and graduate research project are also analyzed.

### **3.5 Data Processing and Analyzing Procedure**

It is necessary to follow certain steps and procedures in analyzing data in order to understand the results and generalize the findings. The analysis of secondary data intends to study the relationship and cause and effect between the variables. This section is divided into various subsections first of which deals with the descriptive statistics of the sample observations including the mean, standard deviation, minimum and maximum values of the observations. Correlation analyses have been carried out in the second section followed by the stepwise regression analysis. Test of significance, standard error of estimate and multi-co linearity have also been tested to make the results more valid.

The main purpose of data analysis of this study is to explore impact of interest rate on share market of Nepal. This study includes the quantitative data which are analyzed through the descriptive, co-relation and regression methods. Excel has been used to analyze the data and to get required information and results. This sections deals with statistical models for analyzing of secondary data.

Stock Price (NEPSE Index) = f (Bank rate, Weighted Average Deposit Interest rate, Weighted Average Lending Interest rate, Weighted Average T-bills Interest rate)

NEPSE Index include the closing price of mid July of every fiscal year, similarly all independent variables are also the closing interest rate of every fiscal year. Weighted Average Deposit Interest rate and Weighted Average Lending Interest rate are the average of all commercial banks deposit and lending interest rates. Weighted Average T-bills Interest rate is the average of 28 days, 91 days, 182 days and 364 days of Treasury bills interest rate.

### **3.6 Statistical Tools**

This study includes the quantitative data which will be analyzed through the descriptive, co-relation and regression methods. Excel has been used to analyze the data and to get required information and results. This sections deals with statistical models for analyzing of secondary data.

Descriptive statistics of the sample observations including the mean, standard deviation, minimum and maximum values of the observations will be analyzed. Correlation analyses will be carried out in the second section followed by the stepwise regression analysis. Test of significance, standard error of estimate will be tested to make the results more valid.

### **3.7 Organization of the Study**

The whole study will be divided into five chapters and the chapters will be organized systematically as follows for the effective study.

Chapter I: This chapter consists of major issues to investigate along with the objective, significance, focus and limitation of the study.

Chapter II: This chapter is related to theoretical analysis a brief review of related literature. It tries to show overall scenario of interest rate impact on stock market in Nepal.



Chapter III: This section describes the methodology employed in the study. This chapter deals with the nature and sources of data selection for study areas, method of analysis etc

Chapter IV: This chapter deals with the presentation and analysis of data and major findings by using proper tools and techniques.

Chapter V: The last chapter incorporated summary, conclusion and recommendation emanating from the study.

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