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Determinants of Nepalese Commercial Banks' Profitability

Sharmila Ghimire
Graduates of Master Degree
Faculty of Management, Baneshwor Multiple Campus

Arjun Kumar Acharya
Associate Professor
Baneshwor Multiple Campus, Kathmandu, Nepal

Correspondance email: arjun.acharya40@gmail.com
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Abstract

The research highlights the most important factors influencing the profitability of Nepalese commercial banks, considering the non-performing loans (NPL), operating efficiency ratio (OER), capital adequacy ratio (CAR), inflation (INF), gross domestic product (GDP), and bank size (SIZ) factors. Using both descriptive and causal comparative research designs, a thorough analysis of the secondary information collected from the audited statements of six studied commercial banks in Nepal, including government, private, and joint venture banks, and the country's economic surveys for FY 2013/14 to FY 2022/23 will be conducted. Statistical parameters like descriptive statistics, correlation analysis, multivariate regression models, and financial parameters like return on assets (ROA) and return on equity (ROE), were employed. The findings show that the capital adequacy ratio (CAR) is positively related to ROA and has a moderate relationship, while non-performing loans (NPL) and operating efficiency ratio (OER) have weak negative relationships with ROA and ROE. GDP is negatively related to ROE with a strong relationship. Bank size and inflation have no significant relationships with profitability. The study points to the business facts for banks to construct their buffers of capital and enhance operations and for policymakers to monitor macroeconomic indicators like GDP, to improve the profitability as well as the financial solidity of the Nepalese banking sector.

Keywords: Profitability, commercial banks, correlation, regression, descriptive analysis

Introduction

The banking sector in a business environment has remained a catalyst for a country's economy in terms of being a middleman in a manner where they convey capital. The banks in this country make profit not to conduct a life support function but to have a healthy economy. Moreover, profit making by banks can attract interest in terms of research from policymakers, government representatives, and bank managers among other students.

Profitability does not arise from a point source. Instead, it arises from a combination of both endogenous and exogenous elements. Some of these factors include capital adequacy and asset quality, which can be considered important elements from within. Pradhan et al. (2016) have identified such factors to be overlooked by Nepalese studies. Capital adequacy is a factor regulated by Nepal Rastra Bank, which determines a bank's capacity to withstand a loss. A higher asset quality can be indicated by non-performing loans, which can be problematic if they are high, leading to a constrained profit margin. Additionally, operating efficiency the capacity to achieve a maximum output with a minimum input directly affects profit margins. Bank size can be an important factor in this matter, leading to economies of scale or niche thinking.

On the other hand, other external factors, such as macroeconomic variables in relation to banks, have a major influence. Inflation, GDP, and regulatory issues all impact banks in terms of performance. Athanasoglou, Brissimis, and Loannides (2008) emphasized the importance of all macroeconomic variables affecting banking profitability simultaneously. Turning to government policies, profitable banks are a source of income for governments in terms of developmental policies. Scholars need to pinpoint these factors in order to make reliable policies. Banks will benefit if they pinpoint these factors and make relevant strategies for a competitive advantage. Scholars will benefit from understanding bank profitability in emerging countries such as Nepal, where this research will benefit financial analysts in understanding bank performance. The Research aims to uncover in-depth information on factors influencing profitability in Nepalese Commercial Banks. In this Research, bank-specific factors like non-performing loans, bank size, efficiency ratio, and capital adequacy ratio will be used, and macro-economic factors such as Inflation and GDP will be used to analyze the influence they have on Return on Assets and Return on Equity. Through this analysis of Data from FY 2013-14 up to FY 2022-23, this Research will make a meaningful contribution towards making Nepal's Banking System more efficient in this dynamic economy.

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Objectives of the Study

1. To assess the state of the determinants of profitability of commercial banks in Nepal.
2. To test the relationship between non-performing loans, size of the bank, operating efficiency ratio, capital adequacy ratio, inflation, and gross domestic product with return on assets and return on equity of commercial banks.
3. To analyze the effect of the size of banks, non-performing loans, operating efficiency ratio, capital adequacy ratio, inflation, and gross domestic product on return on assets and return on equity of commercial banks.

Research Questions

This study aims to establish responses to the given research questions:

1. Where do the determinants of profitability of commercial banks in Nepal stand?
2. Whether there exists any relationship between non-performing loans, size of the bank, operating efficiency ratio, capital adequacy ratio, inflation, and gross domestic product with return on assets and return on equity of commercial banks?

What are the implications of the size of banks, non-performing loans, operating efficiency ratio, capital adequacy ratio, inflation, and gross domestic product on return on assets and return on equity of commercial banks?

Research Gap

Past studies have extensively explored the causes of bank profitability, considering a broad array of factors such as credit risk, operational efficiency, capital structure, and liquidity capacity. Past studies, however, have concentrated on specific geographic locations or bank types, resulting in a void in the general comprehension of these dynamics in the context of Nepalese commercial banking as a whole, particularly the combined effect of macroeconomic and bank-specific determinants over a consistent and recent time frame. Even though studies like Tusiyani and Yudiana (2024), Mehzabin et al. (2023), and Abuga et al. (2023) have examined commercial banks in Indonesia, Asia, and Kenya, respectively, studies aiming to identify the drivers of Nepalese commercial banks' profitability using a comparative study among different types of ownership (government, joint venture, and private) are relatively limited. Earlier studies on individual Nepalese banks have not yielded a comprehensive analysis of the aforementioned drivers from FY 2013/14 to FY 2022/23.

Also, there is a time gap in the available literature on Nepalese commercial banks. The majority of the previous studies, e.g., Mehzabin et al. (2023) and Khalaf and Hamzah

(2023), have used data up to 2018 and 2020, respectively, while some have used earlier periods or specific events such as the COVID-19 pandemic (Gazi et al., 2022). No past research has considered the latest available data for Nepalese commercial banks between fiscal years 2013/14 and 2022/23. This study bridges this gap by incorporating this recent data, showing more up-to-date analyses of the profitability of the sector and reflecting recent trends in the banking landscape and economic situation.

In the case of variable gaps, existing literature on bank profitability has been inclined to examine a subset of determinants such as operating efficiency, non-interest income, liquidity, and capital structure. There has been a void in an exhaustive study that considers, simultaneously, non- performing loans (NPL), bank size (SIZ), operating efficiency ratio (OER), capital adequacy ratio (CAR), inflation (INF), and GDP as determinants of profitability in Nepalese commercial banking. This study attempts to bridge this gap by including these significant variables to provide a broader perspective on the determinants of bank profitability in Nepal.

Finally, about the methodology gap, while regression methods like fixed-effects regression (Mehzabin et al., 2023) and panel data analysis (Abuga et al., 2023) have been widely applied, a mix of descriptive statistics and causal-comparative research design to analyze the interrelation between the selected variables and profitability has not been widely applied in the context of Nepalese commercial banks. The methodological approach of this study is to contribute new knowledge by reporting both descriptive and causal analyses.

Through these context, time, variable, and methodology fillips, this research tries to offer a better and newer analysis of determinants of profitability in Nepal's commercial banking sector, offering valuable insights to Nepalese researchers, policymakers, and bank professionals.

Literature Review

Profitability is one of the most important indicators for the viability and sustainability of every commercial bank. A bank can generate revenues from its assets and equity. Profitability is the core concept of stakeholders as it refers to management efficiency as well as potential future returns and expansion.

Conceptual Review

Profitability is one of the most important parameters for commercial banks since it tells about the health and efficiency of any bank. The two important parameters to identify

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profitability are ROA and ROE. ROA tells about the efficiency of a bank in utilizing its assets for generating profit, while ROE tells about the return that is derived from the investment of investors. The capital adequacy of a bank is important for its stability and shows an institution's ability to absorb losses. The CAR is the ratio of a bank's capital to its risk-weighted credit exposure. As such, it measures the proportion of its own funds that a bank has reserved in relation to the credit risk it assumes. In theory, this should provide sufficient buffers against financial shocks. NRB has certain requirements for CAR that must be met by commercial banks. According to Digdowiseiso (2021), additional capital may also include provisions against loan losses on pass loans.

Loans that borrowers fail to repay within a specified period are called Non-Performing Loans (NPL). These are loans that indicate potential credit risk. When the NPL is high, it can significantly hamper the bank's profitability and financial recovery. It has been observed in other regions, including Taiwan during the Asian financial crisis (Yang, 2003) and Saudi Arabia (Alshebmi et al., 2020), that NPLs are the central factor in banking sector stability. Operational Efficiency is the ability of a bank to create maximum output through minimal input and cost in offering its services. It involves the use of resources such as human capital, technology, and infrastructure (Adam et al., 2018). A highly efficient operation helps in cost reduction and increased profitability. Bank Size can influence profitability through economies of scale, allowing larger banks to potentially spread costs over a larger asset base. However, niche strategy in smaller banks can be very profitable. Aladwan (2015) provided evidence of the association between profitability and bank size of Jordanian commercial banks. The effect of bank size on profitability was also analyzed by Tharu and Shrestha (2019).

Inflation is the condition in which the general price level of goods and services increases over time, resulting in a decrease in purchasing power. Inflation can impact the profitability of banks through its influence on interest rates, loan demand, and expenses. Hong and Razak (2015) researched the impact of inflation on the financial performance of Malaysian Islamic banks. Gross Domestic Product (GDP) is employed to estimate the totality of the monetary or market value of finished goods and services produced within a nation's borders during a specified time frame. GDP growth reflects the general performance of an economy, which can affect banking industry profitability by determining lending possibilities and the capacity of borrowers to repay. Gautam and Gautam (2021) explained how macroeconomic factors, e.g., GDP, can help predict the commercial banks' financial performance in Nepal.

Theoretical Framework

There are different theories that provide the determinants of bank profitability. Agency Theory speaks about the principal-agent relationship (managers and shareholders) in which managers may not always act in the best interest of the shareholders. Effective management methods, influenced by agency costs, can impact profitability (Mehzabin et al., 2023). Invisible Hand Theory, as formulated by Adam Smith, suggests that individuals acting in their self-interest could inadvertently benefit society. In finance, this would imply that profit maximization, with an efficiently regulated market, leads to the best allocation of resources and overall economic well-being. . The Credit Risk Theory relies heavily on risk management in credit lending. The framework described by Merton (Dahal, 2020) emphasizes the need for banks to be prudent in their lending activities to risky debtors such that non-performing assets do not increase. The Asymmetric Information Theory relies on the belief in borrowers and lenders having different information, which can lead to moral hazard and adverse selection in lending and affect banks' profitability (Akerlof, 1970; Mirrlees, 1997; Auronen, 2003).

However, efficient credit evaluation systems can counter these risks (Bhatt et al., 2023). The Modern Portfolio Theory holds that diversification can work towards risk minimization and sometimes maximize returns. In the banking sector, this may apply to diversifying loan portfolios and sources of revenue (Ndungu & Muturi, 2019). Stakeholder Theory contends that companies ought to take into consideration the interests of all stakeholders and not only shareholders. Well-balanced strategy towards stakeholder interests can promote long-term profitability and sustainability (Freeman, 2001; Ruf et al., 2001).

The Trade-off Theory of capital structure assumes that companies trade off the benefits of debt (e.g., tax shields) against the costs of debt (e.g., financial distress) to achieve an optimal capital structure.

Capital adequacy, a very important aspect of capital structure, decides a bank's loss-absorbing capacity and thus its perceived risk and profitability (Mbaeri et al., 2021).

Empirical Review

Past empirical studies have analyzed the determinants of bank profitability across various countries and settings. Tusiyani and Yudiana (2024) found that Non-Performing Financing (NPF) made a marginal positive but insignificant contribution to the profitability of Indonesian Islamic commercial banks. Mehzabin et al. (2023) noted the positive impact of the total debt ratio on bank profitability in support of agency cost

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theory and the importance of operating efficiency and non-interest income to banks in Asia. Abuga et al. (2023) in Kenya found a negative impact of liquidity capacity on commercial banks' profitability.

Iqbal and Saeed (2023) in emerging economies found the direct impact of NPLs on the perception of the manager, with a trivial mediating impact on profitability Bhatt et al. (2023) in Nepal pointed to the mediating effect of credit risk management on the impact of environmental and market risks on bank profitability. Adhikari et al. (2023) established contrary findings regarding the impact of mergers and acquisitions on Nepalese commercial banks' profitability. Khalaf and Hamzah (2023) in Iraq established the profitability of private banks and state banks with average profitability performance. Gazi et al. (2022) in Bangladesh analyzed the effects of COVID-19 on the profitability of private commercial banks and found positive relationships between operational efficiency and inflation rates during the pandemic. Uddin (2022) in Bangladesh found that the capital adequacy ratio greatly enhanced profitability, whereas operating efficiency and NPLs had a negative, though insignificant effect. Gurung and Gurung (2022) in Nepal identified that there was the excessive positive impact of the credit-deposit ratio and GDP growth on bank profitability and a negative impact of non-performing assets on ROE. Bhattarai (2021) in Nepal identified a moderate positive relationship between CAR and ROA, and between additional capital and ROE. Mbaeri et al. (2021) in Nigeria found an impressive and positive impact of CAR on profitability. Dao (2020) in Vietnam, Thailand, and Malaysia found a negative correlation between operational risk and profitability, and between bank size and profitability in Vietnam and Thailand Anggari and Dana (2020) in Indonesia found that CAR, Third Party Funds, and Bank Size significantly positively impacted profitability Ndungu and Muturi (2019) in Kenya found that income and geographical diversification positively impacted profitability. Sofyan (2019) on Indonesian rural banks highlighted the strong significance of CAR, Loan to Deposit Ratio, and Operating Cost to Operating Income in influencing ROA. Almaqtari et al. (2019) on Indian commercial banks documented that state banks and private banks considerably vary when it comes to capital adequacy and liquidity management. Islam et al. (2017) on Bangladeshi private commercial banks unveiled that nonperforming loans had the strongest adverse effect on profitability. Pradhan (2016) in Nepalese commercial banks found that liquidity and the credit-deposit ratio were strong determinants of profitability, and NPLs had a negative coefficient. These empirical studies uncover a broad range of results on determinants of bank profitability, highlighting the context specificity of these relationships and needs for additional research in the Nepalese banking sector.

Research Design and Methodology

This study is based on a mixed research design, which required the utilization of causal-comparative and descriptive methodologies. The descriptive research design was employed to find out the current status of the determinants of profitability of commercial banks in Nepal. The causal comparative design was employed to examine the effect of nonperforming loans, overall size of the bank, operating efficiency ratio, capital adequacy ratio, inflation, and GDP on the return on assets and return on equity of the banks.

The population under this research was all 20 commercial banks of Nepal. The judgmental sampling method was employed to take a sample of six banks from this population. This sampling technique gave a proper representation of different ownership structures in Nepalese banks, including two government-owned banks (Nepal Bank Ltd. (NBL) and Agriculture Development Bank Ltd. (ADBL), two joint venture banks (Everest Bank Ltd. (EBL) and Standard Chartered Bank (SCB), and two private banks (Nic Asia Bank Ltd. (NICA) and Global IME Bank Ltd. (GBIME). The study period was ten years of finance, i.e., FY 2013/14 to FY 2022/23, and produced 60 observations for analysis. The nature of the data used in this study was quantitative and was collected from secondary sources. The primary data sources were the audited annual reports of the six selected commercial banks and the economic survey reports of Nepal for the respective period. These reports provided a broad and reliable dataset for the analysis of the research goals. The data obtained was processed using Microsoft Excel and SPSS. The results were based on both financial and statistical metrics to reach meaningful conclusions. The financial metrics used were ROA and ROE by using the following formulas:

$$\text{Return on Equity (ROE)} = \frac{\text{(Net Profit/Loss)}}{\text{(Total Shareholders' Equity).}}$$

The following were the statistical metrics used:

Mean: To find the mean of the variables to have a basic idea of their values.

- Standard Deviation (S.D.): For the measurement of variability or dispersion of the determinants from the mean, identifying the stability or volatility of the determinants.
- Correlation Analysis: To identify the nature and degree of the linear association of the independent variables (NPL, SIZ, OER, CAR, INF, GDP) with the dependent variables (ROA, ROE) through Pearson's Correlation Coefficient.
- Multivariate Regression Analysis: To measure the collective and individual impact of independent variables on the dependent variables.

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Two models were developed:

Model I: $ROA = \alpha + \beta 1NPL + \beta 2OER + \beta 3CAR + \beta 4INF + \beta 5GDP + \beta 6SIZ + E$

Model II: $ROE = \alpha + \beta 1NPL + \beta 2OER + \beta 3CAR + \beta 4INF + \beta 5GDP + \beta 6SIZ + E$

Here,

ROA = Return on Assets

NPL = Non-performing Loan

OER = Operating Efficiency Ratio

CAR = Capital Adequacy Ratio

INF = Inflation

GDP = Gross Domestic Product

ROE = Return on Equity

SIZ = Size of Bank

α = Intercept term

E = Error Term

$\beta 1$ to $\beta 6$ = Coefficients

The research design for this study, based on Bhattarai (2016) & Bhattarai (2020), indicates how the findings and discussion connect to the independent and dependent variables.

Descriptive Analysis

The above table shows data on the results of descriptive analysis of the key variables. The NPLR had a mean of 1.658 with a standard deviation of 1.475, which indicated a low average NPL but high variability. The operating efficiency ratio (OER) had a very high mean of 54.436 with a standard deviation of 28.855, which indicated high variability in banks' efficiency in operating expenditures. Capital adequacy ratio (CAR) had a mean of 14.406 and a standard deviation of 3.263, indicating that there is sufficient capital cushion on average, with some variation from bank to bank.

Inflation (INF) had a mean of 6.150 and a standard deviation of 1.864, reflecting moderate inflation with variability. The logged GDP exhibited a consistent rising trend with a low standard deviation (mean 12.542, S.D. 0.125). Logged bank size (SIZ) had a mean of 11.153 and a low standard deviation of 0.243, reflecting the relative homogeneity of bank sizes in the sample. Return on Assets (ROA) had a mean of 1.618 with a standard

deviation of 0.571, reflecting moderate average profitability from assets with variability. Return on Equity (ROE) had a high mean of 15.117 but a high standard deviation of 4.881, indicating high average returns to the shareholders but with wide variations across banks and over time.

Table 1

Summary of Descriptive Analysis

Code	Variables	Min	Max	Mean	S.D.
NPLR	Non-performing Loan	0.069	5.460	1.658	1.475
OER	Operating Efficiency Ratio	14.317	105.660	54.436	28.855
CAR	Capital Adequacy Ratio	4.550	22.990	14.406	3.263
INF	Inflation	3.627	8.790	6.150	1.864
GDP	Log (Gross Domestic Product)	12.349	12.731	12.542	0.125
SIZ	Log (Bank Size)	10.712	11.722	11.153	0.243
ROA	Return on Assets	0.416	2.790	1.618	0.571
ROE	Return on Equity	3.214	28.398	15.117	4.881

(Source: Annual Report of Sample Commercial Bank)

Correlation Analysis

The following is the correlation matrix ROA was positively correlated (0.337) with CAR at a moderate level, and negatively correlated with NPLR (-0.082) and OER (-0.028) at a weak level. Bank size was negatively correlated (-0.352) with ROA at a moderate level, while a negative correlation at a weak level was established with inflation (-0.134) and GDP (-0.197) with ROA. ROE was negatively correlated with OER (-0.338) at a moderate level and with NPLR (-0.217) at a weak level. CAR (0.293) and inflation (0.305) were weakly positively correlated with ROE, whereas GDP (-0.433) and bank size (-0.364) were moderately negatively correlated.

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Table 2

Correlation Matrix

Variables		NPLR	OER	CAR	INF	GDP	SIZ	ROA	ROE
NPLR	R	1							
	Sig. (2-tailed)								
OER	R	.419**	1						
	Sig. (2-tailed)	0.001							
CAR	R	-0.041	0.047	1					
	Sig. (2-tailed)	0.755	0.724						
INF	R	0.234	0.068	-.355**	1				
	Sig. (2-tailed)	0.072	0.607	0.005					
GDP	R	-.298*	-0.087	.277*	-.364**	1			
	Sig. (2-tailed)	0.021	0.510	0.032	0.004				
SIZ	R	-0.107	-0.018	0.025	-.300*	.859**	1		
	Sig. (2-tailed)	0.415	0.893	0.847	0.020	0.000			
ROA	R	-0.082	-0.028	.337**	-0.134	-0.197	-.352**	1	
	Sig. (2-tailed)	0.535	0.833	0.009	0.307	0.132	0.006		
ROE	R	-0.217	-.338**	-.293*	.305*	-.433**	-.364**	.340**	1
	Sig. (2-tailed)	0.096	0.008	0.023	0.018	0.001	0.004	0.008	

(*r* indicates Pearson Correlation)

(Source: Annual Report of Sample Commercial Bank)

Regression Model I: Return on Assets (ROA) as the Dependent Variable

The regression run for Model I, with ROA as the dependent variable, had an R-square of 0.268, indicating that approximately 26.8% of the variance in ROA is explained by the independent variables in the model. The adjusted R-square was 0.185, and the standard error of the estimate was 0.516.

Table 3

Model Summary – Regression Model I

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.517	0.268	0.185	0.516

(Source: Annual Report of Sample Commercial Bank)

The ANOVA test confirmed that the model was statistically significant, with an F-value of 3.227 and a p-value of 0.009 ($p < 0.01$), suggesting that the overall model fit is acceptable.

Table 4

ANOVA: Regression Model I

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	5.151	6	0.859	3.227	0.009
Residual	14.102	53	0.266		
Total	19.254	59			

(Source: Annual Report of Sample Commercial Bank)

The Beta coefficients were utilized to assess which variables were significantly influencing ROA. The results showed that only the Capital Adequacy Ratio (CAR) influenced ROA significantly in a positive manner (β=0.300, p=0.047). Other variables, such as Non-Performing Loan Ratio (NPLR), Operating Expense Ratio (OER), Inflation (INF), Gross Domestic Product (GDP), and Bank Size (SIZ), were not significant.

Table 5

Beta Coefficients – Regression Model I

Variable	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
Constant	12.236	10.864		1.126	0.265		
NPLR	-0.032	0.057	-0.082	-0.560	0.578	0.647	1.545
OER	0.000	0.003	-0.007	-0.050	0.960	0.820	1.220
CAR	0.053	0.026	0.300	2.032	0.047	0.634	1.578
INF	-0.040	0.042	-0.131	-0.967	0.338	0.751	1.332
GDP	-0.051	1.354	-0.011	-0.038	0.970	0.158	6.327
SIZ	-0.935	0.651	-0.398	-1.437	0.157	0.180	5.553

(Source: Annual Report of Sample Commercial Bank)

Regression Model II

Return on Equity (ROE) as the dependent variable for model II, with ROE as the dependent variable, the model generated a stronger relationship, R-square being 0.442, suggesting that 44.2 percent variance in ROE is explained by the predictors. The adjusted R-square was 0.379, and the standard error of estimate was 3.846.

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Table 6

Model Summary: Regression Model II

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	0.665	0.442	0.379	3.846

(Source: Annual Report of Sample Commercial Bank)

The ANOVA table further confirmed the statistical significance of the model with an F-value of 7.006 and a p-value less than 0.001.

Table 7

ANOVA – Regression Model II

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	621.756	6	103.626	7.006	0.000
Residual	783.887	53	14.790		
Total	1405.643	59			

(Source: Annual Report of Sample Commercial Bank)

From the Beta coefficient table, NPLR (β = -0.331, p = 0.012), OER (β = -0.266, p = 0.023), and GDP (β = -0.666, p = 0.013) had statistically significant negative impacts on ROE. Other variables such as CAR, INF, and SIZ did not show statistically significant effects.

Table 8

Beta Coefficients – Regression Model II

Variable	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
Constant	291.641	81.000		3.601	0.001		
NPLR	-1.095	0.422	-0.331	-2.596	0.012	0.647	1.545
OER	-0.045	0.019	-0.266	-2.344	0.023	0.820	1.220
CAR	-0.059	0.193	-0.040	-0.308	0.759	0.634	1.578
INF	0.560	0.310	0.214	1.804	0.077	0.751	1.332
GDP	-26.078	10.096	-0.666	-2.583	0.013	0.158	6.327
SIZ	4.682	4.852	0.233	0.965	0.339	0.180	5.553

(Source: Annual Report of Sample Commercial Bank)

Multicollinearity Check

Variance Inflation Factor (VIF) values for all predictors in both regressions were found below the critical value of 10, indicating that there were no serious multicollinearity issues among the independent variables.

Discussion

The evidence that CAR has a moderate positive correlation and a significant positive effect on ROA is in agreement with Bhattarai (2021) and Mbaeri et al. (2021), whose studies showed there was a positive relationship between bank capital adequacy and bank profitability. This suggests that those Nepalese banks that have a better capital position can earn more profit from their assets. The strong negative relationship and statistically significant negative influence of NPLR on ROE confirms the findings of Islam et al. (2017) in Bangladesh and Pradhan (2016) in Nepal, who identified NPLs as a negative bank profitability determinant. Although the correlation with ROA was weak and insignificant, the negative impact on ROE shows that higher non-performing loans weaken the shareholders' return. Contrary to Tusiyani and Yudiana (2024) who found that NPF has a weak positive impact on profitability.

The strong negative impact of OER and moderate negative correlation with ROE support the emphasis on operating efficiency by Mehzabin et al. (2023). While the relationship with ROA was poor and insignificant, the strong negative impact on ROE suggests that higher operating expenses as a percentage of income reduce the profitability to be available to equity holders. The strong negative relationship and significant negative impact of GDP on ROE is an unexpected finding. While Gurung and Gurung (2022) found a positive impact of GDP on overall bank profitability this result of the study implies that in growth periods in the Nepalese economy (as suggested by the increasing trend of GDP in the following table), the equity-based profitability can go down for the sample commercial banks. This can be due to increased operating costs in terms of expansion during growth periods, increased competition, or other uncontrolled factors.

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Table 9

Gross Domestic Product (GDP)

FY	GDP (Rs. in Millions)
2013/14	2232525.284
2014/15	2423638.483
2015/16	2608184.438
2016/17	3077144.919
2017/18	3455949.290
2018/19	3858930.402
2019/20	3888703.651
2020/21	4352550.241
2021/22	4933696.581
2022/23	5381335.085
Mean	3621265.837
S.D.	1064359.233
C.V	0.294

(Source: Annual Report of Sample Commercial Bank)

The lack of any meaningful relationship between bank size and profitability (ROA and ROE) is contrary to some studies like Anggari and Dana (2020), who found a positive effect of bank size on profitability. However, it agrees with Dao (2020) for Vietnam and Thailand and Islam et al. (2017) for Bangladeshi private commercial banks, who found insignificant or negative relationships. This suggests that in the case of the selected Nepalese commercial banks, size in itself does not guarantee higher profitability.

Inflation did not have any impact on ROA and ROE, unlike Gazi et al. (2022); they found a positive relationship between inflation and profit during the COVID-19 period in Bangladesh. This shows that in Nepalese banks, the relationship between inflation and profit might not be very simple.

Conclusion

This research has focus to identify the crucial determinants of the profitability of Nepalese commercial banks. The identification of the status of these determinants revealed varied conditions, in which CAR and GDP reflected relative stability, whereas NPL and OER varied more significantly. The correlation testing of the independent variables and profitability metrics indicated weak negative correlations between NPL

and OER with ROA and ROE, moderate positive correlations between CAR and ROA, and moderate negative correlations between GDP and bank size with ROE. Regression analysis indicated that CAR has a significant positive correlation with ROA, and NPL and OER have significant negative correlations with ROE.

Surprisingly, GDP also showed a very strong negative impact on ROE, and bank size showed a strong negative relationship with both ROA and ROE, although its impact in the model was not statistically significant.

Inflation neither seemed to have any major role to play as a determinant of profitability in this study.

On the whole, the findings imply that while capital adequacy matters for asset-based profitability, operating effectiveness and non-performing loan management are crucial in enhancing returns to the equity shareholders. The startling negative correlation of GDP with the ROE invites more research to study the linkage of economic expansion and bank profitability in Nepal. Bank size is not identified to be a powerful determinant of the profitability of selected banks during the study period. This research provides significant empirical findings to bank profitability determinants in the Nepalese context, examining bank-specific and macroeconomic factors interactions.

Recommendation to the concern

Significant recommendations to the concerned party based on the research findings are as follows

To the Commercial Banks

- Enhance the capital adequacy ratio to promote financial stability and market confidence.
- Enhance credit evaluation, credit monitoring, and credit recovery operations to lower non-performing loans and maximize shareholder returns.
- Enhance operating efficiency based on optimal resource management and cost optimization.
- Conduct in-house research to establish how a negative correlation exists between bank size and profit, with a focus on developing strategies rather than just focusing on growth.

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To policymakers (Nepal Rastra Bank)

- In addition to capital adequacy, focus on prudent expense controls and lending standards during supervisory examinations.
- Examine the conflicting negative relationship between the growth of GDP and ROE to establish if it is market or policy-driven.
- Encourage studies on other macroeconomic factors (interest rate spread, exchange rate volatility) influencing bank performance.

For Future Researchers:

- Use a larger sample of commercial banks for more extensive findings.
- Consider non-linear relationships and other variables such as liquidity, quality of management, and ownership structure.
- Conduct long-term analyses to capture lagged effects as well as overall trends in profitability.

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