

Effect of bank specific and macro-economic factors on net interest margin of Nepalese commercial banks

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled **Effect of bank specific and macro-economic factors on net interest margin of Nepalese commercial banks**. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirement for any other academic purpose.

The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

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REPORT OF RESEARCH COMMITTEE

Mr. Nitesh Bhattarai has defended research proposal entitled "**Effect of bank specific and macro-economic factors on net interest margin of Nepalese commercial banks**" successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestion and guidance of supervisor Mrs. Sarita Maharjan and submit the thesis for evaluation and viva voce examination.

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ABBREVIATIONS

ANOVAS	Analysis of Variances
AQ	Assets Quality
BLOAN	Ratio of banks' loans to total assets
BS	Bank size
CAMEL	Capital adequacy, Asset quality, Management, Earnings, Liquidity and Sensitivity to market risk
CAP	Ratio of equity capital to total assets
CAR	Capital Adequacy ratio
CBK	Central Bank of Kenya
CBSL	Central Bank of Sri Lanka
CMIE	Centre for Monitoring Indian Economy
CR	Credit Risk
DP	Bank Total Deposit
FEM	Fixed Effects Model
GDP	Gross Domestic Product
GROWTH	Real GDP Per Capita Growth
IIP	Implicit Interest Payments
IMF	International Monetary Fund
INF	Inflation
IRS	Interest Rate Spreads
LA	Total loans and credits ratio to total assets
LDR	Loan to deposit ratio
LIQ	Liquidity ratio
LLRR	Loan Loss Reserve Ratio
LLP	Loss reserve on total loans past due credits
LNSIZE	Log of bank assets
ME	Management Efficiency
MENA	Middle East and North Africa

MOF	Ministry of Finance
NEPSE	Nepal Stock Exchange
NIBA	Ratio of non- interest bearing assets to total assets
NIM	Net Interest Margin
NIM1	Net interest margin 1
NIM2	Net interest margin 2
NPAR	Non Performing Loan Ratio
NRB	Nepal Rastra Bank
MC	Stock market capitalization
OCBR	Opportunity Costs of Bank Reserves
OE	Operating Efficiency
OIC	Organization of Islamic Cooperation
OPEXTI	Operating Expenses
OVERHEAD	Ratio of overhead to total assets
PCBL	Prime Commercial Bank Limited
POLS	Pooled Ordinary Least Square
QM	Quality of Management
REM	Random Effects Model
ROA	Return on Assets
ROAA	Return on Average Assets
ROCE	Return on capital employed
ROAE	Return on Average Equity
ROE	Return on Equity
SD	Standard Deviation
SEBON	Security Board of Nepal
SPSS	Statistical Package for Social Science
WLS	Weighted least squares

ABSTRACTS

This study investigates the impact of bank-specific and macroeconomic factors on the net interest margin (NIM) of six Nepalese commercial banks: Everest Bank Limited, NIC Asia Bank Limited, Nabil Bank Limited, Sanima Bank Limited, Nepal Bank Limited, and Citizens Bank International Limited. The research encompasses a period from fiscal year 2013/14 to 2022/23. The bank-specific variables examined include total deposits, asset quality, liquidity, bank size, and management efficiency, while the macroeconomic variables include GDP growth rate and inflation. The dependent variables in this study are the net interest margin indicators, specifically the net interest income to average earning assets (NIM1) and the net interest income to total assets (NIM2).

Through the application of various econometric models, including Fixed Effects Model (FEM) and Random Effects Model (REM), the study analyzes how these factors influence the profitability and efficiency of Nepalese commercial banks. Our findings reveal significant relationships between the independent variables and the net interest margin indicators, providing insights into the critical determinants of bank performance in the Nepalese banking sector. This research contributes to a better understanding of the dynamic interplay between internal bank management practices and external economic conditions, offering valuable implications for bank managers, policymakers, and stakeholders aiming to enhance the financial stability and efficiency of commercial banks in Nepal.

Key words: Total deposit Assets quality Liquidity Bank size Management efficiency, Macroeconomics variables GDP growth rate Inflation, Net interest income to average earning assets (NIM1) and Net interest income to total assets (NIM2)

CHAPTER I

INTRODUCTION

1.1 Background of the Study

The economic growth of any nation heavily relies on its banking sector, which serves as a crucial intermediary in the allocation of financial resources. Banks play a pivotal role by mobilizing funds from surplus units and making them available to deficit units, thereby facilitating economic activities and development (Shahid et al., 2015). This intermediary function is essential, especially in developing countries where banks, alongside capital markets, are central to financing various economic endeavors (Casu et al., 2006).

In economies that rely primarily on banks as the main source of funding for economic activities, such as developing countries, enhancements in the banking sector can significantly impact the efficient allocation of financial resources. This importance stems from the fact that financial markets in these nations are often underdeveloped, underscoring the critical role banks play in financing private investments by firms (Raharjo et al., 2014; Sufian and Habibullah, 2010). Consequently, the development and improvement of the banking sector not only support economic growth but also foster broader economic stability and progress in these nations.

Net interest margin (NIM) is a key financial metric that represents the difference between the interest income earned from a bank's interest-bearing assets and the interest expenses paid on its interest-bearing liabilities. In the face of intensified competition, banks strive to enhance efficiency, which often leads to a reduction in their net interest margins (Werner, 2016). Acting as intermediaries, banks collect funds from entities with excess capital and allocate them to those in need of financing. Depositors receive interest on their deposits, while borrowers pay interest on loans, resulting in an earnings spread for banks. Ideally, banks earn lower interest on deposits and charge higher rates on loans (Al-Homaidi et al., 2018).

By effectively performing their intermediary role, banks contribute to the smooth functioning of the economy. They provide liquidity, facilitate investments, and support economic activities that drive growth. In developing countries, where

alternative financing sources may be limited, the role of banks becomes even more critical. The ability of banks to mobilize and allocate financial resources efficiently can have profound implications for economic development and stability. Enhancements in the banking sector, such as improved regulatory frameworks, better risk management practices, and the adoption of advanced technologies, can further enhance the sector's ability to support economic growth and development.

Moreover, the health of the banking sector is often seen as a reflection of the overall economic health of a country. Strong and efficient banks can contribute to a more resilient and robust economy, capable of withstanding economic shocks and supporting sustained growth. Conversely, weaknesses in the banking sector can lead to financial instability and hinder economic progress. Therefore, understanding and improving the factors that influence the performance of banks, including net interest margins, is crucial for policymakers, regulators, and financial institutions aiming to promote economic growth and stability.

According to Al-Homaidi et al. (2018), a robust and efficient banking system must achieve three critical objectives: generating significant profits, delivering high-quality customer service, and maintaining ample funds for lending. Similarly, Athanasoglou et al. (2008) argue that a healthy banking sector that is both profitable and resilient plays a vital role in contributing to financial stability by withstanding economic shocks. Given its reliance on interest income and expenses, the net interest margin (NIM) remains a crucial measure of bank profitability and operational efficiency (Gunter et al., 2013).

NIM serves as a key metric for assessing the effectiveness and stability of a bank's operations (Saksonova, 2014). In developing countries, several factors contribute to high interest rate spreads, including elevated operating costs (Aryeetey et al., 1997). Wide interest rate spreads increase borrowing costs, constrain economic activity, and diminish returns on savings, particularly impacting small and medium-sized enterprises (Abor and Quartey, 2010). Akinlo and Owoyemi (2012) note that high interest rate spreads deter potential savers, reducing the availability of stable funds for investment.

Higher net interest margins typically indicate lower banking sector efficiency, characterized by higher operational costs and inefficient expense management. This inefficiency ultimately impedes financial development, reduces investment, and slows economic growth. Therefore, studying and analyzing the factors influencing net

interest margins is crucial, as even minor changes in margins can significantly impact bank performance, profitability, and economic activity.

The determinants of profitability have been extensively studied and are increasingly crucial for strengthening the resilience of the domestic financial system against fluctuations in capital flows (Almumani, 2013). Research conducted in the Americas and Caribbean countries highlighted that despite financial liberalization, interest rate spreads remained notably higher compared to those in developed nations (Barajas et al., 1999). Maudos and Guevara (2004) examined various factors influencing interest margins, emphasizing the significance of competition levels and operational costs.

Mujeri and Younus (2009) observed that net interest margins tend to decrease as banking sectors mature and competition intensifies. Drakos (2003) found that declining interest rate margins reflect the success of market-oriented reforms implemented in transitional economies. These findings carry significant implications for bank supervision policies, particularly in understanding how different market structures influence financial intermediation. They also inform macroeconomic policies aimed at contributing to the stability of the banking industry.

In summary, an efficient and resilient banking sector is crucial for economic stability and growth. Net interest margins are a critical measure of a bank's profitability and efficiency. Factors such as operating costs, competition levels, and market structures significantly influence these margins. As the banking sector evolves, understanding and addressing these factors becomes essential for enhancing financial intermediation, supporting economic activity, and ensuring the overall stability of the financial system.

Drehmann (2008) asserted that a bank's profitability hinges on its ability to anticipate, mitigate, and monitor risks. Weak management within banks can lead to a higher proportion of substandard credits in their portfolios, ultimately diminishing overall profitability. Chen and Liao (2009) further emphasized that a profitable banking system is better equipped to absorb negative shocks, thereby enhancing financial stability.

In the context of Nepal, the banking sector has undergone rapid growth since the adoption of liberalization policies. These policies eliminated government intervention and encouraged private sector participation (Bhetuwal, 2007). This expansion has led to an increase in the number of financial institutions and heightened competition among them, significantly impacting bank profitability. Budathoki and Rai (2020)

highlighted that inadequate profitability can lead to bank insolvency, contributing to financial instability.

Kharel and Pokhrel (2012) identified a positive relationship between financial sector development and economic growth in Nepal. They suggested that policy efforts should focus on enhancing the banking sector's development through improved product quality and expanded outreach. Baral (2005) noted that joint venture banks exhibit better health compared to other commercial banks. However, indicators from various components of the CAMEL framework (capital adequacy, asset quality, management quality, efficiency, and liquidity) suggest that the financial health of joint venture banks may not be robust enough to withstand significant balance sheet shocks.

Shrestha (2020) demonstrated that management efficiency, asset quality, and operational efficiency significantly enhance the financial performance of Nepalese commercial banks, while credit risk negatively impacts performance. These findings underscore the importance of robust risk management practices and operational efficiencies in sustaining bank performance amidst varying economic conditions.

Thagunna and Poudel (2013) indicated that both the ownership type and asset size of banks do not affect their efficiency. Their study revealed that the presence of foreign banks does not necessarily correlate with higher efficiency. However, changes in foreign investment policies in banking could lead to different outcomes. Additionally, the lack of a relationship between asset size and efficiency suggests that both larger and smaller banks can coexist. This coexistence fosters increased competition in the banking sector through liberalization.

In summary, effective risk management, robust operational practices, and strategic policy implementations are crucial for sustaining bank profitability and stability. The evolving landscape of Nepal's banking sector, marked by rapid growth and increased competition, necessitates continuous improvement in management practices and financial strategies to ensure resilience and support economic growth. Understanding the dynamics of bank profitability and efficiency in this context is essential for fostering a stable and robust financial system.

Bhusal (2016) identified a significant positive correlation between liquidity and the profitability of commercial banks in Nepal. Neupane (2020) found that the profitability of Nepalese commercial banks, as measured by net interest margin (NIM), is primarily influenced by factors such as capital adequacy, the number of

branches, and the annual inflation rate. Maskay and Pandit (2010) highlighted a significant long-run elasticity coefficient between the policy rate (bank rate) and various market rates, including the 1-year fixed deposit rate, lending rate, and saving rate. Additionally, they observed a short-run error-correction relationship exclusively between the bank rate and lending rate.

Budhathoki et al. (2020) revealed that a higher loan-to-deposit ratio, indicative of lower liquidity, has a negative impact on a bank's return on assets (ROA), return on equity (ROE), and net interest margin (NIM). However, the negative effects on ROE and NIM were not statistically significant. Their research also demonstrated that larger bank size positively influences all three profitability measures: ROA, ROE, and NIM.

Collectively, these studies underscore the critical importance of examining the impact of both bank-specific and macroeconomic variables on net interest margins in Nepalese commercial banks. This research seeks to delve deeper into understanding the determinants of net interest margins within this context. By investigating these variables, the study aims to provide a comprehensive analysis that can inform better financial strategies and policies for enhancing the profitability and stability of commercial banks in Nepal.

1.2 Statement of the problem

The banking sector is crucial for economic development, serving as a key intermediary between borrowers and lenders, and facilitating cost-effective financial transactions that drive economic growth (Leland and Pyle, 1977; Diamond, 1984). For banks to maximize owners' wealth, it is essential to closely monitor net interest income, which is the difference between interest earned on assets and interest paid on liabilities.

Research has shown varying impacts of different factors on bank performance. Ghasemi and Rostami (2015) established a significant correlation between the ratio of non-performing loans (NPL) and spread rates, indicating that higher NPL ratios can adversely affect bank profitability. Similarly, Alshatti (2015) found that a higher NPL to gross loans ratio positively affects bank financial performance, suggesting that managing loan quality is crucial for maintaining profitability. Conversely, studies by Siphon and Olweny (2011), Kodithuwakku (2015), and Kosmidou (2008) identified a significant negative effect of asset quality on bank profitability, demonstrating that

poor asset quality can erode profits. Jha (2013) further revealed that while capital risk and liquidity risk positively correlate with bank performance, non-performing loans negatively impact the efficiency levels of commercial banks. These mixed findings indicate that the relationship between asset quality and net interest margin is complex and requires further investigation to clarify its impact on bank profitability and performance.

Akinlo and Owoyemi (2012) argued that high-interest rate spreads discourage potential savers, reducing the funds available for lending to potential investors. This reduction in savings limits lending capacity, ultimately leading to decreased investment and slower economic growth.

In the context of Nepal, several studies have explored these dynamics. Bariya et al. (2016) demonstrated that return on assets positively impacts financial leverage, asset quality, and liquidity ratios, suggesting that improvements in these areas enhance profitability. Gajurel and Pradhan (2012) highlighted that the interest-based income market is more competitive than the fee-based income market in Nepal, with their results indicating that bank size positively impacts revenue generation, while equity capitalization has a negative effect. Additionally, Gaire (2012) found that real interest rates positively affect bank deposit growth in Nepal, suggesting that influencing bank deposits through interest rate manipulation may not be a practical policy option.

Despite these findings, there remains a lack of recent data on the factors influencing net interest margins in Nepalese commercial banks. This study aims to address this gap by examining the impact of bank-specific and macroeconomic factors on the net interest margin of Nepalese commercial banks. The insights gained from this research will help inform policy and banking strategies, ultimately contributing to the stability and growth of the banking sector in Nepal.

Therefore, this study deals with the following issues in the context of Nepalese banks.

- i. What is the current situation of total deposits, asset quality, liquidity, bank size, management efficiency, GDP growth rate, and inflation among sampled commercial banks in Nepal?
- ii. What are the relationships between total deposits, asset quality, liquidity, bank size, management efficiency, GDP growth rate, inflation, and the interest margin indicator among sampled commercial banks in Nepal?

- iii. What extent do total deposits, asset quality, liquidity, bank size, management efficiency, GDP growth rate, and inflation impact the interest margin indicator among sampled commercial banks in Nepal?

1.3 Objectives of the study

The primary objective of this study is to investigate how bank-specific and macroeconomic factors influence the net interest margin (NIM) of commercial banks in Nepal. The study also aims to achieve the following specific objectives:

- To examine the present situation of total deposits, assets quality, liquidity, bank size, management efficient, GDP growth rate , Inflation on Interest margin indicator sample commercial banks in Nepal.
- To analyze the relationship between total deposits, assets quality, liquidity, bank size, management efficient, GDP growth rate , Inflation on Interest margin indicator sample commercial banks in Nepal.
- To assess the impact of total deposits, assets quality, liquidity, bank size, management efficient, GDP growth rate , Inflation on Interest margin indicator sample commercial banks in Nepal.

1.4 Rationale of the study

The significance of this study lies in its exploration of the net interest margin (NIM) of commercial banks in Nepal, a sector crucial to the country's developing economy. As Nepal undergoes economic and financial reforms, understanding the determinants of NIM becomes essential for policymakers and financial scholars. The stability and performance of the banking sector are pivotal for overall economic welfare, making this study particularly relevant and timely.

Existing literature underscores the influence of both microeconomic and macroeconomic factors on bank profitability. This study aims to analyze and discuss the impact of specific variables such as total deposits, liquidity management, asset quality, bank size, management efficiency, inflation, and GDP growth on NIM within the Nepalese banking industry. By focusing on these factors, the study seeks to provide insights into how they collectively shape bank profitability, particularly through the lens of NIM.

This study addresses a critical gap by exploring unique datasets specific to Nepalese banks, offering valuable insights for bank managers, financial institutions, investors, and decision-makers. It aims to elucidate which internal factors positively or negatively influence NIM, thereby aiding in strategic decision-making processes within commercial banks and beyond. Understanding these relationships can help banks optimize their operations, improve financial performance, and enhance their competitive edge in the market.

Moreover, the findings from this study are expected to inform policy formulation by commercial banks, government bodies, and central banks. By providing actionable insights and data-driven recommendations, the study aims to facilitate the design of effective strategies to enhance bank performance. This can lead to improved financial stability, greater economic resilience, and sustainable growth within the banking sector.

The study also holds significant implications for future research in the Nepalese banking sector. By contributing new perspectives and expanding the knowledge base, it serves as a foundation for future scholarly endeavors in this domain. Researchers can build on the findings to explore additional aspects of bank profitability and performance, leading to a more comprehensive understanding of the factors that drive success in the financial industry.

Ultimately, this study aspires to contribute to the advancement of the banking sector in Nepal by providing a deeper understanding of the determinants of NIM. Through thorough analysis and insightful recommendations, it aims to support the development of a robust, efficient, and resilient banking system that can effectively contribute to the nation's economic growth and stability.

1.5 Limitation of the study

Every study faces limitations stemming from various factors such as institutional differences, study duration, data reliability, analytical tools, and variations in variables. Despite striving for meaningful conclusions, this study on the impact of bank-specific and macroeconomic factors on net interest margin in Nepal also encounters several limitations.

- i. The study exclusively focuses on 'A' class commercial banks, which may restrict the generalizability of findings to other sectors like manufacturing and trading.

- ii. Out of the 20 commercial banks operating in Nepal, only 6 banks were included in this study. The selection of these six banks was based on their comprehensive data availability, stability, and significant market presence.
- iii. All analyses are based on secondary data and available information, relying heavily on the reliability and consistency of these sources. Variations or inconsistencies in data quality could impact the reliability of the study's conclusions.
- iv. The study period spans 10 years from 2013/14 to 2022/23. During this period, some banks underwent mergers, acquisitions, or were delisted from the Nepal Stock Exchange (NEPSE), leading to a reduction in the number of observations available for analysis.
- v. The study assumes a linear relationship between dependent and independent variables, potentially overlooking non-linear relationships that could exist.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

The backbone of every research study lies in the comprehensive review of existing literature. This review provides an essential overview of the studies conducted previously and identifies gaps that warrant further investigation. In this context, various studies on the "Effect of bank-specific and macroeconomic factors on the net interest margin of Nepalese commercial banks" conducted globally have been reviewed and synthesized.

The literature review is structured into three main sections to facilitate a thorough understanding of the research landscape. The first section focuses on the theoretical framework, offering an in-depth examination of relevant studies within the banking industry worldwide, encompassing both developed and emerging economies. This section explores the relationships among various variables and provides insights into empirical findings. Additionally, it includes a brief review of studies conducted specifically in the context of Nepal, highlighting key contributions and gaps in the existing literature.

The second section of the literature review presents the conceptual framework of the study. This framework elucidates the organization of the research and identifies the specific variables under investigation. By outlining these variables and their interrelationships, the conceptual framework sets the stage for the empirical analysis conducted in the study.

Finally, the third section provides concluding remarks derived from the empirical review. These remarks synthesize the key insights gained from the literature, identify unresolved issues or gaps, and outline the rationale for conducting the present study. By critically assessing existing literature and framing the research within a conceptual and empirical context, this study aims to contribute significantly to the understanding of factors influencing the net interest margin of Nepalese commercial banks.

2.2 Theoretical Review

A literature review serves as a comprehensive analysis of a specific segment within the existing body of knowledge, involving the summary, classification, and comparison of prior studies and theoretical frameworks. In this section, a succinct review of relevant studies pertinent to the present research is presented. The literature surveyed includes a wide array of sources such as scholarly articles, reports, studies, and other authoritative publications.

This review aims to synthesize and critically evaluate the findings and methodologies employed in previous research related to the "Effect of bank-specific and macroeconomic factors on the net interest margin of Nepalese commercial banks." By examining these sources, the review identifies key themes, theoretical frameworks, and empirical findings that contribute to understanding the dynamics influencing bank profitability, particularly through the lens of net interest margin.

Furthermore, the review highlights gaps in the existing literature, such as specific variables or contextual factors that have not been adequately explored in previous studies. It also discusses the methodological approaches used in these studies, assessing their strengths and limitations in providing robust insights into the relationships under investigation.

Overall, this theoretical review sets the foundation for the current study by establishing a clear understanding of the research landscape, guiding the selection of variables, and informing the conceptual framework. By building upon and critiquing prior research, this section contributes to advancing knowledge in the field and provides a basis for the empirical investigation conducted in subsequent sections of this study.

Total Deposit

Ferrouhi (2021) conducted a study on the determinants of bank performance in Morocco, focusing on the period from 2005 to 2015. Using the Johansen co-integration test, the study examined bank performance ratios such as Return on Assets (ROA), Return on Equity (ROE), and Net Interest Margin (NIM), with deposits, liquidity ratios, bank-specific, and macroeconomic variables as explanatory factors. The findings indicated that deposits play a crucial role in the long-term performance of Moroccan commercial banks. Specifically, deposits were found to have a significant and positive impact on both ROA and ROE. This positive relationship

suggests that banks reinvest deposits effectively to achieve higher profitability. However, the study noted a significant and negative relationship between deposits and NIM, highlighting that while deposits contribute positively to overall profitability measures, they may negatively affect net interest margin, possibly due to higher interest expenses relative to interest income from loans and investments.

Similarly, Abugama (2022) explored the determinants of profitability in the Palestinian banking sector over the period 1995-2015. Using aggregate bank balance sheet data, the study employed Ordinary Least Squares (OLS) regression to analyze the impact of bank asset size, capital, loans, deposits, economic growth, and inflation on key profitability indicators such as ROA, ROE, and NIM. The findings indicated that deposit levels were negatively associated with both ROA and ROE. This suggests that while deposits are crucial for funding banking operations, they may constrain profitability indicators like ROA and ROE, possibly due to lower returns from conservative investment strategies and higher funding costs relative to returns. Interestingly, the study found that deposits did not significantly impact NIM, implying that while deposits affect overall profitability measures, their impact on net interest margin specifically may be mitigated by other factors such as interest rate management and loan portfolio composition.

In summary, these studies underscore the complex relationship between deposits and bank profitability metrics in different banking environments. While deposits are essential for funding and operational stability, their specific impact on profitability indicators like ROA, ROE, and NIM varies based on factors such as market conditions, regulatory environment, and bank-specific strategies. These findings provide valuable insights into the dynamics of banking performance and inform strategic decision-making for banks aiming to optimize their financial operations and profitability.

Raza et al. (2023) conducted a comprehensive assessment of the association between bank-specific characteristics and profitability in Pakistan's banking sector. The study focused on both external and internal factors influencing bank profitability, particularly examining the effects of size, capital, loans, and deposits. Data were gathered from 34 banks operating in Pakistan, including local private banks, public sector commercial banks, foreign banks, and specialized banks, spanning the period from 2006 to 2016. Utilizing the Ordinary Least Squares (OLS) method via e-views statistical software, the study analyzed Spread Ratio (SR) and Net Interest Margin

(NIM) as indicators of profitability, with size, capital, loans, and deposits as explanatory variables. The findings indicated that the size of assets had a negative and significant effect on profitability, suggesting that larger banks may face challenges in maintaining profitability efficiency. On the other hand, loans were found to positively impact bank performance, highlighting the role of lending activities in enhancing profitability. Capital was associated positively with NIM but adversely affected SR, indicating its dual impact on different profitability measures. Interestingly, deposits did not exhibit a prominent influence on bank profitability in the Pakistani context, implying that factors other than deposit levels play a more significant role in shaping profitability outcomes for banks in Pakistan.

Haddawee and Hammood (2024) analyzed the relationship between bank deposits and profitability in commercial banks, focusing on the Jordanian banking sector. The study utilized data from the annual reports of commercial banks over a five-year period from 2012 to 2016. Employing descriptive statistics, correlation analysis, paired T-test, and regression analysis, the study examined the impact of various types of deposits on profitability indicators. The results revealed a positive and significant relationship between deposits and profitability indicators, indicating that higher levels of deposits contribute to enhanced bank profitability. Specifically, savings deposits were identified as making the largest contribution to profitability, followed by time deposits, while current deposits had the lowest contribution. This finding underscores the importance of deposit composition in influencing overall bank profitability in Jordan, highlighting the varying impacts of different deposit types on financial performance.

In summary, these studies provide valuable insights into the complex dynamics between bank deposits and profitability across different banking environments. While the impact of deposits on profitability varies by country and banking context, both studies emphasize the critical role of deposits in shaping financial performance and underscore the need for banks to strategically manage deposit inflows to optimize profitability outcomes. These findings contribute to a deeper understanding of banking operations and inform strategic decision-making for enhancing financial performance in diverse banking landscapes.

Assets quality

Rifqah-Amaliah and Hassan (2023) examined the interplay between a bank's **credit** risk, liquidity, and capital adequacy in relation to its profitability within the

Indonesian banking sector. The study relied on secondary data obtained from past journals, articles, and annual reports spanning a decade from 2007 to 2016. A sample of 116 banks, including 20 regional banks, was selected using a non-probability judgmental sampling method. Net interest margin (NIM) and return on assets (ROA) served as proxies for bank profitability. Credit risk was measured by non-performing assets, liquidity by the loan-to-deposit ratio, and capital adequacy by equity to total assets ratio. Data analysis focused on identifying significant relationships and assessing the strength of these relationships among the variables. The findings indicated a negative and statistically significant relationship between credit risk and net interest margin, suggesting that higher levels of non-performing assets adversely affect a bank's profitability as measured by NIM. Furthermore, liquidity showed a negative correlation with bank profitability, implying that higher loan-to-deposit ratios may constrain a bank's ability to generate profits. This study contributes to the literature by shedding light on the critical factors influencing bank profitability in Indonesia. By highlighting the detrimental effects of credit risk and liquidity on net interest margin, the findings underscore the importance of robust risk management practices and efficient liquidity management strategies for enhancing bank profitability. These insights are valuable for banking regulators, policymakers, and financial institutions seeking to strengthen the financial stability and performance of the Indonesian banking sector amid varying economic conditions.

Liquidity

Saeed (2022) explored the impact of bank-specific, industry-specific, and macroeconomic variables on the profitability of 73 UK commercial banks, covering periods before, during, and after the 2008 financial crisis. Data spanning from 2006 to 2012 were gathered from Bankscope and Datastream databases. The study utilized a descriptive research design and employed regression and correlation analyses to examine the relationships among variables. Results indicated that variables such as bank size, capital ratio, loans, deposits, liquidity, and interest rates had positive effects on bank profitability, while GDP and inflation rates exerted negative impacts.

Heydari and Abdoli (2023) conducted an investigation into the impact of credit risk management and capital adequacy on the financial performance of business banks from 2009 to 2014. This inductive study focused on 25 state and private banks in Iran using secondary data and a descriptive research design. They employed multivariate linear regression and found a negative relationship between loss reserves on loans and

bank performance, suggesting that higher reserves adversely affect profitability. Conversely, liquidity ratio and capital adequacy ratio exhibited positive associations with bank performance, highlighting their importance in enhancing financial stability and profitability.

Yuksel and Zengin (2024) examined the factors influencing net interest margin (NIM) in the Turkish banking sector, analyzing 14 explanatory variables over quarterly data from 2003 to 2014. The study, based on secondary data and employing a descriptive research design, utilized a multivariate adaptive regression model for analysis. Their findings indicated that NIM was negatively associated with non-interest income, liquidity, non-performing loans, total assets, and exchange rates. This suggests that focusing on asset quality and managing exchange rate volatility are critical for improving NIM in Turkish banks.

These studies contribute valuable insights into the dynamics of liquidity and its impact on bank profitability across different contexts, offering implications for bank management practices and policy decisions aimed at enhancing financial stability and performance in respective banking sectors.

Bank Size

Debela and Chawla (2022) investigated the impact of bank size and ownership on financial performance using eight commercial banks in Ethiopia from 2000 to 2013. They employed Pearson correlation, independent sample T-test, and multivariate regression of panel data analysis techniques on secondary data collected from the National Bank of Ethiopia. The study found that bank size, measured by the logarithm of total assets, significantly enhanced performance metrics such as return on assets (ROA), return on equity (ROE), and net interest margin (NIM). Private banks, in particular, outperformed state-owned banks in terms of profitability.

Tilahun and Chawla (2023) analyzed the influence of branches, loans, ownership structure, deposits, and bank size on the profitability of Ethiopian commercial banks using panel data from eight banks spanning 2001 to 2013. Employing a descriptive research design and multiple regression analysis, they identified that loan-to-deposit ratio, bank size, and ownership structure significantly positively affected net interest margin (NIM). However, the study found that the impact of deposit-to-total assets ratio on NIM was negative and insignificant, and the effect of bank size on profitability was positive but not statistically significant.

Kapaya and Raphael (2024) assessed the effects of bank-specific, industry-specific, and macroeconomic factors on profitability across 52 banks in Tanzania from 1998 to 2010. Using a large dataset of 350 firm-years, they employed both static and dynamic models to analyze the relationship between bank size and profitability indicators such as return on assets (ROA) and net interest margin (NIM). Their findings suggested a nuanced relationship: while size had a positive impact in static models, indicating potential economies of scale and scope, the dynamic model with squared size variables revealed a negative and significant relationship with ROA. This non-linear relationship implies that while larger banks may initially benefit from scale advantages, beyond a certain point, increased size could lead to inefficiencies and reduced profitability.

These studies highlight the complex interplay between bank size, ownership structure, and profitability in different banking contexts, providing valuable insights for policymakers and bank managers aiming to optimize performance and sustainability in the financial sector.

Management efficiency

Rani and Zergaw (2018) conducted a comprehensive analysis of the determinants of profitability in Ethiopian commercial banks, focusing on both bank-specific and macroeconomic factors. Using a descriptive research design and panel data regression models, they examined the impact of variables such as capital adequacy, management efficiency, earnings ratios, liquidity ratios, and industry growth rate on return on equity (ROE) and net interest margin (NIM). Their findings highlighted that capital adequacy and earnings ratios significantly influenced both ROE and NIM, whereas management efficiency specifically affected ROE. Additionally, industry-specific variables, represented by the industry growth rate, were found to significantly impact NIM. However, macroeconomic determinants showed positive but insignificant effects on both profitability measures during the study period from 2005 to 2015.

Nuhiu et al. (2019) investigated the determinants of profitability in Kosovo's commercial banks, emphasizing internal factors such as capital adequacy, asset quality, and management efficiency. Using financial time series and panel data analysis, the study examined indicators like return on average equity (ROAE), return on average assets (ROAA), and net interest margin (NIM). Their findings underscored the crucial role of internal determinants in driving profitability, with macroeconomic

factors such as inflation and GDP demonstrating insignificant impacts on financial performance.

Khan and Jalil (2020) explored the determinants of net interest margin (NIM) in Pakistan using unbalanced panel data spanning from 2003 to 2017. Employing the two-step system generalized method of moment (GMM) for estimation, they analyzed various factors influencing NIM, including operating costs, profit taxes, interest rate risk, market competition measures (like the Lerner index), national savings, money supply, T-bill rates, credit risk, inflation, and operational size. The study highlighted significant positive associations between NIM and factors such as operating costs, profit taxes, and interest rate risk, while operational size, credit risk, and inflation negatively impacted NIM. Importantly, managerial efficiency and risk aversion were identified as bank-level factors that did not significantly affect NIM. The study recommended reducing operating costs through technological adoption and emphasized the importance of market competition and macroeconomic stability in influencing NIM in Pakistan's banking sector.

GDP growth rate

Zeb and Bashir (2021) conducted a study to assess the impact of both bank-specific and macroeconomic factors on the profitability of selected commercial banks in Pakistan. Using panel least square and panel fixed effect models, they employed net interest margin (NIM) as the dependent variable to measure bank profitability. The study included independent variables such as default risk, capitalization, liquidity, management quality, interest rate risks, inflation, bank intermediation, and GDP growth rate. Despite the initial sample of 38 banks, data availability constrained the study to 15 commercial banks for the period from 2008 to 2012. Bank-specific data were sourced from annual financial reports, while macroeconomic data came from Pakistan's economic surveys. The findings indicated significant roles of bank-specific factors in profitability, particularly noting that bank intermediation had a significant positive effect. However, the study found that inflation and GDP growth rate did not exhibit statistically significant impacts on bank profitability. Additionally, interest rate proxies showed insignificance, suggesting that banks might not be adequately equipped to manage interest rate risk effectively.

Al-Homaidi et al. (2022) explored the bank-specific and macroeconomic determinants of profitability in Indian commercial banks using a panel data approach. They analyzed return on assets (ROA), return on equity (ROE), and net interest margin

(NIM) as measures of profitability, with independent variables including bank size, asset quality, capital adequacy, liquidity, operating efficiency, deposits, leverage, asset management, and branch network. Employing pooled fixed effects and random effects models, along with generalized method of moments (GMM), they examined data spanning 10 years across more than 60 commercial banks in India. The study also considered macroeconomic factors such as GDP growth rate, inflation rate, interest rate, and exchange rate. Results highlighted significant impacts of most bank-specific factors on profitability, with NIM being significantly influenced. Moreover, all selected macroeconomic determinants demonstrated significant negative effects on profitability in the Indian context. Notably, variables like bank size, branch network, asset management ratio, and leverage ratio emerged as highly significant predictors of profitability, particularly in terms of ROA.

Apam (2023) analyzed the relationship between macroeconomic indicators and interest rate spreads in Ghana using time series data from 2001 to 2015. Employing descriptive analysis, correlation, and regression analysis, the study examined variables such as government borrowing, exchange rate, GDP, and prime rate in relation to interest rates. Findings indicated a positive relationship between government borrowing and interest rates, as well as a significant positive relationship between exchange rates and interest rates. However, the study found no significant relationship between GDP and interest rate spreads. Furthermore, the analysis revealed that prime rate exerted a significant influence on interest rates, highlighting its role in shaping monetary conditions.

Inflation

Abdullah et al. (2022) investigated the determinants of profitability for 26 banks listed on the Dhaka Stock Exchange (DSE) in Bangladesh from 2008 to 2011. The study focused on bank-specific, industry-specific, and macroeconomic factors influencing profitability, using return on assets (ROA) and net interest margin (NIM) as dependent variables. Key findings highlighted that bank size, cost efficiency, capitalization, and market concentration significantly influenced profitability, regardless of whether ROA or NIM was used as the measure. Notably, credit risk was negatively associated with ROA but positively correlated with NIM. Inflation exhibited a significant positive relationship with NIM, whereas it did not show a significant impact on ROA. Additionally, variables related to labor productivity and nontraditional activities positively affected ROA specifically.

Nabende (2023) conducted a study on the determinants of interest rate spreads in Uganda's commercial banking sector, employing the Ho and Saunders (1981) model and its extensions. Utilizing panel data techniques, specifically system generalized method of moments (GMM), the study found several factors influencing interest rate spreads. Bank-specific factors such as credit risk, liquidity risk, and capital adequacy ratio were positively associated with interest rate spreads, whereas bank size showed a negative relationship. Regarding industry-specific factors, the participation of foreign banks in the loan market was linked to higher interest rate spreads. On the macroeconomic front, inflation rates were positively correlated with interest rate spreads, while real GDP growth rates and broad money supply to GDP (M2/GDP) were negatively associated with interest rate spreads.

Bekhet et al. (2024) explored the effects of internal and external factors on the profitability of Jordanian commercial banks using panel data from thirteen banks spanning 2000 to 2018. They employed pooled ordinary least squares (OLS), random effects models, and fixed effects models, supported by a Hausman test to ensure model appropriateness. Additionally, robustness checks were conducted using feasible generalized least squares. Findings indicated that internal factors such as bank size and diversification positively impacted bank profitability, while factors like credit risk, operational risk, and leverage risk negatively affected bank performance. External factors, including financial development and inflation, were found to positively and significantly influence bank profitability. Conversely, market concentration and stock market volatility negatively affected bank profitability. Interestingly, GDP and the refugee crisis in Jordan showed a negative and insignificant impact on bank profitability.

2.3 Empirical Review

Anna et al. (2024) investigated the dynamics of non-performing loans (NPLs) in Indonesia's banking sector, focusing on the influence of macroeconomic and bank-specific variables. The study analyzed data from 32 banks listed on the Indonesia Stock Exchange spanning the period from 2017 to 2021. Using a panel data regression model, the research found that Interest Rates (IR), World Oil Prices (WOP), and the ratio of Operating Expenses to Operating Income (BOPO) positively impacted NPLs. This suggests that increases in these variables corresponded with higher levels of non-performing loans. Conversely, the Capital Adequacy Ratio (CAR), Net Interest

Margin (NIM), and Inflation (INF) negatively affected NPLs, indicating that higher values of these factors were associated with lower levels of non-performing loans. Interestingly, the Loan Deposits Ratio (LDR) did not show a significant impact on NPLs in Indonesian banks. The study highlighted that macroeconomic factors exerted a more pronounced influence on NPLs compared to bank-specific factors, underscoring the importance for bank management to carefully consider macroeconomic conditions, especially interest rates, when making lending decisions to effectively manage and minimize NPLs.

Ayub et al. (2024) conducted a study on the profitability of Pakistan's banking sector, aiming to assess the impact of macroeconomic factors alongside bank-specific internal factors. The research utilized secondary data covering scheduled banks in Pakistan from 2000 to 2022, resulting in a dataset with 84 quarterly observations. The study focused on "Return on Assets" (ROA) as the dependent variable to gauge bank profitability. Independent variables included "Foreign Direct Investment" (FDI), "Exchange Rate" (LER), "Inflation" (INF), "GDP Growth" (GROWTH), "Liquidity" (LLIQ), "Total Deposits" (LT_DEP), and "Credit Ratio" (CREDIT). Data for bank-specific variables were sourced from the State Bank of Pakistan and the Federal Reserve Economic Data, while macroeconomic data came from the World Bank and Macrotrends databases. The findings highlighted the significant impact of internal factors on bank profitability, emphasizing the need for banks to enhance liquidity management, optimize deposit strategies, and improve credit risk management practices. Additionally, external factors such as FDI and inflation were found to significantly influence profitability, suggesting that policymakers should consider these variables when formulating economic policies to support a stable banking environment.

Gazi et al. (2024) conducted a comprehensive analysis focusing on the determinants of profitability in Shariah-based banks in Bangladesh. The study utilized return on assets (ROA) and return on equity (ROE) as key indicators of profitability, examining various bank-specific and macroeconomic factors over a thirteen-year period from 2010 to 2022. Bank-specific factors included capital adequacy, asset management quality, operational efficiency, credit risk, liquidity, and bank size, while macroeconomic variables such as interest rates, inflation, and GDP growth rate were also considered. The research employed advanced panel data analysis techniques including pooled ordinary least squares (OLS), fixed effects, random effects, and

generalized method of moments (GMM) to analyze the data robustly. The findings highlighted several critical insights for stakeholders in the banking sector. Asset management quality and liquidity were positively associated with profitability, emphasizing the importance of effective risk management and liquidity strategies. Conversely, capital adequacy, operational efficiency, and bank size showed a negative impact on profitability, suggesting areas for strategic improvement and adjustment. The study also underscored the significant influence of macroeconomic conditions, particularly inflation and interest rates, on the financial performance of Shariah-based banks. However, the lack of significant impact from GDP growth rate indicated that internal bank-specific factors may exert a more pronounced influence on profitability than broader economic indicators.

Kushwaha (2024) conducted a thorough investigation into the relationships between key economic indicators and stock market indices across the BRICS countries (Brazil, Russia, India, China, and South Africa) over a span exceeding ten years. Utilizing regression analysis and correlation studies, the study examined data from 1997 to 2022 sourced from reputable sources such as MacroTrends, Yahoo Finance, the World Bank, and others. The study focused on the BSM (Brazil), MOEX (Russia), BSE (India), SSE (China), and JSE (South Africa) indices, analyzing annual time series data and closing prices to assess the influence of GDP, inflation, and interest rates on stock market performance. The research revealed that GDP, inflation, and interest rates collectively explained a significant percentage of variations in stock market indices across the BRICS nations. These economic indicators were selected due to their substantial impact on economic dynamics and market behavior. GDP consistently showed a positive correlation with stock indices, indicating synchronized economic growth and market performance. This suggests that as GDP increases, stock market indices tend to rise, reflecting overall economic health and investor confidence.

However, the relationships between inflation, interest rates, and stock indices varied among the BRICS countries. While some nations exhibited a direct relationship between inflation and stock market performance, others showed inverse or negligible correlations. Similarly, the impact of interest rates on stock market indices differed across countries, highlighting the unique monetary policy environments within each nation. Regression analysis underscored GDP as a significant predictor of stock indices in the BRICS countries, whereas the impact of inflation and interest rates

varied. This variability underscores the complex interactions between economic indicators and stock market performance, providing valuable insights for investors, policymakers, and researchers alike. Investors can use these findings to make informed decisions, policymakers can craft policies to support market stability, and scholars can further explore the intricate dynamics of economic indicators and stock market behavior.

Mohammad & Humairoh (2024) investigate the impact of macroeconomic and bank-specific variables on non-performing loans (NPLs) in the Indonesian banking sector listed on the Indonesia Stock Exchange from 2017 to 2021. The study focuses on 32 banks selected as the research sample and employs a panel data regression model for analysis. The empirical findings reveal that Interest Rates (IR), World Oil Prices (WOP), and Operating Expenses to Operating Income (BOPO) exert a positive effect on NPLs. In contrast, Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), and Inflation (INF) show a negative impact. Interestingly, the Loan Deposits Ratio (LDR) does not significantly influence NPLs. The study underscores that macroeconomic variables have a more pronounced impact on NPLs compared to bank-specific factors. Therefore, effective management strategies must anticipate and respond to changes in macroeconomic variables, particularly Interest Rates (IR), when making lending decisions to mitigate NPL risks. Investors are advised to consider market risk factors such as IR, INF, and BOPO when evaluating investment opportunities in banking stocks.

Ngoc Son (2024) explores the determinants of net interest margin (NIM) in Vietnamese banks, emphasizing factors like bank size, loans, credit risk, and liquidity. This study highlights their crucial roles in enhancing economic development through efficient profitability management. Employing a panel data model spanning from 2010 to 2022, the research meticulously analyzes relationships among these variables and NIM. The findings demonstrate that factors such as bank size, loans, credit risk, liquidity, and other identified variables collectively explain a substantial portion of NIM variations, with an overall R^2 of 59.04%. This suggests a strong correlation between these factors and Vietnamese banks' profitability. Financial managers are advised to adopt strategic measures to optimize bank size, loan portfolios, credit risk management, and liquidity to bolster NIM and support sustainable economic growth in Vietnam.

Vanera (2024) investigates the influence of macroeconomic factors on the financial performance of banks in Turkey and Kosovo. This comparative study spans the period from 2013 to 2022, examining key indicators such as return on equity (ROE), return on assets (ROA), inflation (INF), gross domestic product (GDP), exchange rate (EX-RA), and consumer price index (CPI) using panel data regression models. The findings indicate that inflation, GDP, and exchange rate significantly impact the financial performance of banks in both countries. This underscores the importance of macroeconomic stability and policy in shaping the operational environment and financial outcomes of banking institutions. The study provides valuable insights for policymakers and stakeholders in understanding the dynamics of financial performance within diverse economic contexts, offering implications for strategic decision-making and economic policy formulation.

Msomi (2023) conducted a study focusing on the determinants of financial performance in non-life insurance companies across Africa. The research analyzed panel data from 121 listed non-life insurance firms spanning 48 African countries over the period 2008–2019, totaling 1452 observations. The study employed both ordinary least squares and two-step System Generalised Method of Moments estimators to examine the macroeconomic and firm-specific factors influencing financial performance. Key findings revealed that lagged return on assets, equity capital, operational efficiency, leverage, investment capability, and gross domestic product (GDP) significantly impact financial performance in African non-life insurance companies. Notably, equity capital, operational efficiency, and leverage showed an inverse relationship with financial performance. The study concludes by recommending that insurance industries, policymakers, governments, and investors consider these significant factors when making decisions to enhance performance. Furthermore, restructuring capital structures to maintain a balanced mix of equity and debt, and adopting automated systems to reduce operational costs, are recommended strategies to improve financial performance in the non-life insurance sector across Africa.

Rumaly (2023) investigated the factors influencing return on equity (ROE) in Bangladesh's banking sector using a comprehensive dataset spanning from 2011 to 2020. Employing econometric techniques such as the one-step difference Generalized Method of Moments (GMM), Driscoll-Kraay estimator, and panel-corrected standard errors (PCSE) methods, the study examined the impacts of various bank-specific and

macroeconomic variables on ROE. The findings offer a detailed understanding of the dynamics affecting ROE in Bangladesh's banking sector. Positive influences from variables such as earnings per share (EPS), capital adequacy ratio (CAR), and bank spread underscore the importance of profitability, capital adequacy, and effective interest rate management for banks. Conversely, negative impacts from factors like asset size, operating costs, leverage, and inflation highlight areas where banks need careful management and improvement efforts. Rumaly (2023) provides valuable insights into the complex interaction between bank-specific strategies and macroeconomic conditions, offering critical guidance for banks and policymakers aiming to optimize financial performance and ensure stability amidst changing economic landscapes in Bangladesh.

Subedi (2023) investigated the critical issue of non-performing loans (NPLs) in Nepal's banking sector, emphasizing its significance as a key indicator of bank performance and the challenge of effectively managing credit risk. The study aimed to identify the significant determinants of NPLs, considering both bank-specific factors (such as bank types) and macroeconomic variables. The research utilized a strongly balanced panel dataset covering 11 years, including data from 16 commercial banks categorized into domestic private banks, joint venture banks, and government-owned banks, spanning from 2011/12 to 2021/22. Employing the Pool Ordinary Least Squares (OLS) regression model with bank-dummy variables, the study analyzed the impact of these factors on NPLs. Key findings indicated that government-owned banks exhibited higher NPL levels with greater variability compared to domestic private and joint venture banks. The study concluded that factors like Capital Adequacy Ratio (CAR), Operating Efficiency (OCR), and Remittance (Remit) significantly reduced NPLs, whereas Credit Deposit Ratio (CDR) had a significant positive impact on NPLs. Moreover, the presence of joint venture and domestic private banks contributed to lower NPL levels compared to government-owned banks. Additionally, variables such as Return on Assets (ROA), inflation rates, and lending interest rates showed a positive but insignificant effect on NPLs, while GDP growth rate had a negative but insignificant impact.

Suriyati et al. (2023) explored the performance dynamics of Islamic banks in Indonesia, highlighting the annual fluctuations in their performance ratios and their occasional deviation from Bank Indonesia (BI) standards. The study aimed to assess how firm-specific risks—specifically credit risk, liquidity risk, and operational risk—

and macroeconomic factors such as inflation, GDP, and unemployment influence the performance of Islamic commercial banks compared to conventional banks, focusing on Return on Assets (ROA). Using quantitative research methods, the study analyzed secondary data sourced from Bank Indonesia (BI) and the Financial Services Authority (OJK) for the period 2017 to 2021. Through a comparative analysis, the research underscored the distinct impacts of various risks and macroeconomic factors on Islamic and conventional banks. These findings are crucial for bank managers, policymakers, and investors, offering insights into the unique operational challenges and performance dynamics within each banking system.

Umaternate et al. (2023) conducted a comprehensive study aimed at analyzing the factors influencing Non-Performing Loans (NPL) in Non-Foreign Exchange Private Banks in Indonesia, focusing on both macroeconomic and internal bank variables. The research utilized secondary data sourced from the official Financial Services Authority (FSA) of Indonesia, examining a sample of 18 small private banks operating in the country. The analysis covered annual data spanning from 2016 to 2021, employing multiple linear regression techniques to explore the relationships between these variables and NPL. The findings of the study revealed that macroeconomic factors such as inflation and interest rates did not exert a statistically significant influence on the levels of NPL in the sampled banks. This suggests that broader economic conditions do not directly impact the rate of non-performing loans within these banks. Conversely, the study highlighted significant negative effects of Bank Size and Capital Adequacy Ratio (CAR) on NPL. Larger banks exhibited lower rates of non-performing loans, likely attributed to superior risk management practices and more diversified loan portfolios. Similarly, banks with higher CAR, reflecting stronger capital bases, demonstrated lower NPL levels due to their enhanced ability to absorb potential losses. The study concluded that internal management factors within banks play a crucial role in determining NPL levels, outweighing the influence of external macroeconomic conditions. Effective internal practices such as expanding bank size, maintaining adequate capital reserves (CAR), and ensuring operational efficiency are pivotal in controlling and mitigating non-performing loans. Conversely, macroeconomic variables like inflation and interest rates, though monitored closely, did not demonstrate significant impacts on NPL levels in the specific context examined by the study. These insights underscore the importance for banking

institutions to focus on enhancing internal management capabilities to sustain financial stability and minimize credit risks effectively.

Ally (2022) conducted a study to investigate how macroeconomic factors influence the financial performance of commercial banks in Tanzania. The study focused on assessing the impact of interest rates, inflation rates, and exchange rates on the financial outcomes of these banks over a 10-year period from 2010 to 2019. Utilizing secondary data sources, the research employed both descriptive and explanatory research designs to analyze trends in macroeconomic variables and their relationship with the financial performance of commercial banks. The findings indicated strong correlations between these macroeconomic factors and return on assets (ROA) of commercial banks. Specifically, there was a significant negative relationship of 74.99% between interest rates and ROA, suggesting that higher interest rates adversely affect bank profitability. Conversely, inflation rates showed a positive relationship of 59.22% with ROA, indicating that higher inflation may positively impact bank profitability, possibly through increased lending activity. Exchange rates exhibited a negative relationship of 65.52% with ROA, implying that fluctuations in exchange rates can negatively influence bank profitability. Based on these findings, Ally (2022) concluded that interest rates, inflation rates, and exchange rates significantly influence the financial performance of commercial banks in Tanzania. The study recommended that the government maintain stable lending interest rates to support bank profitability, continue implementing policies to mitigate the effects of inflation on banks, and ensure stability in exchange rates to safeguard bank financial performance during periods of fluctuation.

Khoirunisa et al. (2022) examined the factors affecting the risk of non-performing loans (NPLs) in Indonesian banking companies, focusing on Return on Assets (ROA), Income Diversification, Bank Capital, and Bank Efficiency as independent variables influencing NPLs. The study utilized panel data regression analysis with data collected from 35 banking companies listed on the Indonesia Stock Exchange over a 5-year period from 2016 to 2020. The results highlighted that Return on Assets (ROA), Bank Capital, and Bank Efficiency had a significant negative impact on NPLs. This suggests that higher profitability, stronger capital bases, and improved operational efficiency are associated with lower levels of non-performing loans in banking institutions. However, Income Diversification was found to have no significant effect on NPLs, indicating that diversifying income sources alone may not

mitigate credit risk effectively in Indonesian banking settings. These findings provide valuable insights for banking companies in Indonesia, emphasizing the importance of focusing on profitability metrics, capital adequacy, and operational efficiency to manage and reduce non-performing loans effectively. By implementing these strategies, banks can enhance their resilience to credit risks and contribute more effectively to economic stability and development in Indonesia.

Ranabhat & Subedi (2022) conducted a comprehensive study aiming to assess the impact of non-performing loans (NPL) and macroeconomic variables on the financial performance of commercial banks in Nepal. The study focused on key financial performance indicators including return on assets (ROA), return on equity (ROE), and capital adequacy ratio (CAR) as dependent variables, while NPL, GDP growth, inflation, and interest rates served as independent macroeconomic variables. Primary and secondary data were collected using structured questionnaires administered to 80 respondents from commercial banks in Pokhara, along with annual reports and economic surveys. A stratified simple random sampling method was employed to select 10 commercial banks (comprising three joint venture and seven non-joint venture banks) from a total population of 27 commercial banks for the period spanning fiscal years 2073/74 to 2077/78. Data analysis included multiple regression analysis, correlation analysis, and descriptive statistics. The primary data analysis indicated a strong awareness among bank staff regarding NPL provisions as per directives from Nepal Rastra Bank (NRB). Additionally, the majority of respondents agreed that macroeconomic variables significantly influence NPL and subsequently impact financial performance. Correlation analysis of secondary data revealed a negative and insignificant relationship between NPL and financial performance indicators (ROA, ROE, CAR) for both joint venture (JV) and non-joint venture (NJV) banks. However, significant positive relationships were observed between ROA, ROE, and GDP growth as well as interest rates for JV banks. This suggests that higher GDP growth and interest rates positively influence the financial performance of JV banks. Regression analysis further highlighted a significant negative relationship between NPL and ROE specifically for NJV banks, indicating that an increase in NPL adversely affects ROE in these banks. The study provides valuable insights into the complex interactions between NPL, macroeconomic variables, and financial performance in Nepalese commercial banks. It underscores the importance of effective NPL management strategies and the potential benefits of favorable

macroeconomic conditions on bank profitability. The findings also contribute to the foundation for future research focusing on the impact of NPL on firm performance using updated data and expanded sample sizes.

Ahmed et al. (2021) conducted a pioneering study investigating the macroeconomic and bank-specific determinants of non-performing loans (NPLs) within Pakistani commercial banks from 2008 to 2018. This research fills a crucial gap in existing literature, which predominantly focuses on developed markets. Using the System Generalized Method of Moments (GMM) estimator, known for its robustness in handling dynamic panel data, the study ensures the reliability of its findings. The validity of instruments employed in GMM estimation was rigorously tested through the J test and the Arellano–Bond AR (2) test, confirming the robustness of the results. The findings underscore the imperative of effective risk management practices, particularly in managing credit growth and enhancing operational efficiency. The study reveals significant impacts of macroeconomic conditions such as interest rates and political risk on NPLs, suggesting policymakers should consider these factors when formulating regulatory frameworks to mitigate NPL risks. Investors can leverage these insights to identify optimal investment opportunities in the banking sector based on factors influencing NPLs.

Neupane (2020) investigated the determinants of profitability in Nepalese commercial banks, focusing comprehensively on both internal and external factors. Employing various methodologies, including correlation analysis and Fixed Effect Model (FEM) and Random Effect Model (REM), the study provides a nuanced understanding of profitability determinants. Neupane (2020) concludes that profitability, measured by Return on Assets (ROA), in Nepalese banks is significantly influenced by external factors, particularly industry-specific conditions, with macroeconomic variables exerting a notable albeit weaker impact. In contrast, internal factors such as bank size, capital base, and operational activities were found to have insignificant effects on ROA. For profitability measured by Net Interest Margin (NIM), the study highlights that capital adequacy, branch network size, and inflation rate significantly influence NIM, indicating the strategic importance of these internal factors in NIM management. The study emphasizes the necessity for banks to enhance capital adequacy and strategically expand their branch networks to optimize NIM. Moreover, adapting to external economic conditions is crucial for effectively managing ROA. Policymakers are urged to consider the substantial impact of external factors on bank

profitability when formulating policies to ensure a stable and supportive environment for the banking sector.

Prawira and Wiryo (2020) addressed the critical issue of non-performing loans (NPLs) in Indonesia's banking sector, analyzing data from 35 state-owned banks over the period 2010–2019. This study focused on bank-specific factors such as efficiency, profitability, income diversification, and capital adequacy, employing both random and fixed effects regression models for analysis. The results highlighted that bank efficiency exhibited a positive correlation with NPLs, indicating that more efficient banks may paradoxically have higher NPLs. Conversely, profitability was negatively correlated with NPLs, suggesting that profitable banks tend to manage credit risk more effectively. However, income diversification and bank capital were found to be statistically insignificant in their impact on NPLs. The study recommends that government regulations should emphasize the profitability of banks, thereby incentivizing robust credit management processes that can effectively reduce NPLs. This approach is crucial for maintaining the overall effectiveness and stability of the economy, given the significant impacts of NPLs on the banking sector.

Pradhan and Upadhaya (2020) conducted a comprehensive study aimed at examining the influence of financial structure and macroeconomic variables on the profitability of Nepalese commercial banks. The study focused on three key profitability indicators: return on assets (ROA), return on equity (ROE), and net interest margin (NIM), analyzing data from 18 commercial banks spanning the period from 2007/08 to 2014/15, amounting to 144 observations. Secondary data from multiple sources including Nepal Rastra Bank's Banking and Financial Statistics, Bank Supervision Reports, Ministry of Finance's Economic Survey, and annual reports of selected commercial banks were utilized. The study employed rigorous statistical analysis to investigate the impact of various independent variables on bank profitability. Key findings reveal that short-term debt to total capital, firm size, sales growth, and GDP growth emerged as significant predictors of profitability in Nepalese commercial banks. Specifically, higher levels of short-term debt and larger firm sizes were associated with increased profitability, while inflation and long-term debt exerted negative influences. The study underscores that both financial structure and macroeconomic conditions play pivotal roles in shaping the profitability dynamics of Nepalese commercial banks. These insights are crucial for bank management in formulating strategic decisions related to capital management, debt structure, and

growth strategies amidst varying economic conditions. Policymakers can also benefit from these findings by crafting policies that support sustainable bank profitability in Nepal's banking sector.

Table 1

Summary of Empirical Review

Researchers / Years	Objectives	Methods	Findings
Anna et al. (2024)	Examine macroeconomic and bank-specific determinants of NPLs in Indonesian banking sector.	Panel data regression model	IR, WOP, BOPO positively impact NPLs. CAR, NIM, INF negatively impact NPLs. LDR does not significantly impact NPLs. Macroeconomic variables exert stronger influence on NPLs.
Ayub et al. (2024)	Investigate impact of macroeconomic factors on profitability of Pakistan's banking sector.	Secondary data analysis	Internal factors crucial for profitability; FDI, inflation significant from external factors.
Gazi et al. (2024)	Analyze variables affecting profitability of Shariah-based banks in Bangladesh	Panel data regression (OLS, FE, RE), GMM	Asset quality, liquidity, credit risk enhance profitability. Capital adequacy, operational efficiency, bank size detract from profitability.
Kushwaha (2024)	Explore relationships between economic indicators and stock market indices in BRI countries.	Regression analysis, correlation studies (SPSS)	GDP consistently correlates positively with stock market indices in BRICS nations. Inflation, interest rates show varied impact.
Mohammad & Humairoh (2024)	Study macroeconomic and bank-specific variables impacting NPLs in Indonesian banks.	Panel data regression model	IR, WOP, BOPO positively impact NPLs. CAR, NIM, INF negatively impact NPLs. LDR does not significantly impact NPLs. Macroeconomic factors dominate NPL influences.
Ngoc Son (2024)	Investigate factors influencing net interest margin (NIM) of Vietnamese banks.	Panel data model	Bank size, loans, credit risk, liquidity significantly affect NIM. Strategies can optimize bank profitability.

Vanera (2024)	Analyze impact of macroeconomic factors on financial performance in Turkey and Kosovo banking sectors.	Panel data regression models	Inflation, GDP, exchange rate significantly influence financial performance in both countries' banking sectors.
Msoni (2023)	Examine determinants of financial performance in African non-life insurance companies	Panel data regression, OLS, System GMM	Return on assets, equity capital, operational efficiency significant for financial performance. Leverage, investment capability also impactful.
Rumaly (2023)	Investigate factors affecting return on equity (ROE) in Bangladesh's banking sector.	Econometric techniques (GMM, Driscoll-Kraay, PCSE)	EPS, CAR, bank spread positively influence ROE. Asset size, operating costs, leverage, inflation negatively impact ROE.
Subedi (2023)	Examine determinants of non-performing loans (NPLs) in Nepalese banking sector.	Panel data regression (Pool OLS), bank-dummy variables	Capital adequacy, operating efficiency, remittance affect NPLs. Joint venture, domestic private banks reduce NPLs compared to government-owned banks.
Suriyati et al. (2023)	Evaluate impact of firm-specific and macroeconomic factors on Islamic and conventional banks' ROA in Indonesia.	Panel data analysis	Credit risk, liquidity impact ROA in Islamic banks. GDP, inflation affect ROA in conventional banks.
Umaternate et al. (2023)	To analyze the effect of macroeconomic and internal bank variables on NPL in small banks.	Secondary data analysis using multiple linear regression (2016-2021)	Macroeconomic variables (inflation, interest rates) have no significant effect on NPL. Internal variables such as Bank Size and CAR negatively affect NPL. LDR has no significant positive effect on NPL, while BOPO positively affects NPL.
Ally (2022)	Assess influence of interest rate, inflation, exchange rate on Tanzanian commercial banks' financial performance.	Descriptive and correlation analysis	Interest rate negatively, inflation positively impacts financial performance. Exchange rate also influential.
Khoirunisa, et al.(2022)	To identify factors affecting the risk of problematic	Quantitative methods using panel data	ROA, Bank Capital, and Bank Efficiency have a significant negative effect on NPLs.

	credit (NPL) in Indonesian banks.	regression (2016-2020)	Income Diversification has no significant effect on NPLs.
Ranabhat & Subedi (2022)	Measure impact of NPLs and macroeconomic variables on financial performance of Nepalese banks. Investigate	Multiple regression, correlation analysis	NPLs negatively impact ROA, ROE insignificantly. GDP growth, interest rate positively impact JV bank profitability.
Ahmed et al. (2021)	macroeconomic and bank-specific determinants of NPLs in Pakistani commercial banks.	System GMM estimator, J test, Arellano-Bond AR	Credit growth, net interest margin, loan loss provision increase NPLs. Operating efficiency, bank size decrease NPLs.
Neupane (2020)	Study key determinants of profitability in Nepalese commercial banks.	Correlation analysis, panel data regression (FE, RE)	External factors (industry-specific, macroeconomic) significant for ROA. Internal factors less influential. Bank efficiency positively correlated with NPLs; profitability negatively correlated with NPLs. Both were statistically significant. Income diversification and capital adequacy were not statistically significant.
Prawira, and Wiryono (2020)	To identify bank-specific factors affecting NPLs in Indonesian banks and their impact on the economy.	Quantitative methods using random and fixed effects regression models (2010-2019)	
Pradhan & Upadhaya (2020)	Analyze financial structure, macroeconomic variables impacting Nepalese banks' profitability.	Regression analysis	Short-term debt, firm size enhance profitability. Inflation, long-term debt detract from profitability.

2.4 Research Gap

Net Interest Margin (NIM) is a crucial financial metric for banks, reflecting the efficiency of their interest earning assets relative to interest-bearing liabilities. Understanding the determinants of NIM is essential for optimizing profitability and maintaining financial stability within the banking sector. While studies like Anna et al. (2024) and Rumaly (2023) have examined related factors influencing financial

performance in banking sectors, there remains a specific gap in understanding how both bank-specific and macroeconomic variables collectively influence NIM in the context of Nepalese commercial banks. Anna et al. (2024) explored the impact of macroeconomic conditions and bank-specific factors on non-performing loans (NPLs) within Indonesian banks. Their study highlighted the differential effects of interest rates, inflation, and other variables on NPLs, emphasizing the dominance of macroeconomic factors in influencing banking outcomes.

Rumaly (2023) focused on Bangladesh's banking sector, investigating factors affecting return on equity (ROE). Their research underscored the significance of internal bank factors such as capital adequacy and operational efficiency, alongside external macroeconomic variables like inflation, in shaping financial performance.

Despite existing studies on financial performance metrics like NPLs and ROE in banking sectors, there is a notable gap in research specifically addressing the determinants of Net Interest Margin (NIM) in Nepalese commercial banks. NIM serves as a critical indicator of profitability and operational efficiency, yet comprehensive studies integrating both bank-specific and macroeconomic factors in the Nepalese context are lacking. A study focusing on Nepalese commercial banks could bridge this gap by investigating the simultaneous impact of internal factors (such as capital structure, liquidity management, and credit risk) and external factors (including inflation rates, GDP growth, and interest rates) on Net Interest Margin (NIM). Employing robust econometric techniques like panel data regression models could offer insights into how these factors interact and influence NIM over time.

Such research would not only enhance understanding of the dynamics driving NIM in Nepalese commercial banks but also provide valuable insights for bank management, policymakers, and stakeholders. By identifying key determinants of NIM, the study could inform strategic decisions aimed at optimizing profitability, managing risks, and fostering stability within the banking sector.

In conclusion, investigating the joint impact of bank-specific and macroeconomic variables on Net Interest Margin (NIM) in Nepalese commercial banks represents a crucial research gap. Addressing this gap would contribute significantly to the literature on banking performance metrics, offering practical implications for enhancing financial stability and profitability in emerging market economies like Nepal. This proposed research would build upon existing knowledge from studies like

Anna et al. (2024) and Rumaly (2023), extending insights into the unique context of Nepalese commercial banks and their operational environment.

CHAPTER III

RESEARCH METHODOLOGY

Research methodology serves as a structured approach to resolving research problems, comprising a series of systematic steps undertaken by a researcher to fulfill specific objectives. It delineates the comprehensive plan guiding the study. This chapter details the methodology applied in this research, organized into seven sections to ensure clarity and coherence in achieving the study's aims. Without a well-defined methodology, there is a risk of misinterpreting the study's conclusions.

Section two elucidates the process of population selection and sample criteria, including the timeframe within which the study was conducted. This section clarifies how the sample was chosen to ensure it represents the targeted population of 'A' class commercial banks in Nepal adequately. Section three elaborates on the nature and sources of data utilized in the study, detailing the specific data collection procedures employed to gather information on variables such as total deposits, liquidity, asset quality, bank size, GDP growth rate, and inflation. Section four outlines the methods and analytical tools used for data analysis. It explains the statistical techniques applied to interpret the relationships between the independent and dependent variables and derive meaningful insights. Section five discusses the empirical models employed in the study to measure and analyze the impact of bank-specific and macroeconomic variables on net interest margin. It describes the criteria used to assess the effectiveness and validity of these models in capturing the relationships under investigation.

3.1 Research design.

This study employs both descriptive and causal-comparative research designs to explore the determinants of net interest margin (NIM) in the context of Nepal's banking sector. The descriptive research design is utilized to systematically gather and present data on factors influencing interest margins in Nepalese banks. This approach facilitates fact-finding and provides comprehensive information about the variables affecting NIM, such as total deposits, liquidity, asset quality, bank size, management efficiency, GDP growth rate, and inflation. By describing the current state and

characteristics of these factors, the descriptive design aims to offer a clear and detailed understanding of their impact on NIM.

Conversely, the causal-comparative research design investigates causal relationships between NIM and various bank-specific and macroeconomic factors. It examines how changes in factors like deposits, asset quality, liquidity, bank size, management efficiency, GDP growth rate, and inflation influence variations in NIM across selected samples of Nepalese commercial banks. This design is particularly suited for identifying possible causes and effects, thereby establishing connections between the independent variables (factors influencing NIM) and the dependent variables (NIM1 and NIM2). By employing both research designs, this study aims to provide a comprehensive analysis of the factors driving net interest margin in Nepalese commercial banks. The descriptive aspect ensures a thorough exploration and presentation of data, while the causal-comparative aspect seeks to uncover underlying causal relationships, contributing to a deeper understanding of the dynamics affecting interest margins in Nepal's banking sector.

3.2 Population and sample

This study focuses on examining the relationship between bank-specific and macroeconomic factors with the net interest margin (NIM) of Nepalese commercial banks. The sample consists of six commercial banks selected from Nepal, covering a period from 2013/14 to 2022/23, resulting in a total of 60 observations. The selected banks are Everest Bank Limited, NIC Asia Bank Limited, Nabil Bank Limited, Sanima Bank Limited, Nepal Bank Limited and Citizens Bank International Limited, their study period from years 2013/14 to 2022/23 and the number of observations 10 for each bank.

This study utilizes these 60 observations to analyze how various factors influence the net interest margin of Nepalese commercial banks over the specified period. The selection of these banks aims to provide a representative sample that captures diverse characteristics within Nepal's banking sector, allowing for a comprehensive examination of the determinants of NIM. The findings from this sample will contribute valuable insights into the factors shaping profitability and operational efficiency in Nepalese banks.

3.3 Nature and sources of the data

This study relies on secondary data collected from 20 commercial banks in Nepal over a period of 10 years, spanning from fiscal year 2013/14 to 2022/23. The data sources include publications and websites of Nepal Rastra Bank (NRB), Ministry of Finance (MOF), and annual reports of the selected commercial banks. These sources provide comprehensive information on both dependent and independent variables relevant to the study. Each data point is coded with a unique identifier for easy identification and analysis of each sample bank.

The use of secondary data ensures that the study is based on reliable and widely accessible information from authoritative sources within Nepal's financial sector. This approach allows for a thorough examination of the factors influencing net interest margin (NIM) in Nepalese commercial banks, facilitating robust conclusions and informed policy recommendations based on empirical evidence.

3.4 Data analysis tools and techniques

This section outlines the statistical and econometric methods employed for analyzing the secondary data in this study. It includes descriptive statistics, correlation analysis, and regression analysis as the primary tools for examining the relationships and influences among variables.

Descriptive statistics such as mean, standard deviation, minimum, and maximum values will be computed to summarize and describe the characteristics of the sample banks over the study period. These statistics provide a clear understanding of the central tendency, dispersion, and range of each variable considered in the analysis.

Correlation analysis will be utilized to assess the strength and direction of relationships between the dependent variable (net interest margin) and independent variables (such as total deposits, liquidity, assets quality, bank size, management efficiency, GDP growth, and inflation). This analysis helps in identifying which variables are significantly correlated with net interest margin and the nature of these relationships. Regression analysis will be employed to explore the impact of independent variables on the dependent variable, both individually and collectively. Specifically, multiple regression models will be constructed to examine how changes in the independent variables predict variations in net interest margin. This method

allows for the identification of significant predictors and quantification of their effects on net interest margin.

Additionally, statistical tests of significance, including t-tests and F-tests, will be conducted to validate the regression models and assess the statistical significance of the relationships observed. These tests ensure the robustness and reliability of the findings derived from the regression analyses. All analyses will be performed using the Statistical Package for the Social Sciences (SPSS 26), which is widely recognized for its capabilities in handling and analyzing large datasets in social science research. This software will facilitate rigorous testing and interpretation of the statistical models used in this study, thereby enhancing the validity and reliability of the study's conclusions.

3.5 Model specification

The econometric models utilized in this study aim to assess the impact of both bank-specific and macroeconomic factors on the net interest margin (NIM) of Nepalese commercial banks using panel data analysis. The study employs linear regression models to investigate these relationships, focusing on two measures of NIM: NIM1 (net interest income to average earning assets) and NIM2 (net interest income to total assets).

The models hypothesize that NIM1 and NIM2 are influenced by several key independent variables: total deposits, assets quality, liquidity, bank size, management efficiency, gross domestic product (GDP) growth rate, and inflation. The functional form of the models is structured as follows:

Model I

In this model, the dependent variable is the NIM1 indicated by the net interest margin to average earning assets. The impacts of deposits, assets quality, liquidity, bank size, management efficiency, gross domestic product and inflation on NIM1. The model is presented as:

$$NIM1_{it} = \beta_0 + \beta_1 DP + \beta_2 AQ + \beta_3 LIQ + \beta_4 BS + \beta_5 ME + \beta_6 GDP + \beta_7 INF + \varepsilon_{it}$$

Model II

In this model, the dependent variable is the NIM2 indicated by the net interest margin to total assets. The impacts of deposits, assets quality, liquidity, and bank size,

management efficiency, gross domestic product and inflation on NIM2. The model is presented as:

$$NIM2_{it} = \beta_0 + \beta_1 DP + \beta_2 AQ + \beta_3 LIQ + \beta_4 BS + \beta_5 ME + \beta_6 GDP + \beta_7 INF + \epsilon_{it}$$

Where,

NIM1= Net interest margin 1 is measured as the difference between the interest income and interest expenses divided by the average earning assets, in percentage.

NIM2= Net interest margin 2 is measured as the difference between the interest income and interest expenses divided by the total assets, in percentage.

DP=Bank total deposit is measured by the total deposits, Rs in billion.

AQ = Asset quality is measured as the ratio of non-performing loan to total loan, in percentage.

LIQ = Bank liquidity is measured as the ratio of total loan to total deposit, in percentage.

BZ = Bank size is measured by the total assets, Rs in billion.

ME= Management efficiency is measured as the ratio of operating income to total assets, in percentage.

GDP= Gross domestic product is measured in terms of percentage increase in growth rate, in percentage.

INF= Annual inflation rate is measured as the change in consumer price index, in percentage.

These models are structured to quantify how changes in the independent variables influence the net interest margin of Nepalese commercial banks, providing insights into the factors driving profitability in the banking sector over the study period from fiscal year 2013/14 to 2022/23.

3.6 Conceptual framework and definition of variables

The conceptual framework of this study serves as a foundational structure that outlines the relationships between dependent and independent variables to elucidate the determinants of net interest margin (NIM) in Nepalese commercial banks. It aims to provide clarity on the focus and objectives of the research problem by organizing and defining the variables involved. Based on the study objectives and a thorough review of existing literature, the conceptual framework identifies NIM as the dependent variable. NIM is further divided into two proxies: NIM1, representing net interest income to average earning assets, and NIM2, representing net interest income

to total assets. The independent variables are categorized into bank-specific factors and macroeconomic variables.

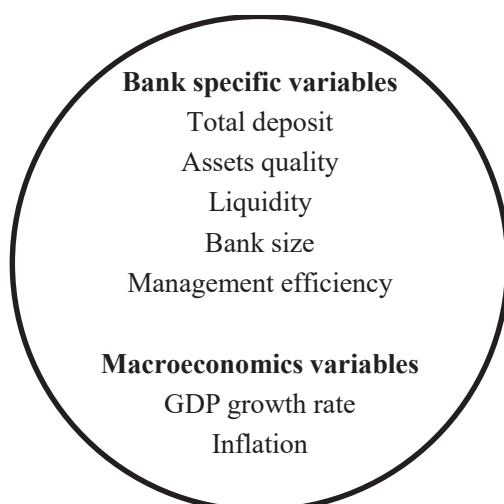
Bank-specific variables include are Total deposit, Assets quality, Management efficiency, Liquidity, Size and Macroeconomic variables include are GDP growth rate and Inflation rate

The schematic diagram presented in Figure 1 visually represents these relationships, illustrating how the bank-specific and macroeconomic variables influence NIM1 and NIM2. This framework provides a structured approach to analyze and interpret the impact of these factors on the profitability of Nepalese commercial banks over the study period from fiscal year 2013/14 to 2022/23. It serves as a guide to conceptualize the research methodology and interpret the findings in a meaningful manner.

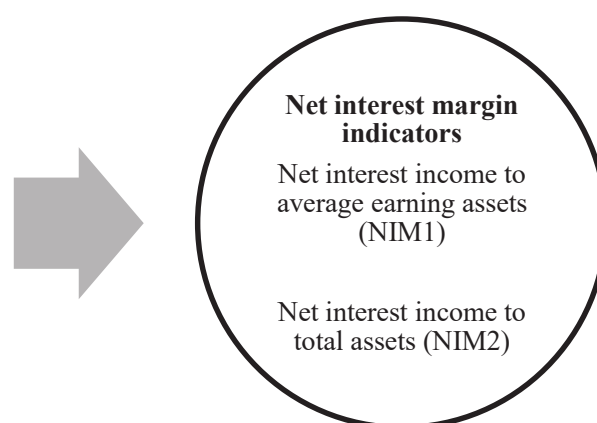
Figure 1

Conceptual framework

Independent variables



Dependent variables



Source: Subedi (2023)

Dependent variable

Net interest margin

Net interest margin (NIM) is a measure of the difference between the interest income generated by banks and the amount of interest paid out to their lenders relative to the amount of their (interest- earning) assets. It usually expressed as a percentage. The NIM variable is defined as the net interest income divided by total earnings assets (Gul *et al.*, 2011). It is used to measure the ability of bank management to generate interest income by considering the performance of banks to disburse loans, given that the operational income of banks is highly dependent on the difference between

interest and credit disbursed. The greater the NIM achieved by the bank, the higher the interest income on earning assets managed by the bank concerned, thereby increasing the bank's profit (Fatimah *et al.*, 2017). Net interest margin measures the gap between the interest income the bank receives on loans and securities and interest cost of its borrowed funds. It reflects the cost of bank intermediation services and the efficiency of the bank. The higher the net interest margin, higher the bank's profit and more stable the bank. Net interest margin is the most appropriate criterion for evaluating the effectiveness and stability of bank's operations (Saksonova, 2014).

Independent variables

Bank specific variables / internal factors

The internal factors are bank specific variables which influence the profitability of specific bank. These factors are within the scope of the bank to manipulate them and that they differ from bank to bank. The bank specific factors include deposit, assets quality, management efficiency, liquidity and bank size.

Total deposits

Deposits are the major source of funds for banks. Banks are required to maintain adequate fund to meet customer demand. Syarif (2006) found that deposit have positive and significant influenced to the NIM. Similarly, Haddawee and Hammood (2020) found that there is a positive and significant relation between deposits and the indicators of profitability. Similarly, Chirwa (2004), Saona (2016) and Menicucci and Paolucci (2016) showed that deposits improve banks' profitability. Banks' profitability positively related with deposit as long as there is a demand for loans (Al-Harbi, 2019). Based on it, this study develops the following hypothesis:

Assets quality

Asset quality signifies the degree of financial strength of and risks in a bank's assets, mainly loans and investments. The maintenance of asset quality is a fundamental feature of banking. A broad evaluation of asset quality is one of the most important components in assessing the current situation and future viability of a bank (Rani and Zergaw, 2017). The quality of assets held by a bank depends on exposure to specific risks, trends in nonperforming loans, and the health and profitability of bank borrowers (Baral, 2005). Aburime (2008) asserted that the profitability of a bank depends on its ability to foresee, avoid and monitor risk, possibly to cover losses brought by risks arisen.

Liquidity

Liquidity is very important for functioning of financial markets and banking sector (Vodova, 2013). Bourke (1989) found a positive and statistically significant relationship between liquidity and net interest margin. Similarly, Khan and Ali (2016) found that there is a significant positive relationship between liquidity with profitability of banks in Pakistan. Likewise, Mahdi and Abbas (2018) found that positive impact of the net interest margin on the liquidity of the banking industry of conventional banks indicates that the most profitable banks maintain higher liquidity ratios.

Bank size

Bank size is represented by natural logarithm of total assets. It is usually used to examine the economies or diseconomies of scale in the banking sector. According to Boyd and Runkle *et al.* (1993), firm size is expected to promote economies of scale and reduce the cost of gathering and processing information. According to Bagchi (2013), bank size has a strong positive affiliation with profitability. Similarly, Saliha and Abdessatar (2011) showed a positive relation between firm profitability and size. Smirlock (1985) found that there is significantly positive relationship between bank size and profitability.

Management efficiency

Management efficiency is one of the key internal factors that determine the bank profitability (Zhou and Wong, 2008). Yijie and Jing (2005) defined management efficiency as the quantity. It is represented by different ratios like total asset growth, loan growth rate and earnings growth rate. One of the ratios used to measure management quality is operating profit to income ratio (Sangmi and Nazir, 2010). The higher the operating profits to total income the more the efficient management is in terms of operational efficiency and income generation. The important ratio for determining management quality is expense to asset ratio. The ratio of operating expenses to total asset is expected to be negatively associated with profitability. On the other hand ratio of interest income to total assets is expected to be positively related with profitability.

Macroeconomic variables / external variables

The macroeconomic GDP growth rate, inflation, exchange rate, interest rate and political instability are macroeconomic variables may affect net interest margin in a

number of ways. In this study, GDP growth rate and inflation are used as determinants of net interest margin.

GDP growth rate

Gross domestic product is the aggregate output generated by the different sectors of an economy in any given period within the domestic territory of a country. It is measured as percentage increased in real gross domestic product. The annual GDP growth is used as a proxy for GDP. A high aggregate growth rate may strengthen the debt servicing capacity of domestic borrowers, and therefore, contribute to less credit risk. Demirguc-Kunt and Huizinga (1999) show that rapid economic growth increase profitability for a large number of countries. Sufian and Kamarudin (2012) have found that GDP significantly influences profitability. Fotions and Kyriaki (2007) found that the gross domestic product is significant and positively related to net interest margin of domestic banks, but it is negative and significant in case of foreign banks.

Inflation

Inflation is an important determinant of net interest margin. High inflation rates are related with high loan interest rates and incomes. The effect of inflation on net interest margin depends on whether inflation is predicted or unexpected. If inflation is fully anticipated and interest rates are adjusted accordingly, a positive impact on profitability will result (Abdullah *et al.*, 2014). Pasiouras and Kosmidou (2007) found a positive and statistically significant inflation rate and bank profitability. Similarly, Vong and Chan (2009) and Tan and Floros (2012) demonstrates that high inflation rates lead to higher bank profitability.

CHAPTER IV

RESULTS AND DISCUSSION

This chapter systematically presents and interprets the study's findings, analyzing secondary data related to bank-specific and macroeconomic factors affecting the net interest margin of Nepalese commercial banks. It encompasses brief profiles and various ratios of the selected twenty commercial banks, compiled for this study. The data are then tabulated, analyzed, and interpreted to understand the impact of independent variables on the dependent variables.

The primary purpose of this chapter is to analyze and interpret the collected data over the study period, utilizing the statistical tools outlined in Chapter Three. The chapter is structured into five sections for clarity and comprehensive analysis:

This section examines the overall structure and patterns in the data. It includes a detailed analysis of key variables and their trends over the study period, providing an overview of how these factors have evolved for the selected banks. This section presents the descriptive statistics, summarizing the central tendencies, dispersions, and distributions of the variables. Metrics such as mean, standard deviation, minimum, and maximum values are analyzed to provide insights into the characteristics of the sample banks. This section explores the relationships between the dependent variable (net interest margin) and various independent variables. By examining Pearson correlation coefficients, the analysis identifies the strength and direction of these relationships, offering insights into potential causal links. This section employs stepwise regression analysis to identify significant predictors of net interest margin. The analysis includes the coefficients, significance levels, and overall model fit, providing a detailed understanding of which factors most strongly influence net interest margin and their relative importance.

4.1 Results

In this section, we explore the structure and patterns of factors influencing the net interest margin (NIM) of Nepalese commercial banks from 2013/14 to 2022/23. The analysis presents a year-wise breakdown, highlighting average values and standard deviations for both dependent and independent variables. By analyzing the structure

and patterns of these variables over the study period, this section aims to uncover trends, variations, and potential relationships that contribute to the net interest margin of Nepalese commercial banks. This analysis provides essential insights into the financial health and operational dynamics of these institutions, offering valuable information for stakeholders and policymakers in the banking sector.

4.1.1 Descriptive statistics

Descriptive statistics are employed in this study to summarize the key characteristics of the variables under examination, including their minimum, maximum, mean, and standard deviation values. This approach facilitates a clearer and more accessible interpretation of the data, providing insights into the variability and central tendencies of the variables over the period from 2013/14 to 2022/23.

The table below presents a comprehensive summary of the descriptive statistics for six selected Nepalese commercial banks. These statistics offer a snapshot of the financial metrics and performance indicators analyzed in the study, encompassing factors such as total deposits, assets quality, liquidity, bank size, management efficiency, GDP growth rate, inflation, and net interest margin (NIM).

Table 2

Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
TD	60	24.87	403.21	130.6640	80.48975
AQ	60	.02	5.12	1.3402	1.21302
LIQ	60	59.45	94.10	83.1708	7.84111
BZ	60	29.38	481.20	161.3348	98.43262
ME	60	2.11	5.68	3.9707	.67719
GDP	60	.20	7.70	4.3900	2.16578
INF	60	2.90	9.90	6.3400	2.15306
NIM1	60	2.91	6.31	4.1077	.76185
NIM2	60	2.34	4.79	3.3427	.50877

Table 2 shows the characteristics of the central variables examined in this study. By scrutinizing these statistics, we gain valuable insights into how these variables are distributed, their average values (central tendency), and how spread out the data points are (variability). The table meticulously details the number of observations (sample size) for each variable, along with the minimum and maximum values encountered. It further enriches our understanding by providing the mean (average) and standard deviation for each variable.

The analysis of Total Deposits (TD) reveals a striking diversity among the sampled banks. With a substantial range between the minimum value of 24.87 billion NPR and the maximum of 403.21 billion NPR, it's evident that the banks operate on vastly different scales. The average total deposits sit at 130.6640 billion NPR, but the standard deviation of 80.48975 billion NPR underscores the significant spread around this central value. This implies that some banks hold considerably more deposits than others. Asset Quality (AQ), measured by the percentage of non-performing loans relative to total loans, paints a picture of noteworthy variability. The minimum value of 0.02% indicates a very healthy loan portfolio for some banks, while the maximum of 5.12% suggests that other banks may face a higher degree of credit risk. The average asset quality rests at 1.3402%, but the standard deviation of 1.21302% highlights the considerable dispersion around this mean. This variability signifies that banks exhibit diverse risk profiles in terms of loan management. Liquidity ratios (LIQ) also demonstrate substantial variation, ranging from a minimum of 59.45% to a maximum of 94.10%. This spread suggests that banks employ different strategies and possess varying capacities to meet their short-term financial commitments. The average liquidity sits at 83.1708%, but the standard deviation of 7.84111% indicates a significant dispersion around this central value. This implies that some banks are demonstrably more adept at managing their short-term obligations than others.

The descriptive statistics presented in Table 2 serve as a powerful lens through which we can examine the key variables of this study. By dissecting the central tendencies and dispersions of these variables, we gain a deeper understanding of the financial health, performance characteristics, and risk profiles of Nepalese commercial banks. This knowledge lays a solid foundation for further analysis and exploration of the factors that influence the performance of these institutions.

4.1.2 Correlation analysis

Following the presentation of descriptive statistics, Pearson's correlation coefficients have been computed and are detailed in Table 3. This table illustrates the correlation relationships among the dependent variables (net interest margin 1, NIM1, and net interest margin 2, NIM2) and the independent variables (total bank deposits, assets quality, bank liquidity, bank size, management efficiency, GDP growth rate, and inflation) for Nepalese commercial banks. The purpose of correlation analysis in this study is to ascertain the strength and direction of linear relationships between these variables. By examining these correlations, the study aims to identify statistically significant associations that may exist among the pairs of variables considered.

Table 3

Correlation Analysis

		TD	AQ	LIQ	BZ	ME	GDP	INF	NIM1	NIM2
TD	Pearson Correlation	1								
	Sig. (2-tailed)									
AQ	Pearson Correlation	-.007	1							
	Sig. (2-tailed)	.957								
LIQ	Pearson Correlation	.298*	-.458**	1						
	Sig. (2-tailed)	.021	.000							
BZ	Pearson Correlation	.995**	-.005	.310*	1					
	Sig. (2-tailed)	.000	.972	.016						
ME	Pearson Correlation	-.262*	.092	-.380**	-.252	1				
	Sig. (2-tailed)	.043	.482	.003	.052					
GDP	Pearson Correlation	-.074	.006	.246	-.060	.312*	1			
	Sig. (2-tailed)	.572	.963	.059	.649	.015				
INF	Pearson Correlation	-.185	.261*	-.478**	-.211	.028	-.546**	1		
	Sig. (2-tailed)	.157	.044	.000	.105	.832	.000			
NIM1	Pearson Correlation	.303*	.487**	-.181	.327*	.504**	.213	-.078	1	
	Sig. (2-tailed)	.019	.000	.166	.011	.000	.102	.553		
NIM2	Pearson Correlation	.214	.251	-.161	.227	.677**	.267*	-.070	.786**	1
	Sig. (2-tailed)	.101	.053	.218	.081	.000	.039	.594	.000	

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

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

Table 3 shows the relationships between various bank-specific and macroeconomic variables, shedding light on the factors that influence the profitability of Nepalese commercial banks. This analysis hinges on Pearson correlation coefficients, which quantify the strength and direction of linear relationships between pairs of variables. Additionally, significance levels (p-values) are presented to indicate the statistical robustness of these associations.

The analysis reveals a positive correlation between Total Deposits (TD) and Liquidity (LIQ). This suggests that banks with larger deposit bases tend to hold more liquid assets. In simpler terms, banks with more customer deposits have greater flexibility to meet short-term financial obligations. However, an intriguing counterpoint emerges when we examine the relationship between Asset Quality (AQ) and Liquidity (LIQ). Here, a negative correlation indicates that higher levels of non-performing loans (weaker asset quality) are associated with lower liquidity. This implies that banks struggling with bad loans may find themselves with fewer readily available resources to meet short-term demands.

The analysis further confirms a strong positive correlation between Bank Size (BZ) and Total Deposits (TD). This simply means that larger banks tend to have more customer deposits. Interestingly, both Bank Size (BZ) and Total Deposits (TD) exhibit positive correlations with Net Interest Margin 1 (NIM1). NIM1 reflects profitability relative to a bank's average earning assets. These findings suggest that larger banks and those with higher deposit bases may enjoy an edge in terms of profitability.

Management Efficiency (ME) emerges as a crucial factor influencing profitability. It exhibits a positive correlation with both NIM1 and NIM2. NIM2 reflects profitability relative to a bank's total assets. In essence, banks that demonstrate higher management efficiency tend to generate stronger net interest margins on both their average earning assets and total asset base. This underlines the importance of skillful management practices in driving profitability for Nepalese commercial banks.

The analysis unveils a fascinating interplay between Gross Domestic Product (GDP) growth and Inflation (INF). A negative correlation between these two variables indicates that higher inflation is often accompanied by lower GDP growth. This suggests that periods of economic expansion may be dampened by inflationary pressures. Interestingly, Management Efficiency (ME) demonstrates a positive

correlation with GDP growth. This implies that banks operating in economies experiencing stronger growth may benefit from a more favorable economic climate.

Net Interest Margin 1 (NIM1) serves as a vital indicator of a bank's profitability relative to its average earning assets. The analysis reveals that several factors contribute to higher NIM1. These include larger Total Deposits (TD), higher levels of non-performing loans (AQ) – though this might seem counterintuitive, it can be due to banks raising interest rates to compensate for the risk –, larger Bank Size (BZ), and stronger Management Efficiency (ME). Similarly, Net Interest Margin 2 (NIM2), reflecting profitability relative to total assets, is positively influenced by Management Efficiency (ME), higher GDP growth, and a stronger Net Interest Margin 1 (NIM1).

In conclusion, the correlation analysis in Table 3 offers valuable insights into the intricate web of factors influencing the profitability of Nepalese commercial banks. It highlights the significance of factors like deposit levels, asset quality, bank size, management efficiency, economic growth, and inflation. By understanding these relationships, banks can formulate more effective strategies to enhance their profitability and navigate the dynamic Nepalese financial landscape.

4.1.3 Regression analysis

Following the computation of Pearson's correlation coefficients, this section presents the regression analysis results for the dependent variables (net interest income to average earning assets, NIM1, and net interest income to total assets, NIM2) and their relationships with independent variables among Nepalese commercial banks. The estimated regression outcomes are detailed in Table 4 and Table 5, encompassing various model specifications.

Model 1 examines the estimated impacts of bank-specific and macroeconomic factors on NIM1, focusing on net interest income to average earning assets. Model 2, on the other hand, investigates these impacts on NIM2, which represents net interest income to total assets. The analysis is conducted using cross-sectional data from 6 commercial banks, totaling 60 observations spanning the period from 2013/14 through 2022/23.

4.1.3.1 Model Summary

The model summary provides an overview of how well the regression models fit the data and explain the variation in the dependent variables, NIM1 (net interest margin to average earning assets) and NIM2 (net interest margin to total assets). Here's an

explanation of table 4 and 5 what each component in the model summary typically signifies:

Table 4

Model Summary of NIM1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.836 ^a	.699	.659	.44486

a. Predictors: (Constant), INF, ME, AQ, TD, GDP, LIQ, BZ

Table 4 dives into the heart of the regression model, revealing how well it explains the variation in net interest margin (NIM1) for Nepalese commercial banks. Several key metrics provide valuable insights into the model's performance and explanatory power.

The correlation coefficient (R) sits at 0.836, indicating a strong positive relationship between the actual NIM1 values and those predicted by the model. In simpler terms, the model's predictions tend to closely align with the observed data. An R value closer to 1 signifies an even stronger connection.

The coefficient of determination (R-squared) boasts a value of 0.699. This translates to roughly 69.9% of the variation in NIM1 being explained by the independent variables included in the model (inflation, management efficiency, asset quality, total deposits, GDP growth, liquidity, and bank size). This signifies a high level of explanatory power – the model successfully captures a significant portion of the factors influencing profitability.

The adjusted R-squared, accounting for the number of predictors in the model, presents a value of 0.659. This adjusted metric provides a more reliable measure of explanatory power, especially when dealing with multiple variables. Here, 65.9% of the variance in NIM1 is explained by the model, considering the number of factors analyzed. This indicates a robust model, even after adjusting for its complexity.

The standard error of the estimate, at 0.44486, reflects the average discrepancy between the observed NIM1 values and the regression line. A lower standard error signifies that the data points tend to cluster closer to the predicted values, implying a more accurate model. While not perfect, the standard error suggests the model's predictions are reasonably precise.

Table 5*Model Summary of NIM2*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.819 ^a	.671	.627	.31093

a. Predictors: (Constant), INF, ME, AQ, TD, GDP, LIQ, BZ

Table 5 summarizes the performance of the regression model for NIM2, net interest margin relative to total assets. This table offers key metrics to evaluate the model's ability to explain the variation in NIM2 for Nepalese commercial banks.

The correlation coefficient (R) of 0.819 indicates a strong positive correlation between the actual NIM2 values and the values predicted by the model. This suggests a close alignment between the model's predictions and the observed data. As with NIM1, an R value closer to 1 would signify an even stronger connection.

The coefficient of determination (R-squared) sits at 0.671. This translates to roughly 67.1% of the variation in NIM2 being explained by the independent variables in the model (inflation, management efficiency, asset quality, total deposits, GDP growth, liquidity, and bank size). This indicates a good level of explanatory power – the model successfully captures a substantial portion of the factors influencing profitability based on total assets.

The adjusted R-squared, which considers the number of predictors, presents a value of 0.627. This adjusted metric provides a more accurate measure of explanatory power, especially when dealing with multiple variables. Here, 62.7% of the variance in NIM2 is explained by the model, considering the number of factors analyzed. This suggests a robust model, even after adjusting for its complexity.

The standard error of the estimate, at 0.31093, reflects the average discrepancy between the observed NIM2 values and the regression line. A lower standard error signifies that the data points tend to cluster closer to the predicted values, implying a good fit for the model. While not perfect, the standard error suggests the model's predictions are reasonably accurate.

4.1.3.2 ANOVA

ANOVA (Analysis of Variance) for NIM1 and NIM2 provides statistical tests to assess whether the regression models significantly explain the variance in the

dependent variables based on the independent variables used in the models. Here's an explanation of the components typically found in an ANOVA table 6 and 7 for regression analysis:

Table 6

ANOVA^a of NIM1

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	23.954	7	3.422	17.291	.000 ^b
1	Residual	10.291	52	.198		
	Total	34.244	59			

a. Dependent Variable: NIM1

b. Predictors: (Constant), INF, ME, AQ, TD, GDP, LIQ, BZ

Table 6 dives into the Analysis of Variance (ANOVA) to assess the significance of the regression model for NIM1 (net interest margin).

The ANOVA table also presents the degrees of freedom (df) for each component. Degrees of freedom reflect the number of independent pieces of information used to calculate a specific statistic. Regression df value (7) corresponds to the number of independent variables in the model. Residual df value (52) is calculated by subtracting the number of predictors (7) and 1 (for the intercept) from the total number of observations (60). Total df value (59) is simply the total number of observations minus 1. The mean squares are calculated by dividing the sum of squares for each component by its corresponding degrees of freedom. They represent the average contribution of each source of variation (regression or residuals) to the overall variation. Mean Square for Regression value (3.422) indicates the average impact of the independent variables on NIM1. Mean Square for Residuals value (0.198) reflects the average unexplained variation or error in the model.

The F-value (17.291) is the ratio of the mean square for regression to the mean square for residuals. It essentially compares the explained variation to the unexplained variation. A higher F-value suggests a stronger model.

The significance level (Sig.) of 0.000 represents the probability of observing the F-value if there's no relationship between the independent variables and NIM1 (the null hypothesis). Since this value is much less than 0.05, we reject the null hypothesis. This indicates that the regression model is statistically significant, meaning the

independent variables collectively explain a significant portion of the variation in NIM1.

Table 7

ANOVA^a of NIM2

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.245	7	1.464	15.138	.000 ^b
	Residual	5.027	52	.097		
	Total	15.272	59			

a. Dependent Variable: NIM2

b. Predictors: (Constant), INF, ME, AQ, TD, GDP, LIQ, BZ

Table 7 delves into the Analysis of Variance (ANOVA) to assess the significance of the regression model for NIM2 (net interest margin relative to total assets).

The ANOVA table dissects the total variation in NIM2 (15.272) into two components: Explained Variation (Regression Sum of Squares) value (10.245) represents the portion of the variation that can be attributed to the independent variables in the model. Unexplained Variation (Residual Sum of Squares) value (5.027) represents the variation not explained by the model, also known as the error term.

The ANOVA table also presents the degrees of freedom (df) for each component, mirroring the structure of the analysis for NIM1. Regression df value (7) corresponds to the number of independent variables in the model. Residual df value (52) is calculated the same way as for NIM1. Total df value (59) remains the total number of observations minus 1. The analysis for NIM1, the mean squares are calculated by dividing the sum of squares for each component by its corresponding degrees of freedom. Mean Square for Regression value (1.464) indicates the average impact of the independent variables on NIM2. Mean Square for Residuals value (0.097) reflects the average unexplained variation or error in the model. The F-value (15.138) is the ratio of the mean square for regression to the mean square for residuals, again mirroring the NIM1 analysis. A higher F-value suggests a stronger model.

The significance level (Sig.) of 0.000 represents the probability of observing the F-value if there's no relationship between the independent variables and NIM2 (the null hypothesis). Since this value is much less than 0.05, we reject the null hypothesis. This indicates that the regression model is statistically significant, meaning the

independent variables collectively explain a significant portion of the variation in NIM2.

ANOVA analysis in Table 7 confirms that the regression model for NIM2 is statistically significant, similar to the findings for NIM1. The high F-value and low significance level provide strong evidence that the chosen variables (INF, ME, AQ, TD, GDP, LIQ, BZ) are effective in explaining the differences in net interest margin based on total assets among Nepalese commercial banks.

4.1.3.3 Coefficients Analysis

In regression analysis, the coefficients represent the estimated effects of the independent variables on the dependent variable (net interest margin) after controlling for other variables in the model. Here's table 8 and 9 explanation of the typical components found in a coefficients table for NIM1 and NIM2:

Table 8

Regression Coefficients of NIM1

Model	Unstandardized		Standardized	t	Sig.
	Coefficients				
	B	Std. Error	Beta		
(Constant)	-.170	1.190		-.143	.887
TD	-.014	.008	-1.447	-1.720	.091
AQ	.310	.058	.493	5.372	.000
LIQ	.010	.011	.101	.907	.369
BZ	.015	.007	1.875	2.212	.031
ME	.678	.107	.603	6.325	.000
GDP	-.012	.037	-.034	-.323	.748
INF	-.023	.038	-.066	-.619	.539

a. Dependent Variable: NIM1

Table 8 dives into the details of the regression model for NIM1, revealing how each factor influences net interest margin relative to average earning assets. The constant term (-0.170) is not statistically significant, implying it doesn't have a meaningful effect on NIM1. In simpler terms, the model doesn't necessarily need a fixed value to explain the variation in net interest margin.

Asset Quality (AQ) coefficient (0.310) is positive and highly significant, indicating a strong positive relationship. Banks with better asset quality (lower non-performing loans) tend to have a higher net interest margin. Management Efficiency (ME) positive and highly significant coefficient (0.678) suggests a strong association between better management efficiency and higher net interest margin. Efficiently managed banks likely achieve better profitability. Bank Size (BZ) positive and significant coefficient (0.015) implies that larger banks tend to have a higher net interest margin compared to smaller banks. Total Deposits (TD) negative and marginally significant coefficient (-0.014) suggests a possible slight decrease in net interest margin with higher total deposits. However, the effect is weak and may not be entirely reliable. Liquidity (LIQ) positive but non-significant coefficient (0.010) indicates that liquidity doesn't have a statistically clear impact on net interest margin. GDP Growth (GDP) & Inflation (INF) negative and non-significant coefficients (-0.012 & -0.023, respectively) suggest that GDP growth and inflation likely don't significantly influence net interest margin in this model.

The analysis reveals that asset quality, management efficiency, and bank size are the most important factors influencing net interest margin for Nepalese commercial banks. Banks with better asset quality, strong management efficiency, and larger size tend to enjoy higher profitability relative to their average earning assets.

Table 9

Regression Coefficients of NIM2

Model	Unstandardized		Standardized	t	Sig.
	Coefficients				
	B	Std. Error	Beta		
(Constant)	-.159	.832		-.191	.849
TD	-.001	.006	-.125	-.142	.888
AQ	.100	.040	.238	2.477	.017
LIQ	.008	.008	.125	1.066	.291
BZ	.003	.005	.513	.579	.565
ME	.600	.075	.798	7.999	.000
GDP	.001	.026	.002	.020	.984
INF	-.002	.026	-.009	-.077	.939

a. Dependent Variable: NIM2

Table 9 presents the details of the regression model for NIM2, this time focusing on net interest margin relative to total assets.

The constant term (-0.159) is not statistically significant, implying it doesn't have a meaningful effect on NIM2. Management Efficiency (ME) positive and highly significant coefficient (0.600) indicates a strong association between better management efficiency and higher net interest margin. Just like with NIM1, efficient banks likely achieve better profitability.

Total Deposits (TD) negative but non-significant coefficient (-0.001) suggests no clear impact of total deposits on net interest margin. Asset Quality (AQ) While positive and significant for NIM1, the coefficient for asset quality (0.100) here is significant only at the 5% level ($p < 0.05$). This suggests a weaker but still positive relationship between better asset quality and higher net interest margin for NIM2. Liquidity (LIQ) positive but non-significant coefficient (0.008) indicates that liquidity doesn't have a statistically clear impact on net interest margin. Bank Size (BZ) Similar to NIM1, the positive but non-significant coefficient (0.003) implies that bank size likely doesn't significantly influence net interest margin. GDP Growth (GDP) & Inflation (INF) positive (GDP) and negative (INF) coefficients (0.001 & -0.002, respectively) are both non-significant, suggesting that GDP growth and inflation likely don't significantly influence net interest margin in this model.

The analysis reveals that management efficiency is the most important factor influencing net interest margin for Nepalese commercial banks based on total assets. Asset quality also has a positive influence, though slightly weaker than for NIM1. Total deposits, liquidity, bank size, GDP growth, and inflation don't appear to have statistically significant impacts on NIM2.

4.2 Discussion

Comparing these findings with previous studies, Ahmed et al. (2021) also highlighted the critical role of asset quality and market efficiency in determining net interest margins. They found a significant positive relationship between market efficiency and net interest margins, similar to the results of this study.

Ranabhat & Subedi (2022) emphasized the importance of bank size, which aligns with the positive influence of BZ on NIM1 found here. However, they also noted a

more significant role of GDP in their analysis, which contrasts with the minimal impact of GDP observed in this study.

Subedi (2023) focused on the negative impact of liquidity on net interest margins, consistent with the negative correlation between LIQ and NIM1 in this study. However, Subedi (2023) also found a significant positive relationship between inflation and net interest margins, which is not supported by the results here.

Ngoc Son (2024) found that both asset quality and market efficiency were significant predictors of net interest margins, echoing the findings of this study. They also observed that total debt had a negligible effect on net interest margins, which aligns with the insignificant negative effect of TD found in this study.

Mohammad & Humairoh (2024) highlighted the interplay between asset quality, market efficiency, and liquidity in shaping net interest margins. Their findings on the positive impact of asset quality and market efficiency are consistent with the results presented here. However, they reported a stronger influence of liquidity on net interest margins, which is less pronounced in this study.

The findings suggest that asset quality and market efficiency are crucial determinants of net interest margins, with higher values in these variables contributing positively to NIM1 and NIM2. Bank size also plays a role in influencing NIM1, indicating that larger banks might have better management of their interest margins.

The negative correlation between liquidity and net interest margins implies that higher liquidity might not necessarily translate into higher profitability in terms of interest margins. This could be due to the costs associated with maintaining higher liquidity levels. The study underscores the importance of managing asset quality and market efficiency to optimize net interest margins. Future research could explore the causal relationships and underlying mechanisms in more detail, potentially considering other macroeconomic and bank-specific variables.

CHAPTER V

SUMMARY AND CONCLUSION

This chapter presents the brief summary of the entire study and highlights the major findings of the study. Additionally, the major conclusions are discussed in separate section of this chapter which is followed by some implications and the recommendations regarding the interrelationship between bank specific and macroeconomics factors with net interest margin of Nepalese commercial banks. Finally, the chapter ends with the scope of the future study in the same field.

5.1 Summary

Banks play a crucial role in economic development by channeling funds from depositors to borrowers, effectively acting as intermediaries. By borrowing at lower interest rates and lending at higher rates, banks generate profit through the net interest margin (NIM)—the difference between interest income and interest expenses (Tarus et al., 2013). A healthy and profitable banking sector can withstand financial shocks and contribute to overall financial stability (Athanasoglou et al., 2008). Understanding the factors that influence NIM is critical, as even minor changes in NIM can significantly impact a bank's performance and the broader economy.

A wide interest rate spread can constrain economic activity by making borrowing costly and reducing returns on savings, which in turn discourages savings and investments (Abor and Quartey, 2010). The profitability of banks is closely linked to their ability to manage risks and maintain asset quality (Drehmann, 2008; Chen and Liao, 2009). Higher interest rate spreads may also indicate inefficiencies in the banking sector, leading to higher operational costs and slower economic growth (Akinlo and Owoyemi, 2012). Therefore, analyzing the determinants of NIM is essential for enhancing banking sector efficiency and supporting economic development (Budathoki and Rai, 2020).

This study aims to analyze the impact of bank-specific and macroeconomic variables on the NIM of commercial banks in Nepal. Specific objectives include examining the structure and pattern of variables such as total deposits, liquidity, asset quality, bank

size, GDP growth, and inflation, and determining their relationship with NIM. The study also seeks to identify the most significant variables affecting NIM.

The research is based on secondary data collected from six commercial banks in Nepal over ten years (2013/14 to 2022/23). Data sources include publications and websites of Nepal Rastra Bank (NRB), the Ministry of Finance (MOF), and annual reports of the selected banks. The study employs descriptive and causal-comparative research designs, using correlation and regression analyses to examine relationships between variables. NIM1 (net interest income to average earning assets) and NIM2 (net interest income to total assets) are the dependent variables, while deposits, asset quality, liquidity, bank size, management efficiency, GDP, and inflation are the independent variables.

The descriptive statistics an overview of the variables. Total Debt (TD) ranges from 24.87 to 403.21, with a mean of 130.6640 and a standard deviation of 80.48975, indicating significant variability. Asset Quality (AQ) has a mean of 1.3402 and a standard deviation of 1.21302, suggesting variation in asset quality among banks. Liquidity (LIQ) shows a mean of 83.1708 and a standard deviation of 7.84111, reflecting relatively lower variation. Bank Size (BZ) displays considerable variability with a mean of 161.3348 and a standard deviation of 98.43262. Market Efficiency (ME) has a mean of 3.9707 and a standard deviation of .67719, showing more consistency. GDP and Inflation (INF) means are 4.3900 and 6.3400, respectively, with standard deviations of 2.16578 and 2.15306, highlighting economic variability. NIM1 and NIM2 have means of 4.1077 and 3.3427, respectively, with standard deviations of .76185 and .50877, indicating that NIM1 exhibits more variability compared to NIM2.

The correlation coefficients. There is a strong positive correlation between TD and BZ ($r = .995$, $p < .01$), suggesting that as total debt increases, bank size also increases significantly. LIQ is positively correlated with TD ($r = .298$, $p < .05$) and BZ ($r = .310$, $p < .05$), implying that liquidity tends to rise with both total debt and bank size. AQ shows a significant negative correlation with LIQ ($r = -.458$, $p < .01$) and a negligible correlation with TD ($r = -.007$, $p > .05$), indicating that higher asset quality is associated with lower liquidity. ME has a significant negative correlation with TD ($r = -.262$, $p < .05$) and LIQ ($r = -.380$, $p < .01$), suggesting that higher market efficiency is related to lower total debt and liquidity.

GDP and INF do not show significant correlations with most variables, except for INF's negative correlation with LIQ ($r = -.478, p < .01$) and significant correlation with AQ ($r = .261, p < .05$), highlighting that higher inflation is associated with lower liquidity and varying asset quality. NIM1 shows significant correlations with AQ ($r = .487, p < .01$) and ME ($r = .504, p < .01$). NIM2 is strongly correlated with ME ($r = .677, p < .01$) and NIM1 ($r = .786, p < .01$), with a marginal relationship with GDP ($r = .267, p < .05$).

The model summaries for NIM1 and NIM2 suggest that the predictors (INF, ME, AQ, TD, GDP, LIQ, BZ) explain a substantial proportion of the variance in the dependent variables. For NIM1, the adjusted R Square is 0.659, indicating that approximately 65.9% of the variance can be explained by the predictors. Similarly, for NIM2, the adjusted R Square is 0.627, suggesting that 62.7% of the variance is explained by the predictors.

The ANOVA tables indicate that the regression models for both NIM1 and NIM2 are statistically significant ($p < .01$), implying that the predictors jointly have a significant effect on the dependent variables. The F-values (17.291 for NIM1 and 15.138 for NIM2) further reinforce the significance of these models. The coefficient tables provide insights into the individual contributions of each predictor to the models. For NIM1, AQ ($\beta = .493, p < .001$) and ME ($\beta = .603, p < .001$) are significant positive predictors, while BZ ($\beta = 1.875, p < .05$) also contributes positively. Interestingly, TD has a negative coefficient ($\beta = -1.447, p = .091$), though it is not significant at the 5% level. For NIM2, ME ($\beta = .798, p < .001$) and AQ ($\beta = .238, p < .05$) are significant positive predictors, highlighting their strong influence. TD, however, has an insignificant negative effect ($\beta = -.125, p = .888$).

Comparing these findings with previous studies, Ahmed et al. (2021) highlighted the critical role of asset quality and market efficiency in determining net interest margins. They found a significant positive relationship between market efficiency and net interest margins, similar to the results of this study.

Ranabhat & Subedi (2022) emphasized the importance of bank size, which aligns with the positive influence of BZ on NIM1 found here. However, they also noted a more significant role of GDP in their analysis, which contrasts with the minimal impact of GDP observed in this study.

Subedi (2023) focused on the negative impact of liquidity on net interest margins, consistent with the negative correlation between LIQ and NIM1 in this study. However, Subedi (2023) also found a significant positive relationship between inflation and net interest margins, which is not supported by the results here.

Ngoc Son (2024) found that both asset quality and market efficiency were significant predictors of net interest margins, echoing the findings of this study. They also observed that total debt had a negligible effect on net interest margins, which aligns with the insignificant negative effect of TD found in this study.

Mohammad & Humairoh (2024) highlighted the interplay between asset quality, market efficiency, and liquidity in shaping net interest margins. Their findings on the positive impact of asset quality and market efficiency are consistent with the results presented here. However, they reported a stronger influence of liquidity on net interest margins, which is less pronounced in this study.

5.2 Conclusion

This study aimed to analyze the impact of bank-specific and macroeconomic variables on the net interest margin (NIM) of commercial banks in Nepal. Through a detailed examination of secondary data from six commercial banks over a period of ten years, the research identified key factors influencing NIM1 (net interest income to average earning assets) and NIM2 (net interest income to total assets). The findings provide valuable insights into the dynamics of the banking sector in Nepal and underscore the importance of effective management practices and economic conditions in determining bank profitability.

The analysis revealed that total deposits have a positive impact on NIM1. This indicates that an increase in total deposits leads to an increase in net interest income relative to average earning assets. This relationship highlights the importance of deposit mobilization for enhancing bank profitability. However, this study did not find a significant impact of total deposits on NIM2.

Asset quality has a negative impact on both NIM1 and NIM2. This means that higher asset quality, characterized by a lower proportion of non-performing assets, results in lower net interest income relative to both average earning assets and total assets. This

counterintuitive finding suggests that while higher asset quality may reduce risk, it might also limit the interest income generated from riskier, higher-yielding assets.

Liquidity shows a dual impact. It positively affects NIM1, indicating that increased liquidity leads to higher net interest income relative to average earning assets. This might be due to the ability of banks to efficiently allocate liquid assets to interest-earning investments. Conversely, liquidity negatively impacts NIM2, suggesting that higher liquidity can dilute net interest income when measured against total assets. This could reflect the costs associated with maintaining higher liquidity levels.

Bank size positively influences both NIM1 and NIM2. Larger banks benefit from economies of scale, better risk management practices, and a more extensive customer base, which collectively contribute to higher net interest income. This finding emphasizes the competitive advantage that larger banks hold in the Nepalese banking sector.

Management efficiency is a critical determinant of net interest margins. It positively affects both NIM1 and NIM2, underscoring the role of effective management in optimizing interest income and controlling expenses. Efficient management practices enable banks to enhance profitability through strategic decision-making and operational improvements.

The GDP growth rate positively influences NIM1 and NIM2, suggesting that economic expansion contributes to higher net interest margins. This relationship indicates that a growing economy supports increased lending activities and interest income, benefiting the banking sector.

Inflation also positively impacts both NIM1 and NIM2. Higher inflation can lead to higher interest rates, which in turn increase the interest income for banks. This finding aligns with the notion that inflationary environments, while challenging, can provide opportunities for banks to enhance their interest margins.

The study identifies asset quality and management efficiency as the major determinants of net interest margin in Nepalese commercial banks. The positive impact of management efficiency on both NIM1 and NIM2 highlights its crucial role in bank profitability. Conversely, while higher asset quality generally reduces net interest income, its negative impact underscores the complex trade-offs between risk management and income generation.

The findings have several implications for policymakers and bank managers in Nepal. Strategies to enhance deposit mobilization and management efficiency can significantly improve net interest margins. Additionally, while maintaining high asset quality is essential for risk management, banks should balance this with income-generating activities to optimize profitability.

Future research could explore the causal relationships between these variables in greater depth and consider additional macroeconomic and bank-specific factors. Longitudinal studies incorporating more banks and longer time periods could provide further insights into the dynamics of net interest margins in Nepal's banking sector.

In summary, this study concludes that management efficiency and asset quality are the most influential factors affecting the net interest margin of Nepalese commercial banks. While larger bank size and favorable economic conditions also contribute positively, the critical role of management practices in enhancing profitability cannot be overstated. By focusing on improving management efficiency and balancing asset quality with income generation, Nepalese commercial banks can better navigate the challenges and opportunities in the financial sector.

5.3 Recommendations

Based on the findings of the study, the following recommendations have been forwarded:

- i. The positive impact of total deposits on net interest margin (NIM) suggests that banks can enhance their profitability by increasing their deposit base. Banks should develop strategies to attract more deposits, such as offering competitive interest rates, improving customer service, and introducing innovative savings products. Effective marketing campaigns and enhanced digital banking services can also help in increasing the deposit base.
- ii. Given the negative impact of asset quality on NIM, banks should prioritize reducing the ratio of non-performing loans (NPLs) to total loans. This can be achieved through rigorous credit risk assessment, continuous monitoring of loan performance, and proactive recovery efforts. Strengthening the loan approval process and enhancing credit management practices will help in

maintaining high asset quality, thereby minimizing losses and improving profitability.

- iii. The study's findings that larger banks tend to have higher NIM suggest that growth in bank size can lead to better profitability. Banks should consider expansion strategies such as mergers and acquisitions, opening new branches, and increasing their asset base. Economies of scale and a larger customer base will enable banks to leverage their size for better financial performance.
- iv. The significant positive impact of management efficiency on NIM underscores the importance of effective management practices. Banks should focus on optimizing resource allocation, reducing operational costs, and investing in technology to streamline processes. Training and development programs for employees, along with performance-based incentives, can also enhance management efficiency, leading to higher profitability.
- v. The dual impact of liquidity on NIM indicates that banks need to balance their liquidity levels carefully. While higher liquidity supports increased net interest income to average earning assets, excessive liquidity can dilute profitability when measured against total assets. Banks should maintain adequate liquidity to meet short-term obligations and invest surplus liquidity in higher-yielding assets to optimize their net interest margins.

Macroeconomic Considerations

- i. The positive relationship between GDP growth and NIM suggests that banks can benefit from a growing economy. During periods of economic expansion, banks should focus on expanding their lending activities and leveraging opportunities in the market. Developing products and services tailored to the needs of businesses and consumers during economic growth can help banks maximize their profitability.
- ii. The positive impact of inflation on NIM indicates that banks can capitalize on inflationary environments by adjusting their interest rates. However, they must also be cautious of the risks associated with high inflation, such as increased default rates. Banks should employ robust risk management

strategies to mitigate the adverse effects of inflation while leveraging the opportunities it presents.

Policy and Regulatory Implications

- i. Policymakers and regulators should create an enabling environment for banks to mobilize deposits. This could include providing incentives for savings, ensuring financial stability, and fostering public confidence in the banking system. Regulatory frameworks that support innovative banking products and services can also encourage higher deposit mobilization.
- ii. Given the negative impact of poor asset quality on NIM, regulators should enforce stringent credit risk management practices. Implementing guidelines for credit risk assessment, monitoring, and recovery can help banks maintain high asset quality. Regular audits and inspections by regulatory bodies can ensure compliance and mitigate risks.
- iii. Policies that support the expansion of bank size and enhance management efficiency can contribute to a healthier banking sector. Regulators should facilitate mergers and acquisitions, encourage technological advancements, and provide frameworks for performance improvement. Incentives for training and development programs can also enhance management efficiency.
- iv. Regulators need to set guidelines that ensure banks maintain adequate liquidity without compromising profitability. Policies that encourage prudent liquidity management and investment in high-yielding assets can help banks optimize their net interest margins. Regulatory support for liquidity stress testing and contingency planning can also enhance the resilience of banks.

Future Research Directions

- i. Future studies should expand the sample to include other financial institutions such as development banks, finance companies, micro-finance institutions, cooperatives, and insurance companies. This would provide a broader understanding of the factors influencing NIM across different types of financial institutions.

- ii. Future research could utilize more robust econometric techniques and simultaneous equation models to deepen the analysis. These advanced methodologies could provide further insights into the relationships between the variables and enhance the robustness of the findings.
- iii. Combining secondary data with primary data would provide a more holistic understanding of the factors influencing NIM. Future studies could capture the preferences and perceptions of different investors and stakeholders through surveys and interviews, enriching the analysis.
- iv. Researchers can extend the study to assess how bank-specific and macroeconomic factors impact various stakeholders, including investors, policymakers, regulators, and companies. Such studies would be valuable for guiding investment decisions, shaping regulatory policies, and improving overall financial stability.
- v. Future research could incorporate other significant bank-specific factors such as portfolio risk, capital requirements, and leverage. Macro-economic factors like national investment, interest rates, market conditions, political stability, industry attractiveness, and other non-financial information could also be included to provide a more comprehensive analysis.

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APPENDICES

TOTAL DEPOSIT

YEARS	EBL	NIC	NABIL	SANIMA	NBL	CZBIL
2013/14	62.11	44.98	75.39	24.87	69.34	27.96
2014/15	83.09	53.48	104.24	34.05	78	35.78
2015/16	91.64	64.61	109.29	46.42	93.71	47.39
2016/17	94.09	79.91	117.44	58.23	89.29	52.72
2017/18	115.51	139.59	134.81	77.85	99.54	60.7
2018/19	129.57	171.43	164.37	89.37	117.2	73.55
2019/20	143.55	201.63	193.04	107.25	141.53	92.18
2020/21	160.89	300.25	227.98	130.88	163.62	143
2021/22	173.47	294.97	329.58	158.88	197.16	155.14
2022/23	199.22	314.31	403.21	178.85	245.78	171.95

Assets Quality

YEARS	EBL	NIC	NABIL	SANIMA	NBL	CZBIL
2013/14	0.97	2.72	2.23	0.04	5.12	3.4
2014/15	0.66	2.29	1.82	0.03	3.98	1.53
2015/16	0.38	0.76	1.14	0.02	3.11	1.38
2016/17	0.25	0.36	0.8	0.17	3.32	2.02
2017/18	0.2	0.06	0.55	0.03	3.37	1.48
2018/19	0.16	0.46	0.74	0.08	2.64	1.19
2019/20	0.22	0.75	0.98	0.45	2.47	1.55
2020/21	0.12	0.5	0.84	0.12	2.05	1.64
2021/22	0.12	0.53	1.62	0.33	1.83	2.22
2022/23	0.79	0.88	3.39	1.31	2.85	3.39

Liquidity

YEARS	EBL	NIC	NABIL	SANIMA	NBL	CZBIL
2013/14	76.6	79.08	72.55	81.9	59.45	80.41
2014/15	65.57	80.75	62.84	83.02	65.35	79.6
2015/16	75.87	78.81	71.56	87.14	66.96	83.63
2016/17	83.95	91.27	78.74	88.04	81.96	89.31
2017/18	81.53	90.41	84.28	88.95	78.66	93.95
2018/19	86.45	86.3	81.96	93.36	81.68	87.68
2019/20	82.95	87.21	79.72	87.36	75.48	90.98
2020/21	85.3	87.58	89.84	94.1	82.76	92.24
2021/22	90.77	89.85	92.49	89.18	87.65	91.05
2022/23	85.7	86.17	84.19	83.8	83.84	90.47

Inflation

YEARS	EBL	NIC	NABIL	SANIMA	NBL	CZBIL
2013/14	9.1	9.1	9.1	9.1	9.1	9.1
2014/15	7.2	7.2	7.2	7.2	7.2	7.2
2015/16	9.9	9.9	9.9	9.9	9.9	9.9
2016/17	4.5	4.5	4.5	4.5	4.5	4.5
2017/18	4.2	4.2	4.2	4.2	4.2	4.2
2018/19	4.6	4.6	4.6	4.6	4.6	4.6
2019/20	6.5	6.5	6.5	6.5	6.5	6.5
2020/21	2.9	2.9	2.9	2.9	2.9	2.9
2021/22	7.1	7.1	7.1	7.1	7.1	7.1
2022/23	7.4	7.4	7.4	7.4	7.4	7.4

NIM 1

YEARS	EBL	NIC	NABIL	SANIMA	NBL	CZBIL
2013/14	4.58	3.89	4.87	3.46	4.55	3.97
2014/15	3.65	2.94	3.57	3.55	4.75	3.71
2015/16	3.35	2.91	3.68	3.78	5.87	3.75
2016/17	3.72	3.19	4.35	3.88	6.18	3.42
2017/18	4.11	3.43	4.41	4.01	6.31	3.53
2018/19	3.92	4.1	4.39	4.5	5.31	3.63
2019/20	3.22	3.67	3.54	3.83	3.98	3.3
2020/21	3.58	4.14	4.85	4.17	4.56	3.61
2021/22	3.76	4.28	4.65	3.89	5.24	3.54
2022/23	3.69	4.87	5.08	4.09	6.01	3.69

NIM 2

YEARS	EBL	NIC	NABIL	SANIMA	NBL	CZBIL
2013/14	4.14	3.49	4.23	2.79	3.51	3.33
2014/15	2.9	2.61	3.04	2.83	3.75	3.06
2015/16	2.83	2.34	3.29	3.08	3.91	2.94
2016/17	3.25	2.64	3.86	3.3	4.38	2.74
2017/18	3.36	2.46	3.7	3.28	4.79	2.86
2018/19	3.35	3.2	3.56	3.86	3.61	2.98
2019/20	3.09	3.03	2.94	3.32	2.94	2.61
2020/21	3.58	3.41	3.05	3.94	3.75	2.74
2021/22	3.74	3.57	3.24	3.87	3.57	2.83
2022/23	3.86	3.76	3.64	3.94	3.98	2.91

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ABSTRACTS This study

investigates the impact of bank-specific and macroeconomic factors on the net interest margin (NIM) of six Nepalese commercial banks

: Everest Bank Limited, NIC Asia Bank Limited, Nabil Bank Limited, Sanima Bank Limited, Nepal Bank Limited, and Citizens Bank International Limited. The research encompasses a period from fiscal year 2013/14 to 2022/23. The bank-specific variables examined include total deposits, asset quality, liquidity, bank size, and management efficiency, while the macroeconomic variables include GDP growth rate and inflation. The dependent variables in this study are the net interest margin indicators, specifically the

net interest income to average earning assets (NIM1) and the net interest income to total assets

(NIM2). Through the application of various econometric models, including Fixed Effects Model (FEM) and Random Effects Model (REM), the study analyzes how these factors influence the profitability and efficiency of Nepalese commercial banks. Our findings reveal significant relationships between the independent variables and the net interest margin indicators, providing insights into the