

**EFFECT OF NON-PERFORMING LOANS ON THE FINANCIAL PERFORMANCE OF NEPALESE COMMERCIAL BANKS**

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**Abstract**

This research has been conducted to show the effects of non-performing loans on the financial performance of commercial banks in Nepal. Both the macroeconomic variables and bank-specific variables are used in the study. Descriptive and analytical research design has been used to analyze and interpret the results. Secondary data has been collected from the annual reports of banks for bank-specific variables and macro-economic variables are collected from the economic survey. Five-year data was collected from the twenty commercial banks from 2015/16 to 2019/20. Banks are selected using the convenient sampling technique. Data are interpreted and analyzed using inferential (Correlation and Multiple Regression) statistics. The study takes two dependent variables (ROA and ROE) and five independent variables (CAR, CRR, Size, GDP, and Inflation). The findings show that there are statistically positive and significant effects of size and inflation on ROA and similar effects of cash reserve ratio and inflation on ROE. The result also shows that CRR and CAR have a negative but statistically significant effect on ROA and ROE. Other independent variables GDP and CAR have nominal effects on the financial performance of commercial banks in Nepal.

**Key Words:** Capital adequacy, Cash reserve, financial performance, ROA, ROE.

**Introduction**

In Nepal, the banking industry has reached a stage where it controls the financial sector. Banking industries play a major role in a country's contribution to the financial sector. It is an industry in which intermediaries have facilities for saving money and lending funds for investment to raise profit and offer financial services. Commercial banks play an important role in a country's economic development, and a well-functioning and profitable banking system is a prerequisite for the country's economic growth.

The financial system relates to the systematic and well-organized life of banks and non-bank financial institutions. Commercial banks are mainly interested in the acceptance of deposits and the expansion of credit. Banks are among the economy's most important financial institutions.

The quality of a bank's success is a function of how well it can serve its clients with the least amount of risk and the greatest amount of benefit. Non-performing loans granted by these banks are one of the risk factors. As a result, the problem of non-performing loans cannot be overstated. This study would look at how non-performing loans have impacted shareholder capital maximization, commercial bank

performance, and depositor savings, as well as how non-performing loans have resulted in the liquidation and seizure of many banks around the world.

The banking sector in Nepal has grown to the level that it is currently dominating the financial sector. A non-performing loan is deemed to be in default or on the edge of default. Many loans become non-performing within three months of default, although this will vary based on the contract conditions. When interest and principal payments are 90 days or more past due, a loan is deemed non-performing. Loans become non-performing because they are unable to be repaid within a given period set by statute.

This research aims to evaluate Nepalese financial institutions' non-performing loans and results and to make relevant recommendations to the regulatory body and concerned financial institutions for improving productivity by reducing the degree of non-performing loans.

## **Literature Review**

Mary et al., (2015) studied the impact of NPL on Dashen bank's profitability. Through funding various industries, bank loans play an important role in the growth of the economy. Non-performing loans, on the other hand, result in substantial losses for banks in particular and the country's economy in general. As a result, the research aimed to look at the effect of nonperforming loans (NPLs) on bank profitability due to both internal and external factors (Ethiopian inflation and GDP rate). To this end, the researcher has randomly chosen Dashen bank S.C. The data used in the research came from secondary sources and covered the years 1999/00 to 2013/14. Dashen Bank S.C annual reports, memos, loan policy and practice, NBE orders, and CSA were used to compile this information. In addition, using SPSS version 20 tools, descriptive statics, and a linear regression model are used to investigate the effect of NPLs. This analysis employs an explanatory quantitative test design to establish the cause-and-effect relationships between the study variables and ROA. The findings of this study are important because understanding the effects of NPLs will help management make effective loan decisions to deter NPLs from occurring. In addition, the report proposed that the bank concentrates on debt servicing to reduce the number of non-performing loans. Furthermore, loan officers can offer financial advice to borrowers about how to make the most use of their loans.

Christaria & Kurnia,(2016) analyzed the objectives to determine the impact of Capital Adequacy Ratio (CAR), Loan Deposit Ratio (LDR), Operational Efficiency proxies by Operational Expense to Operating Income Ratio (BOPO), and Non- Performing Loan (NPL) towards bank profitability proxies by Return on Assets (ROA). Purpose sampling was applied to gather samples of the banking sector that were listed on the Indonesia Stock Exchange from 2012 to throu2014. Multiple regression analysis was used to analyze data. The study found that the F test result showed that CAR, LDR, BOPO, and NPL simultaneously, had a significant impact on ROA. This means that the model could be used to predict bank profitability. It was also deduced that Operational Efficiency proxies by Operational Expense to Operating Income Ratio had a significant impact on banking profitability. Novel. The paper suggested that banks perform lending selectively and banks maintain the level of non-performing

loans to be low to manage the risks and to improve their profitability as a means of increasing public confidence level.

Bhattarai, (2017) examined non-performing loans (NPL) of financial institutions are considered as a significant issue in the context of Nepal for the last few decades. The paper aimed to identify the impact of macroeconomic variables (GDP, Inflation, and Real Effective Exchange Rate) and bank-specific variables (size, change in loan, real lending rate of interest, and share of the loan to total assets) on the non-performing loan of the commercial banks in Nepal. The study was conducted mainly with secondary sources. The data were collected for 26 commercial banks covering the period of 2002-2012 with 227 observations. The study found that macroeconomic variables such as the real effective exchange rate negatively impact non-performing loans. The impact of the GDP growth rate was found to be insignificant in this study. The one-year lagged inflation rate has a significant positive impact on non-performing loans. The banks that charge relatively higher real interest rates have higher non-performing loans, which is consistent with the findings of previous studies. The ownership dummy has a positive coefficient and is significant at the one percent level showing that if the bank is government owned the non-performing loan would be higher than that of the privately owned banks. As well, more lending in the previous years and current year reduces the non-performing loan since the coefficient of change in loan in current and previous years have a negative coefficient and is significant at a one percent level.

Dichevska et al., (2018) investigated conventional banking models, and the loan portfolio played a major part in the activities of the bank. The banks' results were largely determined by the consistency of their loan portfolios. The proportion of non-performing loans in the overall credit portfolio was the basic metric for credit portfolio efficiency. NPL loans were frequently a vector of other threats, such as liquidity risk and solvency, and increased the bank's risk profile. For the period 2010-2017, the study looked into the impact of the non-performing ratio on household financial results in the Republic of Macedonia's banking sector. The study looked at the relationship between the non-performing loan ratio on homes and profitability metrics such as the rate of return on assets, rate of return on equity, and capital adequacy. The non-performing loans ratio and the ratios of the return on equity and return on assets had a relatively strong, unfavorable correlation, according to the correlation data. According to regression analysis, rising the non-performing loan level hurts bank profitability.

Stephen Kingu et al.,( 2018) analyzed the impact of non-performing loans on banks' profitability using information asymmetry theory and the bad management hypothesis. This thesis used a causality analysis design and panel data from 16 Tanzanian commercial banks from 2007 to 2015. Descriptive statistics and multiple regression analysis prediction techniques were used in the research. Similarly, the Ordinary Least-Squares (OLS) regression technique was used, followed by the consideration of Fixed Effects (FE) and Random Effects (RE) assumptions. Non-performing loans are found to be adversely correlated with commercial bank profitability in Tanzania, according to the report. The findings support the knowledge

asymmetry principle as well as the poor management hypothesis. The study's results have analytical and managerial ramifications for professionals and politicians.

Ekinci & Poyraz, (2019) aimed to investigate how credit risks affect bank results. The dataset includes 26 commercial banks that are compared based on their ownership structure. Between 2005 and 2017, proxies such as Return on Asset (ROA) and Return on Equity (ROE) were used in Turkey. Secondary data was gathered from the Banks Association's annual report for financial performance metrics, and Non-Performing Loans (NPLs) were used as credit risk indicators. The consequences of the calculation. The data from the three panels were used to demonstrate that there was a negative association between credit risk and ROA as well as between credit risk and international banks' risks and ROE. The result was a comparison of banks based on their arrangement. Non-Performing Loans (NPLs) were used as credit risk indicators, while Return on Asset (ROA) and Return on Equity (ROE) were used as proxies for financial performance indices. The estimation results indicated that there was a correlation between credit risk management and deposit bank profitability in Turkey from the time to showed that credit risk and ROA, as well as credit risk and ROE, had a negative relationship. As a result, banks should place a greater emphasis on credit risk management, especially the control and monitoring of nonperforming loans. suggest that, during the time of performing loans, there was a connection between credit risk management and deposit bank profitability in Turkey. Managers should also pay more attention to new credit risk control strategies. Accordingly, banks should focus more on credit risk management, especially on the control and monitoring of non-performing loans. In addition, managers should focus more on modern credit risk management techniques.

Ozili, (2019) described the influence of financial development on non-performing loans using a global sample. The findings revealed that two financial development proxies, foreign bank presence, and financial intermediation, were positively associated with non-performing loans. Among the determinants of non-performing loans, bank efficiency, loan loss coverage ratio, competition, and banking system stability were inversely associated with NPLs while NPLs were positively associated with banking crises and bank concentration. In the regional analysis, NPLs were negatively associated with regulatory capital and bank liquidity, implying that banking sectors with greater regulatory capital and liquidity experience fewer NPLs

Kashyap et al., (2020) studied on the banking sector plays a critical role in the country's financial results and economic development, and the banking sector in India faces many problems and concerns related to non-performing assets. In today's world, NPAs are seen as a major problem. The study aimed to determine the amount of non-performing assets in India's banking sector and the effect of non-performing assets on bank profitability and financial efficiency. According to the report, public sector banks have been hit harder than private sector banks by non-performing assets (NPAs) in India, and the rising amount of NPAs hurts bank profitability.

Turgut, (2020) showed the impact of inflation and exchange rates on the financial performance of South African commercial banks was investigated. The study covered the four largest commercial banks in South Africa from 2003 to 2019, namely Standard Bank, Nedbank, Capitec Bank, and First Bank. Return on equity was used

as the dependent variable to measure financial performance, and inflation and exchange rate were used as the independent variables. The ARDL, FMOLS, and DOLS models were used to achieve the study's goal. The findings revealed a significant inverse relationship between inflation and return on equity, as well as a weak relationship between exchange rate and return on equity.

### Conceptual Framework

Following is the conceptual framework for the study:

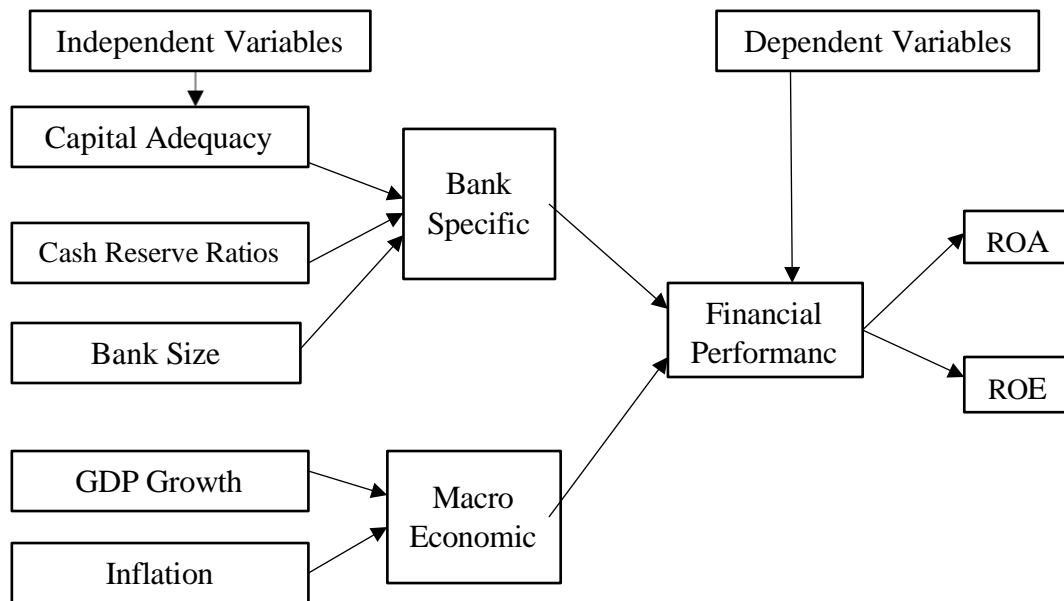


Figure 1. Conceptual Framework. (Nyarko-baasi, 2018)

### Research Methodology

This study is based on the casual comparative research design to find out the relationship between non - performing loans and the financial performance of Nepalese commercial banks. An annual report of concerned banks has been considered to collect the required data. Secondary data has been collected from 2016 to 2020. The Convenience sampling technique is used to select the sample. Twenty commercial banks are selected out of 27. Interpretation and analysis of data are based on inferential statistics using SPSS version 23 and Excel software.

### The Model

This study is based on the conceptual model adopted by Fawad and Taqadus (2013). The estimated models used in this study are presented as follows;

$$ROA = \beta_0 + \beta_1 CAR + \beta_2 CRR + \beta_3 SIZE + \beta_4 GDP + \beta_5 INF + e^t \dots \dots \dots VI$$

$$ROE = \beta_0 + \beta_1 CAR + \beta_2 CRR + \beta_3 SIZE + \beta_4 GDP + \beta_5 INF + e^t \dots \dots \dots VII$$

Where,

ROA = Return on Assets

ROE = Return on Equity

Size = Bank Size

INF = Inflation

GDP = Gross Domestic Product

CAR = Capital Adequacy Ratio

CRR = Cash Reserve Ratios

$e^t$  = Error terms

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$  and  $\beta_5$  = Slope of the coefficient.

## Analysis and Results

The correlation coefficients indicate the magnitude and orientation of the linear relationship between non-performing loan variables and bank financial performance measures of the Nepalese commercial banks in the study. Table 4.6 shows the relationship between the all variables under study.

Table 4.6: *Correlation Coefficients of Dependent and Independent Variables*

	ROA	ROE	CAR	CRR	LnTA	GDP	INF.
ROA	1						
ROE	0.658	1					
CAR	0.085	-0.291	1				
CRR	0.283	0.287	0.154	1			
LnTA	0.194	0.011	0.004	0.106	1		
GDP	0.149	-0.122	0.237	-0.015	0.093	1	
INF.	0.269	0.150	-0.033	-0.112	-0.151	0.419	1

Note: Annual Reports.

Table 4.6 describes the dependent variable ROA and ROE used in this study and the explanatory variable use CAR, CRR, TA, GDP, and Inflation. Correlation Metrix tries to explore the relationship between a dependent variable and an independent variable. To the dependent variable ROA, there are all independent variables CAR, CRR, TA, GDP, and Inflation (i.e., 0.085, 0.283, 0.194, 0.149, and 0.269) that have a positive relationship, which shows that all banks can use efficient use of their available assets turn into profit. This result is consistent with Yahaya et al., (2015). The result, On the other hand, ROE as the dependent variable, shows that CAR and GDP both are negative (i.e. -0.291 and -0.122) which means that higher CAR has a long-term effect on financial performance thus if CAR is high it hits negative effect on ROE this is also consistent with Yüksel et al., (2018). Similarly, GDP has a negative relation effect, which means that even though GDP increases but there does not take boost their income then still affects ROE. In other words, the remaining variables CRR, TA, and inflation have a positive (i.e., 0.287, 0.11, and 0.150) relationship but are not significant on ROE. It shows ROA and CRR have the highest positive effects the result is consistent with Fatima S. A. Lodhi S.,(2015).

## Regression Analysis

Table 4.7 explained the R Square statistic indicates how much of the variation in the dependent variable is explained by the independent variables. The model accounts for 46% of the variation in the dependent variable, ROA, in this case.

Table 4.7: *Regression Coefficient of Variables*

	Unstandardized				VIF
	B	Standard Error	t Stat	P-value	
Intercept	-6.911	3.168	-2.181	0.041	
CAR	0.026	0.022	1.170	0.555	1.096

CRR	-0.057	0.038	-1.494	0.003	1.017
LnTA	0.306	0.123	2.498	0.023	1.058
GDP	-0.009	0.022	-0.441	0.806	1.369
INF.	0.127	0.043	2.973	0.001	1.302
<b>R<sup>2</sup> = 0.46</b>	<b>Adj.R<sup>2</sup> = 0.41</b>	<b>F. Stat. = 5.25</b>	<b>F. Sig. = 0.000</b>	<b>DW = 0.73</b>	

Note: Dependent variable ROA

Table 4.7 also shows that F- statistics is 3.353 and the F Sig. for the regression analysis is 0.000, which is less than the level of significance of 0.05, as seen in table 4.7. This explains that the model is fit. As a result, it will rule out the null hypothesis that the independent and dependent variables have no association. As a consequence, the findings contradict the relationship between independent variables and ROA.

Table 4.7 also explains that there is a positive and significant relationship between the ROA with CRR, size, and inflation rate with p- values 0.003, 0.023, and 0.001 and there is a negative and insignificant relationship between the dependent variable ROA and independent variables CAR and GDP. It shows there is a minimal effect of NPLR and GDP on the return on assets. The VIF of all the variables ranges from 1.017 to 1.369 which means there is no multicollinearity. The results of this study are consistent with the study of Siddique, A., Masood, O., Javaria, K., & Huy, D. T. N. (2020).

Table 4.8: *Regression Coefficient of Variables*

	Coefficients	Standard Error	t Stat	P-value	VIF
Intercept	1.643	33.139	0.050	0.769	
CAR	-0.529	0.228	-2.319	0.002	1.096
CRR	0.614	0.402	-1.529	0.000	1.017
LnTA	0.750	1.282	0.585	0.778	1.058
GDP	-0.355	0.225	-1.579	0.151	1.369
INF.	0.890	0.448	1.986	0.018	1.302
<b>R<sup>2</sup> = 0.49</b>	<b>Adj.R<sup>2</sup> = 0.41</b>	<b>F. Stat. = 6.112</b>	<b>F. Sig. = 0.000</b>	<b>DW = 1.148</b>	

Note: Dependent variable ROE

$$ROE = 1.643 - 0.529CAR - 0.614CRR + 0.75SIZE - 0.355GDP + 0.89INF + e^t \dots II$$

As per Table, no 4.8, variable CAR has a negative and significant effect at 2 %, which describes that when the CAR of Nepalese banks increases then profit decreases. It means that in the Nepalese financial market even CAR is higher though still financial market cannot consistent with profitability. This result is consistent with the result of Ongore, V. O., & Kusa, G. B. (2013). Variable inflation has a positive and significant effect at 5%, which clarifies that in the Nepalese financial market inflation has high effects to hit in financial market profitability. The result is consistent with Turgut (2020). On the other hand, CRR has a positive and significant effect on profitability. Similarly, variables bank size has a positive but not significant effect on profitability. Variable GDP has a negative but not significant effect on profitability.

In this study R-square value is 0.49, which means that 49% variance in the dependent variable is explained by the independent variables. The adjusted R-square is 0.41 and it shows that 41% of sample variation exists on profitability, it describes

that bank independent variable affects the Nepalese financial market. The Durbin-Watson statistic is used to determine whether or not residuals are independent. The Durbin-Watson statistic has a set of values from 0 to 4. In general, if the Durbin-Watson statistic is about 2, the residuals are independent, and a range of 0.50 to 2.0 is appropriate. Durbin-Watson in this analysis is 1.148, which is less than 2 and inside the normal range and there is no autocorrelation between the independent variables. In table 4.8 VIF of all the variables are less than 10 and they are between 1.017 to 1.369, which means the variables have no multicollinearity.

### Areas of Future Research

Using selected variables, this study looked at both bank-specific and macroeconomic determinants of non-performing loans in Nepal's commercial banks. However, there are a lot of variables that were left out of this research. Future researchers may be interested in validating the findings and providing supplementary data for this study by adding other variables on the same banks, such as lending rate, ownership, unemployment rate, and so on. Similarly, a study on development banks might be needed. This study is analyzed and interpreted using only descriptive and inferential statistics but the future researcher can use other various tools and software to interpret and analyze the data. The main focus of this study is to look at the effect of non - performing loans on financial performance, the future study can be focused to find the effect of financial performance on non - performing loans.

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