Determinants of Non-Performing Loans of Public Commercial Banks

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Abstract

The study aimed to examine the effect of profitability on non-performing loans of the Nepalese Commercial Banks. To meet the study's objectives, three public commercial banks' non-performing loans (NPL) were analyzed using a research methodology that included descriptive and causal comparison methods. The study used a purposive sampling design to select three public commercial banks from 21 populations and used secondary data for the fiscal years 2012/13 to 2021/22. As an alternative data collection technique, the study has 30 observations from the population. This research indicates that remittance and return on equity are significantly associated with non-performing loans. Likewise, remittances negatively influence the NPL of public banks in Nepal, whereas ROE has a favorable effect. NPL was unaffected by GDP, inflation, or ROA to any substantial degree. Researching foreign direct investment and the balance of payments is recommended. Financial institutions should refrain from distributing further credit if they operate under a higher NPL.

Keywords: *Bank Performance, Inflation, Macro Economics, Profitability, Remittance*

Introduction

The banking sector and the non-banking sector are both considered to be a part of the Nepalese financial industry. Over the past ten years, Nepal has seen an explosion in financial institutions opening their doors for business. As Nepal's present legislative framework and institutional structure are unfavorable to the growth of the entire economic and private sectors, there is an urgent need for reformation in both areas. According to Fakhrunnas et al. (2022), the pandemic has substantially influenced the real economy, notably in the tourism and transportation sectors. According to Erdas and Ezanoglu (2022), the banking industry is critical to the health of the economy and its prosperity. Non-performing loans, often NPLs, directly influence how well the banking sector in developing nations handles financial mediation. Foglia (2022) investigated whether or not there is a correlation between the growth in the number of loans deemed to be in default and the dependence of those loans on the economy. Even though the growth rate of total bank lending slowed during the COVID-19 crisis, the percentage of non-performing loans held by banks increased dramatically. During the financial crisis, financial institutions with access to superior capital can better control their non-performing loan ratios. According to Hallunovi and Berdo (2018), non-performing loans indicate a commercial bank's ability to deal with its risk and capital growth, revealing the institution's level of competitiveness and measuring the quality of its management.

The gross domestic product (GDP) will be positively or negatively impacted, depending on the business cycle. A company is said to be profitable if its revenues exceed its related costs at the end of the accounting period. Since the turn of the century, there has been a significant increase in the number of financial institutions operating in Nepal (Shrestha, 2004). Because the possibility of making profits encourages business owners to take risks and invest in a company, the primary function of profits is to compensate owners for the risks they take when investing in a company. The majority of a bank's profit comes from the fees it charges for the provision of its services and the interest it generates on the assets it manages. The interest payments made on company obligations are the majority of its expenses. Bhattarai (2016) also aimed to establish that there is an issue with NPLs at banks and offered research indicating that macroeconomic variables are a contributor to NPLs. According to the estimated ordinary least square (OLS) regression model, bank-specific characteristics such as ROA, LTD, and CAR and macroeconomic factors such as GDP substantially influence the amount of non-performing loans held by Nepalese commercial banks.

Additionally, macroeconomic factors like GDP growth and inflation affect NPLs. The results were consistent when subdividing the samples, confirming their reliability. The findings indicate that banks, regulatory bodies, and other stakeholders have made initiatives to reduce NPLs. It also created a specialty in wholesale and retail banking activities. New financial firms may join the market quickly. Financial institutions lend to economically disadvantaged sectors. If accepted, they must return the principal and interest on time. Loans aren't always repaid per the punishment or before the agreed-upon payback time. Loans and securities are a bank's most valuable assets. However, a bank's most essential liabilities are its deposits and the money it borrows or buys on the money market. Thus, this study examines how non-performing loans affect commercial bank profitability in Nepal. The study is based on the Agriculture Development Bank, Nepal Bank Limited, and Rastriya Banijya Bank Limited.

The biggest obstacles to lowering non-performing loans are how the institution assesses its profitability, and why it must handle in Nepal. These show that non-performing loans have many faces. Consequently, this subject remains one of corporate finance's most divisive. The study examined the effects of non-performing loans on numerous macroeconomic factors and bank-specific characteristics concerning a selection of commercial banks.

The following are the particular objectives of the study:

(i)   To examine the relationship between gross domestic products, inflation, and remittance with non-performing loans of commercial banks.

(ii)   To evaluate the impact of profitability on non-performing loans of commercial banks.

This study examines how Nepalese commercial banks' impacts non-performing loan. Financial organizations concentrate on lending. It significantly impacts corporate profitability and reputation. Loan management is the biggest worry. The study is notable since the financial institution has substantial non-performing loans (NPL) owing to inadequate management and the economy.

Literature Review

Researchers concluded that a lower rate of growth in the gross domestic product (GDP) harms the number of problem loans, that the size of the bank has a negative correlation with the number of problem loans, and that the number of problem loans has a positive correlation with loan growth, collateral loans, net interest margin, and market power. According to Mohaddes et al. (2017), reliable empirical data suggests a negative association between real GDP growth and non-performing loans (NPLs). According to the study, a significant positive GDP growth rate almost always increases income. This is because the nation's gross domestic product enhances the borrowers' loan servicing capacities, leading to fewer non-performing loans (NPLs). Conversely, non-performing loans and NPLs are predicted to increase if the economy experiences a slowdown (due to weak GDP growth).

The sale of non-performing loans (NPLs) is not an appealing option for banks since the prices at which loans often sell are much lower than their actual or fair values. The bid-ask spread, also known as the value a bank loses when selling a loan to outsiders, must thus be reduced for a policy proposal that suggests a

beneficial role for loan sales (Kasinger et al., 2021). Panta (2018), discovered no correlation between NPL and macroeconomic indicators. According to Laeven and Valencia (2018), variations in the percentage of non-performing loans may be explained by the macroeconomic factors that were previously discussed. According to Koju et al. (2018), the fundamental reason for high NPLs in Nepal is sluggish economic development. Ciukaj and Kil (2020), the non-performing loan ratio is the percentage of a bank's loan portfolio comprised of non-performing loans compared to the total amount of loans still due.

On the other hand, commercial banks will need to charge a more significant risk premium, resulting in higher INFs and interest payments (Shonhadji, 2020). Bonfim et al. (2020) pointed out that a solution to this issue may be found if existing loan values are evaluated realistically. According to Singh et al. (2021), ROA, Bank Size, GDP, and Inflation, all substantially influence NPL; however, CAR does not significantly influence the NPL of banks. In other words, GDP on NPL is shown to have a positive and substantial effect in this research, although most studies demonstrate that the product is harmful.

It illustrates that when GDP growth grows, there is a considerable increase in the growth of Nepalese banks, even if there are no significant changes in income growth. Petkovsk et al. (2021) discovered that among the macroeconomic factors, GDP growth, and domestic private-sector lending considerably negatively influenced non-performing loans (NPLs). Still, public debt and unemployment had a positive effect. This study indicated that out of the bank-specific characteristics, individual credit growth displays statistically significant and unfavorable associations with NPLs in all three models (fixed effects, difference, and system).

Rahadian and Permana (2021), indicated that NPL has a negative and non-significant effect on CAR. ROA approves insignificant influences towards CAR, while ROE is responsible for adverse and negligible effects. Additionally, there are positive and significant impacts that LDR has on CAR as a result of its products. According to Msomi (2022), the success of banks is not only on their capacity to reach the capital adequacy ratio but also on their ability to ensure that loans are subjected to scrutiny before being distributed to beneficiaries. Kwashie et al. (2022), discovered that the monetary policy rate negatively influences both measures of financial performance, even though this impact is minor for the value-added economic measure. On the other hand, researchers discovered that other macroeconomic indicators, such as the growth of GDP and broad money supply, as well as the market interest rate, did not have any bearing on the level of credit risk in the Nepalese banking sector.

However, there is a sample gap with the previous study and some evidence and knowledge gaps with the literature earlier. The last work research and their measurement tools were beneficial for this research work; however, there is a sample gap with the previous study. This research's primary objective is to determine whether or not non-performing loans have an impact, and a secondary aim is to investigate the variables that have a bearing on non-performing loans throughout the study period. This research investigated the link between non-performing loan factors as a dependent factor and the independent components. In this study, the independent variables were gross domestic products, inflation, remittance, return on equity, and return on assets and the dependent variable is non-performing loan. The following conceptual framework was employed for this study:
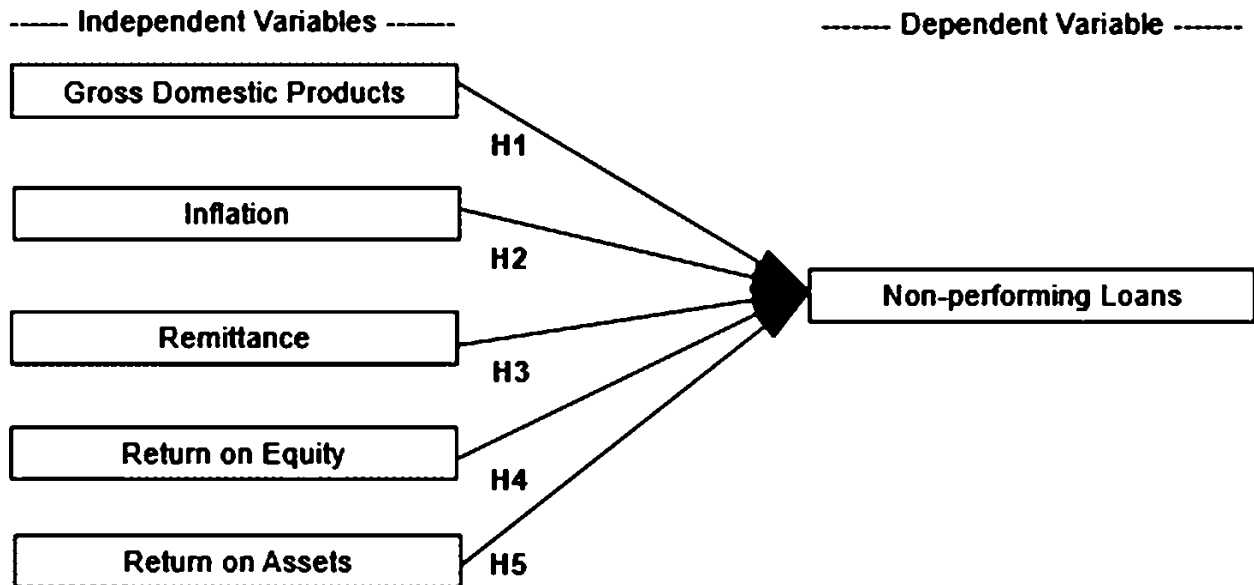
------ Independent Variables ------　　　　　**------ Dependent Variable ------**

| Gross Domestic Products |

H1

| Inflation |

H2

| Remittance |

H3

| Return on Equity |

H4

| Return on Assets | H5

| Non-performing Loans |

Figure 1 Research Framework

The study hypotheses:
Hypothesis 1:　*There is a significant relationship between gross domestic product and non-performing loans.*
Hypothesis 2:　*There is a significant relationship between inflation and non-performing loan.*
Hypothesis 3:　*There is a significant relationship between remittance and non-performing loans.*
Hypothesis 4:　*There is a significant relationship between return on equity and non-performing loans.*
Hypothesis 5:　*There is a significant relationship between return on assets and non-performing loans.*

Methodology

Research Design
Descriptive and causal-comparative research designs are employed to achieve the study's purpose. This study examines how non-performing loans affect Nepalese commercial banks by analyzing predictors. It then makes relevant suggestions based on its findings and judgments. This study examines the relationship between non-performing loan variables and the dependent and independent factors. Time series data from annual reports from 2012/13 to 2021/22 is used for this research.

Population and Sample
The present research uses a sampling method that is not based on probability but has used purposive sampling method. All the commercial banks operating their function in Nepal were the population of the study. Samples were taken from ADBL, NBL, and RBBL. This research includes participation from various banking institutions, such as commercial banks, government banks, and joint venture banks. The obtained data are analyzed using descriptive statistics, correlation, and regressions to determine findings.

Nature and Sources of Data
Secondary sources provide the information. Financial reports of publicly listed companies, publications (published and unpublished), research journals, business and financial media, and other magazines and corporate journals provided data. Since public data is accessible, the study used relevant financial performance statistics. In this study, financial reports and other important data from listed financial institutions during a ten-year period (from 2012/13 to 2021/22) are taken into account.

Methods of Analysis

This investigation was carried out primarily using financial and statistical instruments and methods. This investigation has used various financial techniques to investigate the factors that are predictors of the non-performing loan ratio, which is computed as the quantity of non-performing loans divided by the total amount of outstanding loans. The following financial ratios are used to gauge the banks' ability to function as independent variables:

$$\text{Return on Assets} = \frac{Net\ Profit\ after\ Tax\ or\ Net\ Income}{Total\ Assets}$$

$$\text{Return on equity} = \frac{Net\ Profit\ after\ Tax}{Shareholder\ Equity}$$

The study used descriptive statistics (such as mean, standard deviation, minimum, and maximum), coefficient of correlation (r), regression analysis, etc., as data analysis tools.

Results

Trend Analysis

This section analyses the trends of macroeconomic variables, bank-specific profitability indicators, and dependent variables, and trends in non-performing loans.

Macro-Economic Factors

According to the hypothesis, the research used remittances, gross domestic product, and inflation as primary variables to analyze the factors influencing loan default.

Table 1

Macro-Economic   Factors

Year	GDP	Inflation	Remittance
2012-13	4.670	9.460	434.60
2013-14	3.530	9.040	543.30
2014-15	6.010	8.360	617.10
2015-16	3.980	7.870	665.10
2016-17	0.430	8.790	695.50
2017-18	8.980	3.620	755.10
2018-19	7.620	4.060	879.40
2019-20	6.660	5.570	875.03
2020-21	-2.090	5.050	961.10
2021-22	4.250	7.870	904.18

The value of a country's final goods and services over a year or quarter is its GDP. It measures a nation's output. The most obvious link between migration and economic development is migrant remittances to their relatives and friends. Migrants send money or goods home. Inflation is price growth. Inflation is usually assessed by the overall price increase or the cost of living in a country.

Bank Specific Variables

Return on Asset (ROA) and Return on Equity (ROE)

The independent variables in the study of bad loans were ROA and Equity Return. One financial statistic that may be used to assess a business's profitability is its return on assets (ROA). Return on Assets (ROA) is a metric management, analysts, and shareholders may use to evaluate a company's asset deployment strategy. Divide net income by shareholders' equity to get the return on equity (ROE). Table 2 shows the

sample bank's ROA over ten years. ADBL's return on assets is greater than that of the other sample banks. The return on equity (ROE) of NBL is the lowest among the sample banks. Consistently low standard deviation can be seen in NBL's statistical output. The most significant rate of return on assets for ADBL, RBBL, and NBL was in 2014–15 and 2017–18, while the lowest was in 2021–22, 2020–21, and 2013–14.

Table 2

Return on Asset (ROA)

Year	ADBL	RBBL	NBL
2012-13	2.97	1.26	1.07
2013-14	1.76	1.47	1.9
2014-15	3.12	3.22	2.00
2015-16	2.32	1.42	2.06
2016-17	2.15	1.67	2.13
2017-18	2.54	1.60	2.41
2018-19	2.76	2.23	1.51
2019-20	1.88	1.64	1.22
2020-21	1.59	1.11	1.33
2021-22	0.9	1.3	1.12
Mean	2.20	1.69	1.68
S.D.	0.65	0.59	0.46

Table 3 shows banks' return on equity; among all sample public banks, RBBL operates under the higher profitability from the equity, and NBL has lower ROE. Standard deviation shows RRBL data are spread out more from the mean. In 2019-20, 2014-15, and 2016-17, ADBL, RBBL, and NBL had a higher return on equity, and in the year 2021-22, 2019-20, and 2013-14 banks are operating with lower ROE.

Table 3

Return on Equity (ROE)

Year	ADBL	RBBL	NBL
2012-13	23.7	32.3	4.921
2013-14	11.67	54.06	7.48
2014-15	18.6	65.32	13.88
2015-16	17.78	26.82	7.57
2016-17	15.54	33.12	14.61
2017-18	14.42	25.40	8.62
2018-19	17.35	23.30	7.77
2019-20	22.08	11.93	8.91
2020-21	10.57	11.9	11.217
2021-22	6.59	13.13	12.13
Mean	15.83	29.73	9.71
S.D.	4.97	16.90	2.96

Non-Performing Loan

Non-performing loans, also known as NPLs, are loans on which the borrower has not only defaulted on the loan but also, which is the most crucial aspect, has not made any of the necessary payments for the loan's principal or interest for a considerable length of time. Non-performing loans are sometimes referred to as NPLs. Non-performing loans are a kind of loan used in the banking industry, and it refers to loans with commercial debtors that are more than ninety days late on their payments.

Table 4 displays banks' non-performing loans; of all public and commercial banks, RRBL has the highest NPL, whereas NBL operates under a lower NPL. This indicates that RBBL has an amendable credit policy, and management techniques must be applied successfully. In the fiscal years 2012-13, 2013-14, and 2012-13, respectively, ADBL, RBBL, and NBL had greater NPL. However, in the fiscal year 2020-21, all banks had reduced NPL. It indicates that financial institutions are trying to enhance their financial situation by lowering the amount of non-performing loans.

Table 4

Norn-Performing Loan

Year	ADBL	RBBL	NBL
2012-13	5.85	5.32	5.24
2013-14	5.46	6.38	5.12
2014-15	5.35	5.350	3.980
2015-16	4.36	4.250	3.110
2016-17	4.6	3.770	3.320
2017-18	3.5	4.750	3.370
2018-19	3.29	4.790	2.640
2019-20	2.84	3.230	2.470
2020-21	1.88	3.26	2.05
2021-22	2.09	2.09	1.83
Mean	3.92	4.32	3.31
S.D.	1.34	1.20	1.11

Correlation Analysis

The total correlation between the variables is shown in Table 5 and shows a positive connection between GDP and NPL, which indicates that the correlation between GDP and NPL is positive. In a similar vein, the correlation coefficient between NPL and inflation was positive and significant. In contrast, the correlation coefficient between NPL and remittance was negative but significant, indicating a negative link between NPL and remittance. Similarly, NPL has insignificant relationship with ROA but positive significant relationship with ROE.

Table 5

Correlation Analysis

Factors		1	2	3	4	5	6
GDP	Pearson Correlation	1	-	-	-	-	-
Inflation	Pearson Correlation	-.341	1	-	-	-	-
Remittance	Pearson Correlation	-.105	-.712**	1	-	-	-
Return on Assets	Pearson Correlation	.355	-.117	-.208	1	-	-
Return on Equity	Pearson Correlation	.063	.252	-.339	.206	1	-
Non-Performing Loan	Pearson Correlation	.196	.447*	-.836**	.353	.546**	1

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

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

Regression Analysis

Table 6

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error o
1	.910[a]	.829	.793	.568

a. Predictors: (Constant), Return on Equity, GDP, Remittance, Return on Assets, Inflation

Table 6 shows that a strong and positive relationship exists between dependent and independent variables. Furthermore, the R square indicates the extent to percentage the independent variables can explain the variation in the dependent variable. So, 0.793 (79.3%) of variance in NPL is contributed by ROE, ROA, GDP, Inflation, and Remittance.

Table 7

ANOVA Test

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	37.607	5	7.521	23.247	.000[b]
1	Residual	7.765	24	.324		
	Total	45.372	29			

a. Dependent Variable: Non-Performing Loan

b. Predictors: (Constant), Return on Equity, GDP, Remittance (Rs. in Million, Return on Assets, Inflation

Table 7 indicates a significant relationship between dependent and independent variables. The results of several regression analyses evaluating the impact on NPL of the public banks in Nepal are statistically significant due to profitability internal and external factors such as ROE, ROA, GDP, Inflation, and Remittance.

Table 8

Multiple Regression Results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	9.665	1.609		6.008	.000
	GDP	-.022	.042	-.056	-.526	.604
	Inflation	-.186	.092	-.313	-2.019	.055
1	Remittance	-.007	.001	-.949	-6.345	.000
	Return on Assets	.141	.171	.079	.826	.417
	Return on Equity	.027	.008	.290	3.186	.004

a. Dependent Variable: Non-Performing Loan

Table 8 shows the independent effect of variables on assets and liabilities management on profitability. The result of P value shows that Remittance and Return on Equity has a significant relationship with the NPL. ROE has a positive effect, while remittance harms the NPL of public banks in Nepal. GDP, Inflation, and ROA were not substantial to impact NPL. The standardized beta for remittance ($\beta = -0.949$, $p < 0.05$), significantly suggests a negative relationship. Furthermore, $\beta = -0.949$ indicates that a one-point change in remittance leads to a negative 94.9 % impact on NPL. Hence, only Remittance and Return on Equity were significant to affect NPL.

Discussion

Researchers found that a slower GDP growth rate severely impacted problem loans. Mohaddes et al. (2017) found that GDP growth and NPL correlate negatively. Panta (2018) found no association between non-performing loans and macroeconomic factors. This contradicts the present analysis, which revealed no significant association between non-performing loans and GDP. Since GDP and non-performing loans are unrelated, it is irrelevant. However, inflation and remittances are strongly correlated. This analysis supports Laeven and Valencia (2018), who found that macroeconomic variables can explain changes in non-performing loans. According to Koju et al. (2018), Nepal's high NPLs are due to weak economic growth. Commercial banks must charge a more significant risk premium, which raises INFs and interest payments (Shonhadji, 2020). Rising inflation is a sign of macroeconomic instability. Rising inflation signals instability. Singh et al. (2021) found that ROA, Bank Size, GDP, and Inflation significantly affect NPL. Kwashie et al. (2022) show that the bank's age, total assets, and country's GDP positively affect financial institution performance indicators. Contrary to current findings, only return on assets matters.

Researchers suggested that competent management and sound financial regulations are necessary for a healthy financial system and economy. The findings of the current research strongly support this assertion by demonstrating that long-term remittance is not a good indication of whether or not a loan can recover its non-performing status. For an extended period, the country may face the problem of human capital and the mismanagement of human resources. Findings indicate that remittances, inflation, and return on equity are significant factors that influence non-performing loans. Non-performing loans of public and commercial banks play a critical role in both the performance of the banks and the overall economy. Policymakers and management must focus on the variables influencing the banks' NPL.

Conclusion

In conclusion, the real effective exchange rate significantly negatively influences non-performing loans. The researchers found that the GDP growth rate didn't have much effect. Negatively impacting non-performing loans is the inflation rate behind by one year. Non-performing loan rates are much higher at the banks charging significantly higher interest rates. Non-performing loans are also heavily impacted by interest rate fluctuations throughout the previous year. The percentage of non-performing loans is likely to drop significantly this year compared to last. The proportion of bad loans at a government-owned bank is probably substantially higher than at privately-owned banks.

Scope of Future Research

This research is crucial for future academics and students and up-and-coming business and monetary leaders. Anyone curious about the banking sector and the macroeconomic factors affecting profitability would do well to read this research. Early researchers will, in the future, have access to a detailed tour map equipped with measuring instruments provided by representative commercial banks. The assessed work heavily used the sampling process and other calculating techniques and research approaches to develop new ideas.

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