Impact of Bank Interest Rate on Stock Market Index:

Evidence from Nepal Stock Exchange (NEPSE)

A Dissertation submitted to the Office of Dean, Faculty of Management in

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By

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled “Impact of Bank Interest Rate on Stock Market Index in Short Term: Evidence from Nepal Stock Exchange (NEPSE)”. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirements for any other academic purposes.

The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

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REPORT OF RESEARCH COMMITTEE

Mr. Tikaram Paudel has defended research proposal entitled "Impact of Bank Interest Rate on Stock Market Index in Short Term: from Nepal Stock Exchange (NEPSE)". successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisor **Mr. Bhoj Raj Ojha** and submit the thesis for evaluation and viva voce examination.

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APPROVAL SHEET

We have examined the dissertation entitled “Impact of Bank Interest Rate on Stock Market Index: from Nepal Stock Exchange (NEPSE)” presented by Tikaram Paudel for the degree of **Master of Business Studies** We hereby certify that the dissertation is acceptable for the award of degree.

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TABLE OF CONTENTS

LIST OF TABLES

ABBREVIATIONS

BS:	Base Rate
Cap.:	Capitalization
CAPM:	Capital Asset Pricing Model
DR:	Deposit Rate
GDP:	Gross Domestic Product
IDX:	Indonesia Stock Exchange
IPO:	Initial Public Offering
IR:	Interest Rate
IRr:	Interbank Rate
JKSE:	Jakrata Stock Exchange
LR:	Lending Rate
LUSE:	Lusaka Securities Exchange
NEPSE:	Nepalese Stock Exchange
NRB:	Nepal Rastra Bank
REITS:	Real Estate Investment Trust
RF:	Risk-Free Rate
SCs :	Securities
SEBON:	Securities Board of Nepal
TU	Triabhuvan University

ABSTRACT

The major conclusion of this study is that deposit rate, lending rate, base rate has significant impact on Stock index (NEPSE Index). NEPSE index has Negative correlation (Pearson Correlation) other variable like Deposit interest rate, Weighted Average lending interest rate, Base rate, except interbank rate. There are four independent variables to define relationship between interest rate and stock index in the short run. It has been concluded that 92.3% variation of stock market is determined by Interest rate variables i.e., by Weighted Average Deposit interest rate, Weighted Average lending interest rate, Base rate, interbank rate. Lending interest rate and base rate are highly positively associated with and interbank rate is moderately associated. The status of the market fluctuated in various ways over the years and in order to analyze it and provide a alarming proof about the causes and affects of it, we need to go through all the data and logs found in different sources and also some self-study. To arrive at the conclusion Dependent variable is NEPSE index and independent variable are Weighted average deposit rate, Weighted average lending rate, Average Base rate and Interbank rate.

Keywords

impact on Stock Index(NEPSE Index), interest rate and stock index, fluctuated, alarming proof, conclusion

CHAPTER-I

INTRODUCTION

1.1 Background of the Study

The history of Capital market is not too long in Nepal. Capital market begun in Nepal with the Initial Public Offering (IPO) of Nepal Bank Limited and Biratnagar jute mills in 1937 AD. Securities Exchange center was established in 1976 AD with an objective of facilitating and promoting the growth of capital; later converted into Nepal stock Exchange whereas, NEPSE trading floor began on 1994 AD.

Since the interest rate has a crucial impact on investment decisions through the implementation of monetary policy by a nation's central financial institution, the relationship between the interest rate and the overall performance of the stock market has drawn significant attention from academics, students, researchers, regulators, policymakers, and other market participants. The stock market index is seen as a reflection of the state of the economy in a developed nation. (Gurung, 2020)

The institution and operation of the Stock Market Change has opened door to small investor in any other case constrained through prevailing possibilities and incapability to gather various sources. The solely possibly alternative left for them was once bank deposits. Thus, enterprising and venturesome small investor have been disadvantaged of opportunities to invest. However, the institution of the securities market in Nepal in 1985 and Nepal Stock Exchange Market in 1994, has opened an avenue to them. The Securities Exchange Board (SEBON) is running since 1993. However, to what extent, their pastime is being given interest has remained a trouble of concern in Nepal Securities market is an area and the place for and promoting of securities takes area in a prepared way. (Bajracharya & Koirala, 2021)

The Stock Exchange is a vital financial barometer of an economy and a register of investors' confidence. Many researchers and authors in each developed and growing nations have studied the hyperlink between Stock Market Exchange With overall performance and macro-economic variables like Gross Domestic product, inflation, Interest Rate, fiscal balance, current account balance, industrial manufacturing charge so on and buyers accept as true with on monetary policy and macroeconomic variables to have giant weight on the volatility of Stock Market returns. (Kganyago & Gumbo, 2015)

One of the key macroeconomic factors that has a direct bearing on economic growth is interest rates. Interest rates are typically thought of as the cost of capital, which is the amount paid for the temporary use of money. Interest rates are the cost of borrowing money from the perspective of the borrower (borrowing rate). The cost a lender pays for lending money is known as the interest rate (loan rate). (Christie, December 1981)

The goal of this study is to examine the short run relationships between interest rate and stock market index in Nepal. The performance of the stock market can reflect the overall performance of a country's economy. Similarly, the stock index in a particular sector can reflect the performance of the particular sector, for example, the Banking index. The Banking Index often rises during periods of high profit margins for commercial banks. Strong performance in the stock market may indicate rapid expansion in the economy. There is a different school of thinking, though, that disagrees. Paul Samuelson pointed out that the stock market is no more predictive of future events than the general public. The success of the stock market is influenced by a wide range of factors, including external, company-specific, political, and economic ones. Economic growth, monetary policy, political issues, fiscal policy, exchange rates, and global challenges all have an impact on stock indices. A company's sales, profitability, and other factors can all have an impact on the price of its shares.

1.2 Statement of the Problems

The negative relationship is additionally primarily based on the view that an upward rise in interest rate will lead to a higher borrowing cost, decrease future profits, amplify in bargain charge for fairness investors; and then Stock prices decrease. (Lafi & Naif, 2017) Thus, will increase in Interest rate have oblique have an impact on Stock Prices.

Over time, bank interest has influenced Nepal's stock values. This research raises important questions about how to stabilize bank interest rates in order to maintain stock price equilibrium and enhance the Nepali stock market. In addition, a variety of other quantitative and qualitative factors may also contribute to the decline in the stock market, in addition to the bank interest rate. As a result, similar searches may also be performed using larger inclusive variables, a longer time frame, and a different approach.(Gurung,2020)

The stock market index can only be influenced by interest rates; it can no longer determine it (Inderst & Mueller, 2006). The hike in bank interest rates will make borrowing more challenging. The company will have significantly less money to grow the business, which will have an impact on revenue. The investor will ultimately be impacted by the reduction of bonuses and dividends. The stock market will then become a far less alluring investment vehicle. But there are other factors than interest rates that affect the stock market. Even with a high bank rate, the stock market index may be heading higher owing to a variety of factors, including financial expansion, political unrest, and monetary policy.

Despite having a very shady relationship, interest rates and the stock market often move in the opposite ways. Generally speaking, the stock market rises when the NRB lowers interest rates, and the stock market falls when the NRB raises interest rates. However, there's no way to predict how the market will respond to a particular shift in interest rates.

The Specific Statement of Problem are as follows:

i. There can be a relationship between bank interest rates and stock market indices in the short run. This relationship is influenced by various factors, and the direction of the impact can vary depending on the specific economic conditions and circumstances.

ii. Bank interest rates can impact stock market indices in complex ways. When interest rates rise, it tends to increase borrowing costs for businesses and consumers, potentially leading to lower corporate profits and reduced consumer spending.

iii. The relationship between bank interest rates and the stock market index in the Nepal Stock Exchange is subject to various economic dynamics. However, it's important to note that specific market conditions and regulatory changes can lead to nuanced effects, and for the most accurate and current insights, consulting local financial experts or recent economic reports is recommended.

1.3 Objective of the Study

The general objective of the study is to find the relation between bank interest rate on short term and long term on stock market index. The specific objectives are as follows:

i. To determine a relationship between bank interest rates and stock market indices in the short run.

ii. To examine whether the bank interest rates can impact stock market indices in complex ways.

iii. To find out the relationship between bank interest rate and stock market index in NEPSE.

1.4 Rationale of the Study

Two essential components of a nation's financial development are its stock exchange and lending rate. The way that financing costs impact the stock market has important implications for risk management, monitoring policies, and government approaches to the financial industry. The evaluation will check to see if the Nepal Stock Exchange (NEPSE) has any market productivity. This study is important to create an efficient market system for investors since it will provide the financial lenders with assurance and ensure that all participants in the market are on an even playing field.

Additionally, academics, investment analysts, and students will all benefit from this study. You will also find this material helpful in learning about stock prices. By taking into consideration all of the aforementioned concerns, the study has examined how interest rates affect the stock market. Therefore, a wide range of people, including bankers, managers, investors, brokers, students, academics, policy makers, authorities, and stock analysts, study this topic in order to make informed judgments, excellent insurance policies, and research related to stock price.

1.5 Limitation of The Study

The limitations of the study are:

- The savings and lending rate are used from the commercial banks of Nepal. It does no longer consist of interest rate of other financial institutions like development banks and finance companies.
- Only minimal regression is used in this investigation.
- The closing price for each monthly basis was employed in this study. The closing price on the preceding date is used as the month-end closing index if the index is not obtained by the specified date. However, NRB also collects interest rates on a monthly basis.

- This report no longer makes use of several variables, including rates on government securities like development bonds, interbank rates, and various macro and non-macro monetary factors.

- The secondary data serves as the sole foundation for this investigation. The validity of the data sources determines how reliable the results are.

CHAPTER-II

LITERATURE REVIEW

It involves looking over and critically identifying the parallels and discrepancies with earlier relevant studies. It also includes a summary of key findings and a review of the instruments and procedures employed in earlier research on the effect of interest rate on the Nepali share market. The following is the structure of the literature review used in this study:

The review of literature is divided into two sections. The literature on the theoretical and empirical reviews of the influence of interest rates on stock market indexes is examined in the first part. Research on how exchange rates affect the stock market index is included in the second section.

Theoretical Review

Empirical Review

2.1 Theoretical Review

Theories of interest rate

This section covered the various facets of interest rates. The following lists the four theories of interest rates.

The classical Theories of Interest

David Ricardo, Marshall, A.C. Pigou, Cassels, Walras, Taussing, and Knight are names linked to the classical principle of interest rate. This idea is also recognized as the true theory of interest rates as economic considerations are not given any weight and only actual factors, such as thrift and production, are taken into account. The classical theory states that the intersection of the supply and demand for funding (or capital) determines the interest rate. Interest serves

as a financing rate as businesses borrow money to make investments. Funding is therefore dependent on interest rates. Excessive investment is encouraged by low interest rates, while investment is discounted by high interest rates. Investment and interest rate are therefore negatively correlated. Families hang onto their money in order to generate interest. Savings increase with high interest rates and decrease with low interest rates. Savings and interest rates are therefore favorably (or directly) correlated. Household savings satisfy the finance needs of businesses. In the market for goods, saving is supply and finance is demand. Therefore, the point at which the supply of savings and the demand for funding overlap or intersect is where interest rates in the products market are calculated. By investing and saving, interest rates are adjusted to bring the market back into balance. (Pal, Theory of Interest Rate, 2018)

Neo-Classical Theories of interest

This hypothesis states that the availability and demand for loanable money determine the interest rate. While neo-classical economists considered bank lending, dishoarding, and disinvestment in addition to saving, the classical theory of interest focused primarily on saving out of current income as the source of saving. According to conventional wisdom, loanable money could only be used for investments made from savings. Neo-classical economists' theory of interest includes savings as well as hoarded wealth, bank loans, and disinvestment wealth as additional sources of capital available for borrowing by borrowersLoanable money principle of interest is sometimes referred to as both a real and a financial notion of interest as it took into account all savings from the classical concept of interest as well as financial institution loans, dishoarding, and disinvestment. As a result, it is an interesting real and economic theory. (Pal, Theory of Interest Rate, 2018)

Keynes Theories of Liquidity Preference

First, consider the loanable principle of interest and the classical theory of interest when examining Keynes' idea of liquidity preference. According to the traditional theory of interest, the junction of investment and savings in the products market determines the price of interest, which is a real occurrence. Keynes believed that the rate of interest is essentially an economic phenomenon, a payment for giving up liquidity, and that the money market determines the rate of interest by combining the supply and demand for money. The loanable funds theory of interest states that the junction of the demand for investments and the source of financial savings determines the rate of interest. In contrast to the conventional concept of interest, the loanable money theory of interest takes into account savings in the source of loanable funds as well as loans from financial institutions, dishoarding, and disinvestment. Let's move on to study about Keynes' concept of liquidity preference while keeping this background in mind. (Pal, Theory of Interest Rate, 2018)

Neo-Keynesian Theory of Interest or Hicks IS – LM Curve or Modern Theory of Interest

It is now commonly accepted that the real income and interest rate are determined by both money market forces and real or goods market factors. Hick's IS-LM model is a commonly recognized methodology for determining the real income and interest rate simultaneously. The simultaneous calculation of the interest rate and real income is the fundamental feature of the Hicks (or Keynesian) mode. It also illustrates how the money and commodities markets interact. The Hicks' IS-LM model is a novel theory that Hicks and Learner developed by combining the ideas of each conventional saving-investment theory with Keynes' liquidity demand principle. This concept is also recognized as the determinate concept of interest rate (since the classical concept of interest, the concept of interest for loanable funds, and Keynes'

liquidity preference theory were all indeterminate theories of interest because they were unable to establish a relationship between the interest rate and income). With the help of the IS and LM curve, this principle has eliminated four crucial components: (i) saving; (ii) funding from the classical theory of interest; (iii) liquidity choice or demand for money/cash; and (iv) supply of money from Keynes' liquidity preference theory. These four components allow us to determine the rate of interest and actual earnings simultaneously in each commodity market and money market. From the total of savings and investments made in the commodities market, the IS curve was created. Therefore, the IS curve indicates the amount of revenue needed to balance the goods market at any given interest rate. Thus, equilibrium in the market for goods and services is represented by the IS curve. The interest rate and income level that are consistent with market equilibrium for goods and services are indicated by the IS curves. The money market's aggregate grant of money and liquidity preference are the sources of the LM curve. The interest rate that balances the money market at whatever income level is therefore shown by the LM curve. The equilibrium for actual money balances in the money market is thus represented by the LM curve. The combinations of interest rate and income level that are consistent with market equilibrium for real cash balances are displayed by the LM curve. (Pal, Theory of Interest Rate, 2018)

Fisher's Quantity Theory of Money

The most widely accepted form, also referred to as the "neo-quantity theory" or Fisherian theory, contends that variations in the money supply and the average level of prices follow a constant, mechanical connection. (Dimand, 2013) The main formula behind this well-liked—though contentious—approach to the volume principle of money uses the work of American economist Irving Fisher.

$M \times V = P \times T$

where:

M=money supply

V=velocity of money

P=average price level

T=volume of transactions in the economy

In general, the quantity theory of money explains how inflation tends to be caused by increases in the amount of currency and vice versa. According to the original hypothesis, an alteration in M immediately impacts P since V and T are believed to be stable with regard to M. Stated differently, an increase in the money supply will cause the average price level to rise in percentage terms (and vice versa), with minimal impact on real financial activity.

Classical, Loanable-fund, and Keynesian Theories of Interest

Keynes criticized the traditional notion of floor interest, arguing that it is arbitrary. The intersection of the demand and saving schedules, which show how investment and saving relate to the interest rate, is how the rate is calculated, according to conventional wisdom. However, as the function of the savings schedule varies depending on the actual income stage, there is no conceivable answer. As profitability grow, the agenda will move to the right. As a result, it is unable to predict the interest rate other than by knowing the amount of earnings. Furthermore, it is difficult to determine the degree of profits without first knowing the interest rate, as a lower rate will indicate more investment and, thus, a larger level of actual income through the multiplier. Thus, the conventional analysis is unable to provide an answer. Now, the Keynesian hypothesis is subject to the exact same critique. The supply-schedule of cash (perhaps inelastic activity if precisely set by employing the monetary authority) and the demand-schedule for

cash (the liquidity-preference time table) interact to determine the rate of interest, according to Keynesian theory. Because the liquidity-preference schedule will fluctuate in response to changes in the income level, this judgment is likewise ambiguous. This concerns the whole liquidity preference timeline, including the demand for money from "transactions" and "assets". (Hansen, 2014)

Theories of Stock Market

In this section it has studied about distinctive theories of stock market. Different theories of stock market, which are enumerated below

Efficient Markets Hypothesis

According to the efficient market hypothesis (EMH), every stock is appropriately valued based on its intrinsic investment characteristics, which are known to all market players equally. Theories about finance are arbitrary. Stated differently, there are no tried-and-true laws in finance. Rather, theories attempt to clarify how the market functions. This article examines the areas in which the efficient market hypothesis has failed to adequately explain the actions of the stock market. Even if there are a lot of flaws in the theory, it's nevertheless vital to consider its applicability in the current investment landscape. The efficient market theory is based on three principles: the weak, the semi-strong, and the strong. The gullible believe that all information is reflected in the present stock prices. It even goes so far as to state that historical performance has no bearing on the stock's prospects. It thus presupposes that using technical analysis to generate profits is impossible. According to the semi-strong version of the theory, stock prices are taken into account for all publicly available data. As a result, fundamental research cannot be used by investors to outperform the market and generate large returns. The strong version of the theory assumes that all information, private and public, has already been integrated into stock prices. It therefore presumes that nobody benefits from the information

available, whether that be a person on the inside or out. Therefore, it implies the market is perfect, and making excessive profits from the market is next to impossible. (Brown, 2020)

Greater Fool Theory

In the greater fool hypothesis, stocks that are overpriced—whether or not they are overvalued—can be sold to a "greater fool," which raises prices. Of course, that is, until there are no bigger idiots. The larger fool theory states that investing entails disregarding values, earnings reports, and any other available data. Naturally, it is dangerous to ignore the basics, so those who adhere to the greater fool hypothesis may find themselves in a difficult situation if they are corrected. If an investor follows the greater fool hypothesis, they will buy stocks at dubious prices regardless of their quality. The investor will still have the ability to rapidly sell them off to a different "greater fool," who may also be looking to flip them quickly, if the idea is correct. (Xuan, 2018)

Odd Lot Theory

The odd lot hypothesis determines when to buy into a stock by analyzing sales of odd lots, or tiny blocks of equities held by individual investors. When small investors sell out, investors that subscribe to the odd lot hypothesis buy in. The primary premise is that tiny investors are almost always in the wrong. The odd lot hypothesis is a contrarian approach based on a very basic technical analysis technique that calculates odd lot sales. Whether an investor or trader uses the theory to analyze the fundamentals of the firms it recommends or just makes irrational purchases will determine how successful they are. Since small investors won't always be correct or incorrect, it's critical to differentiate between odd lot sales that result from a low risk tolerance and odd lot sales that are the result of more serious issues. Odd lot sales may not be the result of small-time investors making a mistake, but rather a sign of a larger sell-off in a

failing business, as individual investors are more flexible than large funds and may respond to bad news more quickly. (Johnson, 2015)

Prospect Theory

The prospect theory can also be known as the loss-aversion theory. Prospect theory states that people's perceptions of gain and loss are skewed. That is, people are more afraid of a loss than they are encouraged by a gain. If people are given a choice of two different prospects, they will pick the one that they think has less chance of ending in a loss, rather than the one that offers the most gains. Prospect theory is important for financial professionals and investors. Although the risk/reward trade-off gives a clear picture of the risk amount an investor must take on to achieve the desired returns, prospect theory tells us that very few people understand emotionally what they realize intellectually. For financial professionals, the challenge is in suiting a portfolio to the client's risk profile, rather than reward desires. For the investor, the challenge is to overcome the disappointing predictions of prospect theory and become brave enough to get the returns you want. (Kahneman, & Tversky, 2009)

Short Interest Theory

One of the investment ideas with some genuine application in the real world is the short interest theory. However, most investors won't be able to profit excessively from the hypothesis since its long-term predictive value isn't strong enough. According to the notion, investors need to purchase stocks that have high short interest rates, or those that many other investors have bet against by borrowing and selling firm shares. Sometimes, the hypothesis holds true. Ultimately, a large short interest in a company indicates that such investors will eventually need to settle their short positions by repurchasing shares. Frequently, this buying occurs in a rush as all of the short sellers attempt to cover at once, sharply increasing share prices. But the stock can drop again once the short investor has covered all of it. Therefore, the only way to truly benefit

from this idea of investing is to enter the market just before the short sellers cover, which may be challenging even for seasoned investors, let alone amateurs. (Kahneman & Tversky, 2009)

Rational Expectations Theory

Although the rational expectations theory seems like a decent idea in theory, its effectiveness as a prediction tool is debatable. (Frömmel, 2017) This idea states that every investor will make decisions based on what they think is likely to occur in the future. By acting in this way, they truly achieve their desired outcome. An investor could purchase shares of a stock, for instance, if they think it will grow in value in the future and hope to profit from it. Purchasing the shares in person can help drive up the price of the stock and perhaps encourage other investors to buy, which might result in more gains. This hypothesis has a flaw in that there are investors who "rationally believe" a stock will rise and others who think the contrary. The rational expectations theory just doesn't have enough empirical support to back up its claims.

Theory of Pricing

Early neoclassical economics and classical economic theory held that in a perfect market with perfect competition, supply and demand would decide the equilibrium market price. There is no deviation from classical value theory in this stance. Price is the given numerical monetary worth of an item, service, or asset, according to Kahn (1984). If there is an excess supply of money in the market, prices will be pushed downward; conversely, if there is an excess demand for money, prices will rise. The argument went on to say that the dynamics of supply and demand in the market would eventually lead to the market equilibrium interest rate, noting that interest rate is the cost that lenders charge on borrowed funds. This stance is consistent with traditional economic theory. The demand for loanable funds is represented by the demand side of this money market, whilst the supply side reflects the availability of loanable funds. As a

result, at the intersection of supply and demand, the interest rate determination is in equilibrium.

Fishers Theory of Stock Market

The predicted inflation rate fluctuates, which mostly causes changes in the short-term interest rate. Furthermore, it may be assumed that market participants' estimates regarding the pace of inflation are largely accurate. Variations in inflation become a major factor in interest rate adjustments. Hence, it may be expressed as follows: r=i-p, where I denote the nominal interest rate, p stands for the inflation rate, and r for the real interest rate. This is the most well-known theory, named for the American economist, and it serves as the foundation for the conventional real interest rate suggestion. argues that since savers must be persuaded to keep financial rather than real assets, and real assets often expand in nominal terms at the rate of inflation, competitive financial markets would determine the nominal interest rate on deposits that are positive in real terms. Therefore, the predicted inflation rate plus a little underlying real rate must equal the nominal interest rate. Since lending rates are determined by the cost of deposits plus a little margin to account for intermediation, reserve requirement, taxes, and risk, they will, in turn, have a positive real rate. As a result, a lot of economists advise that minimal inflation is necessary to maintain low nominal interest rates. The primary critique leveled at Fisher's theory is its partial equilibrium theory, which only considers capital market analysis and operates on the presumption that prices for commodities and services are predetermined. (Megrattan, 2004)

Loanable Funds Theory of Real Interest Rate

According to the loanable funds theory of interest rate determination, the variables influencing the supply and demand of loanable funds determine the degree of interest in the financial market. According to this idea, the supply and demand of commodities are the same elements

that determine the interest rate; the quantity of loanable money grows as interest rates rise, all other things being kept constant. He continues by explaining that, all things being equal, there is a greater need for loanable cash when interest rates decline. The demand curve for loanable money can change according to a variety of circumstances, including the state of the economy. refers to the total amount of money that investors and consumers have sought and offered for loan during a specific time period. The relationship between possible savers and potential borrowers influences the interest rate model. The loanable fund hypothesis states that economic agents want to maximize the utilization of resources throughout their lives. It may be possible to boost future real income by borrowing money today to capitalize on economic investment possibilities. This will only be effective if the investment's rate of return is higher than the borrowing cost. These borrowers wouldn't agree to pay real interest rates that were more than the capital return rate. Only when a genuine return on their savings is guaranteed, which will enable them to spend more in the future than they otherwise could, are savers ready to lend money. Depending on their preferred time, people's willingness to delay eating varies. (Ackley, 2014)

2.2 Empirical Review

From a definition standpoint, an empirical review can be described as the review of many aspects of an empirical study that hold some levels of significance to the study being conducted. An empirical literature review process involves the evaluation of previous empirical studies to bring to rest a specific research issue.

A. M and G. T., (2008) argued they were twofold: first, to examine the impact of monetary policy on economic growth in emerging economies, and second, to provide policymakers with evidence-based insights to aid in formulating effective and targeted monetary policies. To demonstrate that short interest predicts future bad news, negative earnings surprises, and

downgrades in analyst profit expectations. The study focused on use of Secondary Data, and use of quarterly data for DSI, CPI, EX, TB and FDI from 1991:1 to 2006:4 for the study. The principal method employed to analyze the time series behavior of the data involves co-integration and the estimation of a Vector Error Correction Model (VECM). The findings revealed that when central banks implemented accommodative policies, such as lowering interest rates or increasing money supply, it resulted in increased investment, consumption, and overall economic activity. However, the study also cautioned that such expansionary measures may lead to potential inflationary pressures if not carefully managed. The findings highlighted the crucial role of central banks in influencing economic dynamics and provided valuable insights into the policy-making decisions in emerging economies.

Akbas (2013) agreed to demonstrate how negative earnings shocks, bad news in the future, and downward adjustments to expert profit estimates are all predicted by short interest.to demonstrate how negative earnings shocks, bad news in the future, and downward adjustments to expert profit estimates are all predicted by short interest. To determine how well short interest forecasts stock returns or shifts in company fundamentals, they employed two distinct techniques: monthly FamaMacBeth regressions and calendar time portfolio approach. The stock can drop once more after the short investor has covered all of it. Therefore, the only way to truly benefit from this idea of investing is to enter the market just before the short sellers cover, which can be challenging for novice investors as well as professionals.

Ali (2014) examined this study paper was an attempt to create a model, determine the relationship between the stock market and interest rate (Pakistani market), and conduct specific statistical analysis tests. These tests are conducted using interest rates from the past 10 years, from January 2004 to December 2013, as well as the month-end closing stock values of the Karachi Stock Exchange. Correlation, regression, and descriptive analyses were conducted to

determine the impact of interest rates on Pakistan's stock market. They created a model in order to investigate the relationship between interest rates and the stock market (the Pakistani market) and to perform various statistical analysis tests. These tests are conducted using the Karachi Stock Exchange's month-end closing stock prices and interest rates from the preceding 10 years, from January 2004 to December 2013.

Frömmel (2017) protected that in this study, the rational expectations hypothesis—one of the foundational ideas of contemporary macroeconomic theory—is examined closely. The goal was to determine how convenient this assumption is. These persuasive arguments against reasonable expectations are the subject of this essay. In order to determine if the rational expectations hypothesis is a valid and reasonable presumption that can be used to macroeconomic models without oversimplifying the real world, a number of opposing viewpoints are discussed and investigated. This idea states that every investor will make decisions based on what they think is likely to occur in the future. By acting in this way, they truly achieve their desired outcome.

Gurung (2019) agreed in the context of Nepal, that this study has investigated the link between the 91-day Treasury bill rate and the NEPSE Index using annual time series data collected from mid-July 1994 to mid-July 2018. The following econometric tests have been used in this study: The Johansen Test of Co-integration is used to determine whether there may be a long-term relationship between variables; it is combined with the Philip-Perron (PP) Tests to confirm that time series are stationary; and it is combined with the Augmented Dickey Fuller (ADF) Tests to establish a causal relationship between the time series variables. The expanding stock market index is a sign of investor optimism about the economy's promising future. Of the various factors affecting the performance of the stock market, the interest rate has been identified as one of the most significant.

Khatri (2019) presented that this study aims to investigate the dynamic relationship between Nepal's stock market and macroeconomic variables, including real economic activity (GDP) and external variables (exchange rate and foreign direct investment), as well as nominal domestic variables (inflation, money supply, and interest rate). For the years Mid-July 1994 to Mid-July 2015, the multivariate co-integration approach of Johansen and Juselius (1990) was employed. The study's conclusion demonstrates a positive and substantial relationship between money supply and stock prices. The interest rate and real economic activity have a negligible and unfavorable association with stock values.

Dhodary (2020) protected this research saying that it tests the weak-form efficiency in the Nepalese capital market in order to investigate the random walk hypothesis (RWH). They claimed that various phenomena and variables have been analyzed using descriptive, correlation, and causal comparative research designs. Only secondary data were used in the preparation of this study. The study's conclusions demonstrate the effectiveness of the market hypothesis regarding the state of the Nepalese stock market at the moment. (Gurung, 2020) This study, it was said, used a time series of 283 monthly observations from July 1996 to January 2019 to investigate the relationship between the INTEREST and Prices using an autoregressive distributed lag (ARDL) modeling approach. The long-run association is validated by the bound test of co-integration, and it is further supported by the noteworthy.

Arhenful (2021) stated that the study uses monthly time series data from July 2007 to December 2019 to evaluate the impact of interest rates on stock prices, with a focus on the Ghana Stock Exchange. To determine whether or not the data had stationarity, the Augmented Dickey-Fuller (ADF) test was used. Using the Multiple Regression approach with Ordinary Least Squares (OLS) estimate, the findings (? = – 0.891, $p < 0.05$). Because of the strong correlation between

the two macroeconomic indicators, it was suggested in light of this discovery that policymakers consider the dynamics of the stock market.

Table 1

Summary of Empirical Review

S.N	SURNAME (YEAR)	TITLE	OBJECTIVE	METHODOLOGY	FINDINGS
1	A. M, A. & G T. (2008)	Macroeconomic Factors and Stock Market Movement: Evidence from Ghana	To show that short interest predicts future bad news, negative earnings surprises, and downward revisions in analyst earnings forecasts.	Use of Secondary Data. Use of quarterly data for DSI, CPI, EX, TB and FDI from 1991:1 to 2006:4 for the study. The principal method employed to analyse the time series behaviour of the data involves cointegration and the estimation of a Vector Error Correction Model (VECM).	*Cointegration between macroeconomic variables identified and Stock prices in Ghana indicating long run relationship. Results of Impulse Response Function (IRF) and Forecast Error Variance Decomposition (FEVD) indicate that interest rate and Foreign Direct Investment (FDI) are the key determinants*

					of the share price movements in Ghana.
2	Akbas, F., Boehmer, E., Erturk, B., & Sorescu, S (2013).	Short interest, returns, and fundamental	To show that short interest predicts future bad news, negative earnings surprises, and downward revisions in analyst earnings forecasts.	Used calendar time portfolio process and monthly Fama-MacBeth regressions to evaluate how well short interest forecasts stock returns or shifts in company fundamentals.	*When short sellers' knowledge of upcoming fundamental news is taken into account, the cross-sectional relationship between short interest and future stock returns disappears. As a result, short sellers play a big role in price discovery about company fundamentals, but it's still unclear where their information comes from.*
3	Ali, H (2014).	Impact of Interest Rate on Stock Market;	The goal of this research work was to create a model,	These tests run with the help of month end closing stock prices of Karachi Stock Exchange and interest rates	*Correlation, Regression analysis and descriptive analysis were run to*

		Evidence from Pakistani Market	investigate the relationship between interest rates and the stock market (Pakistani market), and conduct several statistical analysis tests.	of previous ten years i.e. Jan 2004 to Dec 2013. Correlation, Regression analysis and descriptive analysis were run to find out the blow of interest rate on stock market of Pakistan	*find out the blow of interest rate on stock market of Pakistan. Performance of Pakistani Stock market is highly dependent on political situation.*
4	Frömmel, T (2017).	The Rational Expectations Hypothesis: Theoretical Critique.	This study presents a critical analysis of the rational expectations hypothesis, one of the fundamental tenets of contemporary macroeconomic theory. The goal was to determine how	These persuasive arguments against reasonable expectations are the subject of this essay. In order to determine if the rational expectations hypothesis is a valid and reasonable presumption that can be used to macroeconomic models without oversimplifying the real world, a number of opposing viewpoints are discussed and investigated.	*Conclusion: Given that humans do not look for every piece of information and that they may learn from their mistakes imperfectly and slowly, expectations may be somewhat retrograde and adaptive. Rather, mixed expectations are considered a fair middle ground.*

			convenient this assumption is.		
5	Gurung, R (2019).	Relationship between Treasury bill rate and Nepse Index in Nepal.	This study has examined the relationship between 91-days Treasury bill rate and NEPSE Index with the use of annual time series data taken from Mid-July1994 to Mid-July 2018.	Several econometric tests were used in this study: combined with Philip-Perron (PP) tests to verify time series stationary, augmentable Dickey Fuller (ADF) tests Johansen In order to determine whether there may be a long-term relationship between variables, co-integration tests are used, and causality tests are used to establish a causal relationship between time series data.	*This result validates the theory that low capital costs are essential for generating both supply and demand for securities through company investment possibilities.*
6	Khatri, M. B (2019).	Macroeconomic Influence on the Nepalese Stock Market.	This study looks at the dynamic relationship between Nepal's stock market and macroeconomic	For the period of mid-July 1994 to mid-July 2015, it employed the multivariate cointegration method proposed by Johansen and Juselius (1990).	The study's conclusion demonstrates a positive and substantial relationship between money supply and stock prices. The

			variables, including real economic activity (GDP) and external variables (exchange rate and foreign direct investment), as well as nominal domestic variables (inflation, money supply, and interest rate).		interest rate and real economic activity have a negligible and unfavorable association with stock values. Similarly, the Nepalese stock market is positively and marginally correlated with foreign direct investment, inflation (CPI), and the US dollar exchange rate.
7	Dhodary, S (2020).	Efficient Market Hypotheses of Nepalese Stock Market.	This study tests the weak-form efficiency in the Nepalese capital market with the aim of investigating the random	Other study designs, including descriptive, correlational, and causal comparative, have been employed to analyze variables and other phenomena. Only secondary	*The weak form of the market's inefficiency suggests that the NEPSE does not behave like a random walk. This indicates that competent managers and*

			walk hypothesis (RWH).	data were used in the preparation of this study.	*investment professionals have the chance to outperform the NEPSE.*
8	Gurung, R (2020).	Do Interbank Interest Rates Matter for Stock Prices at Nepal Stock Exchange?	The auto-regressive distributed lag (ADRL) modeling approach is used in this study to investigate the link between the interest rate and stock price (2019).	Using 283 monthly observations from July 1996 to January 2019, this study uses an auto-regressive distributed lag (ADRL) modeling strategy to examine the link between the stock price and interest rate in the setting of Nepal.	*A legitimate negative long-run link between the INTEREST and PRICE is established by the bound test for co-integration and the estimated negative coefficient of long-run regression findings supported by the Error Correction Mechanisms (ECM).*
9	Arhenful, P, Yeboah, K, & Sarfo, K (2021).	Effect of Interest Rate on Stock Prices in Ghana.	With a focus on the Ghana Stock Exchange, the study evaluates the impact of interest rates on	To determine whether or not the data had stationarity, the Augmented Dickey-Fuller (ADF) test was used. Use of Ordinary Least Squares (OLS) estimation technique of Multiple Regression, the	*The analysis indicates that this study will be helpful to policymakers as it will provide them with knowledge on how to create and carry out monetary and fiscal*

			stock prices using monthly time series data from July 2007 to December 2019.	results (? = – 0.891, p < 0.05)	*policies that will support the financial market. KEYWORDS: Johansen Co-integration Test, Unit Root Test, Consumer Price Index, Exchange Rate.*
10	Gu, G., Zhu, W., & Wang, C (2021)	Time-varying influence of interest rates on stock returns: evidence from China.	This study aims to determine whether or not the central bank should support the stock market through monetary policy.	Research uses a unique Bayesian time-varying regression model based on macroeconomic data, including the stock market and interest rates, and finds that the effect of interest rate changes on stock returns varies over time in China.	*Remarkably, increased interest rates have little effect on the growth in stock prices during times of hot economic activity. As a result, while speeding up the marketization of interest rates and beginning the preventative function of prompt and strategic interest rate adjustment, policymakers must be mindful.*

Review

The evidence helps the hypothesis that the impact of nominal interest rate changes on frequent stock prices is related to the maturity composition of a firm's net nominal asset holding. For business bank and stocks, changes in interest rates have been found to be significantly associated to stock price movements. In addition, cross-sectional variation in the interest rate sensitivity measure is significantly associated to the maturity mismatch of the bank assets and liabilities. Consistent with the nominal contracting hypothesis, the maturity composition of nominal contracts is found to be a significant thing affecting common stock returns. Relation between the interest rate sensitivity of frequent stock returns and the maturity composition of the firm's nominal contracts. Using a sample of actively traded commercial banks and stock savings and loan associations, common stock returns are found to be correlated with interest rate changes. The co-movement of stock returns and interest rate changes is positively related to the size of the maturity difference between the firm's nominal assets and liabilities. (Mark 1984)

According to the relationship between the variance of equity returns and a number of explanatory variables, equity variances are strongly positively correlated with financial leverage as well as interest rates, which significantly contradicts the option literature's predictions. Additionally, financial leverage is found to be responsible for the market folklore-based negative elasticity of variance with respect to equity value. For this elasticity, a maximum likelihood estimator is created that is far more effective than current estimating techniques. (A Christie, 1982)

Ali, (2014) investigated, developed a model, and conducted several statistical analysis tests in order to determine the relationship between the stock market and interest rate (Pakistani market). These tests are conducted using the Karachi Stock Exchange's month-end closing

stock prices and interest rates from the preceding 10 years, from January 2004 to December 2013To determine the impact of interest rates on Pakistan's stock market, correlation, regression, and descriptive analyses were conducted. It is simple to argue that interest rates have a negative effect on the stock market; higher interest rates reduce the market's efficiency because investors would not invest in the stock market if they could make more money without taking any risks. Therefore, the government should reduce interest rates in order to foster economic growth and improved economic conditions. There are a lot of other factors, such as the inflation rate and others, that might negatively affect the stock market in addition to this one. Higher bank savings will also raise lending costs and deter businesses from investing in the financial system, which will reduce the market for securities.

(Ibrahim & Musah, 2014) claim that rising interest rates will result in increased borrowing costs, lower projected profits, an increase in the discount rate for equity investors, and ultimately a drop in stock values. Thus, there is an indirect effect of rising interest rates on stock values.

In order to investigate the factors that influence stock market indexes and to make predictions about the COVID-19 pandemic, Summarsan (2021) fitted the Jakarta Stock Exchange (JKSE) Composite Index's FFT curve. This paper uses daily data from the Indonesia Stock Exchange (IDX), Indonesia Statistics Central Bureau, and Observation & Research of Taxation, as well as daily data on the Jakarta Stock Exchange (JKSE) Composite Index, interest rate, and exchange rate from October 15, 2019 to September 15, 2020. In total, 224 observations were used in this study. Descriptive statistics, multicollinearity tests, hypothesis testing, determination tests, and FFT curve fitting prediction are all covered in the study. The findings present four new, solid pieces of evidence. The stock market index has been positively and considerably impacted by the interest rate, at least in part. The stock market index has been

adversely and considerably impacted by the exchange rate, at least in part. Simultaneous considerable effects on the stock market index (JKSE) have been observed due to the F-test result, interest rate, and exchange rate. In addition, it has been predicted by the FFT curve fitting that the stock market will rise and fall over time. The dependent variable and the independent factors both had a significant impact, according to the data. The dependent variable has been impacted by the independent variables for 71.9% of the time, according to the Adjusted R-Square value of 0.719; the remaining 28.1% has been influenced by other factors.

Review of Nepalese Literature

Gurung (2019) argued that the crucial implication of the debate over the bidirectional causality between the interest rate and stock index is that, in the long run, investors' decisions to choose between bank deposits and the stock market are influenced by the stock market's performance as much as the interest rate coverage provided by Nepal Rastra Bank. This result supports the theory that low capital costs are essential for creating both the supply and demand for securities through company investment possibilities. On the other hand, higher interest rates not only deter businesses from accessing credit, but they also motivate traders to switch to bank deposits, which lowers stock values. The NEPSE Index and the Treasury bill rate in Nepal do not, however, support short-run causation, according to the Wald Test for joint short-term coefficients of variables.

Khatri (2019) presented that the study's findings, when presented, demonstrate a positive and significant relationship between money supply and stock prices. The interest rate and real economic activity have a negligible and unfavorable association with stock values. Similarly, the Nepalese stock market is positively and marginally correlated with foreign direct investment, inflation (CPI), and the US dollar exchange rate. As a result, the VEC estimations

imply that macroeconomic factors have no appreciable short-term impact on the price of Nepalese stocks. The co-integration and causality indicators generally imply that the Nepalese stock market is not efficient over the long term.

Thapa (2019) checked results of the investigation showed that while interest rate (IR) and price to earnings ratio (PER) demonstrated a significant inverse association with share price, earning per share (EPS), dividend per share (DPS), effective rules and regulations, market whims and rumors, company profiles, and success depends on luck had a significant positive association with share price.

Gurung, (2020) explained that this study was said, used a time series of 283 monthly observations from July 1996 to January 2019 to investigate the relationship between the INTEREST and Prices using an autoregressive distributed lag (ARDL) modeling approach. The long-run relationship is supported by the bound test of co-integration and is further supported by the notable rate at which the short-run shock adjusts to the long-run equilibrium. This indicates that, over time, Nepal's stock values have been influenced by the interest rate. This research offers crucial insights for interest rate stabilization strategies that will support stable stock prices and the expansion of Nepal's stock market. Moreover, a number of other quantitative and qualitative elements may also be at play when it comes to the decline in stock values, aside from the interest rate. As a result, comparable studies can be conducted again using a wider range of variables, a longer time frame, and a different technique.

2.3.1 Relationship between Stock Market Index and Interest Rate

Conventional economic logic states that interest rates have a negative effect on the stock market index. Investors will move their money from higher-risk instruments like the stock market to savings or fixed deposit accounts when interest rates are high. In contrast, investors would transfer money out of savings to invest in the stock market in the hopes of earning a larger

return when the interest rate is too low. This notion was supported by numerous investigations, for example, (S. U. & A, 2009) conducted research on 15 industrialized and developing nations and found a significant negative correlation between interest rates and share prices. (Mukherjee & Naka, 1995) discovered that interest rates had a detrimental long-term effect on the Japanese stock market index. Using daily data, (Joseph, 2006) demonstrated how closely stock returns are impacted by changes in interest rates and exchange rates. In the property stocks research, (Liow & Hiang, 2006) discovered that there is a highly substantial negative long run association between interest rates and the monthly excess return of the property stocks for the United Kingdom, Hong Kong, and Japan during the pre-Asian financial crisis period, which runs from December 1987 to July 1997. They recommended that investors carefully analyze this negative association between the interest rate and return of property stock while building and managing their portfolios in order to lower their exposure to interest rates. According to a Ghanaian study by A. M. & G. (2008), macroeconomic variables have a co-integrating relationship. They have demonstrated the existence of a long-term relationship between the variables under study using Johansen's co-integration and innovation accounting methodologies. The Ghanaian stock market is negatively impacted by interest rates. However, as demonstrated by (Coleman & Tettey, 2008), bank lending rates have a detrimental effect on Ghana's stock market performance, which impedes the expansion of businesses. It is possible to test co-integration for a pair of variables across time. (Nikiforos T, 2006) discovered that the US stock market and interest rate had different relationships in different degrees across different decades. There was no co-integrating association observed between the stock market index and the fed rate in the 1970s and 1980s. But the brief partnership did exist in the 1970s. Those two variables showed a strong negative co-integrating association in the 1990s. However, a study by Kurihara and Nezu (2006) revealed that there is little correlation between the interest rate, particularly the domestic interest rate, and the price of Japanese stocks. This is due to Japan's extraordinary

monetary easing program, which has lowered interest rates to nearly zero. As a result, interest rates have very little effect on the stock market. To put an end to Japan's deflation, the Bank of Japan launched the quantitative easing program in March 2001. The policy causes the price of Japanese stocks to rise. used a standard linear regression model to examine Nigeria's interest rate and stock market capitalization. Their findings demonstrated that the capitalization rate of the stock market is positively impacted by the current interest rate. The capitalization of the stock market will rise in tandem with an increase in interest rates. Economic development and expansion have slowed down. Thus, interest rates can be planned and managed by the government to support the expansion of the stock market. Interest rates have an impact on the stock market, but they do not control it (Inderst & Mueller, 2006). An increase in interest rates will make borrowing more challenging. Profit will be impacted and the company won't have as much money to grow. Eventually, investors will be impacted by the reduction of bonuses and dividends. The stock market will then lose its allure as an investment vehicle. But there are other factors besides interest rates that have an impact on the stock market. Even with a high interest rate, the stock market index may be rising as a result of other reasons like economic expansion, political unrest, and monetary policies. Since a nation's monetary policy affects interest rates, those in charge of that policy should plan and concentrate on it in order to draw investors to the market.

2.3.2 Research Gap

Past investigations and studies on the variables influencing the interest rate's effect on the stock market and macroeconomic variables that influence the interest rate in Nepal. It was discovered during the evaluation of earlier research that no studies had been carried out using Monthly NEPSE Data and interest rates. Studies has been conducted by taking annual data which are not sufficient to show the actual picture an NEPSE index and its volatility. Because in the short-term Interest rate may fluctuate due to liquidity problem at the end of year liquidity problem

could be solved. This fluctuation in interest rate hit NEPSE index slightly. The data used in this study came from the Nepalese stock market. Upon examining prior research, it was discovered that the majority of studies only looked at the interest rate market trend in conjunction with other financial indicators; however, this study has looked at internal elements that are crucial in determining the interest rate of the financial sectors in Nepal. The impact and relationship between the stock index and other financial indicators, such as bank rate, rare interest on deposits, rare interest on loans, and risk-free rate of return in the short term, are also examined in this study. This research is centered on quantitative factors determining stock price, whereas previous studies have primarily examined qualitative factors. Using secondary data, the researcher has studied the behavior and movement of stock prices. The current investigation is being undertaken in order to identify the subjective facts and to close any gaps. The current research is based on the first-hand empirical analysis of data obtained from the Nepalese stock market. Previous research has mainly evaluated interest rate market movements in combination with other financial indicators; this study goes deeper by examining the internal factors that significantly impact the dynamics of interest rates in Nepal's financial sector. Moreover, the research under scrutiny goes beyond the traditional scope by exploring the intricate relationships between stock indices and critical financial indicators such as bank rates, deposit and lending interest rates, as well as risk-free rates of return, particularly in the short run.

Previous scholarly efforts predominantly focused on qualitative factors impacting stock prices, whereas this research takes a quantitative approach, systematically evaluating the myriad variables influencing stock prices. The researcher adopts a meticulous approach, examining stock price movements and behaviors through a thorough analysis of secondary data. In doing so, this study endeavors to uncover subjective facts and contribute substantively to the existing body of knowledge, thereby addressing the notable research gaps identified in prior literature.

Furthermore, this study places a significant emphasis on the quantitative factors that underlie stock price movements, distinguishing it from prior research which primarily focused on qualitative determinants. Through a systematic and rigorous approach, the researcher seeks to unravel the complex web of factors that contribute to stock price dynamics. By delving into the quantitative realm, this research is poised to offer a more data-driven and empirically grounded perspective on the interplay between interest rates, macroeconomic variables, and stock market performance.

Ultimately, this study is poised to make a substantial contribution to the field of financial research in Nepal by offering fresh insights into the nuanced dynamics of the stock market in relation to interest rates and macroeconomic variables. Through a combination of comprehensive data analysis and a meticulous review of existing literature, this research endeavors to provide a more holistic understanding of the intricate web of relationships that underpin the financial landscape in Nepal. By identifying and addressing key research gaps, this study aspires to offer a valuable resource for policymakers, investors, and scholars seeking to navigate and understand the complex interplay between interest rates, stock market indices, and the broader economic context in Nepal.

CHAPTER-III

RESEARCH METHODOLOGY

Different approaches have been taken in order to gather pertinent information about market interest rates and how they affect stock indexes. Relevant facts, figures, and data have been gathered and interpreted with the intention of systematizing data collection and interpretation through the application of basic statistical tools. A few hypotheses have also been developed and put to the test in order to reach a conclusion; these are presented in this chapter along with the tools for testing them.

In order to meet the stated objectives of the study, the chapter focuses on the research process and methods design. The research methodology examines the impact of interest rates on Nepal's stock index in the short term. The broad process of research methodology has been further divided into various subtopics for ease of understanding. These subtopics include research plan and design, sample description, instrumentation, data collection procedure and method of data analysis, analysis plan, and study limitations.

3.1 Research Design

Research design is the framework of research methods and techniques chosen to conduct the research. In order to perform the research and determine the link between the independent and dependent variables, a research design is used. It is a strategy outlining the techniques and steps for gathering and examining the necessary data and information. Investigating the impact of one variable on another is made easier by research design. The two primary research design types that the current study is based on are descriptive and analytical. The general pattern of interest rates on savings, lending base rates, and interbank rates is presented monthly together with the closing monthly stock in a descriptive study design. The information that has been acquired is analyzed and critically assessed using the analytical research design for.

3.2 Population and Sample

To conduct the research project, population taken for this study is NEPSE index and different interest rate includes: deposit rate, Lending rate, base rate and interbank rate. The population for this study is based on the NEPSE index and a number of monthly interest rates, including base, interbank, lending, and deposit rates, that are available on the NRB website. We have incorporated specific interest rates, such as the base, interbank, deposit, lending, and NEPSE closing index for each month, in order to obtain a sample for the study. The different sector classified on NEPSE includes Hydro Power- 10, Development Bank- 5, Commercial Bank- 5, Finance- 3, Non- Life Insurance- 3, Hotel- 3 and Life Insurance-1.

3.3 Nature and Sources of Data

In nature, most of the data are secondary. The secondary data is collected from the NEPSE and NRB Websites with reference of journals; periodical, economic bulletins annual reports, banks publications etc. The sources of data, researches were mainly from the monthly economic bulletins, published data of Nepal Rastra Bank the central bank of Nepal.

In order to analyze the collected data certain procedure are to flowed to draw the result and conclusion and findings. In order to investigate the cause and effect relationships between the variables, the secondary data are studied.

NEPSE Index = f (Bank rate, Deposit Interest rate, Lending Interest rate, T-bills Interest rate) NEPSE Index include the closing index of covers 2018 jan-1 to 2022-31st for 5 years of 60 months, similarly, the closing interest rate for each month is one of the independent variables. Interest rate on deposits and financing The interest rates are the mean of the interest rates on deposits and loans made by all commercial banks. 28-day T-bill interest rate Treasury bills interest rate.

3.4 Tool of Data Analysis

Data are separately analyzed in two different heading namely Descriptive static and Correlation analysis. The mean, standard deviation, minimum and maximum values of the data are all included in descriptive statistics.

Descriptive Statistics

Short descriptive coefficients that provide an overview of a particular data set—which may be a sample of the population or a representation of the full population—are known as descriptive statistics. measurements of central tendency and measurements of variability (spread) are the two categories into which descriptive statistics fall. The standard deviation, variance, minimum and maximum variables, kurtosis, and skewness are measurements of variability, whereas the mean, median, and mode are measures of central tendency.

Measures of Central Tendency

The central tendency of a distribution is an estimate of the "center" of a distribution of values. There are three major types of estimates of central tendency:

- Mean
- Median
- Mode

Mean

The mean is a statistical indicator that can be used to gauge the performance of a company's stock price over a period of days, months, or years; a company through its earnings over a number of years; a firm by assessing its fundamentals such as price-to-earnings ratio, free cash

flow, and liabilities on the balance sheet; and a portfolio by estimating its average returns over a certain period.

$$\bar{x} = \frac{\Sigma x}{N}$$

Where,

x = Arithmetic mean

Σx = Sum of all the values of the variable X

N= Number of observations

Median

When a list of numbers is sorted, either ascending or descending, the middle value, or median, might provide more context for the data set than the average. Median is the middle number in a sorted list of numbers. To determine the median value in a sequence of numbers, the numbers must first be sorted, or arranged, in value order from lowest to highest or highest to lowest. The median can be used to determine an approximate average, or mean, but is not to be confused with the actual mean.

Mode

In statistics, data can be distributed in various ways. The most often cited distribution is the classic normal (bell-curve) distribution. In this, and some other distributions, the mean (average) value falls at the mid-point, which is also the peak frequency of observed values. For such a distribution, the mean, median, and mode are all the same value. This means that this value is the average value, the middle value, also the mode the most frequently occurring value in the data.

Measures of Variability (spread)

Standard deviation, variance, minimum and maximum variables, kurtosis, and skewness are examples of measures of variability.

Standard Deviation

The square root of the variance is used to compute the standard deviation, a statistic that expresses how dispersed a dataset is in relation to its mean. By calculating the deviation of each data point from the mean, the standard deviation may be computed as the square root of variance.

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

Where,

σ = Standard deviations

n= number of observations

xi=Value in the data set

$\bar{x}$= Arithmetic mean

Variance

Statistics, variance measures variability from the average or mean. It is calculated by taking the differences between each number in the data set and the mean, then squaring the differences to make them positive, and finally dividing the sum of the squares by the number of values in the data set.

$$\text{Variance } (\sigma^2) = \frac{\Sigma(x_i - \bar{x})^2}{n-1}$$

Where,

σ = Standard deviations

n= number of observations

x_i=Value in the data set

$\bar{x}$=Arithmetic mean

Coefficient of Variation

The coefficient of variation (CV) is a statistical measure of the dispersion of data points in a data series around the mean. The coefficient of variation represents the ratio of the standard deviation to the mean, and it is a useful statistic for comparing the degree of variation from one data series to another, even if the means are drastically different from one another.

$$\text{Coefficient of Variation (CV)} = \frac{\sigma}{\bar{x}} * 100$$

Where,

CV= Coefficient of Variation

σ = Standard deviations

$\bar{x}$=Arithmetic mean

Correlation Analysis

Correlation analysis in research is a statistical method used to measure the strength of the linear relationship between two variables and compute their association. Simply put - correlation analysis calculates the level of change in one variable due to the change in the other. A high correlation points to a strong relationship between the two variables, while a low correlation means that the variables are weakly related.

$$\text{Correlation } r = \frac{n(\Sigma xy)-(\Sigma x)(\Sigma y)}{\sqrt{[n\Sigma x^2-(\Sigma x)^2]\,[n\Sigma y^2-(\Sigma y)^2]}}$$

Where,

r = correlation coefficient

n= no. of observations

x and y are the variables

Positive Correlation

When two related variables move in the same direction, their relationship is positive. This correlation is measured by the coefficient of correlation (r). When r is greater than 0, it is positive. When r is +1.0, there is a perfect positive correlation.

Inverse Correlation

When two related variables move in opposite directions, their relationship is negative. When the coefficient of correlation (r) is less than 0, it is negative. When r is -1.0, there is a perfect

negative correlation. Inverse correlations describe two factors that seesaw relative to each other.

Regression Analysis

Regression analysis is a technology that aggregates data to support individuals' and organizations' decision-making processes. Regression involves a number of variables, including an independent variable that could affect the dependent variable and a dependent variable that is the primary variable you are attempting to understand.

Linear Regression

Linear regression, also referred to as simple regression, determines the relationship between two variables. A straight line with the slope indicating how a change in one variable affects a change in the other is used to graphically represent linear regression. In a linear regression connection, the value of one variable is represented by the y-intercept when the value of the other is 0. Each dependent value in a linear regression has a single independent variable that correlates to it and determines its value.

Nonlinear regression may be used in place of a straight line if there is no linear relationship between two variables. Both linear and nonlinear regression monitor a certain response from a set of variables, which is how they are comparable. Nonlinear models can represent the non-constant slope with increasing flexibility and ability as the relationship between the variables gets more complex.

Multiple Regression

When there are intricate relationships between data, multiple variables may account for the link. numerous regression analysis is used in this situation to try to explain a dependent variable using numerous independent variables.

Multiple regression analysis is used for two primary purposes. The first step is to use a variety of independent factors to identify the dependent variable. The premise of multiple regression is that there isn't a significant correlation between any two independent variables. Additionally, it makes the assumption that the one dependent variable and every independent variable are correlated. By assigning a distinct regression coefficient to every independent variable, these associations are weighted to guarantee that more influential independent variables influence the dependent value.

NEPSE INDEX= $\alpha + \beta 1DR + \beta 2LR + \beta 3BR + \beta 4IR + \varepsilon i$ …….. (1)

Where,

β= Coefficient or Slope of regression model

DR= Deposit Rate

LR = Lending Rate

BR= Base Rate

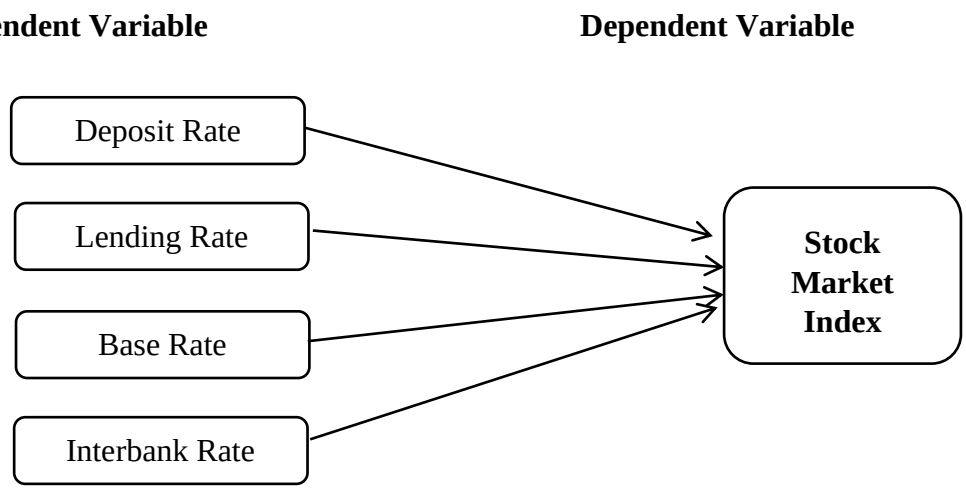
IR = Interbank Rate

εi= Error Term

3.5 Conceptual Framework

This study's identification of dependent and independent variables served as the foundation for the entire project. The stock market has been assumed to represent the variable; that is, the bank rate, the weighted average deposit interest rate, the weighted lending interest rate, and the risk-free short-term interest rate are the independent and dependent variables. The conceptual framework that follows is developed based on the literature review.

Figure 1 Conceptual Framework



Source: Akbas, F, Boehmer, E, Erturk, B, & Sorescu, S (2013)

Variables

Variables refer to different factors or elements that can affect or influence stock prices or market behavior. These variables can be diverse and encompass a wide range of economic, financial, and psychological factors. Here are some common types of variables relevant to the stock market:

Independent Variable

It is a variable that is presumed to have an impact on the dependent variable, which typically is the stock price or market performance. Independent variables in the stock market can encompass a wide range of factors, including economic indicators (such as interest rates or GDP growth), company-specific data (like earnings reports or product launches), geopolitical events, and investor sentiment. (Sangam N, 2018)

Deposit Rate

Financial institutions pay deposit account holders this amount. Savings accounts, certificate of deposit accounts, and self-directed deposit retirement accounts are examples of deposit accounts. For investors seeking a secure vehicle to preserve their principle, earn a small amount of fixed interest, and benefit from insurance, deposit accounts are appealing places to keep money. (Sangam N, 2018)

Lending Rate

One of the key factors in commercial banks' lending decision-making process is the loan rate. Commercial banks are autonomous companies that choose their own lending interest rates. The proportion of the loan amount that the lender charges in order to lend money is known as the lending rate. Interest is levied on loans made by banks to their clients for a variety of purposes, including profit-making, risk-reward, and value preservation. (Sangam N, 2018)

Base Rate

The central bank uses the base rate as a tool to influence monetary policy and control economic conditions. By adjusting the base rate, the central bank can influence borrowing costs throughout the economy. For example, if the central bank lowers the base rate, it becomes cheaper for commercial banks to borrow money from the central bank, which in

turn can lead to lower interest rates for consumers and businesses. This can stimulate spending and investment, potentially boosting economic activity. (Sangam N, 2018)

Interbank Rate

The interbank rate is influenced by various factors including prevailing market conditions, central bank policies, and the creditworthiness of the participating banks. It serves as a key benchmark for setting other interest rates in the financial sector, including lending rates to consumers and businesses. Central banks often play a role in influencing interbank rates through open market operations and by setting their own policy rates (such as the base rate or federal funds rate in the U.S. (Sangam N, 2018)

Dependent variable

In a study on the factors influencing stock prices, the stock price itself would be the dependent variable. You would then examine various independent variables (such as economic indicators, company performance metrics, or market sentiment) to understand how they impact the dependent variable, which is the stock price. Understanding the dependent variable is crucial in conducting empirical studies and quantitative analyses in finance and economics. It helps researchers and analysts identify and quantify the relationships between different factors and how they contribute to market behavior. (Sangam N, 2018)

Stock Market Index

A stock market index is a composite measure used to represent the performance or value of a group of stocks in a particular financial market. It provides a snapshot of how a specific segment of the stock market is performing at any given time. This is achieved by aggregating the prices or values of a selected set of individual stocks according to a predetermined methodology. Indices serve several important functions in the financial

world. They act as benchmarks for investors to assess the performance of their portfolios and compare them to the broader market. They also provide insights into the overall health and trends of a market or economy.

CHAPTER-IV

RESULT AND DISCUSSION

Data Analysis is in short, a method of putting facts and figures to solve the research problem. It is vital to finding the answers to the research question. Another significant part of the research is the interpretation of the data, which is taken from the analysis of the data and makes inferences and draws conclusions.

In this chapter, the analysis part has been dealt from the year 01/01/2018 to 12/30/2022 effect of interest rate in the NEPSE index in Nepal. This chapter addresses the interpretation, analysis, and presentation of secondary data gathered from multiple sources in order to address varying interest rates and how they affect the NEPSE stock index. For this, a number of the statistical models covered in chapter three have been applied.

4.1 Impact of Interest Rate Structure

Changes in interest rate structure have some positive as well as negative effect in the financial market. The various economic indicators show the impacts of changing interest rate are not as positive as expected. Regarding the effectiveness of monetary policies of NRB, it seems that money lending is highly influenced by the reserve money. Financial institutions can lower their lending rate as they can lower their deposit rate, which will have a positive impact on profitability and other economic activities.

- Lower deposit rate decreases the total deposit of commercial banks and other financial institutions and increase the loans and advance.
- Lower market interest rate increases the margin Lending frequency which influence share trading phenomenon.
- The differential interest rate can make the financial market active and open.

- An appropriate and realistic interest rate on lending can help in the optimum utilization of available resources.
- The wider spread of interest rate helps the financial institutions and banks to manage the higher liquidity position and good profitability.
- Lower the interest rate diverts the investment from bank deposit to share purchase on Secondary market.
- Low lending rate may increase the loans and advance and increase the share investment ultimately.

4.2.1 Data Presentation

Data are gathered from officially authorized sources. These include the Securities Board of Nepal (SEBON), the Nepal Stock Exchange (NEPSE), and the Nepal Rastra Bank (NRB). Line charts are used to tabulate and display various interest rates, such as the bank base rate, deposit rate, lending rate, and interbank interest rate. Similarly, closing prices NEPSE of each 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 01/01/2018 to 12/30/2022 on month end closing prices. In a similar vein, several government agencies offer us varying interest rates. Weighted average deposit interest rate and lending interest rate are based on commercial banks.

4.2.2 Descriptive Analysis

Descriptive statistics or descriptive analysis is brief descriptive coefficients that summarize a given data set, which can be either a representation of the entire population or a sample of a population. Descriptive statistics are broken down into measures of central tendency and measures of variability (spread). Measures of central tendency include the mean, median, and mode, while measures of variability include standard deviation, variance, minimum and maximum variables, kurtosis, and skewness.

Table 2
Descriptive Analysis

	Deposit Rate	**Lending Rate**	**Base Rate**	**Interbank Rate**	**NEPSE Index**
N	60	60	60	60	60
Mean	6.3502	11.0535	9.0400	3.3510	1761.0462
Median	6.53	11.85	9.455	2.4	1423.16
Mode	6.61	12.32	9.45	4.12	-
Std. Deviation	0.9103	1.4376	1.2617	2.4396	633.0624
Skewness	-0.1403	-0.7071	-0.6468	0.6263	0.6439
Std. Error of Skewness	0.0152	0.0240	0.0210	0.0407	10.5510
Kurtosis	-0.0534	-1.1139	-0.9902	-0.5846	-1.1285
Std. Error of Kurtosis	-0.0009	-0.0186	-0.0165	-0.0097	-0.0188
Range	3.8	4.3	4.04	8.37	1980.47
Minimum	4.65	8.43	6.66	0.13	1100.58
Maximum	8.45	12.73	10.7	8.5	3081.05

a. Multiple modes exist. The smallest value is shown

The total of Table 2's mean and median NEPSE index values is 1761.0462 and 1423.16 accordingly, which is situated between 1100.58 to 3081.05 points. Index has reached from the bottom level of 531 to all time high of 3198.60 but as per observation it has been taken 3081.05. Which means average of NEPSE index from low to high is 1761.0462. Similarly, Standard deviation is of 633.0624 points. Because it may be used to predict performance patterns and quantify market and securities volatility, standard deviation is a particularly helpful tool in trading and investment techniques. Index showing higher standard deviation means high volatility in the stock market during the particular period of time.

Standard deviation is an especially useful tool in investing and trading strategies as it helps measure market and security volatility and predict performance trends. As it relates to investing, for example, higher volatile stock vs low volatile or secure investment given that the investors want to mimic the index, is probably going to have a lower standard deviation than its benchmark index.

Aggressive growth funds, on the other hand, are likely to have a high standard deviation from relevant stock indices since its investors place large bets in an attempt to outperform average returns. A high standard deviation suggests that the observed data has a lot of variance around the mean. This suggests that the observed data is widely dispersed.

The mean and median value of the deposit interest rate are 6.3502% & 3.53 % respectively; these rates are maximum to 8.45. Similarly, Standard deviation is of 0.9103 % Similarly, Lending interest rate has the mean and median value of 11.0535 % & 11.85% respectively; these rates are Maximum to 12.73%. Similarly, Standard deviation is of 1.4376 %. Base rate has the mean and median value of 9.0400 % & 9.455% respectively; these rates are maximum

to 10.7 Similarly, Standard deviation is of 1.2617%. Interbank rate has the mean and median value of 3.351% & 2.4 % this Maximum to 8.5. Similarly, Standard deviation is of 2.4396 %. Data in the above table shows that NEPSE index is less skewed to the Negative where as other variables data are Highly skewed to the positive except Interbank rate Variable. Similarly, variables like NEPSE index, Interbank Rate are the Flat distribution and other variables like: Deposit interest rate, Lending rate and base rate indicate the peak distribution according kurtosis analysis.

Analyzing the whole table having the mean value of banking industry deposit rate 6.3502 lending rate 11.0535, base rate 9.0400, and interbank rate 3.3510 NEPSE index is 1761.0462. Lower the average industry interest rate pulled up the index from 1100.58 to an average of 1761.0462. Standard deviation is lower on overall interest rate and higher to the index. Implies that interest has lower volatility compared to the index. Higher standard deviation means higher volatility, higher volatility index showing higher risk in the stock market.

4.2.3 Correlation Analysis

As discussed in previous chapter correlation shows the relationship between two variables. If the correlation is +1, the two variables are perfectly positively correlated ie. Increment or decrement in one variable makes increment or decrement (in same direction and with same proportion) to other variables, i.e. If ρ =-1, there is perfectly negative correlation between two variables with same ration and vice versa. On the other hand, ρ =0, indicates there is no relationship between two variables. The increment or decrement in any one variable is independent to other variable. Here we have developed and studied the correlation between various variables.

The Pearson correlation coefficients have been calculated after the descriptive statistics have been shown. If the original data were to change or stay the same, the correlation coefficients

would indicate the strength and direction of the linear link between the two variables. How accurately a particular variable can be predicted using a linear function of a set of other variables is measured in statistics by the coefficient of multiple correlation. It is the relationship that can be calculated linearly from the predictive variables between the variable's values and the best predictions.

The range of values for the multiple correlation coefficient is 0 to 1. A value of 1 indicates that the predictions are exactly correct, and a value of 0 indicates that no linear combination of the independent variables is a better predictor than the fixe mean of the dependent variable. Higher values indicate higher predictability of the dependent variable from the independent variables.

The coefficient of determination is defined for more general cases, such as those of nonlinear prediction and those in which the predicted values have not been derived from a model-fitting procedure. The coefficient of multiple correlation is defined as the square root of the coefficient of determination, but under the specific assumptions that an intercept is included and that the best possible linear predictors are used.

Table 3
Bivariate Correlation Matrix

		Deposit Rate	*Lending Rate*	*Base Rate*	*Interbank Rate*	*NEPSE Index*
Deposit Rate	Pearson Correlation	1	0.8242	0.93	0.5869	0.771
	Sig. (2-tailed)	1	0	0	0.268	0.001
	N	60	60	60	60	60
Lending Rate	Pearson Correlation	0.824	1	0.943	0.3389	0.415
	Sig. (2-tailed)	0		0	0.625	0
	N	60	60	60	60	60
Base Rate	Pearson Correlation	0.93	0.943	1	0.5834	0.663
	Sig. (2-tailed)	0	0		0.653	0
	N	60	60	60	60	60
Interbank Rate	Pearson Correlation	0.5869	0.3389	0.5834	1	0.8912
	Sig. (2-tailed)	0.268	0.625	0.653		0.002
	N	60	60	60	60	60
NEPSE Index	Pearson Correlation	0.771	0.415	0.663	0.8912	1
	Sig. (2-tailed)	0.001	0	0	0.002	
	N	60	60	60	60	60

***. Correlation is significant at the 0.01 level (2-tailed).*

It is important to note that correlation does not imply causation; rather, it suggests the direction of the change or movement. Table 3 makes it possible to forecast the effect of one variable on the direction of the other.

Firstly describing the correlation between NEPSE index and other variable. There is negative relationship between deposit rate and NEPSE Index i.e.-0.612 which demonstrate the higher interest rate on deposits, NEPSE Index would decrease. Similarly, there is negative relationship -0.842 between the NEPSE Index and the weighted average lending interest rate, indicating that the higher lending interest rate would increase cost of borrowing and lower would be the NEPSE Index and vice versa. However, there is also a negative correlation between Base rate (-0.729) and the NEPSE Index tends to decline indicates base rate on Premium also increase cost of borrowing. Likewise, Interbank rate has 0.546 positive relationship with NEPSE index which indicate that the higher rate interest rate of interbank higher be the NEPSE index, and the other way around.

Dated 01.01.2018 to till 31.12.2022 NEPSE Index is increasing from lowest 1100.58 to highest 3081.05. This also indicates that with decreasing the rate of banking interest Index is also moving to the higher high.

Observing correlation between independent variables, Deposit rate have correlation 0.890 correlation with lending rate which implies their strong positive relationship exist between deposit rate and lending rate, base rate and interbank rate have 0.982 and 0.217 correlation exists. That indicates that higher the lending rate would slightly increase the deposit rate of different features. When investors cost of borrowing increases bank wants to attract the more money so to maintain the demand side of fund, bank increase the rate on deposit. That is rate on saving, fixed and other featured account would provide the higher return to the investor. Positive correlation with Interbank rate implies that higher the cost of bank in sense to customer. In case of emergency lending from other bank will increase because of their cost to the capital. This indicates that higher lending interest rate the base rate, interbank rate and increase the Deposit interest rate and vice versa.

We can find that lending interest rate has 0.949 with correlation with base rat and -0.096 with interbank rate. Which implies are highly positively associated with base rate and negative correlation exists between lending rate and interbank rate. This indicates that higher the base rate, the Lending interest rate and vice versa. however, in opposition to the lending and interbank rates.

Similarly, variables like base rate have 0.089 correlation with interbank rate. This indicates that the higher the base rate also increase the interbank rate vice versa.

4.2.4 Regression Analysis

. Regression analysis is a set of statistical methods used for the estimation of relationships between a dependent variable and one or more independent variables. It can be utilized to assess the strength of the relationship between variables and for modeling the future relationship between them. Regression analysis helps in order to test the significance and robustness of the results; this study depends on secondary data analysis based on the regression model. It basically deals with regression results from various specifications of the model to examine the estimated relationship of NEPSE Index as dependent variable and bank interest rate as independent variables as a determinant of index in short and long term. Table 4 below displays the results of the regression.

The NEPSE Index is the dependent variable in this table, which displays the results of a regression study using SPSS. The independent variables are the base rate, interbank rate, lending rate, and deposit rate.

R-squared can take any values between 0 to 1. Although the statistical measure provides some useful insights regarding the regression model, the user should not rely only on the measure in the assessment of a statistical model. The figure does not disclose information about the causation relationship between the independent and dependent variables.

R-Squared (R^2) is a statistical measure that represents the proportion of the variance for a dependent variable that's explained by an independent variable or variables in a regression model. R-squared explains to what extent the variance of one variable explains the variance of the second variable. So, if the R^2 of a model is 0.923, then approximately half of the observed variation can be explained by the model's inputs.

The value of coefficient of multiple determinants R square is 0.923. which suggests that the difference in stock index elucidated by 92.3% predictor variables (independent variable interbank rate, lending rate, deposit rate and base rate interest rate) at 95% confident interval. The chances being error of the estimate is 210.05189.

This implies that, finding from the above table indicates the multiple determination coefficient R square demonstrates that 92.3% changes in stock index of Nepal stock exchange market could be accounted to changes in (independent variable interbank rate, lending rate, deposit rate and base rate interest rate remaining 7.7% are contributes by other factors.

Table 4
Goodness of fit of Regression (ANOVA[a])

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12226685.889	4	3056671.472	69.278	.000[b]
	Residual	1014801.339	23	44121.797		
	Total	13241487.228	27			

a. Dependent Variable: NEPSE Index

b. Predictors: (Constant), Interbank Rate, Base Rate, Lending Rate, Deposit Rate

From table 4, the parameters are the processed data of the population, had a degree of importance of .000[b] % This demonstrates that the data is perfect for drawing conclusions about the demographic parameters because the p-value, or significance value, is smaller than the usual 5%. In other word there is significant relationship between dependent i.e NEPSE Index and independent variable Interbank Rate, Base Rate, Lending Rate, Deposit Rate.

ANOVA (Analysis of Variance) is a framework that forms the basis for tests of significance & provides knowledge about the levels of variability within a regression model. It is the same as

Linear Regression but one of the major differences is Regression is used to predict a continuous outcome on the basis of one or more continuous predictor variables. Whereas, ANOVA is used to predict a continuous outcome on the basis of one or more categorical predictor variables.

Once the scheduled statistical tests are completed, the significance level, also known as the α level, is a threshold that establishes whether a study result can be deemed statistically significant. The most common setting is 5% (or 0.05), though various values might be employed based on the investigation. It represents the likelihood of rejecting the null hypothesis in the event that it is true (the likelihood of making a type I error). A significance level of 0.05, for instance, denotes a 5% chance of drawing the incorrect conclusion that a difference exists when none does.

If the null hypothesis is correct, the probability value (p-value) represents the chance that an effect at least as great as the one that was seen would be obtained; in other words, it represents the probability that the observed effect was generated by chance or by a variable other than the one under study. A big p-value indicates that the observed effect is highly likely if the null hypothesis is true, which helps to quantify the evidence against the null hypothesis. A lower p-value (one that is equal to or less than the significance level) indicates that, in the case that the null hypothesis is true—that is, unless an extremely rare occurrence has occurred—then the observed evidence is not very likely. A predetermined cut-off for the test (significance level) is compared to the p-value. The estimated effect is deemed significant if it is less than this amount. Frequently, cut-off p-values of 0.05 or 0.01 (expressed as "$p \leq 0.05$" or "$p \leq 0.01$") are selected.

In statistical terms, a p-value of less than 0.05 (usually ≤ 0.05) indicates significance. Given that there is less than a 5% chance that the null hypothesis is true (and the results are random),

it suggests strong evidence against it. Consequently, we accept the alternative hypothesis and reject the null hypothesis.

The null hypothesis can still be rejected even if the p-value is below your significance threshold (usually $p < 0.05$), but this does not imply that there is a 95% chance that the alternative hypothesis is correct. The p-value is independent of the alternative hypothesis's truth or falsity and is dependent only on the null hypothesis's validity.

The ratio of two variances, or more accurately, two mean squares, is known as an F-value. All mean squares are are variances with the degrees of freedom (DF) taken into consideration when estimating the variance. The test statistic for F-tests is known as an F-value.

The calculated F-value was greater than the critical value (69.278>1.984) an indication that indication that independent variable or the Predictors: (Constant), Interbank Rate, Lending Rate, Deposit Rate, Base Rate of Nepalese stock markets significantly influence to overall stock index in NEPSE. Stated differently, the F value is around 69.278 and the P-value, or F(sig), is equivalent to.000b%. This always implies unequivocally that the predictor factors and the dependent variables are substantially correlated at the same time. That is what largely influences how the Nepalese stock exchange's market index behaves.

Table 5
Regression result

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	t-Stat	P-Value	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	6599.99	415.736		15.875	0	5739.98	7460.01
	Deposit Rate	919.467	403.28	1.083	2.28	0.032	85.22	1753.72
	Lending Rate	-188.4	142.157	-0.345	-1.325	0.198	-482.48	105.671
	Base Rate	-1035.2	433.684	-1.499	-2.387	0.026	-1932.3	-138.05
	Interbank Rate	129.169	26.938	0.387	4.795	0	73.444	184.895
a. Dependent Variable: NEPSE Index								

From table 5, regression analysis is a set of statistical methods used for the estimation of relationships between a dependent variable and one or more independent variables. It can be utilized to assess the strength of the relationship between variables and for modeling the future relationship between them.

Each individual coefficient is interpreted as the average increase in the response variable for each one-unit increase in a given predictor variable, assuming that all other predictor variables are held constant. For example, for each additional % increase in deposit, the average expected increase in NEPSE index would be 919.467 points, assuming that the number of % deposit increase taken is held constant.

The intercept is interpreted as the expected average NEPSE index for a having zero change in interest rate. In this example, an index is expected to change a 6599.993 if it changes to Zero on all interest rates.

Analyzing the overall F test, we have used confidence level of 95% level of i.e alpha value is 0.05. Our regression model is explained by

$Y=a+b1X1+b2X2+b3X3+ \epsilon$

noted that

Where,

- Y-Dependent variable
- X1, X2, X3-Independent (explanatory) variables
- a-Intercept
- b, c, d -Slopes
- ϵ-Residual (error)

NEPSE INDEX = F(Deposit Rate, Lending Rate, Base rate, and interbank rate)

i.e., NEPSE INDEX (NI) = a+b1DR+b2LR+b3BR+b4IR+ ϵ

The model as a whole is deemed acceptable since the F-Value is less than 0.05. The model's ability to predict stock market values using factors related to interest rates is predictable. P-value has also been used to evaluate the importance of individual models.

Here from the above equations Dependent variable is NEPSE index and independent variable is Deposit Rate, Lending Rate, Base Rate, and interbank rate.

Regression Analysis Summary

The amount that the outcome variable changes for each unit that the predictor variable changes is known as the beta coefficient. The beta coefficient's significant difference from zero is evaluated using the t-test. The variable does not significantly predict the outcome if the beta coefficient is not statistically significant (i.e., the t-value is not significant). Look at the beta's sign to see if the coefficient is significant. The outcome variable will increase by the beta

coefficient value for each unit increase in the predictor variable if the beta coefficient is positive. In the event that the beta coefficient is negative, it means that the outcome variable will decrease by the beta coefficient value for each unit rise in the predictor variable.

Here deposit has a standardized beta coefficient with a value of 1. 083.The model shows that with every increase of one standard deviation in deposit rate, an NEPSE index rises by 1.083 standard deviations.

Here lending has a standardized beta coefficient with a value of -1. 499.The model shows that with every increase of one standard deviation in lending rate, an NEPSE index decline by -1.499 standard deviations.

Here lending has a standardized beta coefficient with a value of -0.345 The model shows that with every increase of one standard deviation in lending rate, an NEPSE index decline by -0.345 standard deviations.

Here deposit has a standardized beta coefficient with a value of 0.387. The model shows that with every increase of one standard deviation in deposit rate, an NEPSE index rises by 0.387standard deviations.

It demonstrates that the weighted deposit interest rate has a positive and large beta coefficient. It suggests that, at least temporarily, rising deposit interest rates are associated with rising stock indices. Data shows deposit has a standardized beta coefficient with a value of 1.083 The model shows that with every increase of one standard deviation in deposit rate a stock index increases 1.083 standard deviations. This assumes the other variables are held constant.

Similarly, for the weighted loan interest rate, the beta coefficient is negative and not significant. The lending rate's Standardized beta coefficient, according to the data, is -0.345, meaning that for every standard deviation increase in the loan rate, the stock index decreases by -0.345

standard deviations. It shows that an increase in the stock index does not occur when the lending interest rate decreases. However, for base rate, the beta coefficient is negligible and negative. This suggests that the base rate has no effect on share prices. Similarly, for the weighted average interbank rate, the beta coefficient is positive and substantial. It suggests that there is some correlation between the interbank rate and the stock market index.

Significance levels

The level of statistical significance is often expressed as the so-called p-value. Based on the statistical test that will determine the likelihood (p-value) of seeing sample results (or more extreme outcomes) in the event that the null hypothesis is correct. An alternative approach to put this would be to look at the likelihood that, under the presumption that there isn't a difference at all, a difference in a mean score (or other statistic) might have occurred. Let's examine this claim in light of our example, in which the mean NEPSE index difference between various interest rates is of interest. How likely would it be to observe a difference in the mean NEPSE performance between the interest rates as large as (or larger than) that which has been observed in your sample if there is actually no difference in the interest rates in the population (i.e., given that the null hypothesis is true)?

So, if getting a p-value such as 0.03 (i.e., p = .03). This indicates that, if the null hypothesis is correct, there is a 3% chance of discovering a difference that is equal to or greater than the study. But you're interested in knowing if this is "statistically significant". Generally, it would reject the null hypothesis and accept the alternative hypothesis if there was a 5% or less chance (5 times in 100 or fewer) that the difference in the mean NEPSE performance between the different interest rates is as different as observed assuming the null hypothesis is true. Alternatively, it would fail to reject the null hypothesis and reject the alternative hypothesis if the likelihood was more than 5% (5 times in 100 or more). Therefore, we would accept the

alternative hypothesis and reject the null hypothesis in this example when p = 0.03. We reject it because the outcome we obtained may occur too frequently for us to be convinced that the interest rate was the source of the variation in NEPSE performance at a significance level of 0.03 (less than 5% chance).

Academic research frequently uses a significance level of 0.05, even though there isn't much rationale for doing so instead of 0.01 or 0.10. It would be set to a more severe level of 0.01 (a 1% probability or less; 1 in 100 chance or fewer) in order to be very confident in the outcomes. However, we used a 0.05 p-value for analysis in this study.

4.3 Discussion

This section evaluates and interprets the results from data presentation and analysis topic. It examines every aspect of the results in terms of related theories and empirical findings of other researchers in Empirical Research.

From my research, I came into conclusion that interest rate has negative relationship with stock index. In order to define the short-term link between the interest rate and the stock index, we chose four independent variables for this research. In light of our nation, the study was carried out to determine whether or not the findings corroborate those of earlier research.

stock index. To determine the correlation between interest rates and share prices, a small number of them have utilized lending rates and deposit rates, while others have used government T-bill rates.

This study's limitation is that it was conducted using data from January 1, 2018, to December 31, 2022, on a monthly basis. Data from Excel and SPSS have been evaluated.

To reach the verdict the NEPSE index is a dependent variable, while the average base rate, weighted average lending rate, weighted average deposit rate, and weighted average interbank rate are independent variables.

The weighted average deposit interest rate, the weighted average lending interest rate, the base rate, and the interbank rate have been found to account for 92.3% of the variance in the stock market. 7.7% remaining by other short-term factors.

The weighted average lending rate, base rate, deposit interest rate, and Pearson correlation all show negative correlations with the NEPSE index, with the exception of the interbank rate. The NEPSE index and the interbank rate have a strong positive association.

An additional independent variable The deposit rate is positively correlated with both the base rate and lending, as well as positively correlated with the interbank rate. The lending interest rate has a strong positive correlation with the base rate, while the interbank rate has a modestly positive correlation. In a similar vein, the interbank rate and variables such as the base rate have a positive relationship.

The majority of the yearly studies in this field conclude that there is a negative correlation between interest rates and stock indexes. The vast majority of earlier research revealed a substantial and adverse correlation between interest rate and

The ANOVA table indicates that the significance level is.000b%. Stated otherwise, a noteworthy correlation exists between the independent and dependent variables.

Considering 5% level of significance showing significance showing there is an impact of deposit interest rate on Stock Market Index showing 0.032<0.05 and There is no impact of Lending rate on Stock Market Index showing 0.198>0.05 and There is an impact of base rate

on Stock Market Index showing 0.026>0.05 finally, there is a relationship between interbank rate and Stock Market Index that 0.000<0.05 in the short run in monthly time frame.

CHAPTER-V

SUMMARY AND CONCLUSION

The chapter provides the brief summary of the whole study to highlights of major findings from analysis. Besides the findings, the major conclusion is presented in different section of this chapter followed by implication on Nepalese context with the recommendation in light of effect of different interest rate on stock index in Nepal. The chapter ends with a discussion on the scope of next studies in the same topic.

5.1 Summary

The stock market is the economy's mirror. It has developed into a market that is now necessary for economic prosperity, supporting capital generation and long-term economic expansion. Stock markets serve as a platform for the sharing of risk, the pooling of funds, and the transfer of wealth between savers and capital users. They are not just a venue to trade securities. Because they guarantee the flow of resources to the most lucrative investment possibilities, stock markets are crucial for economic growth. It contributes to the nation's industrial and commercial expansion, which eventually has a significant impact on the nation's economy. For this reason, the nation's central banks as well as the government, business, and industry all closely monitor what happens in the stock market. The stock market serves as a channel for investors' little, dispersed savings to be allocated toward the profitable operations of businesses. Additionally, it gives investors access to the crucial characteristics of assets' marketability, safety, and liquidity. Sustainable economic growth is facilitated by a well-managed capital market that offers investors long-term funds in return for financial assets. Because of this, every government works to expand and strengthen the capital market by enacting different laws and regulations.

Numerous scholars have studied this topic, but they have only looked at one or a few specific areas, such as interest rates over the long term while taking into account deposit rates, lending rates, T-Bill rates, and bank rates. Additional research is looking into the variables influencing the stock price with a focus on a number of industries, including Nepali hotels, microfinance, development banks, and commercial banks. For this, the current investigator.

This statement has a problem since, despite their somewhat tangential link, interest rates and the stock market typically move in the opposite directions. Generally speaking, the stock market rises in response to Federal Reserve rate reductions; conversely, the stock market falls in response to Federal Reserve rate increases. However, there's no way to predict how the market will respond to a particular shift in interest rates.

This research attempts to determine the purpose in order to investigate the relationship between the BFI interest rate and the stock market index, analyze the impact of the lending and deposit rates, determine the direction of the base rate, and examine the short-term effects of the interbank rate on the stock market.

Limitation of this study is, it has been conducted on monthly basis data range between date 01/01/2018 to 31/12/2022 where the interest rate data of 15/06/2020 has not been found on any sources so it has been treated as “-” to arrive at conclusion.

It was discovered that no research using monthly NEPSE data and interest rates had been done during the examination of earlier literature. Research has been done using annual data, which is insufficient to depict the true nature of the NEPSE index and its volatility. Due to the possibility of a liquidity situation being resolved at the end of the year, interest rates may fluctuate in the short term. The NEPSE index was somewhat impacted by this interest rate movement. The data used in this study came from the Nepalese stock market. Upon examining prior research, it was discovered that the majority of studies only looked at the interest rate

market trend in conjunction with other financial indicators; however, this study has looked at internal elements that are crucial in determining the interest rate of the financial sectors in Nepal. The impact and relationship between the stock index and other financial indicators, such as bank rate, rare interest on deposits, rare interest on loans, and risk-free rate of return in the short term, are also examined in this study. This research is centered on quantitative factors determining stock price, whereas previous studies have primarily examined qualitative factors. Using secondary data, the researcher has studied the behavior and movement of stock prices. The current investigation is being undertaken in order to identify the subjective facts and to close any gaps.

The two primary research design types that the current study is based on are descriptive and analytical. The general pattern of interest rates on savings, lending base rates, and interbank rates is presented monthly together with the closing monthly stock in a descriptive study design. The information that has been acquired is analyzed and critically assessed using the analytical research design.

5.2 Conclusion

The short-term link between the interest rate and the stock index is defined by four independent variables. To determine whether the findings corroborate the findings of earlier research, a study was carried out using the NEPSE as the sole benchmark index and the setting of our nation. To reach the verdict The NEPSE index is a dependent variable, while the average base rate, weighted average lending rate, weighted average deposit rate, and interbank rate are independent variables.

It has been determined that interest rate variables, such as weighted average deposit interest rates, weighted average lending interest rates, base rates, and interbank rates, account for 92.3% of the variance in the stock market. 7.7% remaining by other short-term factors.

Except for the interbank rate, the NEPSE index has negative association (Pearson correlation) with other variables such as the deposit interest rate, the weighted average lending interest rate, and the base rate. The NEPSE index and the interbank rate are positively correlated. This suggests that the dependent and independent variables are correlated.

Finding the connection with the independent variable The deposit rate is positively correlated with both the base rate and lending, as well as positively correlated with the interbank rate. The lending interest rate has a strong positive correlation with the base rate, while the interbank rate has a modestly positive correlation. In a similar vein, the interbank rate and variables such as the base rate have a positive relationship.

ANNOVA table Shows a significance level of $.000^{b}$ %. In other word there is significant relationship between dependent and independent variable.

Considering 5% level of significance showing there is an impact of deposit interest rate on Stock Market Index and There is no impact of Lending rate on Stock Market Index There is also an impact of base rate on index finally, there is a relationship between interbank rate the short run-in monthly time frame.

The study's main finding is that the base rate, lending rate, and deposit rate all significantly affect the stock index (NEPSE Index). With an adjusted R Square of 0.923%, the interest rate variables—that is, the weighted average deposit interest rate, the weighted average lending interest rate, the base rate, and the T-bills rate—account for 92.3% of the volatility in the stock market. The stock market is impacted by external factors by 7.7%.

5.3 Implications

Two essential components of a nation's financial development are its stock exchange and lending rate. The way that financing costs impact the stock exchange has important

implications for risk management, monitoring policies, and government approaches to the financial industry. The evaluation will check to see if the Nepal Stock Exchange (NEPSE) has any market productivity. This study is important to create an efficient market system for investors since it will provide the financial lenders with certainty and ensure that all participants in the market are on an even playing field.

Academicians, stock analysts, and students will all benefit from this study as well. You can also learn about the stock price from this report. By taking into consideration all of the aforementioned concerns, the study has examined how interest rates affect the stock market. Therefore, a wide range of people, including bankers, managers, investors, brokers, students, academicians, policy makers, authorities, and stock analysts, study this topic in order to make informed decisions, excellent insurance policies, and research related to stock price.

It has investigated the impact of interest rates, a macroeconomic variable. An increase in interest rates, for example, is likely to deter investors from borrowing money from banks and financial intuition (BFIS), which will ultimately have an adverse effect on the capital market. However, in the short term, variables other than interest rates are also relevant.

Many stakeholders, including regulatory agencies, investors, mutual funds, financial planners, traders, and NEPSE market participants, can benefit from this study. The stock price is influenced by lending and deposit rates, which is beneficial for investors. NRB must ignore the proposal to implement a new policy aimed at increasing or boosting the money supply in the market.

- The study found that the interest rate and stock index had a negative link. As a result, decision-makers need to take interest rate fluctuations into account and employ efficient instruments to manage the money supply.

- To stabilize the stock market, the NRB, the regulatory body, should draft the monetary policy and thoroughly examine it every quarter.

- To address the liquidity issue, the NRB may employ a variety of financial instruments, including foreign bonds, development bonds, repo and reverse repos, among others.

- Rather than speculating on the stock market in hopes of making a quick profit, investors should be aware of the short- and long-term effects of interest rates. They should especially concentrate on these effects.

- In order to maintain the capital market's appeal as an investment vehicle, banks and financial advisors should exercise caution when attempting to stabilize interest rates.

- The policy should be made by the watchdog or the policy makers to boost the confidence of traders, shareholders, and investors.

- The long-term performance of the stock market is not only greatly influenced by Nepal Rastra Bank's interest rate policy; investors also make this decision when deciding between bank deposits and the stock market. Therefore, whether or not to keep the depositor's and lender's money will be helpful.

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APPENDIX

Appendix A: Data Presentation of Dependent and Independent Variable

Different interest rate and NEPSE Monthly Closing Index

Date	Deposit Rate	Lending Rate	Base Rate	Interbank Rate	NEPSE Index
2018- January	6.21	11.79	9.94	4.4	1,434.80
2018- February	6.38	11.9	10.19	4.31	1,411.52
2018- March	6.45	11.96	10.36	4.87	1,304.43
2018- april	6.64	12.1	10.4	4.12	1,196.24
2018- May	6.61	12.32	10.32	4.53	1,360.38
2018- June	6.61	12.42	10.41	4.18	1,273.95
2018- July	6.49	12.47	10.47	2.96	1,184.53
2018- August	6.4	12.47	10.12	1.88	1,193.87
2018- September	6.3	12.31	10.03	1.68	1,190.28
2018- October	6.57	12.26	10.23	1.86	1,238.67
2018- November	6.61	12.26	10.21	1.68	1,220.98
2018- December	6.62	12.32	10.3	1.2	1,130.89
2019- January	6.6	12.32	10.26	1.3	1,185.91
2019- February	6.3	12.3	10.23	1.36	1,153.06
2019- March	6.4	12.29	10.08	1.44	1,100.58
2019- april	6.67	12.26	9.99	1.52	1,149.99
2019- May	6.69	12.24	9.9	1.6	1,294.39
2019- June	6.7	12.21	9.81	1.68	1,305.68
2019- July	6.72	12.2	9.72	1.76	1,241.61
2019- August	6.74	12.15	9.63	1.91	1,263.84
2019- September	6.78	12.12	9.54	2.06	1,184.78

2019- October	6.79	12.09	9.51	2.21	1,145.69
2019- November	6.81	12.07	9.5	2.59	1,139.29
2019- December	6.8	11.93	9.46	0.78	1,112.85
2020- January	6.79	11.94	9.45	1.76	1,169.50
2020- February	6.78	11.94	9.45	4.59	1,346.64
2020- March	6.77	11.8	9.45	4.35	1,591.36
2020- april	6.74	11.77	9.36	2.13	1,251.45
2020- May	6.44	10.99	8.96	4.06	1,201.57
2020- June	6.29	10.46	8.72	2.2	1,188.70
2020- July	6.01	10.11	8.08	0.35	1,336.52
2020- August	5.77	10.47	7.83	0.3	1,396.28
2020- September	5.61	10.18	7.83	0.21	1,510.57
2020- October	5.45	9.83	7.73	0.16	1,571.04
2020- November	5.31	9.52	7.57	0.16	1,640.95
2020- December	5.14	9.37	7.36	0.13	2,000.40
2021- January	5	9.09	7.18	0.18	2,175.39
2021- February	4.86	8.89	6.79	0.59	2,408.24
2021- March	4.76	8.73	6.84	1.26	2,515.03
2021- april	4.79	8.61	6.9	2.03	2,631.89
2021- May	4.81	8.53	6.83	4.12	2,665.11
2021- June	4.72	8.46	6.66	3.21	2,771.15
2021- July	4.65	8.43	6.86	4.12	2,843.00
2021- August	4.76	8.48	6.71	2.13	3,081.05
2021- September	4.92	8.57	6.89	4.68	2,977.02

2021- October	5.43	8.69	7.57	4.95	2,577.49
2021- November	5.8	9.02	7.82	4.96	2,819.86
2021- December	6.24	9.29	8.25	4.96	2,633.65
2022- January	6.37	9.44	8.42	4.76	2,584.91
2022- February	6.49	10.31	8.53	4.78	2,891.33
2022- March	6.93	10.6	8.98	6.56	2,543.39
2022- april	7.11	10.78	9.17	6.99	2,513.42
2022- May	7.25	11.42	9.3	6.99	2,307.44
2022- June	7.34	11.54	9.39	7.01	2,112.47
2022- July	7.41	11.62	9.54	6.99	2,028.77
2022- August	7.64	11.94	9.72	8.02	2,196.25
2022- September	7.81	12.06	10.01	8.5	1,972.29
2022- October	8.16	12.19	10.34	8.5	1,898.38
2022- November	8.32	12.65	10.6	8.5	1,930.99
2022- December	8.45	12.73	10.7	7.99	1,961.06

Source: https://www.nrb.org.np/cmfm_rates/policy_rates/ http://www.nepalstock.com/

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ABSTRACT

The major conclusion of this study is that deposit rate, lending rate , base **rate** has **significant impact on** Stock index (**NEPSE Index**