Bank Performance in Nepal: The Interplay of Bank-specific and Macroeconomic Metrics

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Abstract

The financial performance or profitability of any entity is closely linked to both internal and external factors. This study examines the determinants of profitability in Nepalese commercial banks, focusing on a sample of five banks from 2010/11 to 2020/21. Using multiple linear regression models, the analysis found negative significant impact of and non-performing loans and liquidity on bank performance. Both ROA and ROE exhibited significant positive relationship with financial development. Although GDP had a positive impact on bank performance, the relationship is statistically insignificant. The findings suggest that internal factors, particularly asset quality and liquidity management, play a critical role in determining bank profitability. The study highlights the critical need for stringent NPL management and efficient liquidity strategies to enhance bank profitability, providing valuable guidance for policymakers, bank management, and investors in improving financial stability and performance.

Keywords: profitability, non-performing loans, liquidity management, commercial banks

Introduction

Commercial banks play a crucial role in the economic development of any country by mobilizing savings, providing credit, and facilitating trade and investment. In the context of Nepal, the financial sector significantly contributes to economic growth, albeit with certain asymmetrical effects (Gajurel et al., 2021; Pandey et al., 2024). The development of this sector has been further influenced by foreign direct investment and strategic financial policies aimed at sustaining economic expansion (Adhikari et al., 2023). Financial reforms have thus played a pivotal role in enhancing the stability and efficiency of Nepal's banking sector (Pandey et al., 2022).

The profitability of commercial banks, often referred to as financial performance, is fundamental to their stability and growth. This profitability is influenced by both internal (bank-specific) and external (macroeconomic) factors (Bhattarai, 2018). Internal factors such as operational efficiency, asset quality, and risk management capabilities play a critical role in driving profitability (Barney, 1991; Bhattarai, 2016). External determinants, including GDP growth, financial development, and market conditions, significantly shape the macroeconomic environment in which banks operate (Smirlock, 1985; Demirgüç-Kunt & Huizinga, 1999). Understanding the interplay between these factors is essential for identifying key drivers of profitability.

A firm's financial performance is typically assessed by analyzing financial statements, including balance sheets and income statements, to discern trends and patterns (Gautam, 2018). This analysis provides critical insights for stakeholders to make informed decisions regarding investment, policy formulation, and operational improvements. Effective financial systems, through efficient resource mobilization, facilitate the allocation of capital, which in turn supports economic growth (Padachi, 2006).

Nepal's financial system has evolved significantly since the establishment of Nepal Bank Ltd in 1937 and the Nepal Rastra Bank (NRB) in 1956. This development has expanded the financial landscape to include a diverse range of banking and non-banking institutions. As of 2022, Nepal's financial sector comprises 27 commercial banks, 20 development banks, 22 finance companies, and 72 microfinance companies, among other entities (NRB, 2021).

Numerous studies have explored the determinants of profitability in the banking sector, but there are significant gaps when contextualizing these findings for Nepal. For instance, Al Shaher et al. (2011) and Mohana and Tekeste (2012) focused on global and regional banking systems, emphasizing the influence of internal factors like operational efficiency and asset quality. However, these studies do not account for Nepal's unique regulatory environment and macroeconomic conditions. Similarly, Sufian and Habibullah (2009) and Almaqtari et al. (2018) highlighted the role of both internal and external determinants in bank profitability, but their conclusions are based on data from economies with more developed banking sectors, limiting their applicability to Nepal, which has a smaller, less mature financial system. Moreover, most of these studies predate significant regulatory changes, such as the Nepal Rastra Bank's mandatory capital requirement of 8 billion NPR in 2015, leaving a critical gap in understanding the effects of such policies.

Within Nepal, research is sparse and often lacks focus on recent economic and operational challenges. For instance, Shrestha (2015) examined both internal and external determinants of bank performance but did not include the effects of transformative events such as the unofficial blockade or the COVID-19 pandemic, which have had substantial impacts on the banking sector. Similarly, Gurung and Gurung (2022) analyzed credit-to-deposit ratios and economic activity but did not investigate the interplay between these factors and macroeconomic variables like GDP growth and inflation. Recent works like Poudel (2023) and Mishra and Kandel (2023) have discussed improved operational performance and economic conditions but fail to provide a comprehensive framework integrating internal and external profitability drivers. These gaps underline the need for a study that incorporates both historical and recent data, captures the effects of regulatory and economic changes, and applies robust theoretical frameworks such as the Resource-Based View, Market Power Theory, and Portfolio Theory. This research aims to address these shortcomings by examining the determinants of profitability in Nepalese commercial banks from 2011 to 2021, offering insights tailored to the unique dynamics of Nepal's banking sector.

This paper begins by reviewing existing literature on the determinants of commercial bank profitability, focusing on Nepal's unique regulatory and economic context. It integrates theoretical frameworks such as the Resource-Based View, Market Power Theory, and Portfolio Theory to examine the interplay of bank-specific and macroeconomic factors. The data and methodology section outlines the selection of key determinants, including internal factors like

non-performing loans and liquidity and external factors such as GDP growth and financial development, and explains the regression models used for analysis. The results highlight that internal factors, particularly asset quality and liquidity management, play a more significant role than macroeconomic variables in determining profitability. For instance, non-performing loans and liquidity ratios negatively impact both Return on Assets (ROA) and Return on Equity (ROE), while GDP growth shows an insignificant relationship with profitability. The study concludes with actionable insights for policymakers and bank managers, emphasizing the importance of internal optimization strategies to enhance financial stability and profitability, thereby addressing critical gaps in the existing literature on Nepal's banking sector.

Literature Review

This study draws on an integrated theoretical framework combining the Resource-Based View (RBV), Market Power Theory, and Portfolio Theory to examine the determinants of profitability in Nepalese commercial banks. The Resource-Based View emphasizes that a bank's unique internal resources, such as efficient risk management systems, technological capabilities, and skilled workforce, are critical in driving competitive advantage and profitability (Barney, 1991). These internal factors, including liquidity and non-performing loans, directly influence financial performance by optimizing operational efficiency and mitigating risks.

Complementing this perspective, Market Power Theory suggests that banks with greater market influence can leverage their position to achieve higher profitability through pricing strategies and reduced competition (Smirlock, 1985). This highlights the role of macroeconomic factors, such as GDP growth and financial development, which shape the competitive landscape and external opportunities for banks. Additionally, Portfolio Theory underscores the importance of diversification in managing financial risks and maximizing returns (Markowitz, 1952). By strategically balancing their asset portfolios, banks can minimize the impact of non-performing loans and liquidity constraints, thereby enhancing profitability metrics such as Return on Assets (ROA) and Return on Equity (ROE). Together, these theories provide a comprehensive framework for understanding how internal capabilities, market dynamics, and risk management practices interact to influence the financial performance of commercial banks.

Performance in a banking context typically relates to the returns these institutions provide, which help gauge their market position. Evaluating performance involves examining the determinants that affect returns, whether internal or external to the bank. This process involves analyzing financial statements to establish connections between various indicators and the entity's overall financial health (Ahuja & Majumdar, 1998).

The analysis of profitability includes evaluating a company's position and operations in terms of value, particularly through indicators such as liquid funds, leverage, and management operations. Ratios are a common means of assessing a company's performance, as they help in understanding the company's objectives, comparing them with achieved targets, and identifying problems and potential solutions (Padachi, 2006; Pradhan, 1986). Different researchers have defined performance in various ways, generally revolving around the entity's input and output functions, with profitability often serving as a primary measure. Understanding an entity's performance involves studying its strengths and weaknesses,

analyzing trends, and evaluating financial statements and their components over time (Pradhan, 1986). Profitability analysis has often focused on theoretical frameworks such as the Resource-Based View (RBV) and Agency Theory, which explain how internal resources and governance structures affect financial outcomes (Barney, 1991; Jensen & Meckling, 1976). The RBV emphasizes that banks can achieve superior profitability through effective utilization of unique resources, such as technological capabilities and skilled human resources, while Agency Theory highlights the role of managerial decisions and alignment of interests between stakeholders. These theories provide a foundation for understanding the complex dynamics of profitability.

Profitability analysis involves a thorough examination and interpretation of financial statements to gauge an enterprise's economic soundness. Financial performance analysis focuses on various metrics such as assets, liabilities, and returns to evaluate whether these factors are optimized. Financial ratios play a crucial role in this evaluation by identifying positions of liquidity, leverage, and working capital within or among financial institutions (Sufian, 2011).

For shareholders, profitability analysis is essential to make informed decisions about holding or selling shares, as they are interested in the stability of present and future income, having invested their money in the company (Bhattarai, 2016). Management requires performance evaluation to formulate future plans and policies, focusing on internal management, financial conditions, and opportunities (Bhattarai, 2016). Creditors and depositors seek the safety of their deposits, and a bank’s performance, reflected in sufficient liquidity control, influences their decisions about maintaining or expanding deposits (Bhattarai, 2016). Investors look for opportunities that provide high returns with low risk, relying on profitability analysis to understand existing and future earnings (Bhattarai, 2016).

Numerous studies have identified both internal (bank-specific) and external (macroeconomic) factors as key determinants of bank profitability. Al Shaher et al. (2011) narrowed their study to five essential factors, including a mix of internal and external variables. Mohana and Tekeste (2012) highlighted internal factors as the primary drivers of profitability, suggesting that management's actions significantly impact bank performance. More recent research by Tyagi and Ghimire (2023) has confirmed these findings, indicating that bank-specific metrics like asset quality and operational efficiency are critical profitability drivers in Nepal. Determinants of profitability are typically categorized into bank-specific determinants, which are factors that banks can control, such as leverage, returns, and size, and macroeconomic determinants, which are factors beyond the bank's control, dependent on the broader economic environment, such as financial development, GDP growth, and employment rates.

Bank performance is often measured using indicators such as Return on Assets (ROA) and Return on Equity (ROE). ROA measures the income generated by the bank relative to its total assets, indicating how well the bank utilizes its resources (European Central Bank, 2010). ROE shows the shareholder's return on their initial investment, reflecting the firm’s profitability from the shareholder’s perspective (Siraj & Pillai, 2012).

Yousfi (2016) identified two profit metrics: profits in terms of assets (ROA) and profits in terms of equity (ROE), both affected by internal and external factors. Sufian (2011) found a

negative relationship between liquidity and profits, while Growe et al. (2014) observed a negative relationship between non-performing assets and profitability. Adebisi and Matthew (2015) and Kiran and Jones (2016) further explored these relationships, noting the significant impact of management conduct on profitability.

Vieira (2010) and Rani and Zergaw (2017) examined the relationship between liquidity and profitability, with mixed results. Kamran et al. (2016) and Ongore and Kusa (2013) found that external determinants significantly impact profitability, with internal determinants showing varying degrees of influence. Demirgüç-Kunt and Huizinga (1999) found a positive relationship between inflation and profitability, as rising costs increase bank margins. Boadi et al. (2013) concluded that capital adequacy, asset quality, and liquidity management significantly influence profitability. Almaqtari et al. (2018) identified significant impacts of both internal and external determinants on profitability. Sufian and Habibullah (2009) highlighted the dominant role of bank-specific determinants, while Shrestha (2015) confirmed the influence of both types of determinants in Nepal.

Gurung and Gurung (2022) found significant impact of credit to deposit ration on the return on assets and net interest margin of commercial banks. They also found that the growth of economic activities positively impacts the profitability of the commercial banks. Recent analyses (Poudel, 2023; Mishra and Kandel, 2023) have highlighted that improved operational performance and better economic conditions have further enhanced the profitability of Nepalese banks.

While substantial research has been conducted on the profitability and financial performance of banks, there is a noticeable gap in contemporary studies focusing specifically on the determinants of bank profitability in Nepal's commercial banking sector. Previous studies, such as those by Al Shaher et al. (2011) and Mohana and Tekeste (2012), primarily focus on different geographical regions and may not fully capture Nepal's unique economic and regulatory environment. Moreover, existing literature often relies on data predating significant changes in the Nepalese banking sector, such as the Nepal Rastra Bank's mandatory provision of 8 billion paid-up capital in 2015, as well as recent economic events like the unofficial blockade and the COVID-19 pandemic, which have likely altered the operational landscape. Therefore, this study aims to bridge this gap by incorporating more recent studies and data from 2011 to 2021, focusing on the interplay between bank-specific and macroeconomic determinants of profitability.

Materials and Method

A descriptive research design was employed to systematically examine the relationship between profitability and its determinants. The study explored the impact of bank-specific and macroeconomic factors on financial performance, ensuring a structured approach to data collection and analysis. Convenience sampling was used to select five banks: two government banks, one foreign bank, one joint venture bank, and one private bank. While convenience sampling enabled rapid and efficient data collection, its limitations in representativeness suggest future research should consider probability sampling methods, such as stratified random sampling, to better capture the diversity of the banking population. The study period, spanning 2010/11 to 2020/21, was chosen to include the most recent and relevant data. The

data was taken from annual reports of the sampled banks and publications from the Nepal Rastra Bank.

The dependent variables, Return on Assets (ROA) and Return on Equity (ROE) were selected to measure bank performance based on their prominence in prior research (European Central Bank, 2010). The independent variables included two internal determinants—Liquidity Ratio (LIQ) and Non-Performing Loans (NPL) and two external determinants—GDP Growth Rate (GDPGR) and Financial Development Index (FinDev). These variables were chosen due to their consistent relevance in explaining profitability across banking institutions. Building on frameworks by Vieira (2010) and Molyneux and Thornton (1992), the study examines how these internal and external factors collectively influence profitability. Internal determinants, influenced by a bank's management and policies, were sourced from annual reports and NRB statistics, while external determinants, such as macroeconomic conditions and market structures, were derived from studies like Al-Shubiri (2010) and Perry (1992), providing a robust foundation for the analysis.

Bank-specific (Internal) Independent Determinants: Internal determinants are influenced by the bank's internal environment, including management, culture, policies, and leadership. Vieira (2010) found a weak short-run relationship between ROA and liquidity, while Molyneux and Thornton (1992) observed that higher deposits lead to better profits. Similarly, Growe et al. (2014) noted that non-performing assets negatively impact profitability. Jha & Hui (2012) found that deposits have an insignificant effect on profitability, but higher non-performing loans significantly reduce it. Therefore, liquidity ratio and non-performing loans were selected as internal determinants. Data was sourced from the annual reports of the respective banks and NRB monthly statistics.

Macroeconomic (External) Independent Determinants: External determinants include macroeconomic conditions and market structure. Al-Shubiri (2010) found a significant relationship between GDP growth and bank profitability, while Clements and Galvao (2008) and Perry (1992) found a significant relationship between inflation rates and bank performance. Thus, GDP growth rate and financial development index were chosen as external determinants.

Table 1

Summary of Determinants

Determinants	Description
Dependent determinants	
ROA = Return on Assets	Net income/Total assets of the sample banks
ROE = Return on Equity	Net income/Total equity of the sample banks
Independent determinants	
Bank specific determinants	
LIQ = Liquidity ratio	Total Loan/ Total Deposit of sample banks
Non-performing loan ratio (Asset Quality ratio)	Non-performing loan/ Total Loan
Macroeconomic determinants	
GDPGR = Gross domestic product growth rate	Rate of annual change in GDP
FinDev = Financial Development Index	Index of financial development by IMF

Note. From "Determinants of Financial Performance of Nepalese Commercial Banks: Evidence from Panel Data Approach" by Shrestha (2018), *NRB Economic Review*

Model Specification

A multiple linear regression model was employed to analyze the relationship between explanatory variables and bank profitability, represented by the dependent variables return on assets and return on equity. This approach involves fitting a linear equation to observed data, where changes in independent variables (predictors) are associated with corresponding changes in the dependent variables. The model provides insights into how the selected determinants influence bank performance by quantifying the strength and direction of these relationships.

In this study, the explanatory variables include both bank-specific (internal) factors, such as non-performing loans and liquidity ratio, and macroeconomic (external) factors, including the annual GDP growth rate and financial development. These variables were chosen based on their relevance in prior empirical studies and their potential to explain variations in profitability. The regression model assumes that the independent variables directly influence the dependent variables (ROA and ROE), enabling a comprehensive evaluation of their effects on bank performance. Therefore, the following model were employed for the study of the relationship and effect of the study determinants.

$$\text{Model 1: } ROA = \beta + \beta_1 LIQ_{it} + \beta_2 NPL_{it} + \beta_3 GDPGR_{it} + \beta_4 FinDev_{it} + e_{it} \quad (1)$$

$$\text{Model 2: } ROE = \beta + \beta_1 LIQ_{it} + \beta_2 NPL_{it} + \beta_3 GDPGR_{it} + \beta_4 FinDev_{it} + e_{it} \quad (2)$$

Where,

LIQ_{it} = Liquidity ratio of the sample banks, i^{th} for the time period t

ROA_{it} = Return on assets of the sample banks, i^{th} for the time period t

NPL_{it} = Non-performing loan of the sample banks, i^{th} for the time period t

$GDPGR_{it}$ = Gross Domestic Product Growth rate of the economy for time period t

$FinDev_{it}$ = Financial Development Index of the economy for time period t

β = intercept (constant)

$\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$, = the slope which represents the degree to which bank overall performance changes as the independent variable adjustments by one unit variable.

e = overall error component

α, $\beta 1$, $\beta 2$, $\beta 3$, and $\beta 4$ are individual coefficients.

Result and Discussion

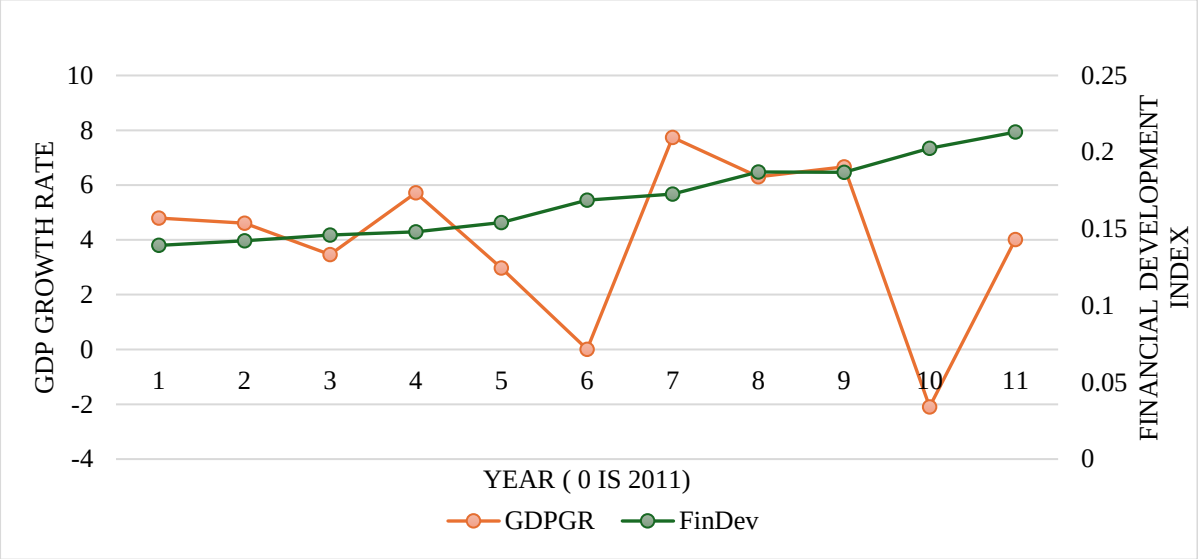
The financial performance of the sampled banks over an 11-year period provides key insights into growth and operational efficiency. ROA and ROE measure efficiency and shareholder returns, while LIQ and NPL reflect internal stability. Macro indicators, GDPGR and FinDev, offer insights into economic and financial development. Data sourced from Nepal Rastra Bank and the IMF, spanning 2010/11 to 2020/21, is visualized to highlight trends and contextualize the determinants of bank performance.

The trend of the Gross Domestic Product Growth Rate (GDPGR) was irregular throughout the study period, reflecting the broader economic instability. These macroeconomic indicators are highly sensitive to the national economic environment. The hope for political stability and increased economic activities were reflected in fluctuating GDPGR. Post-earthquake (2016/17) and during the pandemic (2019/20), the data showed periods of negative

growth and higher inflation, compared to 2019/20, where higher liquidity levels helped lower inflation.

Figure 1

Trend of Macroeconomic Indicators



In contrast, the Financial Development Index (green line) demonstrates a generally upward trend, reflecting improvements in the financial sector. This growth in financial development suggests a gradual strengthening of financial infrastructure, despite economic challenges. Overall, the graph emphasizes the vulnerability of macroeconomic indicators like GDPGR to external shocks, while also highlighting the steady progress in financial development, which plays a crucial role in stabilizing the economy and supporting the performance of Nepalese commercial banks.

Table 2

Descriptive Statistics of the Determinants of Sample Banks

Variable	Minimum	Maximum	Mean	Standard Deviation
ROA	0.65	3.22	1.82	0.60
ROE	(14.58)	102.96	20.32	16.19
NPL	0.15	10.92	2.10	1.86
LIQ	46.08	94.79	74.66	12.82
GDPGR	(2.09)	7.74	4.02	2.80
FinDev	0.1393	0.2131	0.1691	0.0243

From the data in Table 2, the mean ROE was 20.32%, ranging from -14.58% to 102.96%. This is generally considered good, though the high standard deviation indicates significant variability. The mean ROA was 1.82%, which is satisfactory. The mean NPL was 2.10%, ranging from 0.15% to 10.92%; values above 5% are problematic, so this is acceptable. The liquidity ratio remained stable but showed a rising trend in recent years. The average GDPGR over the 11-year period was 4.02%, ranging from -2.09% to 7.74%. The mean financial development index was 0.1691, with a range from 0.1393 to 0.2131, indicating high volatility. GDPGR experienced significant fluctuations, leading to higher standard deviations.

Table 3

Regression Coefficients of ROA With Independent Determinants

Model 1: $ROA_{it} = \beta + \beta_1 NPL_{it} + \beta_2 LIQ_{it} + \beta_3 GDPGR_{it} + \beta_4 FinDev_{it} + e_{it}$

Determinants	Coefficient (β)	Std. Error	t-stat	P-value	Result (Significance)
(Constant)	2.381	0.581	4.205	0.000	
NPL	-0.125	0.038	-3.309	0.002	Yes
LIQ	-0.010	0.004	-2.15	0.037	Yes
GDPGR	0.083	0.039	2.08	0.105	No
FinDev	2.183	0.962	2.27	0.023	Yes
Regression Statistics					
Multiple R		0.918	Standard Error		0.7139
R Squared		0.843	Observations		55
Adjusted R Squared		0.830			

The table presents the regression analysis results for the relationship between ROA and four independent variables: NPL, LIQ, GDPGR, and FinDev. The multiple R value is 0.918, indicating a strong positive correlation (91.8%) between ROA and these variables. An R-squared value of 0.843 suggests that 84.3% of the variation in ROA is explained by the independent variables, leaving 15.7% unexplained. Adjusted R-squared, accounting for the number of predictors, is slightly lower at 0.830, confirming a strong model fit.

The analysis reveals that most independent variables significantly influence ROA at the 0.05 level, except for GDPGR (P-value = 0.105). NPL has a negative and significant impact on ROA, with a coefficient of -0.125, indicating that an increase in NPL reduces ROA. LIQ also negatively affects ROA, with a coefficient of -0.010. On the other hand, FinDev positively impacts ROA, with a coefficient of 2.183, suggesting that improvements in financial development enhance profitability. Although GDPGR has a positive coefficient of 0.083, its effect on ROA is not statistically significant.

Table 4

Regression Coefficients of ROE With Independent Determinants

Model 2: $ROE_{it} = \beta + \beta_1 NPL_{it} + \beta_2 LIQ_{it} + \beta_3 GDPGR_{it} + \beta_4 FinDev_{it} + e_{it}$

Determinants	Coefficient (β)	Std. Error	t-stat	P-value	Result (Significance)
(Constant)	48.128	16.23	2.958	0.003	Yes
NPL	-0.652	1.274	-2.80	0.005	Yes
LIQ	-0.481	0.221	-2.17	0.030	Yes
GDPGR	0.386	0.259	1.49	0.136	No
FinDev	2.516	1.227	2.05	0.046	Yes
Regression Statistics					
Multiple R		0.941	Standard Error		15.812
R Squared		0.885	Observations		55
Adjusted R Squared		0.875			

The table presents the regression analysis results for the relationship between ROE and four independent variables: NPL, LIQ, GDPGR, and FinDev. The multiple R value is 0.941, indicating a strong positive correlation (94.1%) between ROE and these variables. The R-squared value of 0.885 suggests that 88.5% of the variability in ROE is explained by the independent variables, while 11.5% remains unexplained. The adjusted R-squared of 0.875 confirms a robust fit, slightly accounting for the number of predictors.

The analysis reveals that most variables significantly impact ROE at the 0.05 significance level. NPL has a positive and significant effect on ROE, with a coefficient of 0.652, indicating that higher NPLs are associated with increased ROE. LIQ has a negative and significant relationship with ROE, with a coefficient of -0.481, suggesting that higher liquidity ratios reduce ROE. FinDev also has a positive and significant impact on ROE, with a coefficient of 2.516. However, GDPGR shows a positive but statistically insignificant relationship with ROE (coefficient = 0.386, P-value = 0.136), indicating that changes in GDP growth have no significant effect on ROE within this model.

The diagnostic tests conducted in this study confirm the robustness of the regression models for both ROA and ROE. The Durbin-Watson statistic values (ROA: 1.946, ROE: 1.781) fall near the ideal value of 2, indicating no significant autocorrelation in the residuals. Variance Inflation Factor (VIF) values for all independent variables are below 5 (e.g., NPL: 1.144, LIQ: 1.181, GDPGR: 1.121, FinDev: 1.317), confirming the absence of multicollinearity among the predictors. Furthermore, White's test results demonstrate no evidence of heteroscedasticity, as the significance values for ROA ($p = 0.767$) and ROE ($p = 0.213$) are both greater than the standard threshold of 0.05. These diagnostic outcomes validate the assumptions underlying the regression models, ensuring the reliability and accuracy of the findings presented in this study.

The findings of this study highlight significant insights into the determinants of profitability for Nepalese commercial banks, providing avenues for comparison with prior research. The negative impact of NPL on profitability is evident in both Return on Assets (ROA, $\beta = -0.125$) and Return on Equity (ROE, $\beta = -0.652$). This aligns with Sufian (2011) and Growe et al. (2014), who found a similar detrimental effect of NPL on profitability across various banking systems. However, the magnitude of the impact in this study is slightly higher, suggesting a more pronounced vulnerability in the Nepalese banking sector. Conversely, Jha (2014) reported a weaker relationship between NPL and profitability in Nepal, potentially due to differences in sample size or periods of economic stability during their analysis. This underscores the critical importance of managing NPL effectively to sustain profitability, particularly in developing economies.

LIQ also demonstrated a significant negative relationship with profitability, with coefficients for ROA ($\beta = -0.010$) and ROE ($\beta = -0.481$). This result supports findings by Ongore and Kusa (2013) and Vieira (2010), who noted that excess liquidity could hinder profitability due to underutilized resources. The negative impact of LIQ contrasts with Molyneux and Thornton (1992), who observed a positive relationship in European banks, suggesting regional variations in liquidity management practices. The conservative approach to liquidity management in Nepalese banks may reflect regulatory emphasis on safeguarding financial stability amidst economic uncertainties. This divergence calls for a balanced approach where liquidity levels are optimized for efficiency without compromising risk management.

The macroeconomic determinants revealed contrasting outcomes. The GDPGR showed a positive but statistically insignificant impact on profitability (ROA: $\beta = 0.083$, ROE: $\beta = 0.386$). This finding is consistent with Bhattarai (2018) and Shrestha (2015), who also reported limited direct influence of GDP growth on Nepalese banks' performance. However, Yousfi (2016) found GDP growth to significantly enhance profitability in Islamic banks, highlighting contextual differences in banking systems and economic environments. On the other hand, the

FinDev exhibited a significant positive relationship with profitability (ROA: $\beta = 2.183$, ROE: $\beta = 2.516$), underscoring the critical role of financial infrastructure improvements. This aligns with Al-Shubiri (2010) and Almaqtari et al. (2018), who emphasized that financial development enhances banking performance by facilitating efficient resource allocation and risk management.

Comparing coefficients across the independent variables, FinDev consistently showed the highest positive impact on both ROA and ROE, emphasizing the transformative potential of a well-developed financial sector. NPL had the most significant negative impact, reiterating the importance of maintaining asset quality. The relatively smaller coefficients for LIQ highlight its indirect role in profitability, where inefficiencies in liquidity utilization modestly hinder performance. The insignificance of GDPGR coefficients suggests that broader economic growth does not directly translate to higher profitability in Nepalese banks, likely due to structural inefficiencies or external economic disruptions such as earthquakes or pandemics. These comparisons provide a nuanced understanding of how internal and external factors differentially influence profitability, revealing actionable insights for policymakers and bank managers.

Conclusion

The findings of this study provide a comprehensive understanding of the determinants of profitability in Nepalese commercial banks, highlighting the interplay between internal and macroeconomic factors. Non-performing loans exhibited a significant negative impact on profitability metrics, emphasizing their critical role as a determinant of bank performance. Liquidity ratio also demonstrated a negative relationship with profitability, albeit with limited statistical significance, reflecting inefficiencies in liquidity management. On the other hand, macroeconomic variables such as the GDP growth and the financial development showed positive but statistically insignificant relationships with profitability indicators, suggesting a limited direct influence of external economic growth and financial sector development on bank performance during the study period.

These results underscore the dominant role of internal factors, particularly asset quality and liquidity management, in shaping the profitability of Nepalese banks. While macroeconomic variables provide important contextual insights, their direct contribution to profitability appears less significant in the context of the sampled banks and study period. The robust diagnostic tests, including evaluations for autocorrelation, multicollinearity, and heteroscedasticity, affirm the reliability of the regression models and the validity of the findings. Overall, this study enriches the understanding of profitability dynamics in Nepalese commercial banks, offering valuable insights into the factors that drive financial performance in a developing economy.

Implications of This Study

The findings of this study carry important implications for stakeholders in the Nepalese banking sector. The significant negative impact of Non-Performing Loans (NPL) on profitability underscores the need for enhanced credit risk management practices. Policymakers and regulators must prioritize measures to strengthen asset quality, such as stricter loan screening and improved recovery mechanisms, to ensure financial stability. While macroeconomic variables like GDP growth and financial development showed limited direct

influence, fostering a stable and supportive economic environment remains critical to reducing external vulnerabilities.

For bank management, the results highlight the need to optimize liquidity management and address inefficiencies in asset utilization. The negative relationship between liquidity and profitability suggests a careful balance is required to maintain adequate liquidity while ensuring its productive deployment. Investors can also draw valuable insights from these findings by focusing on internal factors, such as asset quality and operational efficiency when evaluating investment opportunities. Overall, this study underscores the importance of strengthening internal controls and leveraging financial sector improvements to enhance the profitability and resilience of Nepalese commercial banks.

Limitations and Direction for Future Study

This study relies on data from only five commercial banks over an 11-year period, which may limit the generalizability of its findings. Future research could include a larger sample size and extended time frame to capture broader trends. Additionally, the study focuses on traditional profitability determinants like non-performing loans, liquidity ratio, gross domestic product growth rate, and financial development index but overlooks increasingly relevant emerging factors such as digital transformation, climate risks, and shifts in customer behavior. Incorporating these factors and using advanced econometric techniques, such as dynamic panel data models, could provide deeper insights and more comprehensive recommendations for policymakers and practitioners.

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Annex A: Bank Specific Data

Bank	Crossid	Year	ROA	ROE	NPL	LIQ
RBB	1	2011	1.67	-14.58	10.92	49.91
RBB	1	2012	0.66	-6.85	7.27	46.08
RBB	1	2013	1.24	102.96	5.31	53.84
RBB	1	2014	1.06	49.67	3.95	56.73
RBB	1	2015	3.22	69.56	3.38	62.05
RBB	1	2016	1.03	19.53	3.95	58.46
RBB	1	2017	1.55	26.48	2.35	69.3
RBB	1	2018	1.49	18.09	2.9	73.61
RBB	1	2019	2.23	23.38	3.9	76.8
RBB	1	2020	1.67	18.99	4.08	67.18

Bank	Crossid	Year	ROA	ROE	NPL	LIQ
RBB	1	2021	1.22	12.58	3.07	73.71
NABIL	2	2011	2.3	29.29	2.01	89.84
NABIL	2	2012	2.68	31.12	2.26	77.91
NABIL	2	2013	2.98	28.95	2.31	74.9
NABIL	2	2014	1.88	19.71	2.23	74.55
NABIL	2	2015	1.81	22.07	1.82	64.43
NABIL	2	2016	2.15	19.5	1.14	70.49
NABIL	2	2017	2.57	22.17	0.79	76.94
NABIL	2	2018	2.36	19.34	1.07	85.37
NABIL	2	2019	2.11	18.28	0.74	80.6
NABIL	2	2020	1.46	13.39	0.97	79.27
NABIL	2	2021	1.56	13.37	0.78	90.17
SCB	3	2011	2.55	30.43	0.74	72.22
SCB	3	2012	2.8	28.36	0.74	55.13
SCB	3	2013	2.67	26.38	0.77	58.63
SCB	3	2014	2.51	26.27	0.48	56.87
SCB	3	2015	1.99	21.69	0.28	48.89
SCB	3	2016	1.98	17.18	0.32	56.88
SCB	3	2017	1.84	11.98	0.19	62.2
SCB	3	2018	2.64	15.73	0.21	76.97
SCB	3	2019	2.61	16.31	0.15	72.81
SCB	3	2020	1.71	13.16	0.44	57.54
SCB	3	2021	1.22	8.62	0.96	74.91
HBL	4	2011	1.91	22.35	3.98	90.47
HBL	4	2012	1.73	20.7	2.06	75.36
HBL	4	2013	1.51	17.81	2.19	77.36
HBL	4	2014	1.28	15.77	2.58	71.82
HBL	4	2015	1.31	15.98	2.85	75.39
HBL	4	2016	1.9	20.77	1.23	79.13
HBL	4	2017	2.09	18.51	0.87	83.61
HBL	4	2018	1.58	13.27	1.19	88.72
HBL	4	2019	2.04	17.28	1.12	86.84
HBL	4	2020	1.63	14.71	1.01	81.37
HBL	4	2021	1.66	14.89	0.48	88.94
BOKL	5	2011	2.44	26	2.25	92.53
BOKL	5	2012	2.1	23	2.3	77.3
BOKL	5	2013	1.9	20	1.5	83.21
BOKL	5	2014	0.65	7.17	1.06	84.61
BOKL	5	2015	0.74	8.68	3.42	84.6
BOKL	5	2016	0.82	8.42	2.13	88.92
BOKL	5	2017	1.57	14.52	1.46	86.71
BOKL	5	2018	1.45	10.6	1.82	91
BOKL	5	2019	1.88	13.58	2.63	91.03
BOKL	5	2020	1.33	10.23	2.35	87.25
BOKL	5	2021	1.31	10.45	2.51	94.79

Annex B: Macroeconomic Indicators

Year	GDPGR	FinDev
2011	4.8	2.905
2012	4.61	2.126
2013	3.46	2.631
2014	5.72	1.452
2015	2.97	4.032
2016	0.01	9.490
2017	7.74	2.351
2018	6.3	8.356
2019	6.66	-0.146
2020	-2.09	8.475
2021	4.01	5.148