International Journal of Finance and Commerce
www.commercejournals.com
Online ISSN: 2664-715X, Print ISSN: 2664-7141
Received: 04-03-2023, Accepted: 19-03-2023, Published: 04-04-2023
Volume 5, Issue 2, 2023, Page No. 43-50

Non-performing loan and profitability of commercial banks in Nepal

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Abstract
This study examines the impact of nonperforming loan on the profitability of Nepalese commercial banking sector. Further, other bank specific factors are also taken into consideration. More specifically, nonperforming loan to total loan, loan loss provision, total loan to deposit ratio, interest income to total loan, capital adequacy ratio and bank size are the associate variables, whereas, return on assets and return on equity have been taken as the proxies of bank's profitability. An unbalanced data set collected from secondary sources comprising 13 commercial banks of Nepal over the period of 2069/70 B.S to 2078/79 B.S have been employed for the purpose of analysis. Conclusions have been drawn using Pooled OLS model, random effect model and fixed effect model as a regression model after testing their appropriateness using Breusch-pagan test and Hausman test. According to the findings from the study it is observed that nonperforming loan ratio has negative and statistically significant impact on both return on asset and return on equity. Loan loss provision has negative but insignificant impact on banks profitability (ROA and ROE). Interest income to total loan ratio have positive and significant impact on ROA whereas insignificant impact on ROE however positive. Total loan to deposit ratio-have significant positive impact on ROA whereas negative impact on ROE. Bank size have negative and statistically significant impact on both ROA and ROE. CAR have insignificant impact on ROA whereas significant impact on ROE. From the study nonperforming loan ratio have been found as the major detractor of the Nepalese commercial bank's profitability since it carries the most negative coefficient which is highly significant as well. This implies that the burning issue of rise in NPL can be attributed to decline in the Nepalese bank's profits.

Keywords: nonperforming loan to total loan, loan loss provision, total loan to deposit ratio, interest income to total loan, capital adequacy ratio, bank size, return on assets and return on equity

Introduction

The success of every nation's economic growth is heavily relied upon the effectiveness of its financial system. Banks being a significant part of the country's overall financial system has an influencing role in the expansion of every nation's economy. Because of this, the financial health of a whole nation's banking system is of the utmost importance to the country's overall economic development. Loans that are not being repaid are now considered to be one of the most important factors in determining the overall financial health of the banking industry. The extent of a bank's non-performing loan portfolio is a crucial indication that may be used to evaluate the bank's overall financial health. Nonperforming loans are one of the primary factors that impede the development and stability of banks (Ramli *et al*., 2018).

The effect of NPL on the effectiveness may be broken down into three parts. To begin, a provision for losses incurred as a result of loans that have been defaulted must be established, which will place a limit on the ongoing lending ability of banks (Rajeev & Mahesh, 2010) [34]. Second, the anticipated flow of funds into the lender's account will decrease if the borrower fails to repay either the interest or the principle amount of the loan. In the end, the real loss that was incurred due to the defaulted loans would be deducted from the profits. When there is a significant level of nonperforming loans (NPL), it will initially have an effect on the individual commercial banks, but in the long term, it will destroy the whole nation's financial system as well as the economy.

Nepalese banking industry at present is going through a precariously risky situation because of often recurring loanable funds crunch as well as factors that ranges from irregularities and unethical changes and practices exhibited in the corporate governance by the banks and financial institutions in conducting their businesses and operations to ineffective regulation and directives imposed on them by the monetary authority. Apart from this, irresponsible lending by the banks have resulted in the loanable fund crisis as well as rise in the volume of bad loans. Consequently, Nepalese commercial banking industry is under continuous stress of the rising NPLs. The bad loans are draining banking profits persistently and thus, hampering the credibility of banks. A number of Nepalese banks and financial organizations have previously collapsed over the course of the last several years and are now going through the liquidation process (Sapkota, 2011) [38]. In order to keep their capital adequate and preserve their financial health, many businesses have already engaged in large-scale mergers and acquisitions, and many more are now in the process of doing so.

According to a number of studies, the collapse of the banking sector in Nepal was caused in part by high levels of non-performing assets; lending without distinguishing between markets, products, and the creditworthiness of borrowers; and excessive loan exposure to real estate markets (Sapkota, 2011) [38]. Both the Nepal bank limited and the Rastriya Banijya Bank came dangerously close to failing before the year 2001. The non-performing loan made up a higher portion than fifty percent of the total, which was the primary cause for the situation. As a result, the NRB,

with the assistance of the IMF and the World Bank, decided to undertake a reform program (Ahikary *et al*., 2007).

NPLs are one of the most significant difficulties facing the banking industry. As a result, nonperforming loans, also known as NPLs, go from being an issue on a national level to being a problem on a worldwide level through the domino effect (Tmava, 2019). This is exactly what occurred in 2008 with the global Crisis from NPLs. Therefore, if they are not addressed effectively, they may create issues not just in the financial sector but also in the real state sector, and they have the potential to completely halt the economy as a whole. The banking industry, both in developed economy and in developing ones, is facing a significant challenge in the form of non-performing loans (Ahmad *et al*. 2016) [2]. As a result, it is also essential to conduct an in-depth analysis on the current status of nonperforming loans and the influence that this situation has on the overall financial performance of the Nepalese economy.

The objectives of the study are

- To measure the relationship between Non-Performing Loan, Non-Performing Loan to Total Loan, Loan Loss Provision, Total Loan to Total Deposit Ratio, Interest Income to Total Loan, Capital Adequacy Ratio, Bank size, Return On Asset and Return On Equity
- To examine the effect of Non-Performing Loan, Non-Performing Loan to Total Loan, Loan Loss Provision, Total Loan to Total Deposit Ratio, Interest Income to Total Loan, Capital Adequacy Ratio and Bank size on Return On Asset and Return On Equity.

Review of Literature

Empirical Review

According to Sapkota (2011) [38], Nepal is going through a banking crisis, and some of the country's banks and financial institutions have already collapsed over the course of the last several years and some are now going through the liquidation process. According to the findings of various studies, the collapse of the banking sector in Nepal was caused in part by a high level of non-performing assets, lending without making proper evaluation about the markets, products, and the creditworthiness of borrowers, and an excessive level of loan exposure to real estate.

Shepherd (1972) [40] reported the growth in size of bank causes no economies of scale while Niresh and Velnampy (2014) [31] revealed the size of the bank has no significant effect on banks' profitability. Bourke (1989) [10] performed a groundbreaking study on the banking industry's profitability and found a favorable correlation between capital adequacy and profitability. It demonstrated that banks are more profitable when their capital adequacy is higher. According to Molyneux and Seth (1998) [30] larger banks were more successful in generating higher profits than smaller banks. In their study of the factors influencing bank performance in Greek, Kosmidou and Pasiouras (2007) found that banks with high capitalization and low cost of capital generated good returns on assets from 1990 to 2002.

Miller and Noulas (1997) [49] documented an inverse relation between profitability and credit risk. It demonstrates that anytime there is a negative connection between them, it means that there is a bigger risk associated with loans and a higher level of loan loss supplies, which interferes with a bank's ability to maximize profits.

Makri *et al*. (2014), during the time period of 2000-2008, identified the variables that had an effect on nonperforming loans in the Eurozone. The authors discovered a significant relationship between non-performing loans (NPLs) and a variety of macroeconomic indicators, such as unemployment and public debt, as well as particular banking parameters (Capital Adequacy Ratio, Non-Performing Loan from previous years and Return On Equity). In addition to this, they discovered a significant inverse relationship between NPLs and ROE.

Adebisi and Matthew (2015) [1] carried a study on the issue of "The Impact of Non-Performing Loans on Firm Profitability" using the sample banks of Nigeria as their primary data source. They made a conclusion that there is no connection between the Non-performing Loans (NPL) of Nigerian Banks and the Return on Assets (ROA) that these banks generate. This indicates that the level of non-performing loans (NPL) does not have an effect on the asset value of the companies; however, the level of non-performing loans does have an effect on the shareholders' ability to maximize their wealth. This is because the result presented above demonstrates that there is a relation between the NPL and return on equity for banks.

Bhattarai (2016) [8] came to the conclusion that there is a considerable association between the performance of banks and credit risk indicators. The percentage of loans that are not being repaid has a detrimental impact on the performance of the bank, whilst the cost of loan assets has a beneficial impact on the performance of the bank. The fact that the bank has a positive coefficient of cost per loan asset demonstrates that it is effective at disbursing loans to clients and generating a higher level of interest income as compared to the amount of money it spends on interest and its other operating expenses. It is generally agreed that the cost per loan asset is the most important variable to examine when trying to improve a bank's performance.

Mittal and Suneja (2017) [29] evaluated the impact of rising NPL in India and noted that the NPL has risen over the past ten years. It indicates that a significant amount of the bank's assets no longer produce money for the institution, which decreases the bank's profitability and limits its capacity to issue new loans. A negative economic shock is being caused by the fall in bank profitability, and deposits made by customers are also at danger.

Among many factors, nonperforming loan is attributed to the deterioration in the banks' stability and growth (Khairi *et al*., 2018). While examining the financial sector of Malaysia and Singapore, Karim, Chan, and Hassan (2010), in course of studying sample banks from Malaysia and Singapore, rise in the size of bad loans were found to be the detractor for the weak capital base of the banks. Therefore, the degree of impact of these problem loans can be addressed only by identifying the exact relation between these bad loans and profitability of the banks.

According to Ambuj Tiwari and Vipul Garg (2018) higher NPL ratios have been linked to a decline in investor, depositor, and lender confidence,. Additionally, it also results in inefficient circulation and mobilization of fund, which has a negative impact on the use of credit. The rising NPLs will lead to dramatically increase in loan interest rates. Thus, it will discourage the investors who are willing to borrow funds from the bank with the motive to build infrastructure, industrial projects, etc. It causes a lack of capital in the Indian markets that impacts on the expansion of the economy.

Research Gap

Upon reviewing the previous studies, it is found that there are studies (Makri *et al*. 2014; Adebisi and Mathew 2015) [1] that have contradicting results to one another regarding the NPL and profitability relationship. Thus, the exact generalization of the findings isn't still clear. Besides, in Nepalese context only few researchers have attempted to study on this particular topic, and only few have considered both state-owned and private commercial banks. Moreover, most of these studies are found conducted prior to outbreak of Covid 19 pandemic. But, the Nepalese banking sectors witnessed the rise in loan defaults during and aftermath of the pandemic. Thus, this study intends to address these mentioned research gaps.

Research Methodology

As a critical aspect of a research project, this section deals in achieving the quality and reliability of the findings with the application of the appropriate method. It basically includes the specific formats and procedures to identify, collect and analyze the research works. The descriptive and causal comparative research approach forms the foundation of this present study. Out of the total 26 Nepalese commercial banks, only 13 commercial banks, both private and state-owned, have been taken as the sample for the study. Samples have been selected using the judgmental sampling technique. The data used in this study have been collected from various secondary sources, and has covered the period of 2069/70 B.S to 2078/79 B.S. Arithmetic mean, Standard Deviation, Pearson's correlation analysis and multiple regression analysis techniques have been employed for the data analysis.

Model Specification

The following regression models have been used in the study to estimate the impact of nonperforming loan on the profitability of Nepalese commercial bank.

Model 1: $ROA_{it} = \alpha + \beta 1NPL_{it} + \beta 2NPLTL_{it} + \beta 3TLTDR_{it} + \beta 4LLP_{it} + \beta 5IITL_{it} + \beta 6CAR_{it} + \beta 7SIZE_{it} + e$

Model 2: $ROE_{it} = \alpha + \beta 1NPL_{it} + \beta 2NPLTL_{it} + \beta 3TLTDR_{it} + \beta 4LLP_{it} + \beta 5IITL_{it} + \beta 6CAR_{it} + \beta 7SIZE_{it} + e$

Where

NPL	=	Non-performing loan defined as ratio of non- performing loan to total loan of firm.
NPLTL	=	Ratio of loan loss provision to total loan of firm.
TLTDR	=	Ratio of total loan to total deposit of firm.
NPL	=	Non-Performing Loan
NPLTL	=	ratio of total non-performing loan to total loan
TLTDR	=	ratio of total loan and advances to total deposit
LLP	=	amount of loan loss provision set aside for potential loan default
IITL	=	ratio of interest income to total loan and advances
CAR	=	ratio of capital fund to risk weighted assets
BANK SIZE	=	Natural logarithm of the total assets of a bank
ROE	=	ratio of net income of a fund to shareholder's equity
ROA	=	ratio of net income to total assets
α	=	constant
e	=	Error term

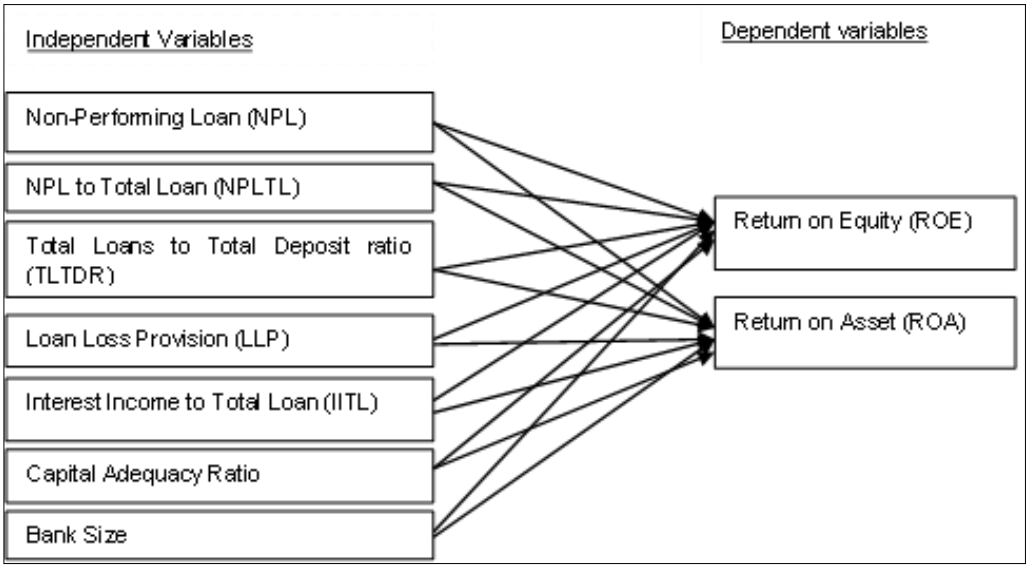
$\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$, $\beta 5$, $\beta 6$ and $\beta 7$ are the parameters of the independent variables.

Hypothesis

Following hypothesis have been proposed as per the findings from previous research in order to meet the research objectives.

H_{01}: There is negative impact of NPL on ROE.
H_{02}: There is negative impact of NPL on ROA.
H_{03}: There is negative impact of NPLTL on ROE.
H_{04}: There is negative impact of NPLTL on ROA.
H_{05}: There is negative impact of LLP on ROE.
H_{06}: There is negative impact of LLP on ROA.
H_{07}: There is positive impact of TLTDR on ROE.
H_{08}: There is positive impact of TLTDR on ROA.
H_{09}: There is positive impact of IITL on ROE.
H_{10}: There is positive impact of IITL on ROA.
H_{11}: There is positive impact of CAR on ROE.
H_{12}: There is positive impact of CAR on ROA.
H_{13}: There is positive impact of bank size on ROE.
H_{14}: There is positive impact of bank size and ROA.

Research Framework



Note: Adopted from Gnawali (2018) [15]; Gautam (2018)

Fig 1

Results and Analysis

Upon employing different financial and statistical tools of data analysis, following descriptive and inferential results have been derived.

Table 1: Descriptive Statistics

Variables	ROA	ROE	NPL	LLP	TLTDR	NPLTL	IITL	CAR	BANK_SIZE
Mean	1.68	18.29	1391.53	2145.04	0.8066	1.62	10.12	13.64	129788.2
Median	1.59	1.604	797	1614	0.8355	1.16	10.07	13.21	112710
Max	3.25	102.43	7521	7354	1.0081	5.85	13.93	24.13	416170
Min	0.49	5.31	64	309	0.4892	0.06	6.8	3.33	25126
Std. Dev	0.56	11.21	1433.764	1639.625	0.1085	0.0135	1.67	2.89	78686.68
Observation	129	129	129	129	129	129	129	129	129

Table 1 presents the summary of descriptive results of different variables. From the table it is observed that the average ROA has been maintained at 1.68 percent by the sample commercial banks over the study period. While the average ROE stands at 18.29 percent. Similarly, average NPL ratio has been maintained at 1.62 percent for the sample banks over the study period. Variation in respect of ROE is higher than that of ROA. Highest standard deviation has been recorded for bank size.

Inferential Statistics

Table 2: Pearson's Correlation Matrix

Correlation	ROA	ROE	NPL	NPLTL	LLP	IITL	CAR	TLTDR	SIZE
ROA	1								
ROE	0.334**	1							
NPL	0.0234	0.0166	1						
NPLTL	0.0664	0.2337	0.7029**	1					
LLP	-0.0689	-0.0427	0.9125	0.5109**	1				
IITL	0.1993*	-0.1485	0.0515	0.2324**	0.0423	1			
CAR	0.2492**	-0.4691**	0.0989	-0.1843*	0.1212	0.2108*	1		
TLTDR	-0.1213	-0.5282**	0.1177	-0.0404	0.2566**	0.2867**	0.2374**	1	
SIZE	-0.1722	-0.1380	0.5689**	-0.0276	0.7907**	-0.0671	0.1574	0.2661**	1

Note: **. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 2 shows the strength of relationship between the dependent and independent variables. According to the table, there exits very low degree positive correlation between Nonperforming loan and ROA that stood at 0.023359. However, the statistical relation between ROA and NPL is absurd. Similar relationship exist between the NPL and ROE which contradicts to the previous findings by other researchers. The relationship between NPL and ROE and ROA may be seen because, while the creditworthiness of the debtors has declined increasing the NPL, there is still a chance that they will be able to borrow money at higher interest rates, which will enhance the bank's total net income. There exists very insignificant relationship between the nonperforming loan ratio and ROA which depicts that nonperforming loan ratio has negligible impact on the return on total assets. However, there exists significant relationship

between the nonperforming loan ratio and ROE. There exists a negative relationship of loan loss provision with ROA and ROE which implies that with the level of increase in loan loss provision banks profitability decreases. Highest degree of relationship exist between ROE and TLTDR with r = -0.52824.

Regression Analysis

The goal of the regression analysis is to find the model that explains the relationship between the variables, and make predictions based on this model. Pooled Ordinary Least Square (OLS) Model, Random Effect Model (REM) and Fixed Effect Model (FEM) have been applied to find the best fit for regression analysis as the nature of the data is panel data. Breusch Pagan test and Hausman test have been carried to test the appropriateness of these model. E-Views 12 version software have been used to draw the below results.

Table 3: Regression Result when dependent variable is Return on Asset (FEM)

Variables	Coefficient	Std. Error	t-statistic	Prob.
NPL	1.74E-06	1.02E-06	1.708928	0.0903
LLP	-3.74E-07	1.18E-06	-0.318342	0.7508
CAR	0.011814	0.021328	0.553920	0.5808
TLTDR	0.013370	0.006481	2.062876	0.0415
IITL	0.092426	0.026794	3.449509	0.0008
NPLTL	-0.238911	0.083321	-2.867365	0.0050
BANK SIZE	-5.39E-08	1.67E-08	-3.232568	0.0016
C	0.004272	0.005220	0.818486	0.4149
R-Squared	0.564926			
Adjusted R- Squared	0.489088			
F-Statistics	7.449064			
Probability	0.000			
Durbin/Watson stat	1.521737			

Table 4: Regression Result when dependent variable is Return on Equity (FEM)

Variables	Coefficient	Std. Error	t-statistic	Prob.
NPL	-5.89E-05	7.77E-05	-0.757849	0.4502
LLP	-7.69E-06	8.95E-05	-0.085951	0.9317
CAR	-2.833423	1.623104	-1.745682	0.0837
TLTDR	-1.301050	0.493250	-2.637710	0.0096
IITL	1.877731	2.039069	0.920877	0.3591
NPLTL	-3.046410	6.340878	-0.480440	0.6319
BANK SIZE	-11.18E-06	1.27E-06	-0.932114	0.3533
C	-0.258057	0.397244	-0.649619	0.5173
R-Squared	0.569962			
Adjusted R- Squared	0.495001			
F-Statistics	7.603467			
Probability	0.000000			
Durbin/Watson stat	1.158437			

Interpretation of regression analysis

Referring to the statistical results depicted in the above table 3 and table 4, regression between dependent variables and independent variables have been generated. There is negative impact of loan loss provision, nonperforming loan to total loan ratio and bank size on the ROA of the banks. Whereas, there is positive impact of nonperforming loan, capital adequacy ratio, total loan to total deposit ratio and interest income to total loan ratio on the ROA of the banks. Among all the associated variables, total loan to deposit ratio, interest income to total loan ratio, nonperforming loan to total loan ratio and bank size have significant impact on the ROA since the p-value for all these variables are less than significant 5 percent level. The finding of loan to deposit ratio having significant positive effect on ROA aligns with the findings of Pradhan (2016) and Gnawali (2018) [15] who found similar result pertaining to the relation between loan to deposit ratio and return on assets for the Nepalese commercial banks. The findings of relation between nonperforming loan and return on assets contradicts with the findings from the previous studies which documented negative relation between these two variables. However, the statistical result in the study indicates insignificant impact of NPL on the return on assets of Nepalese commercial banks meaning the return from the assets are not subjected to the level of NPLs. The impact of LLP is found negative with return on assets similar to the hypothesis but statistically insignificant with very low negative coefficient (i.e. -0.0000000374) meaning higher provision for loan loss will lead to decline in return on assets. This result is consistent with the findings of Ahmed and Ariff (2014) who concluded the negative and statistically significant factor influencing banks of Pakistan. Whereas, it does not align with the conclusion drawn by

Gnawali (2018) [15] in context of Nepalese government and private banks. Significant and highly negative coefficient of bank size implies that Nepalese commercial banks with larger assets size are more prone to lower return on assets. This may be subjected to various circumstances such as complicated bureaucracy practices in the large banks which makes them inefficient in taking prompt decision in tackling the changes in the economy that eventually results in low profit. The finding is consistent with the finding of Alfhadi (2021) however insignificant for Kuwaiti banks.

Referring to the impact that capital adequacy ratio have on the ROA, the finding indicates the positive impact on ROA but with low coefficient. The finding aligns with the finding of Sayilgan and Yildirim (2009) [39], Asikhia & Sokefun (2013) [7] and Gnawali (2018) [15]. Banks that are able to maintain high level of adequacy ratio have advantage of standing strong against unforeseen losses leading them to achieve more stable and efficiency with respect to ROA. Also, a bank with sound capital base need not rely heavily on external sources for funding thereby decreasing the burden for interest payment. There is positive relation between interest income to total loan ratio and return on assets as expected in the study.

Referring to the regression results in the table 4 relation between ROE and the associated variable have been derived. There is negative impact of NPLs on the ROE of the Nepalese commercial banks which is consistent to the proposed hypothesis but with low negative coefficient. Similarly, LLP, CAR, TLTDR, NPLTL and Bank size have negative impact on the return on equity of the Nepalese commercial banks with high coefficient. The relation between capital adequacy ratio and ROE is negative which align with the findings of Santos (2000) [37] and Onoalapo and Olufemi (2012). There is positive impact of interest income to total loan on the return on equity of Nepalese commercial banks with high positive coefficient. This implies that major earning of the Nepalese commercial banks is accounted to the interest income. There is significant negative relation between nonperforming loan ratio and return on equity with very high coefficient. This depicts that the Nepalese commercial banks are exposed to more credit default risk that eventually lowers the return on equity. The outcome is consistent to that of Boyd and De Nicolo (2005) [11], Epure and Lafuente (2015), Bodla and Verma (2006).

The regression model 1 and model 2 proposed in the study to ascertain the impact of selected variables on ROA and ROE have p-values less than 5 percent significant level. Therefore, the models fit best with the data and justify the association between dependent and independent variables. However, R-square value of both the models were almost 57 percent. Therefore, only 57 percent of the impact on the profitability of the commercial banks can be attributed to these variables and the rest is attributed to other variables that are not considered in the study. From the regression result and the p value, H1, H3, H4, H5, H6, H8, H9, H10, H12 have been accepted whereas hypothesis H2, H7, H11, H13 and H14 were rejected.

Discussion

The main purpose of the study was to examine the impact of the selected independent variables on the profitability of Nepalese commercial banks proposing NPL as the main determining factor. The study result shows the significant impact of NPLs on the return on equity of the Nepalese commercial banks whereas it has very insignificant impact on the return on total assets of these banks. The negative impact of NPLs on ROE align with the findings of Gnawali (2018) [15], Pant (2018) [32] who conducted the study on impact of NPLs on profitability of commercial banks in Nepal. The positive relation between NPLs and the return on assets is very absurd as it contradicts to the findings of the previous researchers like Claudine (2008) [13], Kargi (2011) [18] and Selvaraj *et al*., (2015), who found the negative impact of NPLs on the return on assets. However, the result is similar to the findings of Li and Zou (2014) [28] and Alshatti (2015), where they have found the positive effect of nonperforming loan on the financial performance of banks.

The finding shows that CAR positively impacts the ROA whereas, it has negative impact on the ROE. However, the relation in both cases is statistically insignificant which implies that capital adequacy has very insignificant impact on the profitability of Nepalese commercial banks. It is evident from the finding of Silaban (2017) [41] and Soares & Yunanto (2018) [46] who documented that CAR has no effect on profitability.

The results derived from the regression analysis shows that the coefficient of non-performing loan ratio is negative and statistically significant for both ROA and ROE. This implies that non-performing loan ratio is the major factors for reduction in the profitability of Nepalese commercial banks. The finding is consistent with the hypothesis that nonperforming loan ratio has negative relationship with bank profitability. The result matches to that of Felix and Claudine (2008) [13], Kargi (2011) [18], Kodithuwakku (2015) [20], and Bhattrai (2014) where they documented negative effect of NPL ratio on bank profitability.

As expected, the result from the study depicts that loan loss provision have negative coefficient to the profitability (as measured by ROA and ROE) of Nepalese banks which implies that higher provisioning for loan loss decline the profitability of the bank. This finding is consistent with the finding of Aziz *et al*. (2014) who studied the impact of loan loss provision on bank profitability in Pakistan. Similar is the result of Alhadab & Alsahawneh (2014) [4] who had studied the impact of loan loss provision on the profitability of commercial banks in Jordan.

The finding reveals that loan to deposit ratio has positive impact on ROA of Nepalese commercial banks which is statistically significant. The finding aligns with the findings of Rengasamy, D. (2014) [36], Pradhan (2016), Anggari and Dana (2018) and Gnawali (2018) [15]. On the contrary, the finding shows the negative and statistically significant impact of total loan to deposit ratio on the return on equity of Nepalese commercial banks. This finding is consistent to Pant (2018) [32].

There exist significant positive impact of interest income to total loan ratio on return on assets and similar with return on equity. This implies that interest income to total loan is a highly influential factor for determining Nepalese commercial bank's profitability. This finding is similar to the finding of Anbar and Alper (2011) who had conducted empirical study on bank specific and macroeconomic determinants of profitability of commercial banks in Turkey. This is also similar to the finding of Das and Uppal (2020) from the study "Nonperforming loans and profitability in Indian banks: an empirical analysis".

Contrary to the hypothesis, there is a negative impact of bank size on bank's profitability (ROA and ROE). It indicates that large banks are likely get exposed to greater risk due to their size and complexity, face intense competition and higher operating cost that would have a negative influence on the profitability of Nepalese commercial banks. The negative relation of bank size with profitability measured by ROA and ROE is in accordance with (Spathis *et al*., 2002; Kosmidou, 2008; Hassan and Bashir 2003; Alfhadi, 2021) who found negative association between size and profitability of banks. However, the result is contradict to the (Molyneux and Seth, 1998; Staikouras and Wood, 2004; Smaoui and Salah, 2012) [30], who found that bank with lager asset size tend to achieve higher profit.

Conclusion and Implications

The Nepalese banking sector is facing challenges due to various factors such as ineffective regulation, unethical practices, imprudent lending, and rising nonperforming loans. The study found that the profitability of the commercial banks in Nepal is influenced by various factors including the nonperforming loan ratio, loan-to-deposit ratio, and bank size. To address the issue of nonperforming loans, the Nepalese commercial banks need to adhere to the prevailing NRB Directive and the Basel III Accord when granting loans and advances to the borrowers. Adhering to these regulations will require a robust strategy for mitigating credit risk and ultimately lead to an increase in bank profitability.

Public-owned commercial banks in Nepal have higher nonperforming loan ratios compared to other commercial banks, and they must follow proper lending guidelines, evaluate borrower's profiles, diversify their loan portfolios, and employ effective credit risk assessment. Banks should also work to recover funds from nonperforming loans, maintain a healthy credit-to-deposit ratio, and not rely solely on interest income for profitability. This research provides useful insights into the impact of nonperforming loans on the profitability of Nepalese banks, but it also has limitations, such as time constraints and limited data. Further research is necessary to provide a more accurate and realistic understanding of this topic, taking into consideration factors such as mergers and acquisitions between banks.

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