

Assessing Non-Performing Loans Affect the Profitability of Nepalese Commercial Banks

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Abstracts

This study investigates the impact of non-performing loans (NPLs) on the profitability of Nepalese banks, focusing on NABIL Bank Ltd and Standard Chartered Bank Nepal Ltd. Regression models and panel data analysis reveal a negative correlation between NPLs and Return on Assets (ROA) for both banks, with NABIL exhibiting a stronger negative correlation. The study highlights varying relationships between ROA and factors like capital adequacy ratio (CAR) and bank size (BS), suggesting differing strategic priorities for growth and profitability between NABIL and SCBNL in the Nepalese banking context. NABIL exhibits a robust model ($R^2 = 0.736$) with significant improvement ($F = 5.577$, $p = 0.036$) in explaining ROA variance, while SCBNL's less effective model ($R^2 = -0.292$, $F = 0.323$, $p = 0.809$) suggests significant differences in their financial performance (2013/14 to 2022/23), as revealed by the data and referenced analysis.

Keywords: Profitability, Nepalese Commercial Banks, NABIL Bank, Standard Chartered Bank Nepal, Bank Size, Panel Data Analysis.

1. Introduction

The banking system is a pivotal force shaping the economic landscape, serving as a fundamental driver of capital formation and a key player in a nation's economic growth. Banks play a critical role in mobilizing small savings from diverse geographic areas through their extensive branch networks. This process is essential for channeling savings into profitable ventures, ultimately contributing to the creation of new capital. In essence, banks are indispensable in the capital formation process, exerting significant influence on a country's economic trajectory.

The importance of banks extends beyond capital formation, as they are crucial contributors to economic growth and prosperity. By facilitating the efficient allocation of resources, banks make it easier for funds to be directed towards productive ventures. Financial institutions, particularly banks, play a vital role in a country's economic development by ensuring the smooth flow of credit, thereby creating opportunities for investment in productive industries. The stability of the financial system hinges on the sound performance of banking institutions over time (Gnawali, 2018).

In recent years, Nepal's banking sector has encountered challenges, with a notable rise in non-performing loans (NPLs) identified as a primary contributor to the crisis. Addressing this issue is crucial for restoring stability in the banking sector. Hossain (2018) identifies political pressure, non-payment, poor lending practices, and a lack of corporate governance as key factors causing distress in the banking industry. Non-performing loans (NPLs) are loans on which borrowers have not repaid the principal or interest for a specified period, typically 90 days or more. The International Monetary Fund (IMF) (2004) offers a comprehensive definition of NPLs, emphasizing their significance in evaluating banks' credit risk. The high prevalence of non-performing loans poses a significant challenge to Nepal's banking industry, limiting its capacity to support further economic expansion.

The impact of non-performing loans extends beyond individual banks, affecting the overall financial system and hindering economic growth. As highlighted by Schumpeter (1969), a weak financial system grappling with NPLs and insufficient capital can impede growth, while a robust financial system fosters economic expansion. Assessing loan performance within the banking industry is critical for gauging the soundness of balance sheets and ensuring the overall stability of the financial system. An escalation in the level of gross non-performing loans poses a significant risk to banks, the financial industry, and the broader economy. The persistent inability to reduce non-performing loans over the long term has a gradual adverse impact on the profitability of commercial banks, leading to high loan provisioning and subsequent declines in profits (Kaaya & Pastory, 2013; Kithinji, 2010). Consequently, this diminishes the banking sector's capacity to contribute to economic growth.

Factors such as economic downturns, recessions, and unforeseen circumstances like natural disasters or political instability can create financial hardships for individuals and companies, impacting their ability to repay debt. Loose lending standards and inadequate credit risk assessments may result in loans being granted to borrowers with higher default risks. These factors collectively contribute to an elevated percentage of non-performing loans in the banking industry, affecting the accessibility of credit for both individuals and enterprises and exerting wider economic repercussions. Credit risk, as an internal factor, significantly influences bank performance. A bank's susceptibility to financial crises increases with its exposure to credit risk, emphasizing the crucial role of sound credit risk management (Kargi, 2011). Granting credit is a primary revenue-generating activity for banks, and the interplay between risk and reward plays a pivotal role in a bank's ability to enhance productivity. Non-performing assets become pressing issues for banks as they extend credit, emphasizing the intrinsic link between credit quality and a bank's financial health.

Causes of Non-Performing Loans (NPLs): Non-Performing Loans (NPLs) have emerged as a significant concern for the banking industry due to their various long-term

adverse effects on the bank's balance sheet, leading to losses in capital, earnings, profit, liquidity, and overall financial health. Factors contributing to loan defaults include the reasonable assessment of credit officials, deliberate negligence, and a lack of willingness to repay loans (Waqas et al., 2017). The willingness of banks to restructure loans or accept defaults in the face of liquidity or profitability challenges can also contribute to higher NPL ratios (European Central Bank, 2020). Primary causes in the industrial sector involve poor entrepreneur selection, unsuccessful project analyses, insufficient collateral, unreasonably long payment terms, non-compliance, and natural factors (Murshed et al., 2018). Insufficient internal controls and governance can create opportunities for fraud and mismanagement, eventually leading to NPLs (World Bank, 2019). Economic factors such as lower borrower income, business failures, and higher unemployment during recessions contribute to NPLs, along with increased borrowing costs and fluctuating currency rates (Claessens and Laeven, 2013; International Monetary Fund, 2019).

Relationship Between NPLs and Bank Profitability: The negative relationship between Non-Performing Loans (NPLs) and bank profitability is well-established. NPLs, representing loans unlikely to be fully repaid due to borrower default or delay, significantly impact a bank's financial well-being and performance. This association is crucial for the stability of financial institutions, as NPLs can result in losses for lending institutions. Adiatmayani & Panji (2021) found a weak but negative correlation between NPLs and profitability in Indonesian state-owned banks, emphasizing the influence of other variables like operational effectiveness. Isabwa & Mabonga (2020) observed a strong negative correlation ($r = -0.754$) between NPLs and profitability in Kenyan banks, indicating a substantial impact of NPLs on post-tax profits.

The banking industry's vital role in economic growth is jeopardized by the persistent challenge of non-performing loans (NPLs), prompting concerns about viability and profitability amid economic fluctuations. This study seeks to comprehensively analyze the intricate relationships between NPLs and key profitability indicators, addressing a gap in existing research and providing valuable insights for risk management and strategic decision-making in the banking sector. The primary objective is to understand the complex relationship between NPLs and profitability, identifying underlying mechanisms and factors influencing observed effects. The study specifically aims to analyze the impact of NPLs on the profitability of sampled banks in Nepal.

2. Literature Review

This section reviews empirical research on factors influencing non-performing loans (NPLs), exploring connections between macroeconomic and bank-specific variables. Ahmed, Takeda, and Shawn (1999) highlight the significant impact of loan loss provisions on NPLs, indicating rising credit risk and declining loan quality. Vatansever & Hepsen

(2013) find varying impacts on NPL ratio in Turkey, with economic indicators and debt to asset ratio showing no discernible effect. Poudel (2012) emphasizes the importance of credit risk management for bank profitability in Nepal. Kargi's (2011) study in Nigeria reveals a negative correlation between credit risk and profitability, while Karim et al.'s (2010) study in Malaysia and Singapore demonstrates that higher non-performing loans adversely affect banks' cost efficiency and profitability.

Ozurumba's (2016) research reveals a complex relationship where Return on Equity (ROE) and Return on Assets (ROA) positively correlate with loans and advances but inversely correlate with non-performing loans and loan loss provisions, emphasizing the detrimental impact of non-performing loans on commercial bank performance. Kingu, Macha, and Gwahula's (2018) study in Tanzania establishes a negative correlation between non-performing loans and profitability, supporting theories of information asymmetry and poor management. Pateary & Tasneem's (2019) study in Bangladesh indicates distinct short-run causality directions between non-performing loans and profitability, with OLS regression confirming their significant relationship. Tangngisalu et al.'s (2020) Indonesian study from 2015 to 2019 reveals a substantial negative relationship between non-performing loans and return on assets (ROA), while Pokherel's (2020) comparison of private and government-owned banks highlights the latter's challenges in managing unsecured loans, showing a positive correlation between non-performing assets and profitability. Mandagie's (2021) research emphasizes that non-performing loans significantly lower ROA in the banking industry, while Wahyuni et al.'s (2023) findings confirm a significant inverse relationship between ROA and non-performing loans.

3. Research Methodology

This research, adopting a descriptive and analytical design, utilizes secondary data from financial statements, annual reports of banks, and Nepal Rastra Bank, focusing on NABIL Bank Ltd. (NABIL) and Standard Chartered Bank Nepal Ltd. (SCBN). The study encompasses the entire population of 20 commercial banks listed at the Nepal Stock Exchange, with NABIL and SCBN chosen due to being the first two joint-venture banks in Nepal and the largest in the non-government sector. Over ten fiscal years (2013–14 to 2022–23), the research investigates the impact of non-performing loans (NPLs) on bank profitability, employing multiple regression and descriptive analysis techniques for data evaluation. Notably, NABIL and SCBN hold significant positions as the two largest joint-venture commercial banks based on net worth per share in the specified period (NABIL: Rs. 599.20, SCBN: Rs. 530.10).

3.1 Measurement of Variables

This section outlines the variables employed in the study.

- **Dependent Variable:** The study utilizes Return on Assets (ROA), calculated by dividing

net profits after taxes by total assets at the fiscal year-end. ROA is a performance metric gauging banks' profitability concerning their assets, reflecting efficient asset utilization by management. Data for ROA is extracted from the public annual financial statements of commercial banks.

- **Independent Variable:** The non-performing loan ratio (NPL), indicating credit risk, is computed by dividing the total loans and advances by the number of non-performing loans. Consistent with prior research (Isabwa & Mabonga, 2020; Adiatmayani & Panji, 2021; Harwood & Kajirwa, 2018), a negative correlation between NPLs and ROA is expected. Increasing NPLs typically diminish profitability due to provisioning charges, impacting net interest income.
- **Moderating Variables:** This section introduces moderating variables influencing the relationship between Non-Performing Loans (NPLs) and bank profitability.
- **Bank Size (BS):** Total Assets is considered a measure of bank size, revealing a nuanced relationship with Return on Assets (ROA). Past research (Berger & Humphrey, 1992; Beck, Demirgüç-Kunt, & Maksimovic, 2003) indicates an inverted U-shaped pattern, with larger banks facing bureaucratic inefficiencies and smaller banks struggling with economies of scale. The optimal size for maximizing ROA depends on market structure and bank specialization.
- **Capital Adequacy Ratio (CAR):** Defined as the proportion of equity to total assets, CAR reflects a bank's capital in relation to risk-weighted credit exposure. Research (Hasan, Ahmed, & Ahmed, 2015; Boubakri & Bouyahia, 2017) suggests a positive correlation between higher capital levels and increased investor attraction, enhancing profitability. However, conflicting findings (Athanasoglou, Dimitrios, & Staikouras, 2008; Demirgüç-Kunt & Detragiache, 2014) propose a negative or negligible relationship, emphasizing the potential impediment of high capital on lending and growth.

From the above, the possible relationship between the variables is presented as:

Table 1: Measuring the Elements Affecting Return on Assets (ROA)

Variable	Definition of Measurement	Anticipated Sign
DEPENDENT VARIABLE		
ROA	Net Profit/Total Assets, in %	
INDEPENDENT VARIABLE		
NPL	non-performing loans to loan ratio, in %	(-)
Moderating Variables		
Bank Size (BS)	Total Assets	(+)
Capital Adequacy Ratio (CAR)	Shareholders' Funds/ Total Assets	(+)

Source: Researcher's own construct

4. Analysis of Data

Descriptive Analysis

Table 2: Descriptive Statistics

	NABIL				SCBNL			
	Min	Max	Mean	Std. De- viation	Min	Max	Mean	Std. De- viation
ROA	1.27	2.71	2.0440	0.52991	1.22	2.61	2.0590	0.4473
NPL	0.55	3.39	1.4110	0.87865	0.15	1.18	0.4830	0.3435
CAR	11.18	13.09	12.3170	0.70484	12.27	22.99	17.4230	3.3226
BS	87.00	481.20	2273.8350	132.49341	53.32	94.4190	94.4190	31.2407

(Source: SPSS v.27 output & researcher's own construct utilizing moderating variables and two bank NABIL and SCBNL data spanning from 2013/14 to 2022/23)

Table 2 provides descriptive statistics for key financial indicators of banks NABIL and SCBNL. It includes data on Return on Assets (ROA), Non-Performing Loans (NPL), Capital Adequacy Ratio (CAR), and Bank Size (BS) over a span of fiscal years from 2013/14 to 2022/23. The statistics highlight variations in means and standard deviations for each variable, offering insights into the banks' financial performance and stability.

**Table 3: Comparative Correlation between ROA and NPL, CAR, BS of two Banks
Correlation Analysis**

Variables	NABIL(r_1)	SCBNL(r_2)
NPL	-0.362	-0.371
CAR	-0.624	0.125
BS	-0.850	-0.279

(Source: SPSS v.27 output)

Table 3 presents correlation coefficients between financial metrics for banks NABIL and SCBNL. Negative correlations between Return on Assets (ROA) and Non-Performing Loans (NPL), Capital Adequacy Ratio (CAR), and Bank Size (BS) suggest potential relationships impacting financial performance. Notably, stronger negative correlations with BS for NABIL indicate a more pronounced association between bank size and ROA compared to SCBNL.

Regression Analysis

All independent variables are regressed with profitability using the profitability (i.e., ROA) of sample banks as the dependent variable, NPL ratios (i.e., non-performing loan to total loan ratio) as the independent variable, CAR and bank size as moderating variables.

Regression Analysis of the Variables Affecting ROA

Table 4 (a). Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
NABIL	.858 ^a	.736	.604	.33344	.736	5.577	3	6	.036
SCBNL	.373 ^a	.139	-.292	.50842	.139	.323	3	6	.809

a. Predictors: (Constant), BS, NPL, CAR
(Source: SPSS output)

Table 4 (a) provides the model summary for banks NABIL and SCBNL. For NABIL, the model exhibits a significant explanatory power ($R^2 = 0.736$), indicating that 73.6% of the variance in the dependent variable (ROA) is explained by the predictors (BS, NPL, CAR). However, the model for SCBNL has a lower R^2 (-0.292), suggesting less effectiveness in explaining the variance in ROA with the given predictors. The F Change statistics indicate that the NABIL model has a significant improvement, while the SCBNL model lacks significance.

Table 4 (b). ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
NABIL	Regression	1.860	3	.620	5.577	.036 ^b
	Residual	.667	6	.111		
	Total	2.527	9			
SCBNL	Regression	.250	3	.083	.323	.809 ^b
	Residual	1.551	6	.258		
	Total	1.801	9			

a. Dependent Variable: ROA

b. Predictors: (Constant), BS, NPL, CAR
(Source: SPSS output)

Table 4(b) presents the ANOVA results for the regression models of banks NABIL and SCBNL. For NABIL, the regression model is significant ($F = 5.577$, $p = 0.036$), indicating that the predictors collectively contribute to explaining the variance in Return on Assets (ROA). In contrast, the SCBNL model lacks significance ($F = 0.323$, $p = 0.809$), suggesting that the predictors do not significantly contribute to explaining ROA variance for SCBNL.

Table 4 (c). Coefficients^a

Model B		Unstandardized Coef- ficients		Standardize Coefficient Beta	t	Sig.
		Std. Error				
Constant	NABIL	5.127	4.367		1.174	.285
	SCBNL	2.253	1.090		2.067	.084
NPL	NABIL	-.086	.251	-.142	-.341	.745
	SCBNL	-.412	.984	-.316	-.419	.690
CAR	NABIL	-.195	.365	-.259	-.534	.613
	SCBNL	.005	.073	.037	.068	.948
BS	NABIL	-.002	.002	-.615	-1.159	.290
	SCBNL	-.001	.011	-.060	-.082	.937

a. Dependent Variable: ROA (Source: SPSS output)

Table 4(c) displays the coefficients for the regression models of banks NABIL and SCBNL. In both models, the constant terms are not statistically significant, indicating that the predictors alone do not significantly influence the dependent variable (ROA). Notably, the coefficients for NPL, CAR, and BS also lack statistical significance, suggesting a limited impact of these predictors on ROA for both banks.

Table 5: Overview of Findings and Hypothesis Testing on ROA

Variables		Hypothesis Sign	Actual In- dication of Outcome	t value	p value	Significance
NPL	NABIL	-	-	-0.341	0.745	not significant
	SCBNL	-	-	-0.419	0.690	not significant
CAR	NABIL	+	-	-0.534	0.613	not significant
	SCBNL	+	+	0.068	0.948	not significant
BS	NABIL	+	-	-1.159	0.290	not significant
	SCBNL	+	-	-0.082	0.937	not significant

Source: Developed by the Authors

Table 5 summarizes the findings and hypothesis testing on Return on Assets (ROA) for banks NABIL and SCBNL. None of the tested hypotheses for Non-Performing Loans (NPL), Capital Adequacy Ratio (CAR), and Bank Size (BS) show statistical significance ($p > 0.05$), indicating that these variables do not have a significant impact on ROA for both banks based on the observed t values.

5. Conclusion

The comprehensive analysis of NABIL and SCBNL's financial indicators reveals significant differences. NABIL's model demonstrates a robust explanatory power for ROA ($R^2 = 0.736$), indicating substantial variance explanation by predictors (BS, NPL, CAR), while SCBNL's model is less effective ($R^2 = -0.292$). The significant improvement in NABIL's model ($F = 5.577$, $p = 0.036$) contrasts with the lack of significance in SCBNL's model ($F = 0.323$, $p = 0.809$). The absence of statistical significance in hypothesis testing (Table 5) further emphasizes that NPL, CAR, and BS do not significantly impact ROA for both banks ($p > 0.05$). This suggests a notable variation in the financial performance and stability of NABIL and SCBNL over the analyzed fiscal years (2013/14 to 2022/23), referencing the presented data.

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