International Journal of Finance and Commerce
www.commercejournals.com
Online ISSN: 2664-715X, Print ISSN: 2664-7141
Received: 22-01-2023, Accepted: 06-02-2023, Published: 25-02-2023
Volume 5, Issue 1, 2023, Page No. 75-82

Eterminants of lending interest rate of commercial banks in Nepal

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Abstract
The purpose of this research is to examine the factors that affect commercial banks' lending rates in Nepal. The lending rate is the outcome variable and operating cost to total assets (OCTA), deposit rate (DR), profitability (ROA) and Non performing loan explanatory variables. The necessary data are collected from the annual report of sample banks, banking and financial statistics, and the bank supervision report published by the Central Bank of Nepal. This study has used a descriptive and causal comparative research design. Similarly, Eviews-12 computer software has been employed for diagnosis, model fit, and analysis of data. Fourteen commercial banks have used as a data sample and tracked for a total of six years (2016 to 2021). The research employed the pooled OLS model, fixed effects model, and random effects model. Three different regression models predict that deposit rate has the significant impact on the bank's lending rate and operating costs to total assets ratio, return on assets (ROA), non performing assets have no strong effect on the interest rate offered by commercial banks.

Keywords: lending interest rates, deposit rate, return on assets, credit risk

Introduction

Lending decisions at commercial banks are heavily influenced by the interest rate. Commercial banks have complete autonomy over the interest rates they provide Nigmonov, A., Shams, S., and Alam, K. (2022) [40]. Commercial banks dominate the financial system at low economic growth, whereas domestic stock markets become more active and efficient at higher levels. International money movements make financial system monitoring more crucial. Stable financial institutions boost economic activity and well being, whereas volatility disrupts financial activity and costs the economy (Zheng, *et al*., 2019) [50]. Production opportunity and consuming time preference are the main elements affecting money cost. Investment or borrowing costs depend on an economy's productive asset return. Customers' inclination for current consumption over saving for future use also affects borrowing costs and returns (Almaqtari, 2019) [2]. Commercial banks boost profit margins by lending more at low deposit rate. Banks avoid setting lending rates too low for fear that interest income won't cover the cost of deposits, other operational expenses, and revenue lost from their portfolio of non-performing loans Yüksel, S., Mukhtarov, S., Mammadov, E., and Özsarı, M. (2018) [48].

On the other hand, they are unable to charge excessively high interest rates for loans because doing so would make it impossible for them to maintain their banking connection with customers who take out loans at high interest rates. Therefore, determining the appropriate interest rates for loans typically becomes a significant challenge in the banking industry. The lending interest rate is the price charged from the borrower for the use of money. There are a variety of potential elements that have an effect on the interest rate that commercial banks charge for loans. According to the classical conception, the rate of interest is controlled by the interaction of two different factors. First, there is the supply of savings, which comes primarily from the commercial sector (Obeng and Sakyi, 2017) [41, 42]. According to the rational expectation theory, the current spot interest rate provides the most accurate estimate of future interest rates, and changes in interest rates are primarily the result of unexpected information or shifts in the relative importance of various economic factors. Lending interest rate is one vital tool for shaping economy (Zhang, 2017) [49].

Funding and operating costs, risk premium, target profit margin determines loan's interest rate. The competition between banks affects interest rates. Factors affecting lending interest rates include pricing for different types of risk (such as the credit risk associated with the loan and the liquidity risk involved in funding long-term assets with short-term liabilities) and choices about growth strategies in different markets. The level of the cash rate set by the central bank is a primary determinant of the level of intermediaries' funding costs and hence, the level of lending rates (Rose, 2016). Commercial banks can boost investment in all sectors by setting effective deposit and lending interest rates. However, commercial banks were founded to increase profit margins through higher lending rates and lower deposit rates, therefore lending interest rates may effect earnings (Rose, 2016). An appropriate lending interest rate can divert investment in proper field. In short interest rate on deposit must be able to increase the amount of deposit by encouraging people to save their income (Yuksel, *et al*., 2018). Determinants of lending interest rate in commercial bank have often a subject of heated debate in Nepal. This capacity of banks to create money and deposits has a number of important influences on the financial system and the economy as a whole (Maigua and Mouni, 2016) [37]. The main objective of the study is identifying the determinants of lending rate of Nepalese commercial banks. To examine the relationship between operating cost to total assets, deposit interest rate, profitability and default risk. In the economy commercial banks are those financial intermediaries whose responsibility is to transfer fund from surplus unit to deficit unit by charging certain price.

Review of Literature

Empirical Review

The empirical review indicates that factors that influence Lending interest rate setting by commercial banks internal factors. Operating to total assets ratio, Deposit interest rate, Profitability ratio and default risk ratio are the internal factors of commercial banks in Nepal to determine the lending interest. Various studies have been conducted relating to this study of significant impact on lending rate. But there is very little related literature available in Nepalese commercial banking system about this context. However, other developed and emerging countries have conducted a lot of research related to this context. Interest rate is a fee for using money. Interest is the extra money a borrower pays to a lender. An interest rate is represented as a percentage of the principal. Divide interest by principal to get it. Interest is a money payment and receipt. The above two points indicate interest. Interest is an "expense" Since money can return over time, interest rates are typically used to illustrate the time value of money. Borrowers, lenders, savers, and investors follow interest rates. Interest rates and price signals to borrowers, lenders, savers, and investors. For example, higher interest rates generally brings forth a greater volume of saving and stimulate the lending of funds. Lower rates of interest, on the other hand, tend to dampen the flow of savings and reduce lending activity. Higher interest rates tend to reduce the volume of borrowing and capital investment and lower rates stimulate borrowing and investment spending (Rose, 2003).

Olokoyo (2011) investigated the determinants of commercial banks' lending behaviour in the Nigerian contexts and found to be significant and its estimators turned out as expected and it was discovered that commercial banks deposits have the greatest impacts on their lending behaviour. Bhattarai, (2015) [5, 6] examined the determinants of lending rate of Nepalese commercial banks. Based on the panel data analysis revealed that operating costs to total assets ratio, profitability (ROA) and default risk have significant positive impact on the commercial bank lending rate. However, deposit rate has negligible impact on lending interest rate. Malede (2014) [38] analyzed the main determinants of commercial bank lending in Ethiopia by using panel data of eight commercial banks. The result suggested that, there is significant relationship between commercial bank lending and its size, credit risk, gross domestic product and liquidity ratio. Ewert, *et al*., (2000) empirically examined the factors that can explain the financial performance of bank lending activities. The findings on collateralize are less clear and do not fully support any of hypotheses that are advanced to describe the role of collateral and covenants in credit contracts.

Obeng and Sakyi (2017) [41, 42] indicated that exchange rate volatility, fiscal deficit, economic growth, and public sector borrowing from commercial banks, increase interest rate spreads in Ghana in both the long and short run. Were & Wambua, (2013) found that bank-specific factors play a significant role in the determination of interest rate spreads. These include bank size based on bank assets, credit risk as measured by non-performing loans to total loans ratio, liquidity risk, return on average assets and operating costs. Hamadi, and Awdeh (2012) analyzed the determinants of commercial bank interest margins in Lebanon using bank-specific, industry specific, monetary policy, and macroeconomic variables. The empirical results indicate that interest rate margins are shaped differently between domestic and foreign banks. For instance, domestic bank size, liquidity, efficiency, and to a lower extent, capitalization and credit risk, have a negative impact on interest margins. Akinlo, & Owoyemi, (2012) examined the determinants of interest rate spreads in Nigeria using a panel of 12 commercial banks. The results suggested that cash reserve requirements, average loans to average total deposits. Entrop, *et al*., (2017) [7] investigated the magnitude and determinants of interest rate risk (IRR) of listed U.S. bank holding companies and found that high exposures are partly systemic and comove with bank characteristics like size or leverage. of banks.

Gambacorta (2008) has investigated the way how banks determine their interest rates and showed that the factors such as interest rate volatility, bank efficiency, credit, and interest risks as well as temporary and permanent changes in income have all significant impacts on the level of bank interest rates. Georgievska, *et al*., (2011) [9] have examined determinants of lending rates and interest rate spread in Greece. The data used for this study was for the period 2001 to 2009. Panel estimation methods were used to analyze the data, and the results from their study indicate that lending rates are mostly influenced by bank size and share and to a lesser extent by deposit rates and non-performing loans. Chettri (2014) conducted a study titled "Lending interest rate structure and its Relation with Deposits, inflation and Credit in Nepal." The objective of his study was to show the relation between lending interest rate and other economic variable like deposits, inflation, and credits flow. The study concludes that deposit depends upon numerous factors besides income inflation and interest rate. The upward movement in the deposit rates increase the volume of deposit. Interest rates send price signals to borrowers, lenders, savers and investors. For example, higher interest rates generally bring forth a greater volume of saving and stimulate the lending of funds. Lower rate of interest on the other hand, tend to damper the flows of saving and reduce lending activity. Higher lending rate tends to reduce the volume of borrowing and capital investment, and lower lending interest rate stimulates borrowing and investment spending.

Sichalwe (2014) have examined the determinants of bank lending rates in Zambia. The authors have employed panel regression techniques using detailed bank-specific data that reflect a wide range of cost and income determinants for banks. Their results indicate that lending rates are to a significant extent influenced by variables relating to banks' costs. Their findings suggested that the South African commercial banks adjust their lending rate downward but the lending rate appears rigid upward, which supports the customer reaction hypothesis. The earlier studies on lending interest rate need to be updated and validated due to the rapid changes taking place in the banking market of Nepal. Thus to fulfil the gap, the current research has been conducted. This research is based on secondary data. The data have been collected for the period of six years (2016) to (2021). The descriptive and causal comparative research design adopted for the study.

Dependent variable

The dependent variables in this study is the lending rate (LIR). It is the average interest rate on lending of commercial banks. Lending rate is the price that a borrower

paid when taking loans from the commercial banks. It is hypothesized that lending interest rate of commercial banks is influenced by operating cost to total assets ratio, deposit interest rate, profitability and default risk. It is the average interest rate on lending of commercial banks. Lending rate is the price that a borrower paid when taking loans from the commercial banks. It is hypothesized that lending interest rate of commercial banks is influenced by operating cost to total assets ratio, deposit interest rate, profitability and default risk. Determinants of lending interest rate in commercial bank have often been a subject of heated debate in Nepal..

Independent variables

The independent variables used in identifying the determinants of LIR are the following:

Operating cost to total assets ratio has been considered as one of the independent variables in this study. The ratio of operating expenses to total assets measures the cost required to provide a loan unit, and depends on the productivity of staff and other operating costs are administrative burdens, branch network, transport, depreciation (Bhattarai, 2015 and Samuel, 2018) [5, 6]. The key indicator of efficiency of commercial bank is the ratio of operating costs to total assets.. However, commercial banks can lower their lending rates in order to remain competitive by reducing operating costs. Thus, operating expense to total assets ratio may be considered as the determining factor in lending rates. Mbao, Kapembwa, Mooka, Rasmuseen and Sichalwe (2014) also found that operating costs has positive effect on lending rates.

Deposit interest rate is the average interest rate on retail deposits at each bank (in percentage). The interest paid on customer deposit depends on lending interest rates. Lending interest rate can increase with increasing deposit interest rate. Schnitzel (1986) examines the causation between deposit rates and mortgage loan rates through empirical tests. They asserted that in setting their loan interest rates, banks use deposit interest rates of the preceding period. They found significant positive correlation between loan interest rates and deposit interest rates. Mbao, Kapembwa, Mooka, Rasmussen and Sichalwe (2014) found that interest rate paid on deposits has significantly positive effect on lending rates

Profitability is computed as net income divided by total assets. This is generally considered as a good indicator to evaluate the profitability of the assets of a bank in comparison to other banks in the banking industry. A profitability ratio is a measure of profitability, which is a way to measure a company's performance. Profitability is simply the capacity to make a profit, and a profit is what is left over from income earned after you have deducted all costs and expenses related to earning the income. Mbao, Kapembwa, Mooka, Rasmussen and Sichalwe (2014) found negative association between lending rates and profitability (return on assets). They asserted that increases in bank costs tend to be passed on to borrowers in the form of higher lending rates, and that factor that help improve bank income also tend to benefit borrowers by lowering the interest rates they pay.

This possibility of default may be related to a change in the financial health or condition of the borrower brought about by normal as well as unexpected swing in the overall level of economic activity. Default rate on total loan and advance is proxies by non-performing loan ratio. Non-performing loan is also another variable which affect lending rate, this variable measure as the ratio of total loan or non-performing loans to total loans. An increase in the provision for loan losses implies a higher cost of bad debt write-offs. Non-performing loan is also another variable which affect lending rate, this variable is measured as the ratio of the total loan or non-performing loans to total loans. Mbao, Kapembwa, Mooka, Rasmussen and Sichalwe (2014) also found positive association between lending rates and NPL ratio, meaning that increase in the NPL ratio produces increase in the lending rate.

Research Methodology

This study has employed descriptive and causal comparative research design because descriptive research design helps in a fact finding, searching for adequate information about bank liquidity and profitability of Nepalese commercial banks. To describe the nature of data of the commercial banks consisting of 450 (15 x 6) observations during fiscal year through the 2016 to 2021 (6 years) because Nepal Rastra Bank has implemented the big merger and acquisition policy in 2016 A.D. This study also employed casual comparative research design to analyze the effect of the liquidity management on profitability of Nepalese commercial banks. Causal comparative research designs help to determine the cause and effect relationship between the different independent variables operating cost to total assets, deposit interest rate, profitability, and default risk and the dependent variable lending interest rate. The sample of commercial banks selected for the study are: Global IME Bank, NBL, ADBL, Laxmi Bank, Siddhartha Bank, Prabhu Bank, NMB`, Sanima Bank, NCC Bank, Civil Bank, Citizen Bank, Bank of Kathmandu, Nabil Bank, RBB. This study assumes that the selected samples fairly represent the study population. Data were collected from the annual reports of the banks in the sample.

The following are the hypotheses of the study:

H_1: There is significant relationship between operating cost to total assets ratio and lending interest rate.

H_2: There is significant relationship between deposit interest rate and lending interest rate.

H_3: There is significant relationship between profitability and lending interest rate.

H_4: There is significant relationship between default risk and lending interest rate.

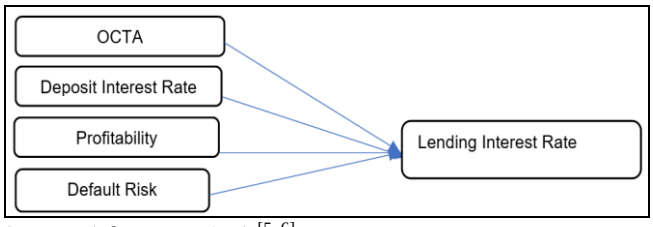
H_5: There is significant effect of operating cost to total assets ratio on lending interest rate.

H_6: There is significant effect of deposit interest rate on lending interest rate.

H_7: There is significant effect of profitability on lending interest rate.

H_8: There is significant effect of default risk on lending interest rate.

Theoretical Framework
Independent Variables
Dependent Variables



Source: (Bhattarai, 2015) [5, 6]

Fig 1

The model
Following model has been used for this study.

$$LIR = \beta 0 + \beta 1 OCTA + \beta 2\ DIR + \beta 3\ PROF + \beta 4\ DR + \varepsilon$$

β0 = Intercept
β1, β2, β3, β4 are the beta coefficient (sensitivity) of four IVs.

OCTA = Operating cost to total assets.
DIR = Deposit Interest rate.
PROF = Profitability.
DR = Default risk
E = Error term

Results and Analysis
The necessary data are gathered from annual reports and the NRB's key financial indicators report of sample banks. In this section, collected data are presented and analyzed using different mathematical and financial tools and techniques.

Descriptive Statistics
Descriptive statistics are used to summarize and describe the characteristics of a set of data under study. It also provides a basis for more advanced inferential statistical analysis. Descriptive analysis has utilized tools to measure central tendency and measures of variability (spread), such as minimum value, maximum value, average value, median value, and standard deviation, and calculated them as described by literature in the same area of study. Any sample's data points are dispersed over a range from lowest value to highest value.

The descriptive statistics of the variables are given in the table 1. For each variable shows minimum, maximum, mean, median and standard deviation of 14 commercial banks in Nepal. On an average those banks has profitability is 1.5561% the profitability does not vary greatly across the bank because the standard deviation is about 0.5579%. Whose minimum value is about0.01% and maximum value is about 2.78%. Average of OCTA ratio is 3.1075% and minimum and maximum value area 0.71% and 8.17% respectively and SD is 2.278%.The average deposit interest rate (DIR) 8.8011% and minimum and maximum values are 4.17%and 11.48%respectively and SD is 1.307001%.Shows that default risk maximum 4.6% and minimum 0.03% and average and SD of default risk is 1.7683% and 1.0577%. Lending interest rate maximum 14.56%, minimum 8.5% and average is 11.7067% and SD IS 1.2775%.

Correlation Matrix
Correlation analysis has been performed to measure the relationship between two variables. The value of correlation coefficient always lies between -1 to +1. Correlation coefficient +1 means there is strongly positively association between the variables while correlation coefficient -1 means there is strongly negatively association between the variables. The results of correlation analysis has been presented in table 2.

Table 1: Pearson Correlation Analysis

	DR	LR	NPL	OCTA	ROA
DR	1				
LR	0.5389	1			
NPL	-0.0281	0.0268	1		
OCTA	0.1215	0.1411	0.1378	1	
ROA	-0.1146	0.0525	-0.0850	0.0068	1

Note: Results are drawn from EVIEWS-12

Table 2 shows the biraviate correlation between variables. It can be seen the co-relation between the two variables of all, are not so high and low. Almost variable shows the low correlation among the variables. However some of the variables shows the low degree of association like DR and NPL, LR. and OCTA. There is negative correlation among ROA and NPL, DR and NPL, DR and ROA. and rest associations have positive relation. Only DR and LR shows the moderate relationship.

Regression Results
This shows the effect of the all independent variables on the dependent variables. It shows the causality to dependent variable by independent variables. It is the simply extension of the simple linear regression, which predicts the dependent value based on more than one independent variables by regressing the past data. Following to Timsina, and Pradhan, (2016), pooled ordinary least square (OLS), assumes that independent values shouldn't be highly correlated, residual have constant variance, multivariate normality and no auto correlation which has been presented in the residual diagnosis this analysis, researcher has presented the regression result of each independent variable with dependent variable ROE to examine the individual impact of the variable on the ROE.

Table 2: Panel OLS Model

Variables	Coefficient	Std. Error	t-Stat	Prob.
C	6.383217	0.954588	6.686881	0.0000
DR	0.051766	0.114503	0.452089	0.6524
DIR	0.533105	0.092745	5.748075	0.0000
OCTA	0.038203	0.053335	0.716294	0.4759
PROF	0.270762	0.216226	1.252217	0.2142
R-Square	0.310924			
Adj-R Square	0.276034			
F-Stat	8.911551			
Prob (F-stat)	0.000005			
DW test	1.205501			

The coefficient value of deposit rate (DR) is significant because P-value of each coefficients is less than 5 percent and all other variable found to insignificant. DR has positive impact on lending rate of the banks. In this panel data regression example, the R Square value is 0.3109, which means that the predictor variable have explained only 31.09% variation in the response variable which is not very

strong in explaining the response variable. Prob (F-Statistics): is the p value of the F test which is the significance level of the F value, that is to assess the simultaneous influence of the predictor variable to the response variable whether statistically significant or not and the overall model is fit. Similarly it requires to check the Breusch- Pagan (BP) test for detecting the appropriateness of POLS.

Lagrange Multiplier Test or Breusch- Pagan (BP) test

Lagrange Multiplier Test The Lagrange Multiplier Test, also known as the Lagrangian Multiplier Test, is an analysis that is performed with the goal of determining the best method in panel data regression, whether to use common effect or random effect. This test is commonly referred to as the Lagrangian Multiplier Test. A function of the Lagrange Multiplier test is to determine the best estimate, regardless of whether or not a random effect is being used (Zulfikar, & STp, 2019).

Lagrange Multiplier Tests for Random Effectiveness.

Table 3

Tests	Test Hypothesis		
	Cross Section	Time	Both
Breusch-Pagan	24.78768 (0.0000)	0.800983 (0.3708)	25.58866 (0.0000)

If P-value is greater than 0.05, it suggest to accept null hypotheses or go for POLS. If P-value is less than 0.05, it suggests go for FEM or REM. P Value is shown by the number below which is 0.000 where the value is less than 0.05. So the Lagrange Multiplier Test indicates that receiving H1 means the best estimation method is Random Effect.

Random Effect Model

This model will estimate panel data in which interference variables may be interrelated across people and across time. The variance in intercepts between companies is accounted for by the respective error terms of each business in the Random Effect model. The elimination of heterosexuality is one of the benefits that comes with employing the Random Effect model. This approach is often referred to as the Generalized Least Square (GLS) technique and the Error Component Model (ECM). The random effect model differs in principle from both the common effect model and the fixed effect model. In particular, this model does not use the principle of ordinary least square, but rather either the principle of maximum likelihood or the principle of general least square. This model operates on the supposition that there exists an individual-specific difference in intercept, and that intercept itself is a random variable. Therefore, the model of the random effect contains two different residual components. The first one is the residual taken as a whole, which is a mix of the cross section and the time series. Torres-Reyna (2007). (2007). The second residual is known as an individual residual, and it is a random feature that is always present in the i-th unit observation. It does not change at any point in time. Utilizing the residual variables in this random effect model is an effective method for solving the problem.

Table 4: Random Effect Model.

Variables	Coefficient	Std. Error	t-Stat	Prob.
C	6.346279	0.999576	6.348973	0.0000
DIR	0.552644	0.103539	5.337533	0.0000
DR	0.018179	0.140142	0.129718	0.8971
OCTA	0.054136	0.091934	0.588860	0.5576
PROF	0.190343	0.250143	0.760936	0.4490
R-Square	0.306151			
Adj-R Square	0.271019			
F-Stat	8.714401			
Prob (F-stat)	0.000000			
D-W test	2.021759			

Table 5: Correlated Random Effect: Hausman Test

Test Summary	Chi-Sq. Stat	Chi- Squ. d.f.	Prob
Cross Section Random	0.292307	4	0.9903

One variable i.e. deposit rate coefficient value is significant because P-value of each coefficients is less than 1 percent. In this panel data regression example, the R Square value is 0.1881, which means that the predictor variable has explained only 30.61% variation in the response variable which is not very strong in explaining the response variable. Prob (F-Statistics): is the p value of the F test which is the significance level of the F value, that is to assess the simultaneous influence of the predictor variable to the response variable whether statistically significant or not and the overall model is fit.

Hauseman Test

It is recommended to perform the Housman test for the purpose of validating the model prior to confirming the Random effect model. The Hausman test is a statistical test that determines whether the Fixed Effect or Random Effect model that is most suited for the data should be employed. In the event when the P-value is lower than 5%, the null hypothesis should be rejected in favor of the random effect model. If the P-value is lower than 5%, the null hypothesis should be rejected in favor of the fixed-effect model (Torres-Reyna, 2007).

If P-value is greater than 0.05, it suggest to accept null hypotheses or go for fixed effect model. If P-value is less than 0.05, it suggests Random effect model is appropriate. P Value is shown by the number below which is 0.000 where the value is less than 0.05. So the Hausman Test indicates that receiving H1 means that the best estimation method is Random Effect model.

The Multiple Regression of LIR on independent variables

The regression dependent and independent variables (i.e. operating cost to total assets ratio, deposit interest rate, profitability, default risk and lending interest rate) impact has been analyzed by defining the LIR changes in terms of independent variables of selected banks. The regression of LIR on independent variables indicated in the table 4.8. The equation for this regression module is as follows:

$$LIR = \beta 0 + \beta 1 OCTA + \beta 2\ DIR + \beta 3\ PROF + \beta 4\ DR + \varepsilon$$

Table 6: Random Effect Model.

Variables	Coefficient	Std. Error	t-Stat	Prob.
C	6.346279	0.999576	6.348973	0.0000
DIR	0.552644	0.103539	5.337533	0.0000
DR	0.018179	0.140142	0.129718	0.8971
OCTA	0.054136	0.091934	0.588860	0.5576
PROF	0.190343	0.250143	0.760936	0.4490
R-Square	0.306151			
Adj-R Square	0.271019			
F-Stat	8.714401			
Prob (F-stat)	0.000000			
D-W test	2.021759			

How regression is run in eviews and how it is interpret in our model LIR dependent variable and OCTA, ROA. DIR, and DR are independent variables.

$$LIR = \beta 0 + \beta 1 OCTA + \beta 2\ DIR + \beta 3\ PROF + \beta 4\ DR + Ɛ$$

$$LIR = 6.346279 + 0.054136 OCTA + 0.552644 DIR + 0.190343 PROF$$

$$0.018179 DR + \epsilon$$

If OCTA increase by 1 unit than LIR increase by 0.054136 units keeping other factors remains constant. If DIR increase by 1 unit than LIR increase by 0.552644 units keeping other factors remains constant. If PROF increase by 1 unit than LIR increase by 0.190343 units keeping other factors remains constant. If DR increase by 1 unit than LIR increase by 0.018179 units keeping other factors remains constant. Level of significance mostly 5% is considered. If prob value is greater than 5% or 0.05 it means chance of error is high and we will not consider the regression result of particulars variables. And if chances of error prob value is less than 5% or 0.05 it means regression results are considerable and variables is significant.

Table 7: Hypothesis testing based on Regression Analysis

Hypothesis	Decision
H1: There is a significant impact of OCTA on LIR.	Rejected
H2: There is a significant impact of DIR on LIR.	Accepted
H3: There is a significant impact of Prof on LIR.	Rejected
H4: There is a significant impact DR on LIR.	Rejected

Discussion

The main result as equation of this paper confirmed that there is long run association of deposit rate and lending rate. The result of this study is consistent with earlier study conducted by Yuksel and Zengin (2016) and argued that there deposit have the positive and significant impact on the bank's lending rate. Motaze, (2022) also spotted that there is the significant and positive relation between deposit rate and lending rate. Both studies have concluded that the main reason of effect on the interest rate is bank's deposit rate. Similarly, BFIs are developing the new financial product and offering to its customers at different interest rate. There is the interest rate spread in between the lending and deposit rate, so there may not be the significant increase in the value of banks deposit (Bhattrai, 2015). Similarly, the result of this study is similar with previous research conducted by Angori *et al*. (2019) [4] and argued that bank's deposit rate has the significant determinant power in the lending rate. Following to Oben and Sakyi (2017) [41, 42]; Nigmonov *et al*. (2022) [40]; Mbowe *et al*. (2020) [39] have found that bank's saving rate has the positive and significant impact on the bank's credit rate

Finally, a strong lending interest rate avoids significant drawback and increase financial performance of the bank. Good financial performance rewards both depositor's and creditor's for their work environment and investment. This will encourage and motivate depositors as well as lenders to contribute more to economic growth. Therefore, effective lending interest rate is very important component to achieve long term success of the banking organization.. The research questions of this study that are asked in the chapter first have been answered in this discussion respectively. Operating cost to total assets ratio has positive relationship on lending interest rate of Nepalese commercial banks and statistically insignificant impact on LIR. However, commercial banks can lower their lending rates in order to remain competitive by reducing operating costs. The finding is similar to the previous researchers and they are Obeng and Sakyi, (2017) [41, 42] also found that operating costs has positive effect on lending rates. The analysis revealed that Deposit interest rate has positive relationship with lending interest rate of Nepalese commercial banks and significant impact on lending interest rate. The author shows that loan interest rates have been affected by deposit interest rates for the period under the regulated deposit interest rate regime. Kaymaz and Kaymaz (2011) have obtained strong evidence of one-way causality between loan interest rates and deposit interest rates. There is the interest rate spread in between the lending and deposit rate, so there may not be the significant increase in the value of banks deposit (Bhattrai, 2015). Similarly, the result of this study is similar with previous research conducted by Angori *et al*. (2019) [4] and argued that bank's deposit rate has the significant determinant power in the lending rate. The results show that Profitability has positive relationship on lending interest rate of Nepalese commercial banks and insignificant impact on lending interest rate. They asserted that increases in bank costs tend to be passed on to borrowers in the form of higher lending rates, and that factors that help improve bank income also tend to benefit borrowers by lowering the interest rates they pay. The finding is contradictory to previous researcher and they are Mbao, Kapembwa, Mooka, Rasmussen and Sichalwe (2014) found negative association between lending rates and profitability (return on assets). Likewise, the results show that Default risk has positive relationship on lending interest rate of Nepalese commercial banks and statistically insignificant impact on lending interest rate.

Conclusion and Implications

Based on the result of the descriptive and inferential statistics, it can be concluded that there is the significant effect of OCTA, deposit interest rate, profitability and default risk on the lending interest rate of banks and financial institutions. Frequently, Nepalese banking industry is facing the problem of liquidity and this cause the frequent change in the interest rate. This research affects Nepalese investors, institutions, and academics. This analysis suggests that a rational stakeholder in Nepal's banking sector should consider DIR rather than OCTA, Profitability, and default risk when setting lending interest rates. Academics benefit greatly from this study. Academics can understand how OCTA, DIR, Profitability, and default risk affect loan interest rate (LIR). This work expands the literature and

suggests future investigation. This study only examined fifteen commercial banks in Nepal, therefore more research can be done on DIR, profitability, default risk, and lending interest rate.

This study used only six years of data. This study has important implications for common investors, concerned institutions and academician of Nepal. This study contends that in order to determine the lending interest rate in the banking sector in Nepal, a rational stakeholder must take into account DIR rather OCTA, Profitability and default risk. This study offers academicians a wide range of advantages. The academicians can better comprehend how OCTA, DIR, Profitability and default risk relate lending interest rate (LIR). The subject has a number of potential research directions. This study only focused on study of only fifteen commercial banks in Nepal and thus further research can be carried out including other banks to examine the relationship of DIR, Profitability and default risk and lending interest rate. This study has used only six year's data. Thus, further research can be carried out taking data of more than six years. Also, this research has used only four factors as independent factors affecting LIR.

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