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Bank-Specific Variables and Financial Performance of Commercial Banks in Nepal

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Abstract

This study attempts to examine the influence of key bank specific factors namely capital adequacy ratio (CAR), non-performing loans (NPL), management efficiency, bank size, and growth rate—on the financial performance of commercial banks in Nepal. Financial performance is measured using two widely recognized indicators: return on assets (ROA) and return on equity (ROE). Utilizing a balanced panel dataset of 12 commercial banks over the period 2016/17 to 2023/24, the analysis encompasses 96 observations. This study employs descriptive statistics, correlation analysis, and multiple regression models to assess the relationships between the selected variables and financial performance. The results indicate that non-performing loans and bank size exert a statistically significant negative impact on ROA, suggesting that higher loan defaults and larger scale operations may undermine asset profitability. In contrast, management efficiency demonstrates a significant positive effect on ROA, highlighting the importance of effective operational management. Surprisingly, capital adequacy ratio (CAR) is found to have no significant association with ROA, challenging conventional assumptions about its role in profitability. The study concludes that NPL levels and management efficiency are critical determinants of financial performance in Nepal's commercial banking sector, while increased bank size may contribute to inefficiencies rather than economies of scale. These insights carry important implications for banking regulators, policymakers, and institutional managers seeking to strengthen the financial health and sustainability of banks in Nepal. For future research, the study recommends incorporating primary data, alternative performance metrics, and macroeconomic variables to provide a more comprehensive understanding of bank performance dynamics.

Keywords: *Bank size, capital adequacy ratio, financial performance, management efficiency, non-performing loans, return on assets.*

1. Introduction

The banking industry is the foundation of economic growth, which acts as a financial intermediary to distribute credit to productive industries and mobilize deposits (Shrestha, 2018). The performance of banks plays a crucial role in determining investor confidence, economic growth, and financial stability in both developed and developing nations. Understanding the elements that affect bank performance has thus emerged as a key topic in

financial research and the development of public policy. The financial performance of commercial banks plays a pivotal role in ensuring the stability and growth of a nation's economy, particularly in developing countries like Nepal, where the banking sector is a primary source of credit and financial intermediation. In recent years, the Nepalese banking sector has undergone significant structural and regulatory transformations aimed at enhancing financial soundness, improving service delivery, and promoting inclusive growth (Pradhan, 2020). Despite these advancements, commercial banks in Nepal continue to face challenges related to asset quality, capital adequacy, and operational efficiency, all of which directly influence their financial performance. In Nepal, commercial banks are the dominant players in the financial system, accounting for the largest share of financial intermediation. Over the past two decades, the Nepalese banking sector has undergone significant transformation due to liberalization, technological advancement, and regulatory reforms.

Financial performance is a critical indicator of a bank's sustainability and efficiency. It reflects the ability of a bank to generate profits from its operations, manage risks, and deliver value to stakeholders. In the context of commercial banks in Nepal, understanding the determinants of financial performance is essential for regulators, policymakers, investors, and bank managers. While external factors such as economic growth, inflation, and interest rate fluctuations influence bank performance, internal or bank-specific factors are equally important in shaping profitability and risk profiles.

Several bank-specific variables have been identified in the literature as key determinants of financial performance. This study focuses on four key bank-specific variables: capital adequacy ratio, non-performing loan ratio, management efficiency, and bank size. Financial performance is commonly assessed using profitability indicators such as Return on Assets, which measures how efficiently a bank utilizes its assets to generate profit. ROA is widely used in empirical studies as a proxy for financial performance due to its ability to reflect both profitability and asset utilization (Athanasoglou et al., 2008). This paper aims to examine how these internal factors influence the financial performance of commercial banks in Nepal.

One of the most reliable indicators of a bank's financial performance is return on assets, or ROA, which demonstrates how successfully the bank uses its assets to generate profits. In the context of Nepalese commercial banks, ROA serves as a critical measure of financial health, operational effectiveness, and overall profitability. The performance captured through ROA is not shaped in isolation; rather, it is influenced by a complex interplay of both internal and external factors. Among the internal, or bank-specific, variables, several stand out for their direct impact on profitability and risk exposure. These include the Capital Adequacy Ratio, which indicates the bank's capacity to absorb potential losses and maintain solvency; Non-Performing Loans, which reflect the quality of the bank's loan portfolio and its credit risk management practices; Management Efficiency, often assessed through cost-to-income ratios or operating expenses, which reveals how effectively resources are being utilized; and Bank Size, which may affect economies of scale, market reach, and operational complexity. These variables are not only essential for internal performance evaluation but

also serve as key indicators for regulatory oversight and strategic planning. Understanding how these factors influence ROA is crucial for enhancing the financial sustainability of banks, particularly in emerging economies like Nepal, where the banking sector plays key role in economic development as well as financial inclusion.

While numerous studies have explored the determinants of bank performance globally (Athanasoglou et al., 2008; Demirgüç-Kunt & Huizinga, 1999), there is a notable gap in focused research on the commercial banking sector in Nepal. This gap is particularly significant given the country's distinct regulatory framework, unique market structure, and evolving macroeconomic environment. The specific institutional and economic characteristics of Nepal—such as its concentrated banking sector, regulatory emphasis on capital preservation, and exposure to domestic economic volatility—warrant a context-specific analysis that global studies may not adequately capture. Therefore, a dedicated investigation into the factors influencing bank performance in Nepal is essential to generate relevant insights for local stakeholders and to contribute to the broader literature on banking performance in emerging economies.

Most existing studies in Nepal are either descriptive or limited in scope, often analyzing a narrow set of variables or a short time frame (Poudel, 2018; Shrestha, 2020). Therefore, a comprehensive empirical investigation into the impact of key bank-specific variables capital adequacy ratio, non-performing loans, management efficiency, and bank size on the financial performance, proxied by ROA, is both timely and necessary.

This study seeks to explore the association between bank-specific variables and the financial performance of commercial banks in Nepal. By analyzing these internal factors, the research aims to identify which variables most significantly contribute to profitability, stability, and operational success. The findings are expected to provide valuable insights for bank managers, regulators, and policymakers, enabling them to make informed decisions that enhance institutional performance and contribute to the overall health of the financial system.

2. Literature review

Theoretical review

The study is grounded in several financial and economic theories that explain the behavior of financial institutions and the determinants of their performance.

Agency theory (Jensen & Meckling, 1976) explains the conflicts of interest between principals (shareholders) and agents (managers). In the banking context, managers may pursue personal goals rather than maximizing shareholder value. High capital adequacy reduces agency costs by aligning managerial incentives with those of shareholders. Adequate capital acts as a buffer against risk-taking and ensures that managers operate prudently, thereby enhancing profitability (Sharma & Neupane, 2019).

Stakeholder theory (Freeman, 2015) posits that firms should create value for all stakeholders, including depositors, employees, regulators, and the community. For banks,

maintaining a healthy capital base and low NPLs ensures depositor confidence and regulatory compliance, which in turn supports long-term profitability. Efficient management and sustainable growth contribute to stakeholder trust and financial stability.

Pecking order theory (Myers, 1984) suggests that firms prefer internal financing over external sources due to information asymmetry. Banks with higher retained earnings (reflected in ROE) can fund growth internally, reducing reliance on costly external capital. This theory supports the idea that profitability is both a cause and an effect of financial strength.

Classical economic theory posits that firms operate with the primary objective of profit maximization. In the context of banks, this goal translates into achieving an optimal balance between risk and return. Key internal factors—such as capital adequacy, asset quality, and operational efficiency—serve as critical levers that shape this equilibrium. A bank that maintains strong capital buffers is better equipped to absorb potential losses and support growth, thereby enhancing investor confidence and financial stability. High asset quality, reflected in a low level of non-performing loans (NPLs), reduces credit risk and improves earnings reliability. Likewise, operational efficiency ensures cost-effective service delivery and resource utilization, directly contributing to profitability. Together, these factors enable a well-capitalized, prudently managed bank with healthy asset quality to achieve sustainable profitability and long-term financial performance.

Economic theory suggests that larger firms may benefit from economies of scale, leading to lower average costs and higher profitability (Berger & Mester, 1997). However, beyond a certain point, diseconomies of scale may occur due to bureaucratic inefficiencies. The relationship between bank size and performance is thus expected to be non-linear.

Empirical Review

Capital adequacy ratio measures a bank's capital relative to its risk-weighted assets and is a key indicator of financial strength. A higher CAR indicates a greater ability to absorb losses and withstand financial shocks.

Empirical studies show mixed results. In developed economies, higher capital adequacy is often associated with lower risk-taking and, consequently, lower profitability in the short term (Bikker & Metzemakers, 2005). However, in the long run, well-capitalized banks tend to be more stable and profitable. In emerging markets, Adegbie and Fakile (2011) found a positive relationship between CAR and ROA in Nigerian banks. Similarly, Kargi (2013) reported that CAR positively influences ROE in Turkish banks. Antwi (2019) investigated the association between banks' performance, cost-income ratio, and capital adequacy and found that performance, as determined by return on equity (ROE) and return on assets (ROA), is negatively correlated with the capital adequacy ratio. Sukmadewi (2020) conducted study on the effect of capital adequacy ratio, loan to deposit ratio, operating-income ratio, non-performing loans, and net interest margin on financial performance of

banks. The results demonstrated that the CAR, BOPO, NPL, NIM, and LDR variables had a positive and significant effect on Return on Assets.

In the Nepalese context, Adhikary (2014) found that capital adequacy has a positive but insignificant impact on ROA. However, Poudel (2016) reported a significant positive relationship between CAR and ROE. These conflicting findings suggest the need for further investigation using updated data and advanced modeling techniques.

Non-performing loans (NPLs) are the loans that are in default or close to default. High Non performing Loan ratios indicate poor credit risk management and can erode profitability through provisioning and lost interest income.

Numerous studies confirm a negative relationship between NPLs and bank performance. Athanasoglou et al. (2008) found that NPLs significantly reduce ROA and ROE in Greek banks. In Pakistan, Arif and Aamir (2012) reported a strong negative impact of NPLs on profitability. Similarly, in Bangladesh, Saha and Kabir (2019) found that higher NPLs lead to lower ROA. Atisu et. al (2024) documented that non-performing loans have a positive and significant relationship with ROA. Siddique et al. (2022) documented that NPLs, CER, and LR have a significant negative relationship with financial performance (ROA and ROE), whereas CAR and ALR have a significant positive relationship with financial performance of Asian commercial banks.

For Nepal, Shrestha (2018) analyzed 14 commercial banks from 2010 to 2017 and found that NPL ratio has a significant negative effect on ROA. Dahal (2020) confirmed this result using a larger sample and panel data, showing that a 1% increase in NPL ratio reduces ROA by 0.3%. These findings underscore the importance of credit risk management in enhancing profitability.

Management efficiency is typically explained by the cost-to-income ratio (CIR), which indicates the proportion of operating costs to operating income. A lower CIR reflects higher efficiency.

Efficient banks can generate more income with fewer resources, leading to higher profitability. Molyneux and Thornton (1992) found that cost efficiency positively affects ROA in European banks. In India, Kumar and Gulati (2013) reported that banks with lower CIRs have higher ROE. Muhmad and Hashim (2015) used the Capital Adequacy, Asset Quality, Management Competency, Earning Quality, and Liquidity (CAMEL) framework to assess the performance of Malaysian banks, encompassing both local and foreign banks, revealed that the performance of Malaysian banks was significantly impacted by capital adequacy, asset quality, earning quality, and liquidity.

In Nepal, Adhikary (2014) found that management efficiency has a significant positive impact on ROA. Poudel (2016) also reported a negative relationship between CIR and ROE, indicating that lower costs improve profitability. Sibakoti and Pokharel (2022) examined the impact of bank-specific variables on the financial performance of Nepalese development banks. Capital adequacy, asset quality, management efficiency, and liquidity had been taken

as major bank-specific variables. The results indicate that management efficiency and liquidity positively influence bank performance, underscoring the importance of effective resource utilization and sufficient liquid assets in maintaining operational stability and profitability. Efficient management enables banks to minimize operational costs and respond promptly to market demands, thereby enhancing financial outcomes. Similarly, adequate liquidity supports smooth daily operations and strengthens confidence among depositors and investors. Contrary to conventional expectations, the findings reveal a negative relationship between capital adequacy and asset quality management with bank performance. This may suggest that while high capital buffers and stringent asset quality controls enhance safety, they could also constrain profitability by limiting lending activities and growth opportunities—particularly in emerging markets like Nepal where banks may face pressure to balance regulatory compliance with performance targets. These results align with some prior studies suggesting that excessive cost-cutting or overly conservative risk management, while improving short-term stability, may impair service quality, innovation, and long-term growth potential. Therefore, while prudence in capital and asset management is essential, an optimal balance must be struck to ensure that regulatory safeguards do not come at the expense of profitability and strategic expansion.

Bank size, commonly measured by the natural logarithm of total assets, plays a significant role in shaping financial performance through mechanisms such as economies of scale and market power. Larger banks often enjoy advantages including diversified revenue streams, lower funding costs due to greater access to capital markets, enhanced technological infrastructure, and more sophisticated risk management systems. These factors can contribute to improved profitability and operational resilience. Supporting this view, Berger and Bonaccorsi di Patti (2006) found a positive relationship between size of the bank and performance of Italian commercial banks, highlighting the competitive edge that scale can provide. However, the relationship between size and performance is not universally positive. In some contexts, particularly in developing economies, larger banks may face challenges related to bureaucratic inefficiencies, slower decision-making, and diminishing returns to scale. Conversely, smaller banks, while lacking the same level of diversification and resource base, often benefit from greater operational agility, closer customer relationships, and localized decision-making, which can enhance service quality and responsiveness to market changes. Thus, while larger size may offer structural advantages, its impact on performance ultimately depends on how effectively banks manage complexity and leverage their scale—suggesting that optimal size may vary across institutional and economic environments.

In Nepal, mixed results exist. Shrestha (2018) found no significant relationship between size and ROA, while Dahal (2020) reported a positive but weak effect. The lack of consensus suggests that the size-performance link may depend on the regulatory and competitive environment.

However, other studies suggest that growth can improve market share and profitability if supported by adequate capital and risk controls. The relationship between growth and performance remains ambiguous and context-dependent.

Research Hypotheses

Drawing upon both theoretical insights and empirical review, the following hypotheses and conceptual framework have been developed:

H1: Capital adequacy ratio positively and significantly influences the return on assets of commercial banks in Nepal.

H2: Non-performing loans negatively and significantly affect the return on assets of commercial banks in Nepal.

H3: Management efficiency exerts a positive and significant impact on the return on assets of commercial banks in Nepal.

H4: Bank size has a positive and significant relationship with the return on assets of commercial banks in Nepal.

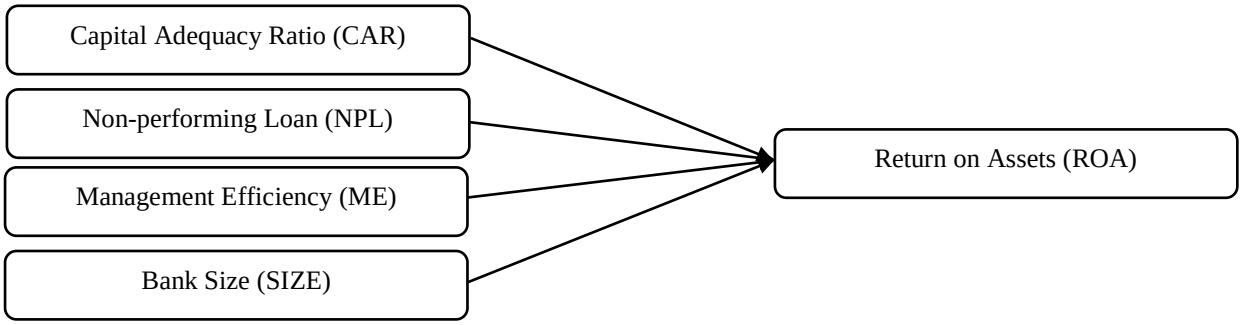

Figure 1. Conceptual framework of the study

In Figure 1, return on assets (ROA) is designated as the dependent variable, while capital adequacy ratio (CAR), non-performing loans (NPL), management efficiency (ME), and bank size (SIZE) are treated as independent variables. Among these, CAR, ME, and SIZE are expected to have positive coefficients, indicating a favorable relationship with ROA, whereas NPL is anticipated to carry a negative coefficient, reflecting an inverse relationship. It is hypothesized that higher levels of capital adequacy, improved management efficiency, and larger bank size will enhance financial performance, while a higher proportion of non-performing loans will adversely affect the financial performance.

3. Research methodology

This study adopts a positivist research philosophy, which emphasizes objective measurement and statistical analysis of observable phenomena. The research follows a deductive approach, testing hypotheses derived from existing theories and prior empirical studies.

To achieve its research objectives, this study employs a descriptive and causal-comparative research design, aimed at providing a systematic, factual, and accurate representation of the characteristics of the target population. Out of the 20 commercial banks operating in Nepal (as of mid-April 2025), a sample of 12 banks is selected using a judgmental (purposive) sampling technique. The analysis is based on secondary data obtained from the annual reports of the selected banks, resulting in an unbalanced panel dataset of 96 bank-year observations covering the fiscal period from 2016/17 to 2023/24.

To evaluate the level and characteristics of the sample commercial banks, descriptive statistics—specifically the mean and standard deviation—are employed. Correlation analysis is conducted to examine the relationships between the dependent variable (Return on Assets - ROA) and the independent variables: CAR, NPL, ME, and SIZE. Furthermore, to assess the impact of these independent variables on the financial performance of the sampled commercial banks, regression analysis is utilized in this study.

Variables and the operational definitions

Table 1

Study Variables and Definitions

Variables	Measures
Return on Assets (ROA)	Net profit divided by Total assets
Capital Adequacy Ratio (CAR)	(Tire I + Tire II Capital) divided by Risk-weighted assets
Non-performing Loan (NPL)	Non-performing loan divided by Total loans
Management Efficiency (ME)	Total operating profit divided by (Interest income+Non-interest income)
Bank size (SIZE)	Natural logarithm of Total assets

Empirical Model

The model to be analyzed in the research is as follows:

$$\mathbf{ROA = \alpha + \beta_1 CAR + \beta_2 NPL + \beta_3 ME + \beta_4 SIZE + \varepsilon}$$

Where,

ROA = Return on assets

α = Constant

β_1, β_2, β_3, and β_4 = Coefficient parameters

CAR = Capital adequacy ratio

NPL = Non-performing loan

ME = Management efficiency

SIZE = Bank size

4. Results

This section presents empirical results, based on cross-sectional panel data utilized in this research.

Descriptive Analysis

Descriptive analysis was conducted to examine the key characteristics of the variables included in the study. As presented in Table 2, the descriptive statistics for the dependent variable (ROA) and independent variables (CAR, NPL, ME, and SIZE) are based on a sample of 96 observations (N = 96) covering the fiscal period from 2016/17 to 2023/24. The analysis incorporates measures such as mean, standard deviation, minimum, and maximum values to provide a comprehensive overview of the data distribution.

Table 2

Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
ROA	0.14	2.69	1.52	0.46
CAR	10.84	22.99	13.63	2.02
NPL	0.01	4.96	1.12	0.93
ME	31.77	104.04	50.18	13.93
SIZE	1.63	2.72	2.17	0.24

Note: N=96

Table 2 depicts that the return on assets (ROA) of the sample commercial banks ranges from a minimum of 0.14 to a maximum of 2.69. The mean value is 1.52 on average, which implies that sample commercial banks earn 1.52 percent on their assets. Similarly, the standard deviation is 0.46. It indicates that there is moderate variation around the mean. Similarly, the capital adequacy ratio indicates the commercial bank's capital relative to its risk-weighted assets and reflects the financial stability and ability to absorb losses of the commercial bank. Capital adequacy ratio ranges from a minimum of 10.84 to a maximum of 22.99. The mean of the capital adequacy ratio is 13.63 percent, which is above the Basel III minimum requirement of 8.5 percent (Capital Adequacy Framework 2015, NRB). The standard deviation of CAR is 2.02, which indicates moderate dispersion in capital strength across banks. Likewise, the non-performing loan ratio ranges from 0.01 to 4.96. The mean and standard deviation are 1.12 and 0.93, respectively. It implies that, on average, 1.12 percent of the loans of the sample commercial banks are non-performing, and the standard deviation of 0.93 indicates some variability in loan quality among the sample commercial banks of Nepal. Similarly, management efficiency ranges from 31.77 to 104.04. The mean and standard deviation are 50.18 and 13.93, respectively. Among the study variables, the standard deviation of management efficiency is highest, and it suggests that there is high deviation in the management efficiency of the sample commercial banks in Nepal. Likewise, Bank size ranges from 1.63 to 2.72. The average sample bank size is 2.17, and the standard

deviation is 0.24, which shows the low variation in the size of the sample commercial banks in Nepal. It indicates the sample banks are relatively similar in size.

Correlation Analysis

Spearman's correlation coefficient was employed to examine the strength and direction of the association between the study variables—return on assets (ROA), capital adequacy ratio (CAR), non-performing loans (NPL), management efficiency (ME), and bank size (SIZE). The results of the correlation analysis are presented in Table 3.

Table 3

Correlations Analysis

	ROA	CAR	NPL	ME	SIZE
ROA	1				
CAR	.296**	1			
NPL	-.468**	-.221*	1		
ME	.674**	.342**	-.318**	1	
SIZE	-.497**	-.237*	.378**	-.434**	1

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

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

Table 3 reveals a significant ($r = 0.296$, $p<0.01$) positive relationship between capital adequacy ratio (CAR) and return on assets (ROA). The moderately significant relationship between CAR and ROA implies that banks with higher capital ratios tend to have higher profitability. Similarly, non-performing loan (NPL) and return on assets (ROA) have a significant ($r = -0.468$, $p < 0.01$) negative association. It suggests that as non-performing loans increase, return on assets decreases significantly and vice versa. High non-performing loans mean more bad debt, which reduces interest income and results in higher provisioning costs, resulting in lower profits in commercial banks. Likewise, there is a significant ($r = 0.674$, $p < 0.01$) positive relationship between management efficiency (ME) and return on assets (ROA) in sample commercial banks. It shows that the higher the management efficiency of the bank, the higher the return. Similarly, there is a significant ($r = -0.497$, $p < 0.01$) negative relationship between bank size and return on assets of sample commercial banks. It indicates that larger banks (higher size) tend to have lower return on assets in the sample commercial banks in Nepal.

Regression Analysis

The regression analysis was conducted to investigate the impact of capital adequacy (CAR), non-performing loans (NPL), management efficiency (ME), and bank size (SIZE) on the

financial performance—measured by return on assets (ROA)—of the sampled commercial banks in Nepal. The results of the regression analysis are presented in Table 4.

Table 4
Regression Analysis

	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	1.482	0.467		3.176	0.002
CAR	0.006	0.017	0.026	0.349	0.728
NPL	-0.114	0.038	-0.231	-2.973	0.004
ME	0.017	0.003	0.513	6.261	0.000
SIZE	-0.354	0.159	-0.181	-2.226	0.028
R-square = 0.552					
Adjusted R-square = 0.532					
F-Stat. = 27.996					
F-sig. = 0.000					

Table 4 presents the results of the regression analysis conducted in this study. The adjusted R^2 value of 53.20% indicates that the independent variables—capital adequacy ratio (CAR), non-performing loans (NPL), management efficiency (ME), and bank size (SIZE)—collectively explain 53.20% of the variation in financial performance, as measured by return on assets (ROA). The remaining 46.80% is attributed to other factors not included in the model. The F-statistic is significant ($p = 0.000$), which is below the 0.05 threshold, confirming that the overall regression model is statistically significant and well-fitted to the data.

The regression results show that management efficiency (ME) has a statistically significant positive impact on ROA. This suggests that improved management efficiency leads to higher profitability, implying that more efficient banks tend to generate better returns on their assets. In contrast, both non-performing loans (NPL) and bank size (SIZE) exhibit a significant negative relationship with ROA. An increase in NPLs is associated with a decline in profitability, highlighting the adverse impact of credit risk on financial performance. Similarly, larger bank size is linked to lower returns on assets, suggesting

potential inefficiencies or diseconomies of scale among larger commercial banks in Nepal. Interestingly, the capital adequacy ratio (CAR) was found to have no statistically significant effect on ROA, indicating that higher capital buffers, while important for stability, do not directly enhance profitability in the sample banks during the study period.

Hypotheses Testing

Table 5 summarizes the results of the hypothesis testing.

Table 5

Test of Hypotheses

Hypothesis	Statement	P-value	Result
H_1	Capital adequacy ratio positively and significantly influences the return on assets of commercial banks in Nepal.	0.728	Rejected
H_2	Non-performing loans negatively and significantly affect the return on assets of commercial banks in Nepal.	0.004	Accepted
H_3	Management efficiency exerts a positive and significant impact on the return on assets of commercial banks in Nepal.	0.000	Accepted
H_4	Bank size has a positive and significant relationship with the return on assets of commercial banks in Nepal.	0.028	Accepted

Table 5 shows that hypotheses H2, H3, and H4 are accepted, while H1 is rejected. This indicates that non-performing loans (NPL), management efficiency (ME), and bank size (SIZE) have a statistically significant impact on the return on assets (ROA) of the sampled commercial banks in Nepal. Specifically, NPL and SIZE negatively influence ROA, whereas ME has a positive effect. In contrast, the capital adequacy ratio (CAR) does not exhibit a significant relationship with ROA, suggesting that it does not significantly affect the financial performance of the sample banks during the study period.

5. Discussion

This study aims to examine the impact of bank-specific variables—capital adequacy ratio (CAR), non-performing loans (NPL), management efficiency (ME), and bank size (SIZE)—on the financial performance of Nepalese commercial banks, measured by return on assets (ROA). The results indicate that non-performing loans (NPL) and bank size (SIZE) have a significant negative effect on ROA, suggesting that higher levels of loan defaults and larger bank size are associated with lower profitability. This finding is consistent with previous studies by Athanasoglou et al. (2008), Aamir (2012), Shrestha (2018), Saha and Kabir (2019), Dahal (2020), and Siddique, Khan and Khan (2022). However, it contradicts the results of Berger and Bonaccorsi di Patti (2006), Shrestha (2018), Dahal (2020), and Atisu et al. (2024), who reported a positive or insignificant relationship.

Conversely, management efficiency (ME) is found to have a significant positive effect on ROA, implying that more efficient management practices contribute to improved bank profitability. This result aligns with the findings of Molyneux and Thornton (1992), Kumar and Gulati (2013), Adhikary (2014), Muhmad and Hashim (2015), and Sibakoti and

Pokharel (2022). However, it contrasts with the study by Poudel (2016), which reported a negative or non-significant relationship. Notably, capital adequacy ratio (CAR) was found to have no significant effect on ROA, indicating that while adequate capital is essential for financial stability, it does not directly translate into enhanced profitability in the context of Nepalese commercial banks during the study period.

The banking sector, particularly commercial banks, plays a pivotal role in driving Nepal's economic growth and development. This study investigates the impact of key bank-specific factors—capital adequacy ratio (CAR), non-performing loans (NPL), management efficiency (ME), and bank size (SIZE)—on the financial performance of commercial banks in Nepal, as measured by return on assets (ROA). The findings reveal that these variables significantly influence bank profitability, underscoring their importance in shaping financial outcomes. Given the substantial effect of these factors, the results offer valuable insights for bank managers, policymakers, and investors in Nepal. By considering the implications of credit risk, operational efficiency, capital management, and scale of operations, stakeholders can make more informed and strategic decisions to enhance bank performance and contribute to the overall stability and growth of the financial system.

6. Conclusion

This study examined the effect of bank-specific variables, namely capital adequacy ratio, non-performing loan, management efficiency, and bank size, on the financial performance of commercial banks in Nepal. Financial performance is measured using return on assets (ROA), a widely accepted proxy in banking and finance research. The analysis is based on data collected from 12 sample commercial banks over multiple fiscal years (i.e., 2016/17 to 2023/24), employing a panel data approach to capture both cross-sectional, and time-series dimensions.

The empirical findings suggest that the selected bank-specific variables collectively account for a significant proportion of the variation in ROA among the sampled banks. This indicates that internal factors such as capital adequacy, asset quality, operational efficiency, and institutional scale (bank size) play a crucial role in shaping financial performance. The statistical significance of the overall model confirms its suitability for hypothesis testing and underscores the relevance of these variables in explaining financial performance.

Further results from multiple linear regression analysis reveal nuanced relationships: non-performing loans and bank size exhibit a significant negative influence on ROA, implying that higher levels of non-performing loans and larger bank size may be associated with reduced profitability. In contrast, management efficiency demonstrates a significant positive effect, suggesting that better operational practices contribute to improved financial performance. These findings offer valuable insights for bank managers, regulators, and policymakers aiming to enhance the financial health and sustainability of Nepalese commercial banks.

7. Scope for future research

This study focuses on the impact of bank-specific variables—namely capital adequacy ratio (CAR), non-performing loans (NPL), management efficiency (ME), and bank size (SIZE)—on the return on assets (ROA) of commercial banks in Nepal. While the analysis provides valuable insights, future research can expand the scope by incorporating additional micro-level and macro-level variables. Potential independent variables could include economic indicators such as GDP growth rate, inflation, interest rates, exchange rates, money supply, and broader measures of asset quality. These factors may offer a more comprehensive understanding of the internal and external forces influencing bank performance. In addition to ROA, researchers may consider alternative measures of financial performance as dependent variables, such as return on equity (ROE), net profit margin (NPM), and earnings per share (EPS), allowing for a more nuanced assessment of profitability and performance.

Furthermore, this study relies solely on secondary data. Future studies could complement such data with primary sources—such as surveys or interviews with banking professionals—analyzed using advanced statistical techniques to enhance the depth and validity of findings. Lastly, while the current research covers an 8-year period (2016/17–2023/24) with 96 bank-year observations, future researchers are encouraged to extend the time frame to more than 10 years and include a larger sample of banks. This would improve the robustness of the analysis and allow for better generalization of results across different economic cycles and regulatory environments.

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