

Risk Reward: Unveiling Credit Risk and Performance of Commercial Banks in Nepal

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Abstract

Recent structural change, regulatory capital requirement related adjustment by Nepal Rastra bank, and rising assets quality concern of lending portfolio have shaped bank profitability. In this regard, there is great concern with credit management and performance of banks. Applying descriptive and causal research design and utilizing the annual reports data of ten commercial banks in Nepal for the fiscal year of 2076/77 to 2080/81 B.S., the aim of this study is to establish the dynamic relationship between credit risk and performance of commercial banks in Nepal. The study used panel data regression techniques. The appropriate model is selected on the basis of Redundant Fixed Effects Tests, Correlated Random Effects - Hausman Test and omitted Fixed Effect model. The findings of this study reveal that credit risk negatively impacts the financial performance of commercial banks in Nepal. Non-Performing Loans (NPL) and total Loan Loss Provisions (LLP) have a negative impact on both Return on Assets (ROA) and Return on Equity (ROE), implying that low-quality assets can pose serious risks to banks' financial performance. Likewise, Capital Adequacy Ratio (CAR) has a positive impact on the financial performance of the bank, implying that well-capitalized banks tend to achieve high performance levels. An increase in the Loan-to-Deposit Ratio (LDR) reduces ROA due to increased credit risk, and LLP has the most adverse effect on the profitability indicator ROE. Therefore, the study concludes that effective credit risk management is crucial for enhancing the financial performance of commercial banks in Nepal. The results provide valuable insights for bank management, policymakers, and regulators to formulate strategies that balance risk and return for sustainable banking performance.

Keywords: risk reward, credit risk, performance trends, commercial banks

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Introduction

Banks are essential element for present economy. A robust financial sector is essential for every country to achieve economic prosperity (Levine, 2005; Salami & Oluseyi, 2013). The internal and external factors, such as poor management, loose rules, and economic problems, could affect the vital role that banking sector performs (Taskinsoy, 2019). After accounting for the influence of different kinds of risks, credit risk is considered the primary risk that poses a danger to bank survival and financial stability (Velliscig et al., 2022). However, high non-performing loan is severing issue (Siddique et al., 2022). Banks which have bad management in managing credit risk leads to increase in their non-performing loans (Alexandri & Santoso, 2015). Credit risk management and management of non-performing loans have recently drawn more attention from regulators and commercial banks as a result of the global financial crisis. Credit risk defined by Basel (1999) as the potential for a debtor or counterparty to not carry out a contractually stipulated obligation in line with the parameters that were agreed upon. The nature of banks' operations exposes them to a high degree of credit risk, and the success of their financial performance depends on how successfully they manage this risk as well as any other risks they face (Giesecke, 2004).

Credit risk directly and indirectly affects a bank's profit, liquidity management, and capital adequacy. While effective management of this risk helps maintain a bank's financial health and safety, poor management can lead to long-term instability. According to the World Bank statistics of various regions, non-performing loan exists in almost all continents. However, South Asian countries' non-performing loans and credit risk are higher among all other region countries. As per Nepal Rastra Bank's Annual Report (2026), private sector credit from the Bank and Financial Institutions (BFIs) is Rs. 5,809.66 billion in the review period that ended in Mid-April 2026. The non-performing loan of financial sectors in Nepal has been a concern from the perspective of regulators and policy makers; it is also a major concern of banking industry. As of current fiscal year 2082/2083 B.S. (Mid-July 2026 AD), the non-performing loans of commercial bank reached to 5.26 percent. International Monetary Fund (IMF) emphasized that NPL ratio greater than 7 percent is an indicator of major banking distress.

Study results related to credit risk management and performance of bank showed that increase in non-performing loans and poor management of credit risk leads to decrease in banks performance. Study of Siddique et al. (2022) showed that non-performing loans, cost-efficiency ratios and liquidity ratio have significantly negatively related to financial performance measured in terms of return on assets and return on equity, while study result further showed that Capital Adequacy Ratio (CAR) and Average Lending Rate (ALR) have statistically significant positive relation to financial performance in the context of the Asian commercial banks. Likewise, study of (Poudel, 2012; Bhattarai, 2016; Kwashie et al., 2022) in the context of Nepal and Ghana showed that credit management and performance of bank and financial institutions is negatively related.

Credit risk management has become more and more important in recent years. It is an integral part of banks' overall risk management. Further, lack of credit risk management drives different operational obstacles and the performance of banks is distorted. Despite of having essentiality of research focusing on credit risk management and bank performance, little research has been conducted on the direct correlation between credit risk management including credit concentration and bank performance in Nepal. In this regard, this study focus on examining the effect of credit risk management on bank performance, covering the variables credit concentration, loan loss provision, non-performing loan, capital adequacy ratio, loan to deposit ratio and bank performance ROA and ROE. It is expected that this study will overcome this constraint and offer insightful information to stakeholders and bank regulatory agencies, strengthening the banking system as a whole.

Literature Review

The risk-return trade-off is a key investment principle that highlights the direct relationship between risk and potential returns. Higher returns usually come with increased risk, while safer investments offer lower returns. Markowitz (1952) formally formulated the theoretical basis of the risk return relationship by the Modern Portfolio Theory (MPT). Markowitz was able to illustrate that investors are able to create an optimal portfolio that generates the most expected return with a given amount of risk, which is the efficient frontier. Finally, Sharpe (1964) came up with the Capital Asset Pricing Model (CAPM) that further elaborated the reason why an expected return of an asset would be contingent on its systematic risk (beta). All these models focus on the fact that risk is a critical component of expected return.

The risk-return trade-off is especially relevant in the banking industry since most banks make income by means of lending. By lending out more money, the banks can get more interest income, and more profitability i.e., Return on Assets (ROA), and Return on Equity (ROE), can be observed. Nonetheless, aggressive lending practices have a potential to enhance

credit risk particularly when credit participants are unable to service loans, resulting in importation of Non-Performing Loans (NPLs).

Agency theory explains the relationship between agents and principals. An agent is entrusted by a principle to carry out specific financial or business operations on their behalf and to operate in their best interests, regardless of personal gain. According to Jensen and Meckling (1976), conflicts between managers (agents) and shareholders (principals) encourage excessive risk-taking. According to agency theory, managers (agents) and shareholders (principals) are asymmetrical, with managers having greater knowledge of internal data and the company's future prospects than shareholders and other stakeholders.

Empirical researches have examined focusing the association between credit risk management and the profitability of commercial banks. Successful credit risk administration is considered important for improving profitability and firm performance, maintaining asset quality, and ensuring the far-reaching sustainability of banking institutions.

A study conducted by Funso et al. (2012) have shown that credit risk has a significant effect on bank performance as indicated by ROA across a range of financial institutions. The reduction in the numbers of non-performing loans leads to increase in the profitability of about 6.2 percent and the corresponding decrease in the loan loss provision leads to a increase profitability by 0.65 percent. On the other hand, a 100 percent growth in total loans and advances results in a nine percent growth in profitability. It can be inferred from the study result that the credit risk management is crucial for bank and financial institutions. Hence, the risk mitigation strategies used by banks should be efficient and responsible. Likewise, Poudel (2012) asserts that the capital adequacy ratio, cost per loan assets and default rate exhibit a negative relationship with financial performance of a bank, with the most significant predictor being the default rate. It is important to maintain adequate capitalization and manage the default rates. Similarly, Kaaya and Pastory (2013) used regression analysis to assess the relationship between credit risk metrics and ROA of eleven Tanzanian banks. The study revealed that there is a negative correlation implying that banks might incur greater losses or reduced profits due to a rise in credit risk. Pradhan and Shah (2019), conversely, identified the various types of credit advances, their impact on loan quality, and recovery and NPAs policies. The importance of the amount of exposure, frequent performance appraisals, and effective monitoring systems was highlighted. The studies highlighted the need to manage credit risk by comprehending it to ensure financial stability.

The study by Gunathilaka et al. (2019) used the primary and secondary data analysis to determine how managing credit risks affect the performance of commercial banks in Sri Lanka. The study result showed that the independent variables: non-performing loans, loan loss provisions, and NPLs impact negatively on profitability, which implies that the better the bank manages the credit risk, the better its performance. Likewise, Abdikadir and Ali (2015)

found a strong correlation between credit risk management (i.e. risk identification, monitoring, and sanctions) and the performance of the bank in terms of ROA. Performance was enhanced by efficient credit risk management. Similarly, the study result of Sharma (2025) showed that the credit risk management, particularly in regard to NPA, and the bank performance (ROA) is strongly correlated. The conclusions of the study revealed that commercial banks in India have been doing better because of their ability to endure the losses they incurred through credit. There is a negative relationship between ROA and NPA ratio.

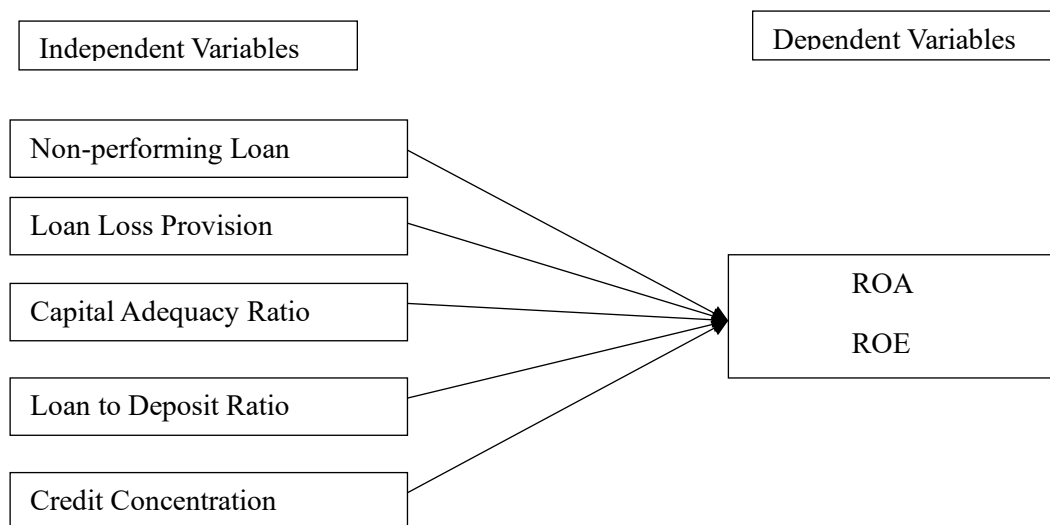
Bhattarai (2016) explored the impact of credit risk on the performance of Nepalese commercial banks through the descriptive and causal-comparative approaches. By analyzing the data of 14 commercial banks between 2010 and 2015, the findings showed that the NPL ratio adversely affected the profitability of the bank whereas the cost per loan asset had a positive influence. The size of bank had a positive impact on the profitability, whereas the amount of cash reserves and CAR had no significant influence. The research found out that there was negative relationship between profitability and credit risk indicators indicating inadequate credit risk management practices. In their empirical study, Kalwar and Shrestha (2024) investigated the impact of credit risk management on the profitability of commercial banks in Nepal on the basis of panel data of 28 banks (2011/2015). The independent variables were CAR, liquidity ratio, bank size, asset quality ratio, leverage ratio, NPL ratio; cash reserve ratio, coverage ratio, and female board members. ROE and ROA were dependent variables. Coverage ratio, CAR, and the size of banks had a positive influence on performance; NPL ratio, leverage ratio, and female board members had a negative effect on performance. Value of cash reserve, asset quality, and liquidity ratio was insignificant. Likewise, in the study, Poudel et al. (2024) employed the return on equity and return on assets to examine the relationship between credit, operational, and liquidity risk and profitability of Nepalese commercial banks. Using 26 banks (208 observations between 2013/14 and 2020/21) they determined that CAR was positively correlated with ROA and that NPL and LLP negatively impacted on ROE and ROA. Worse returns were associated with higher LDR, cost-to-income ratio, and leverage ratio.

Within the framework of Nepal, there is a little research that specifically investigates the connection between the management of credit risk and the financial performance of commercial banks. The majority of earlier research has been carried out on other emerging economies like Nigeria, Kenya, Ethiopia, Pakistan, and Ghana where the banking system, regulatory mechanisms, and the economic environment are quite different to Nepal. According to some researchers, credit risk, especially NPL and LLP, has a negative impact on the profitability (Kolapo et al., 2012), whereas others argue that credit risk indicators do not play the leading role in determining the profitability of banks (Kithinji, 2010). Even though some studies have been carried out in Nepal, e.g. Sharma (2025), Poudel (2012), and Bhattarai (2016), these are limited in their scope, usually concentrate on a specific group of variables,

and have inconsistent outcomes. Thus, more empirical studies based on the revised data and the effective analytical methods are required to obtain the full picture regarding the real effects of the credit risk on the profitability of Nepalese commercial banks.

Figure 1

Research Framework



Note. Adopted from Altman (1968); Merton (1974) and Mishkin (2018)

Description of Variables

Return on Assets (ROA)

ROA is a key indicator used to measure bank performance, reflecting how effectively a bank utilizes its assets to generate profit. It is obtained by dividing the net income by the total assets of the bank. It measures the profit earned per rupee of assets, indicating how efficient bank management uses its investment resources to generate profits (Naceur, 2003).

Return on Equity (ROE)

ROE is calculated by dividing the net income after taxes by the total equity capital. ROE provides insight into how well a bank is using its shareholders' funds to generate profits. Khrawish (2011) stated that ROE remains a critical indicator applied to measure bank's ability to generate profit. Hence, ROE is used as a measure of bank performance in this study.

Non-Performing Loans (NPL)

Choudhary and Jain (2021) stated non-performing loan as a default loan that is likely to be repaid late or not at all by the borrower is known as a non-performing loan (NPL).

Because they lower profitability, non-performing loans pose a serious threat to the banking industry. Although this argument is debatable, they are frequently accused of preventing banks from lending more to individuals and businesses, which slows economic growth. One of the most crucial measures of credit risk and financial stability is the non-performing loan ratio (NPL).

Loan Loss Provision (LLP)

Loan loss provisions are the sum of loan repayments that banks set aside to compensate for their losses from past-due or non-payment loans. The income statement displays it as a non-cash expense. Bank LLPs play a crucial role for banks strength and soundness. The bank supervisory body requires, banks to keep adequate LLPs to mitigate expected losses although there is no agreement among banks for what establishes ‘adequate’ loan loss provisioning (Ozili & Outa, 2017).

Capital Adequacy Ratio (CAR)

From the perspective of a regulator, this is the primary indicator of a bank’s financial health and is an independent variable for determining performance. The amount of capital that a bank or other financial institution must maintain in order to comply with its financial regulator's requirements is known as its capital requirement (capital adequacy). It is computed as the ratio of capital to the risk-weighted total of the bank's assets (Poudel, 2012).

Loan to Deposit Ratio (LDR)

The loan-to-deposit ratio (LDR) is a financial statistic that compares a bank's total loans provided to its total deposits. If the ratio is higher, a bank might be relying more on its deposits to finance loans. Profits would rise as a result, but there would be less money left over for withdrawals, reserve requirements, and unanticipated funding requirements. A higher LDR indicates that a larger portion of deposits is being used for loans, which may increase profitability but can also increase liquidity risk if the bank does not maintain sufficient liquid assets. Conversely, a lower LDR suggests that the bank maintains higher liquidity but may not be using its resources efficiently to generate income. Therefore, maintaining an optimal level of LDR is important for balancing liquidity and profitability in banking operations (Saunders & Cornett, 2019).

Credit Concentration

Direct, indirect, or contingent commitments that make up more than 25% of a bank's capital structure are referred to as a concentration of credit. It has been empirically demonstrated that credit concentration relates to greater risks and lower returns when the exposures of banks are heavily concentrated in few sectors or customers since banks become more exposed to sector-specific shocks and defaults (Hasan & Chokroborty, 2024).

Credit Concentration= Loans to specific sectors as% of total loans

III. Methods

This study used descriptive and causal research design. Considering 20 commercial banks operation in Nepal as a population, sample for the study are chosen using simple random sampling method. Only ten of 20 commercial banks are taken for the study because most of the banks have more or less same level of capital and fall under the category "A Class" as categorized by Nepal Rastra Bank. Therefore, ten commercial banks would be justifiable representation of all 20 commercial banks in Nepal. Five fiscal year data starting from fiscal year 2076/77 to 2080/81 B.S. (e.g. 2019/20 to 2023/24) were obtained for analysis purpose. The secondary data used in this study were obtained from publicly available account statements from commercial banks. As a result, pertinent financial and operational information for a sample of banks is gathered from their websites and annual reports for the years 2076–2081. Data were first compiled in Microsoft excel and extracted in Eviews-10 software was used for analysis purpose. Study used various financial ratios as a proxy of credit risk management and firm performance. The financial ratios used for the study are Credit Concentration (measures the loan provided on specific sectors out of total loan), Non-Performing Loan, Loan Loss Provision, Capital Adequacy Ratio, and Loan to Deposit Ratio, Return on Assets and Return on Equity, which were computed by using Microsoft Excel before extracted in EViews Software. Descriptive statistical tools like, percentage, mean, minimum values, maximum values, standard deviations are used in the study for analyzing the descriptive characteristics of variables under study. Likewise, study used correlation and regression analysis for the purpose of testing whether there exists statistical significant relationship among dependent variable firm performance and explanatory variables credit risk. The *Redundant Fixed Effects Test* and *Hausman Test* confirmed that the *Random Effect* model was the best fitted model for performing multiple regression analysis for both models (Sapkota, 2025).

The Models:

Model I

$$ROA_{it} = \alpha + \beta_1 NPL_{it} + \beta_2 CAR_{it} + \beta_3 LDR_{it} + \beta_4 LLP_{it} + \beta_5 CC_{it} + \mu_{it}$$

Model II

$$ROE_{it} = \alpha + \beta_1 NPL_{it} + \beta_2 CAR_{it} + \beta_3 LDR_{it} + \beta_4 LLP_{it} + \beta_5 CC_{it} + \mu_{it}$$

Where,

i = entity

NPL= Non-performing Loan

t = time

CAR= Capital Adequacy Ratio

α = Constant

LDR= Loan to Deposit Ratio

β = Beta coefficient

LLP=Loan Loss Provision

ROA = Return on Assets

CC=Credit Concentration

ROE = Return on Equity

IV. Results and Discussion

Descriptive Results

This section presents the descriptive characteristics of variables applied in the study. Various descriptive characteristics of variables like measures of central tendency include the mean, median, and mode, which describe the dataset's central value and measures of variability, such as range, variance, standard deviation, skewness, and kurtosis, assess the spread and distribution of the data were calculated by using SPSS software and the result of the analysis is reported in table 1.

Table 1*Overall Descriptive Results*

Statistics/ Variables	RO A	ROE	TPS	NPL	LLP	CAR	C_DR	AGRI_
Mean	1.08	9.70	31.84	2.37	0.97	13.22	83.37	14.10
Median	1.20	10.74	26.59	1.76	0.73	13.02	84.62	11.46
Maximum	1.86	19.26	70.55	5.96	3.15	19.29	93.65	37.57
Minimum	0.00	0.89	17.55	0.12	0.08	11.03	66.31	8.45
Std. Dev.	0.48	5.02	12.89	1.67	0.82	1.51	6.89	6.72
Skewness	-0.64	-0.32	1.56	0.51	1.04	1.72	-0.59	2.21
Kurtosis	2.59	2.16	4.33	1.90	2.97	7.15	2.56	6.82
Jarque-Bera	3.79	2.33	23.97	4.69	9.02	60.46	3.34	71.04
Probability	0.15	0.31	0.00	0.10	0.01	0.00	0.19	0.00
Sum	54.0		1592.0	118.6	48.3	660.8	4168.7	
	8	484.77	4	3	1	2	0	704.91
Sum Sq. Dev.	11.4	1233.8	8143.5	137.4	33.2	111.1	2324.5	2212.5
	1	7	3	6	5	0	6	3
Observations	50	50	50	50	50	50	50	50

Source: Researcher's Calculation

Table 1 depicts the descriptive statistics, which reveals high volatility across the eight variables over 50 observations. The return on assets of ten commercial bank ranges from a mean of 1.08 with the highest ever return on assets realized at 1.86 and lowest 0.00 indicating relative stability. return on equity (ROE) and total priority sector to show higher dispersion, with TPS showing a significant gap between its maximum 70.55 and minimum 17.55 values. Non-Performing Loans (NPL) and Loan Loss Provision (LLP) have means of 2.37 percent and 0.96 percent respectively, where the NPL's standard deviation 1.67 suggests moderate fluctuation in credit quality. The Capital Adequacy Ratio (CAR) remains durable with a mean of 13.21, well above regulatory requirements. The Credit to Deposit Ratio (CDR) shows high values with a mean of 83.37, indicating intensive lending activities, while Agricultural Lending (AGRI) shows a wide range from 8.45 to 37.57.

Inferential Statistics

Correlation Analysis of Variables

The correlation analysis assesses the relationship between Return on Assets (ROA), Return on Equity (ROE), and the independent variables. The correlation coefficient (r) indicates the strength and direction of these relationships, where higher values represent stronger correlations, and lower values reflect weaker associations. A positive correlation signifies a direct relationship, while a negative correlation suggests an inverse relationship. The analysis covers five years of data to ensure reliable outcomes.

Table 2

Correlation Analysis

Variables	ROA	ROE	TPS	NPL	LLP	CAR	C_DR	AGRI_
ROA	1							
ROE	0.7967**	1						
TPS	0.0902	-0.0591	1					
NPL	-0.6540**	-0.6273**	0.0262	1				
LLP	-0.5873**	-0.7443**	-0.0663	0.6253**	1			
CAR	0.5294**	0.2499	0.4846**	-0.2989*	-0.2867*	1		
C_DR	0.0658	0.0436	-0.2893*	-0.2698	0.1067	-0.1461	1	
AGRI_	0.1214	0.0111	0.7649**	0.0401	-0.1793	0.5420**	-0.1786	1

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

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

Source: Researcher's Calculation

Table 2 presents the result of correlation analysis among variables under study. correlation Return on Assets (ROA) shows a strong and positive correlation with Return on Equity (ROE) ($r = 0.7967$, $p < .01$), indicating that as asset efficiency improves, shareholder returns also increase significantly. Conversely, Non-Performing Loans (NPL) and Loan Loss Provision (LLP) exhibit strong negative correlations with ROA ($r = -0.6540$ and $r = -0.5873$ respectively, both $p < .01$), confirming that higher credit risk and bad loans severely impact bank profitability. Capital Adequacy Ratio (CAR) is positively correlated with ROA ($r = 0.5294$, $p < .01$), suggesting that better-capitalized banks tend to be more profitable. Additionally, Agricultural Lending (AGRI) shows a very strong positive correlation with Total

priority sector (TPS) ($r = 0.7649$, $p < .01$), while Credit to Deposit Ratio (CDR) shows a weak and statistically insignificant relationship with profitability markers like ROA and ROE. These results emphasize that credit quality (NPL) and capitalization (CAR) are primary drivers of financial performance in this dataset.

Regression Analysis

The regression analysis is conducted to assess the extent to which the dependent variables are affected by the specified independent variables. The analysis was employed multiple panel regression techniques, which includes Pooled Ordinary Least Squares (POLS), Fixed Effects Model (FEM), and the Random Effects Model (REM). The appropriate model was chosen on the basis of Redundant Fixed Effects Tests, Correlated Random Effects - Hausman Test, and the Omitted Random effect. The result of analysis has been conducted by using E-views software and the result of analysis is presented in this sector.

Table 3

Redundant Fixed Effects Test: Likelihood Ratio Test ROA

Effects Test	Test Statistic	d.f.	Prob.
Cross-section F	6.402000	(9,34)	0.0000
Cross-section Chi-square	49.563362	9	0.0000

Source: Researcher's Calculation

Table 3 shows that 'p' value of cross section 'F' and Chi-square is less than 0.05 level of significance. It indicates that Fixed effect model is appropriate than POLS.

Table 4

Correlated Random Effects - Hausman Test-ROA

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.755693	6	0.5755

Source: Researcher's Calculation

Table 4 shows the results of the Hausman Test. The p-value of the cross-section random is 0.5755, which is greater than the 0.05 level of significance. This indicates that there is no significant difference between the Fixed Effect Model and Random Effect Model. Therefore, the Random Effect Model is more appropriate for estimation.

Table 5*Random Effect Model- ROA*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TPS	-0.003805	0.004545	-0.837142	0.4071
NPL	-0.158751	0.036789	-4.315216	0.0001
LLP	-0.065160	0.080958	-0.804854	0.4253
CAR	0.109419	0.033612	3.255335	0.0022
C_DR	-0.015868	0.007317	-2.168702	0.0357
AGRI_	0.005657	0.015184	0.372527	0.7113
C	1.439451	0.894850	1.608595	0.1150
R-squared	0.734970	Mean dependent var		0.335309
Adjusted R-squared	0.697989	S.D. dependent var		0.401136
S.E. of regression	0.220446	Sum squared resid		2.089653
F-statistic	19.87433	Durbin-Watson stat		1.846321
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.534455	Mean dependent var		1.081600
Sum squared resid	5.314135	Durbin-Watson stat		0.726020

Source: Researcher's Calculation

Table 5 presents the results of the Random Effect Model evaluating the impact of various banking indicators on Return on Assets (ROA). Non-Performing Loans (NPL) show a significant negative impact on profitability ($\beta = -0.1587$, $p < .01$), indicating that as credit risk increases, the bank's ROA declines significantly. Similarly, the Credit to Deposit Ratio (CDR) also has a significant negative effect ($\beta = -0.0159$, $p < .01$), suggesting that excessive lending relative to deposits may pressure profitability. The Capital Adequacy Ratio (CAR) shows a strong positive and significant influence on ROA ($\beta = 0.1094$, $p < .01$), implying that banks with stronger capital bases perform better financially. Variables such as TPS, LLP, and AGRI were found to be statistically insignificant ($p > 0.05$). The model explains 73.5% of the variance in (ROA 0.735), and the significant F-statistic confirms the overall robustness of the model. The Durbin-Watson value of 1.846 indicates that there is no major concern regarding autocorrelation.

Table 6*Redundant Fixed Effect Test: Likelihood Ratio Test ROE*

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.141449	(9,34)	0.0073
Cross-section Chi-square	30.258401	9	0.0004

Source: Researcher's Calculation

Table 6 illustrates that 'p' value of the cross section 'F' and Chi-square is less than 0.05 level of significance. It signifies that Fixed effect model is appropriate than POLS.

Table 7*Correlated Random Effects - Hausman Test-ROE*

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	11.440543	6	0.0757

Source: Researcher's Calculation

Table 7 demonstrates that the results of the Hausman Test for ROE. The p - value of the cross-section random is 0.0757, which is greater than the 0.05 level of significance. This indicates that there is no statistically significant difference between the Fixed Effect Model and Random Effect Model. Therefore, the Random Effect Model is more appropriate for estimation.

Table 8*Random Effect Model-ROE*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TPS	-0.022162	0.054384	-0.407512	0.6857
NPL	-0.836953	0.425943	-1.964942	0.0559
LLP	-2.649557	0.872867	-3.035464	0.0041
CAR	0.422781	0.388321	1.088740	0.2823
C_DR	-0.054926	0.082490	-0.665854	0.5091
AGRI_	-0.049265	0.134775	-0.365539	0.7165
C	14.63315	9.690171	1.510103	0.1383
R-squared	0.540678	Mean dependent var		5.712763
Adjusted R-squared	0.476587	S.D. dependent var		4.068168
S.E. of regression	2.943210	Sum squared resid		372.4869
F-statistic	8.436044	Durbin-Watson stat		1.309079
Prob(F-statistic)	0.000005			
Unweighted Statistics				
R-squared	0.586143	Mean dependent var		9.695400
Sum squared residual	510.6460	Durbin-Watson stat		0.954898

Source: Researcher's Calculation

Table 8 shows the regression results evaluating the impact of several banking variables on Return on Equity (ROE). A major finding is that Loan Loss Provision (LLP) has a highly significant negative impact on ROE ($\beta = -2.6496$, $p < .01$), indicating that every unit increase in LLP leads to a substantial decrease in shareholder returns. Similarly, Non-Performing Loans (NPL) show a negative relationship ($\beta = -0.8370$, $p < .1$), which is marginally significant at the 10% level, confirming that poor credit quality hinders profitability. Capital Adequacy Ratio (CAR), show a positive but statistically insignificant influence ($p > .05$). Variables like TPS, CDR, and AGRI also do not show any significant impact on ROE in this model ($p > 0.05$). The Adjusted R-squared value of 0.4766 suggests that approximately 47.7% of the variance in ROE is explained by these predictors. The highly

significant F-statistic ($p < 0.01$) validates the overall model fit, though the Durbin-Watson statistic of 1.309 suggests a possibility of moderate positive autocorrelation.

All these results confirm that a major cause of bad financial performance of the Nepalese commercial banks is credit risk, especially non-performing credits and loan loss provisions, and that good capital adequacy supports returns on assets. Early identification of NPLs, sound provisioning, and a balanced lending policy should be among the main concerns of bank managers and regulators to protect ROA as well as ROE.

Discussion

The results provide confirmatory and conflicting evidence to the literature available. The significant adverse effect of Non-Performing Loans (NPL) on ROA ($\beta = -0.159$, $p = 0.01$) is in line with the previous research in Nepal (Poudel, 2012; Bhattarai, 2016) and in other developing markets (Kolapo et al., 2012) This proves the fact that the increasing loan defaults are a direct consequence of diminishing the efficiency of assets by decreasing interest revenues and raising the costs of provisioning. The fact that NPL has a marginally significant negative impact on ROE ($\beta = -0.837$, $p < .1$) also proves the argument that credit risk reduces shareholder returns, which is consistent with Sharma (2025) and Anwer et al. (2023).

Loan Loss Provisions (LLP) had a high and very significant influence on ROE ($\beta = -2.650$, $p = 0.01$), but had a negative and not significant influence on ROA. This deviation indicates that provisions as a direct deduction of net income influence equity returns more directly than asset returns a conclusion that can be repeated by Kolapo et al. (2012) and Poudel et al. (2024). The 0.625 correlation between NPL and LLP suggests that deterioration in loan quality is met by increment in provisions by banks, but the provisioning lag effect may dilute the effect of the provisioning on ROA.

The theoretical assumption that well-capitalized banks are more resilient and profitable was confirmed as Capital Adequacy Ratio (CAR) positively and significantly affected ROA ($\beta = 0.109$, $p < 0.01$) (Berger, 1995). CAR however did not have any statistically significant effect on ROE. Pradhan and Khadka (2017) explain that the returns of equity holders are affected by the leverage and dividend policies. However, the positive correlation between CAR and ROA indicates the regulatory significance of high capital buffers.

Loan-to-Deposit Ratio (LDR) was found to significantly impact ROA ($\beta = -0.016$, $p < 0.05$) with increased lending (high LDR) being a risk to credit and liquidity strain which consequently lowers asset returns. It is in line with Poudel et al. (2024) in Nepal and is opposite to the positive LDR-profitability association in some other settings (Gurung & Gurung, 2022). The negative value, albeit insignificant in ROE, suggests that although high LDR can increase interest earnings, it also increases the default risk, especially in economic recession periods.

The ratio of loans allocated to the agriculture sector (AGRI) was not statistically significant in both ROA and ROE. This could be due to the fact that, most of the sampled banks (except ADBL) have a comparatively low and stable agricultural exposure (approximately 10 to 12 percent of total loans). Also, agricultural credit in Nepal is frequently subsidized in terms of interest rates and government guarantee schemes and may help reduce credit risk. This result does not confirm the hypothesis that the increased sectoral concentration is necessarily detrimental to profitability taking the perspective that diversified portfolios do not necessarily lower returns when risk is properly controlled (Markowitz, 1952).

Conclusion and Implications

This study reveals that an increase in the total loan-to-deposit ratio (LDR) reduces ROA due to increased credit risk, and LLP has the most adverse effect on the profitability indicator ROE. Therefore, bank and financial institutions should focus on nonperforming loans monitoring, maintaining appropriate capital adequacy and reducing concentration of loan to enhance profitability. The management of credit risks is not only a compliance task due to regulatory requirement but is very necessary for banks in Nepal to stay profitable and alive in future too.

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