

## Effect of Credit Performance and Interest Spread on Profitability of Commercial Banks in Nepal

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### ABSTRACT

This study examines the effect of credit performance and interest spread on the profitability of commercial banks in Nepal using panel least squares regression model. The balance panel data of sixteen commercial banks for the year 2013–2021, with 128 observations were used for empirical analysis. The study used non-performing loan ratio (NPLR), credit to deposit ratio (CDR), interest rate spread (IRS), capital adequacy ratio (CAR), customer deposit growth rate (CDGR), and bank size as explanatory variables, and return on asset (ROA) as the dependent variable. The data were collected from the annual report of sample banks, banking and financial statistics, and the bank supervision report published by the Central Bank of Nepal. The study employed a descriptive and causal comparative research design, using Eviews-12 data analysis and modeling software for diagnosis of model, model fit, and analysis. Descriptive statistics, Pearson's correlation analysis, and multiple regression models were also used. The random effect model was chosen as the fitted model after model diagnosis. The regression model showed that NPLR had a negative and statistically significant impact on ROA, whereas IRS had a positive and statistically significant impact on ROA. However, CDR had a positive but statistically insignificant impact on ROA. Result further showed that capital adequacy ratio, customer deposit growth rate, and bank size had a significant impact on ROA. It can be concluded that the strong credit performance and interest rate spread contribute to increase in bank profitability.

**Keywords:** Return on Asset, Non-performing Loan, Credit to Deposit ratio, Interest Rate Spread, Capital Adequacy, Customer Deposit Growth, and Bank Size.

### Introduction

The banking and financial industry is a significant and expanding industry worldwide. It serves as the foundation of a country's economy, enabling long-term financial growth through effective monetary intermediation. A robust financial system creates investment opportunities by financing productive businesses, gathering savings, efficiently allocating resources, and promoting trade in goods and services. Therefore, financial institutions play a vital role in accelerating a nation's growth. Commercial banks are the main players in the Nepalese financial system and hold 54.5 percent of the total assets (NRB, 2022). Commercial banks have fulfilled their role as intermediaries by mobilizing deposits and providing loans and advances, and this has impacted their performance (John, 2014).

Credit performance has measured as the quality of assets that a bank puts in its portfolio of loans and advances. Quality of assets means a bank's assets portfolio with the minimum possibility of losses. Largely, bank provides loans on the behalf of mortgage and its views as security against default. The banking industry has consistently faced credit risk as its foremost risk factor (Han, 2015). The default of borrowers due to credit risk can lead to an economic downturn for banks, negatively impacting the overall economy as witnessed in the 2008 world economic crisis. History shows that many BFIs in Nepal have already been liquidated due to large non-performing loans (Malla, 2017). According to a recent IMF report, the monetary authority of the country was found to have inadequate regulatory and supervisory practices, leading to an inaccurate assessment of the asset quality of banks and an insufficient identification of existing risks. So, the credit management mechanism of the bank should be strong to mitigate possible adverse effects on performance, liquidity crunch, and failure of the bank that might arise from an ineffective credit disbursement process. Besides, some commercial banks are rushing to attract depositors by offering high interest rates on deposit accounts, while others are offering lower interest rates for loans and advances than other competitors in Nepal. As a result, competition between the banks is too high. The competition level in the loan market was found to be higher than deposit market competition. So, banks need to pay special attention to loan management. Besides, the competition level in the loan market was

found to be higher than deposit market competition. So, banks need to pay special attention to loan management (Gautam, 2021).

Interest represents the cost for the borrower and the income for the lender. Specifically, the bank pays interest to depositors and collects interest from borrowers. The interest margin constitutes a significant source of revenue for banks and represents a substantial portion of their profits. Generally, the bank's interest rate spread denotes the difference between the interest rate charged on loans and the interest rate paid on deposits. Generally, a higher interest rate spread results in greater profits, and conversely, a lower interest rate spread leads to lower profits (Karki, 2020). Consequently, banks strive to allocate funds to areas that provide higher interest rates while maintaining a low default risk, in order to maximize profits and shareholder wealth (Musah et al., 2018). On the other hand, the bank a low-interest does not charge rate to the borrower as it has to pay interest to the depositor and maintain other costs.

The relationship between credit performance, interest spread, and bank profitability is complex and multifaceted. Bank credit performance and interest rate spreads affect not only the bank's profitability but also the country's overall economy. In the review of the literature, there has been unanimity in the findings. Therefore, more research is needed to be done to determine whether credit performance and interest spread have an impact on the profitability of commercial banks.

## **Theoretical and Empirical Review**

### **Theoretical Review**

The Loan Pricing Theory suggests that the price of a loan is determined by the cost, margin, and risk premium. This interest rate is typically higher than the base rate set by the bank. Banks that consistently set high lending rates may only attract risk-seeking borrowers or create an adverse selection problem where only risk-averse borrowers are interested in taking out a loan. This can limit loan portfolio diversification and increase credit risk. Conversely, a lower interest rate on a risky loan can increase the default rate and lead to credit risk due to inadequate credit evaluation and moral hazard behaviors. Therefore, optimizing credit performance through loan pricing becomes an essential task for loan officers (Kwashie et al., 2022).

The loanable fund theory states that the interest rate, which is the cost of credit, is determined by the demand and supply of loanable funds. The credit performance of a bank, measured by non-performing loans and loan loss provisions, affects the supply of loanable funds. Banks with high levels of non-performing loans and loan loss provisions may have a reduced ability to lend, leading to a reduced supply of loanable funds. This, in turn, may result in higher interest rates and lower profitability for the bank. To increase profitability, banks can charge higher interest rates on lending when the demand for loans is higher than the supply (Musah et al., 2018).

The trade-off theory suggests that credit performance, which is measured by the level of non-performing loans, is linked to a bank's asset risk. Higher levels of non-performing loans indicate a greater risk of default and potential asset loss. In order to compensate for this higher risk, banks may need to charge higher interest rates on loans, which could result in lower profitability. However, banks with higher interest spreads may earn greater returns on their assets and therefore have higher profitability. Overall, a higher risk is associated with higher profitability, and vice versa (Hersugondo et al., 2021).

### **Empirical Review**

Siddique et al. (2021) studied the issue of high non-performing loans in South Asian commercial banks, which contributed to 60% of world growth. The study used data collected from 19 commercial banks in Pakistan and India and employed a generalized method of moment (GMM) for estimation. The study found that capital adequacy ratio (CAR) and average lending rate (ALR) were significantly positively related to financial performance, while non-performing loans (NPLs), cost-efficiency ratio (CER) and liquidity ratio (LR) were significantly negatively related to the financial performance of Asian commercial banks. In conclusion, the study suggests that credit risk management and bank-specific factors play a crucial role in the financial performance of commercial banks in South Asia.

Bandara et al. (2021) conducted a study to measure the effect of credit risk on the profitability of the banking sector in Sri Lanka from 2010 to 2017. The study used descriptive and inferential statistics to analyze the data, and employed the Fixed Effect Model and the Random Effect Model to estimate the relationship between variables. The study found that credit risk is an important determinant of bank profitability. Specifically, non-performing loans have a negative and significant impact on ROA, while LDR is not an important variable for profitability. The study recommends that banks should focus on managing their credit risk and maintaining a

sufficient capital adequacy ratio to improve their profitability.

Chhetri (2021) conducted a study to examine the relationship between credit risk and financial performance of commercial banks in Nepal, using panel data from 17 banks over the period of 2015 to 2020. The study utilized descriptive statistics, panel regression model and correlation matrix to analyze the data. The study concluded that non-performing loans have a significant negative impact on ROA, while capital adequacy ratio and bank size have insignificant negative impacts on ROA. The loan-to-deposit ratio has a positive but not significant relationship with the ROA. The study states that bank must manage their credit risk to boost financial performance.

Khan and Sattar (2014) studied the impact of changes in interest rates and bank profitability in the context of Pakistan. The study is based on secondary data from four commercial banks for the fiscal year 2008 to 2012. The study concluded that there is a strong and positive relationship between interest rates and the profitability of the banks which means if the change in the value of interest rates is, the value of commercial banks will also change. The researcher suggested that the bank should charge low-interest rates and pay good interest to depositors.

Hakuduwal (2021) examined the bank-specific factors' effect on the financial performance of Nepalese commercial banks. The panel data from 2012 to 2018 was taken for the study and 16 commercial banks were taken as samples. The purposive sampling method was employed to select the sample banks. Regression, F-test and t-test were used for analysis based on pooled least square method. This study revealed that the total assets and total loan and advance have a positive significant impact on profitability. Likewise, total equity has no significant impact and the total deposit has a negative significant impact on the profitability of commercial banks in Nepal. The study highlights that the banks should utilize their assets, loans, deposits properly and equity for sound profitability of the bank.

Musah et al. (2018) measured the interest rate spread by applying net interest income and net interest margin and profitability of the bank using ROA and ROE. This study used panel data of 24 sample banks for the ten-year periods and was based on secondary data taken from the annual report of the bank. They found that there is a positive and statistically significant association between interest rate spread and bank profitability in the context of Ghana. The findings could be interpreted in the context of Loanable Fund Theory to suggest that bank can charge a higher interest rate on lending if demand for loans exceeds the supply to increase profitability.

Yuan et al. (2022) conducted a study on the impact of bank-specific variables on the profitability of private south Asian commercial banks. The study used panel data from 2010 to 2021 of 40 banks, 20 from India and 20 from Bangladesh, which were randomly sampled. The results showed that bank size and debt-to-assets ratio have a positive and significant impact on return on assets (ROA), while deposit-to-assets ratio and loan-to-deposit ratio have a negative and significant impact on bank profitability. The study concludes that bank managers should focus on managing these bank-specific variables in order to improve bank profitability.

### III. Methodology

Descriptive and causal comparative research designs were employed in this study. Descriptive research design was used to explain the descriptive characteristics of variables applied in the study. Likewise, to examine the effect of explanatory variables on dependent variable causal comparative research design were used. The research employed stratified sampling to select a subset of banks. Data for the year 2013 to 2021 were employed for empirical analysis. The data, consisting of time series and cross-sectional data were obtained from the annual reports of the sample banks and the NRB website. Utilizing pooled data regression from 16 commercial banks was used for finding empirical results.

#### The Model

The econometric model used in the study for estimating the effect of independent variables on dependent variable is given as:

$$Y =$$

Where, Y is the dependent variable,  $\beta_0$  = Constant,  $\beta$  = Coefficient of explanatory variables,  $X_{it}$  = Vector of explanatory variables, and  $\epsilon_{it}$  = Error term

By adopting the above model, the effect of credit performance and interest spread on profitability has been estimated by the following regression equation:

Where,

= Constant Term

= Coefficient of Variable that represents the degree of changes on ROA as the independent variable

changes by one unit.

- = Return on assets of bank in year t
- = Non-performing loan ratio of bank in year t
- = Credit to deposit ratio of bank in year t
- = Interest rate spread of bank in year t
- = Capital adequacy ratio of bank in year t
- = Natural logarithm of total assets of bank in year t
- = Customer Deposit growth rate of bank in year t
- = Error term

### **Dependent Variable**

#### **Return on Asset (ROA)**

The return on assets (ROA) is a simple way to measure a bank's profitability. This metric indicates the bank's ability to generate profits through its asset management function (Kohlscheen et al., 2018), and is often used as a dependent variable in studies examining bank performance. ROA is a commonly used financial ratio for evaluating banks, calculated by dividing net profit after tax by total assets.

### **Independent Variables**

#### **Non-performing Loan Ratio (NPLR)**

Non-performing loans (NPLs) refer to the ratio of total non-performing loans to the gross loan portfolio. The non-performing loan ratio (NPLR) serves as an indicator of a bank's credit risk management and the quality of its loans and advances (Bhattarai, 2017). Studies have found that NPLR has a negative and statistically significant impact on ROA (Hamza, 2017), which means that an increase in NPLs will result in a decrease in profitability and vice versa. NPLR is calculated by dividing the total non-performing loans by the total loans.

H1 = Non-performing loan ratio (NPLR) has a significant negative effect on bank's profitability.

#### **Credit to Deposit Ratio (CDR)**

The credit to deposit ratio is a crucial metric for assessing a bank's liquidity position. It measures the proportion of a bank's total loans and advances to its total collected deposits. A higher CDR indicates that the bank has effectively mobilized its collected funds, while a lower CDR suggests that the bank may have more liquidity but cannot lend out its funds, which could ultimately reduce profits. However, having a higher CDR may not always be beneficial from a liquidity standpoint (Chhetri, 2021). It is calculated by dividing total loans and advances by total deposits.

H2 = Credit to deposit ratio (CDR) has a significant positive effect on bank's profitability.

#### **Interest Rate Spread (IRS)**

The interest rate spread refers to the difference between the interest charged by a bank on loans to its borrowers and the interest paid to its depositors. Interest gap is considered as the major income sources of the bank. Many previous studies found that there is a positive and statistically significant association between interest rate spread and bank profitability (Musah et al., 2018; Karki, 2020). This implies that when the interest rate spread of a bank increases or decreases, its profitability will also increase or decrease in the same direction.

H3 = Interest rate spread (IRS) has a significant positive effect on bank's profitability.

#### **Capital Adequacy Ratio (CAR)**

The capital adequacy ratio (CAR) is a crucial measure of a bank's financial strength and regulatory compliance. It refers to the amount of capital that banking and financial institutions must hold to meet regulatory requirements. A higher capital adequacy ratio (CAR) indicates that a bank has sufficient capital to absorb potential losses from loans and protect against defaults due to a lack of funds. This ratio is calculated by dividing the total capital by the total risk-weighted assets, expressing the amount of a bank's capital as a percentage of its exposure to risk (Chhetri, 2021).

H4 = Capital adequacy ratio (CAR) has a significant positive effect on bank's profitability.

#### **Customer Deposit Growth Rate (CDGR)**

Customer deposits refer to the funds deposited by households and businesses in banks for the purpose of safety, liquidity, and protection against inflation. The growth of customer deposits is calculated by dividing the change in deposits (current year's deposits minus the previous year's deposits) by the previous year's deposits. A positive growth rate indicates an increase in deposits compared to the previous year, while a negative growth rate

indicates a decrease in deposits. This metric is measured by dividing the current year's deposit collection minus the previous year's deposit collection by the previous year's deposit collection.

H5 = Customer deposit growth rate (CDGR) has a significant positive effect on bank's profitability.

### Bank Size

Bank size is a widely used metric for evaluating the potential economies or diseconomies of scale in the banking sector. This variable is employed to account for differences in product costs and risk diversification according to the size of financial institutions. It is also used to control for the possibility of larger banks diversifying their products and loans. In financial literature, the natural logarithm of a bank's total assets is often used as a proxy for bank size (Chhetri, 2021). Research suggests that bank size has a significant positive impact on the profitability of commercial banks in Nepal (Hakuduwal, 2021).

H6 = Bank size (TA) has a significant positive effect on bank's profitability.

## IV. Results and Finding

The necessary data were gathered from the annual reports and the NRB's key financial indicators report of the sample banks. In this section, collected data are presented and analyzed using different mathematical and financial tools and techniques. The results of this study can be useful for policymakers and commercial banks in making informed decisions regarding credit performance and interest spread to improve their profitability.

### Descriptive Statistics

In the data analysis process, descriptive statistics play a crucial role in providing an overview of the data being studied. This section aims to summarize and describe the characteristics of the variables under consideration, including Return on Assets (ROA), Non-Performing Loan Ratio (NPLR), Credit-Deposit Ratio (CDR), Interest Rate Spread (IRS), Capital Adequacy Ratio (CAR), Deposit Growth Rate (DGR), and Total Assets (TA). Descriptive statistics provide a foundation for more advanced inferential statistical analyses. Table 1 displays the descriptive statistics of these variables, which are essential for interpreting the results of the study.

**Table 1**  
Descriptive statistics of ROA, NPLR, CDR, IRS, CAR, DGR and TA

Variables	ROA	NPLR	CDR	IRS	CAR	DGR	TA
Mean	1.67	1.57	82.65	4.26	13.92	19.56	105968.1
STD.	0.53	1.63	10.22	0.88	2.61	16.88	53861.74
Max.	3.61	8.99	117.38	7.17	23.68	103.58	291066.2
Min.	0.42	0.01	48.92	2.49	5.26	-44.55	20811.9
Obs.	128	128	128	128	128	128	128

Note: Annual report of sample banks and NRB, results are drawn from EVIEWS-12.

As per Table 1, ROA is used as dependent variable to measure the profitability of the bank has a mean on of 1.67%, a maximum of 3.61% and a minimum of 0.42%. It means average Return on Assets (ROA) of commercial banks of Nepal lies between 0.42% and 3.61. Non-performing loan ratio (NPLR) has a mean on of 1.57%, a maximum of 8.99% and a minimum of 0.01 percent which means the NPLR of Nepalese Commercial Banks lies between 0.01% and 8.99%. Similarly, credit to deposit ratio (CDR) has a mean on of 82.65%, a maximum of 117.38% and a minimum of 48.92% which helps to evaluate liquidity of bank. It indicates that the CDR of Nepalese Commercial Banks lies between 48.92% and 117.38%. Similarly, interest rate spread (IRS) has a weighted mean on of 4.26%, a maximum of 7.17% and a minimum of 2.49% which shows between 2.49% and 7.17% IRS lies of commercial bank of Nepal. It indicates cost of financial intermediation for bank.

Furthermore, capital adequacy ratio (CAR) has mean 13.92%, a maximum of 23.68% and a minimum of 5.26% which indicates between 5.26% and 23.68% CAR lies of commercial bank of Nepal. At the same time, customer deposit growth (CDGR) has mean 19.56%, a maximum of 103.58% and a minimum of negative 44.55% which indicates between negative 44.55% and 103.58% CAR lies of commercial bank of Nepal. Likewise, total assets (TA) have mean Rs. 105968.1 in millions, a maximum of Rs. 291066.2 in millions and a minimum of Rs. 20811.9 in millions which indicates between Rs. 291066.2 and Rs. 20811.9 in millions CAR lies of commercial bank of Nepal.

## Inferential Statistics

### Correlation Analysis

Correlation analysis is a statistical tool to measure the strength of linear association between two or more than 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. Similarly, correlation coefficient 0 means there is no association between the variables.

**Table 2**  
**Pearson Correlation Analysis of ROA, NPLR, CDR, IRS, CAR, CDGR, and lnTA**

Variables	ROA	NPLR	CDR	IRS	CAR	CDGR	lnTA
ROA	1						
NPLR	0.1084	1					
CDR	-0.0773	0.2855**	1				
IRS	0.4607**	0.4633**	-0.0354	1			
CAR	0.2601**	0.1591	0.1075	0.2575**	1		
CDGR	-0.1824*	-0.0906	0.0353	-0.0597	-0.0554	1	
LNTA	0.0976	0.0831	0.1405	0.0973	0.2846**	-0.161	1

Note: Results are drawn from EVIEWS-12

\*. Correlation is significant at the 0.05 level (2-tailed).

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

The Table 2 shows that there is a significantly positive correlation between non-performing loan ratio (NPLR) and ROA i.e.  $r = 0.1081$  which means the higher the non-performing loan ratio (NPLR), the higher the ROA and vice-versa. Similarly, credit to deposit ratio (CDR) is negatively correlated with ROA i.e.  $r = -0.0773$  which denotes higher the CDR would be lower the ROA and vice-versa. Likewise, there is significantly positive correlation between interest rate spread (IRS) and bank profitability measured by ROA i.e.  $r = 0.4607$  which indicates higher the IRS would be higher the profitability of the bank. CAR is positively correlated with ROA at 1% level of significance. Similarly, CDGR is negatively correlated with ROA but at 5% level of significance with ROA. Likewise, TA is positively correlated with ROA.

### Regression Analysis

Regression analysis is a mathematical tool that uses to estimate or predict the cause-effect relationship between the two or more variables. There are three estimation models for the panel regression model, i.e., pooled ordinary least square (POLs), random effect model (REM), and fixed effect model (FEM). To determine the appropriate model for data analysis, a model diagnostic test statistic was used. The Hasman Test, Breusch Pagan LM Test, and Chow Test are employed to select an appropriate model.

**Table 3**  
**Hausman Test**

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.1372	6	0.2282

Note: Results are drawn from EVIEWS-12

H0: Random effect model is appropriate than fixed effect model, select RE ( $p > 0.05$ ).

H1: Fixed effect model is appropriate than random effect model, select FE ( $p < 0.05$ ).

The above Table 3 shows the p-value of Hausman Test which is more than 0.05 i.e. 0.2282 which means null hypothesis i.e. random effect model is accepted. After that, Breusch Pagan LM Test is applied to decide whether random effect or pooled ordinary least square model is appropriate. Null hypothesis suggests for POLs model and alternative hypothesis suggests for random effect model.

**Table 4**  
**Breusch Pagan LM Test for Model I**

	Cross-section	Time	Both
Breusch-Pagan	40.2406	13.5713	53.8119
	0.0000	0.0002	0.00000

Note: Results are drawn from EVIEWS-12

H0: POLS is better than random effect model, select POLS ( $p > 0.05$ ).

H1: Random effect model is better than POLS, select RE ( $p < 0.05$ )

The above Table No.4 shows that the p-value of test is less than 0.05 i.e. 0.00 which means null hypothesis is rejected and suggests to go with random effect model.

**Table 5**  
**Regression results of NPLR, CDR, IRS, CAR, DGR and TA on ROA**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NPLR	-0.0875	0.0357	-2.4522	0.0156
CDR	0.0037	0.0056	0.6604	0.5102
IRS	0.2458	0.0540	4.5547	0.0000
CAR	0.0421	0.0170	2.4734	0.0148
CDGR	-0.0042	0.0021	-1.9797	0.0500
LNTA	-0.1964	0.0845	-2.3242	0.0218
C	2.1938	0.9159	2.3952	0.0181
Weighted Statistics				
R-squared	0.2286			
Adjusted R-squared	0.1903		Durbin-Watson stat.	1.9064
F-statistic	5.9760			
Prob(F-statistic)	0.0000			
Unweighted Statistics				
R-squared	0.2045		Durbin-Watson stat.	1.1909

Note: Results are drawn from EVIEWS-12

The above Table No.5 represents the regression results of NPLR, CDR, IRS, CAR, CDGR and TA impact on ROA. The value of multiple determination of adjusted R square is 0.1903 which indicates the 19% change in ROA is explained by the NPLR, CDR, IRS, CAR, CDGR and TA. However, the remaining 81% changes in ROA is not explained by independent variables that means remaining 81% is explained by other variables, these are not included under the study. The independent variables NPLR, IRS, CAR, CDGR and TA have statistically significant on dependent variables ROA whereas CDR has statistically insignificant at 5% level of significance. Similarly, NPLR, CDGR and lnTA have negative effect on ROA whereas CDR, IRS, and CDR have positive effect on ROA. Durbin-Watson stat. 1.9064 indicates that there is no autocorrelation. On the other hand, the p-value of F-statistic is 0.0000 which is less than 5%. It indicates that the overall model is fitted.

The resulting regression equation was:

$$ROA = 2.19 + (-0.088) NPLR + (0.004) CDR + 0.246 IRS + 0.042 CAR + (-0.004) CDGR + (-0.196) \ln TA$$

As per the above equation, it shows that holding non-performing loan ratio (NPLR), credit to deposit ratio (CDR), interest rate spread (IRS), capital adequacy ratio (CAR), customer deposit growth rate (CDGR), and total assets (TA) as a constant zero, the return on assets (ROA) of commercial banks would be at 2.19. The regression coefficient of NPLR, CDR, IRS, CAR, CDGR and TA are -0.088, 0.004, 0.246, 0.042, -0.004, and -0.196, respectively which means one unit increases or decreases in the independent variable results in increases or decreases in the dependent variable regarding to the coefficient. Similarly, one unit increments in IRS lead 0.246 increments in ROA and one unit increments in CAR lead 0.042 increments in ROA and vice-versa. However, one unit increments in NPLR lead 0.088 unit decrements in ROA, one unit increments in CDR lead 0.004 unit decrements in ROA, one unit increments in CDGR lead 0.004 unit decrements in ROA and one unit increments in TA lead 0.196 decrement in ROA and vice-versa.

## Discussion

This study reveals that NPLR has positively correlated with profitability and similar findings exists in previous research Pokharel and Pokharel (2020) which indicates banks are taking more risk by lending to borrowers.

Similarly, there is significant relationship between interest rate spread (IRS), capital adequacy ratio (CAR), customer deposit growth rate (CDGR) and profitability of the banks. However, CDR has negatively correlated with profitability of bank and the similar findings are drawn by Shrestha and Niraula (2021), Bhattarai (2019), and Ramchandani and Jethwani (2017) which indicates high credit to deposit ratio lead to decrease in profitability. Similarly, IRS has positively correlated with profitability of bank and the similar findings are drawn by Shrestha and Niraula (2021) and Musah, et al. (2018) which indicates an increase in IRS lead to increase in bank's profit. Overall, the findings of this research provide valuable insights into the factors that contribute to the profitability of commercial banks in Nepal.

Similarly, NPLR has negative and statistically significant impact on ROA whereas IRS has positive and statistically significant impact on ROA. The negative and statistically significant result of NPLR and similar findings were drawn by Hamza (2017) suggests that banks need to maintain strong credit risk and loans and advances process for the purpose of keeping NPL as lower as possible which will enable to maintain high credit performance for profitability (ROA) of commercial banks. Similarly, the positive and statistically significant result of IRS on ROA and it has coincided with the previous study (Karki, 2020) suggests the bank should maintain the lending and deposit rates in optimum level to attract both depositors and borrowers. However, CDR has positive and statistically insignificant impact on ROA and Goet (2022) also found a similar result. The insignificant result of CDR indicates that credit to deposit ratio (CDR) could not be regarded as the influential variable for bank profitability. Likewise, capital adequacy ratio, customer deposit growth and banks size have also significant effect on profitability.

### Conclusion and Implications

Credit performance and interest spread have significant effect on commercial bank profitability in Nepal. Hence it can be concluded that strong credit performance and a wide interest spread can boost profitability, but banks must strike a balance between maintaining a healthy interest spread and providing affordable loans. Effective management of credit performance and interest spread is crucial for maximizing profitability. The study suggests that commercial banks, regulatory authorities, investors, and other stakeholders should develop suitable policies and take steps to ensure high-quality loans and appropriate interest rates. The study's findings can be used as a reference for future research and comparisons.

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