DETERMINANTS OF CAPITAL ADEQUACY IN NEPALESE DEVELOPMENT BANKS

A Dissertation submitted to the Office of the Dean, Faculty of Management in partial fulfillment of the requirements for the Master's Degree

By

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled "**DETERMINANTS OF CAPITAL ADEQUACY IN NEPALESE DEVELOPMENT BANKS**". The work of this dissertation has not been submitted previously for the purpose of conferral of any degree nor has it been proposed and presented as part of requirements for any other academic purposes. The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declared that all information sources and literature used are cited in the reference section of the dissertation.

Sumitra Rijal

August 2024

REPORT OF RESEARCH COMMITTEE

Ms. Sumitra Rijal has defended research proposal entitled "**DETERMINANTS OF CAPITAL ADEQUACY IN NEPALESE DEVELOPMENT BANKS**", successfully. The research committee has registered the dissertation for further progress. It is recommended to carry out the work as per suggestions and guidance of supervisor Indra Bahadur Bohara and submit the thesis for evaluation and viva voce examination.

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Indra Bahadur Bohara

(Supervisor)

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Dissertation Proposal Defended Date

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Dissertation Submitted Date

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Dissertation Viva Voce Date

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APPROVAL SHEET

We have examined the dissertation entitled "**DETERMINANTS OF CAPITAL ADEQUACY IN NEPALESE DEVELOPMENT BANKS**" presented by Ms. Sumitra Rijal for the degree of Masters of Business Studies. We hereby certify that the dissertation is acceptable for the award of degree.

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Any remaining errors are mine.

Sumitra Rijal

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURE

ABBREVIATIONS

ANOVA	:	Analysis of Variance
CAR	:	Capital Adequacy Ratio
CR	:	Credit Risk
GDP	:	Gross domestic product
LA	:	Loan to Assets
LR	:	Liquidity Risk
LVR	:	Leverage Ratio
NRB	:	Nepal Rastra Bank
ROA	:	Return on Assets
ROE	:	Return on Equity
SD	:	Standard Deviation
SPSS	:	Statistical Package for the Social Sciences

ABSTRACT

The objectives of study are to assess the current status of the Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, Gross Domestic Product and Capital Adequacy Ratio of Nepalese development banks. To examine the relationship of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product to the Capital Adequacy Ratio of Nepalese development banks. To analyze the impact of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product on the Capital Adequacy Ratio of Nepalese development banks. The article reviewed from the google scholar. In Nepalese context article from the google scholar, TU sites and shanker dev campus library. This research has utilized descriptive and casual comparative research designs to address issues related to the determinants of capital adequacy ratio. Sample is selected using random sampling method. Secondary data are used in this research. Financial and statistical analysis are conducted. It is found that the higher variation or fluctuating are found in the dependent and independent variables they are; capital adequacy ratio, return on assets, return on equity, liquidity risk, credit risk, loan to assets, leverage ratio and gross domestic product. The relationship of return on equity and leverage has significant to the capital adequacy ratio. The return on equity, liquidity ratio, credit risk, loan to assets ratio and gross domestic product have not significant relationship to the capital adequacy ratio. The impact of return on assets, return on equity, credit risk, loan to assets ratio and leverage ratio significantly impacted to the capital adequacy ratio. The liquidity ratio and gross domestic product have not significant impact to the capital adequacy ratio.

Keywords: *capital adequacy ratio, return on equity, liquidity ratio, credit risk, loan to assets ratio, gross domestic product, return on equity and leverage*

CHAPTER – I

INTRODUCTION

1.1 Background of the Study

The Capital Adequacy Ratio (CAR) is a measure of a bank's financial strength and stability, particularly in relation to its risk-weighted assets. It is used by regulators to ensure that banks have enough capital on hand to cover potential losses arising from their lending and investment activities. The CAR is typically expressed as a percentage and is calculated by dividing a bank's capital by its risk-weighted assets (Thoa et al., 2020).

Capital in this context refers to the bank's core capital, which includes common equity, preferred stock, and certain reserves. Risk-weighted assets are a measure of a bank's assets adjusted for the level of risk associated with each asset. For example, cash and government securities typically have a lower risk weight compared to loans and other investments. The CAR is important because it helps ensure that banks are financially sound and able to withstand adverse economic conditions without risking insolvency. Regulators often set minimum CAR requirements that banks must meet to operate safely. Banks with higher CARs are generally considered to be more stable and less likely to fail. Different countries and regulatory bodies may have variations in the specific calculation of CAR and the minimum required levels. However, the basic concept remains the same: it's a measure of a bank's capital relative to its risk-weighted assets, providing an indication of its financial health and ability to absorb losses (Sunaryo et al., 2020).

A development bank is a financial institution that provides a range of services to individuals, businesses, and governments. These services typically include accepting deposits, providing loans, issuing credit cards, facilitating money transfers, and offering various investment products. Development banks play a crucial role in the economy by intermediating between depositors and borrowers, facilitating the flow of funds in the form of loans and investments. Key characteristics of development banks include: Deposit-taking: Development banks accept deposits from individuals, businesses, and other entities. These deposits can be in the form of savings accounts, checking accounts, certificates of deposit (CDs), and other deposit products. Lending: Development banks extend loans and credit to individuals and businesses. These loans may include mortgages, auto loans, personal loans, and business loans (El-

Ansary et al., 2019). The interest earned on loans is a primary source of revenue for development banks. Credit creation: Development banks have the ability to create credit by lending out a portion of the deposits they receive. This process, known as fractional reserve banking, allows banks to expand the money supply and stimulate economic activity. Financial intermediation: Development banks act as intermediaries between savers and borrowers, channeling funds from depositors to borrowers in need of capital. This intermediation function helps allocate resources efficiently in the economy. Payment processing: Development banks facilitate payments and money transfers through services such as check clearing, electronic funds transfers (EFTs), wire transfers, and debit/credit card transactions. They provide the infrastructure and systems necessary for the smooth functioning of the payment system. Investment services: Some development banks offer investment products and services, such as brokerage services, wealth management, mutual funds, and retirement accounts, to help individuals and businesses grow their wealth. Development banks are subject to regulatory oversight by government authorities to ensure their stability, solvency, and compliance with laws and regulations. In many countries, central banks play a significant role in regulating and supervising development banks to maintain financial stability and protect depositors' interests (Abusharba et al., 2013).

The Capital Adequacy Ratio (CAR) of a bank is influenced by several key determinants that collectively shape its financial resilience and regulatory compliance. Firstly, regulatory requirements established by supervisory bodies mandate minimum CAR thresholds, typically based on international standards like the Basel Accords. These regulations set the framework for assessing the adequacy of a bank's capital relative to its risk exposure. Secondly, the composition of a bank's assets, particularly the level of risk associated with them, directly impacts its CAR. Assets are assigned risk weights based on factors such as credit risk, market risk, and operational risk, which determine the amount of capital required to cover potential losses. Moreover, the capital structure of the bank, including the proportion of Tier 1 and Tier 2 capital relative to risk-weighted assets, significantly influences its CAR. Tier 1 capital, consisting of common equity and disclosed reserves, plays a vital role in bolstering the CAR. Additionally, effective risk management practices, encompassing credit risk assessment, asset quality monitoring, and stress testing, are crucial determinants. Sound risk management helps mitigate losses and ensures that the bank maintains adequate capital reserves to

withstand adverse events, thereby supporting a healthy CAR. Furthermore, factors such as profitability, retained earnings, and external economic conditions also impact the CAR. Profitable operations and retained earnings contribute to the bank's capital base over time, strengthening its CAR. External factors like economic downturns, market volatility, and regulatory changes can affect a bank's capital position and CAR. Overall, these determinants collectively shape the Capital Adequacy Ratio, reflecting the bank's financial stability and ability to absorb risks while meeting regulatory requirements (Naoaj, 2023).

1.2. Problem Statement

Determining the Capital Adequacy Ratio (CAR) in development banks can pose several challenges that require careful consideration. One significant issue stems from the complexity of regulatory requirements governing capital adequacy. Regulatory frameworks, such as the Basel Accords, set out guidelines for calculating the CAR, but these guidelines can be intricate and subject to interpretation. Ensuring compliance with these regulations demands expertise in risk management, financial reporting, and regulatory affairs, placing a burden on bank management and resources (Gharaibeh, 2023). Moreover, accurately assessing the risk associated with various assets presents a challenge. Risk weighting assets involves assigning different levels of risk to different types of assets, such as loans, securities, or derivatives. Determining appropriate risk weights requires sophisticated models and data analytics, which may not always capture the full extent of risk. Inaccurate risk assessment can lead to misrepresentation of the bank's capital adequacy and expose it to regulatory sanctions or market skepticism (Alfadli & Djalila, 2022).

Another challenge lies in balancing capital adequacy with profitability and growth objectives. Maintaining a high CAR often necessitates holding more capital in reserve, which can constrain lending and investment activities. Striking the right balance between capital preservation and revenue generation is essential for sustaining business growth while safeguarding financial stability. However, this balance can be difficult to achieve, especially in dynamic economic environments with fluctuating risk profiles (Tran & Pham, 2022). Furthermore, the evolving nature of financial markets and products introduces additional complexities. New financial instruments and market practices continually emerge, presenting novel challenges for risk management and capital allocation. Keeping abreast of these

developments and adapting risk management strategies accordingly is essential to maintain a robust CAR (Keqa, 2021).

Overall, determining the CAR in development banks requires navigating a complex landscape of regulatory requirements, risk assessment methodologies, and strategic considerations. Addressing these challenges effectively demands a comprehensive approach that integrates sound risk management practices, regulatory compliance, and prudent capital allocation strategies. By addressing these challenges proactively, banks can enhance their financial resilience and ensure long-term sustainability in a competitive and dynamic banking landscape. The following are the research question of the study:

i. What are the current status of the Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, Gross Domestic Product and Capital Adequacy Ratio of Nepalese development banks?
ii. Is there any relationship of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product to the Capital Adequacy Ratio of Nepalese development banks?
iii. Do Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product have impact on Capital Adequacy Ratio of Nepalese development banks?

1.3. Objectives of Study

The study is the following objectives:

i. To assess the current status of the Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, Gross Domestic Product and Capital Adequacy Ratio of Nepalese development banks.
ii. To examine the relationship of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product to the Capital Adequacy Ratio of Nepalese development banks.
iii. To analyze the impact of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product on the Capital Adequacy Ratio of Nepalese development banks.

1.4. Hypothesis of the Study

A research hypothesis is a statement that proposes a relationship between variables in a research study. It is a tentative explanation or prediction about the outcome of the research based on existing theory, previous research findings, or logical reasoning. Research hypotheses are formulated to be tested empirically through data collection and analysis. They are:

H1: There is the significant relationship of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product to the Capital Adequacy Ratio of the development bank in Nepal.

H2: There is the significant impact of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product to the Capital Adequacy Ratio of the development bank in Nepal.

1.5. Rationale of the Study

The study of determinants of capital adequacy in development banks is crucial for several reasons, providing a comprehensive understanding of the factors that influence the financial stability and resilience of banking institutions. Firstly, examining these determinants helps policymakers and regulators assess the effectiveness of existing regulatory frameworks and identify areas for improvement. By understanding which factors significantly impact a bank's capital adequacy ratio (CAR), regulators can refine capital adequacy standards to better mitigate systemic risks and enhance the overall stability of the financial system.

Secondly, for bank management, understanding the determinants of CAR is essential for strategic decision-making and risk management. By identifying the key drivers of capital adequacy, bank executives can implement proactive measures to maintain optimal capital levels, manage risk exposure, and ensure compliance with regulatory requirements. Moreover, insights into the determinants of CAR can inform capital allocation decisions, guiding investments in areas that contribute to enhanced financial strength and profitability while minimizing capital constraints.

Furthermore, researchers and academics can contribute to the literature on capital adequacy by investigating the underlying determinants through empirical analysis and theoretical modeling. By advancing our understanding of how various internal and external factors

influence CAR, researchers can contribute valuable insights to the broader body of knowledge in banking and finance. This research can inform best practices for capital management, risk assessment, and regulatory policy, benefiting both industry practitioners and policymakers.

Additionally, stakeholders such as investors, analysts, and rating agencies rely on information about a bank's capital adequacy when assessing its financial health and creditworthiness. A comprehensive understanding of the determinants of CAR enables stakeholders to make informed investment decisions, evaluate risk profiles, and assess the likelihood of future financial distress.

In summary, the study of determinants of capital adequacy in development banks is essential for informing regulatory policy, guiding strategic decision-making, advancing academic research, and facilitating informed assessments by stakeholders. By comprehensively examining the factors that influence CAR, stakeholders can work towards enhancing financial stability, promoting sustainable growth, and safeguarding the integrity of the banking sector.

1.6 Limitations of the Study

The limitations of the study are following.

i. The data are secondary in nature.
ii. The study focus on a particular time period from financial year 2013/2014-2022/2023, so it was not capture long-term trends.
iii. The research restriction to a three sample development banks in Nepal, it was not representative of the entire banking sector.
iv. The study was not fully account for external economic factors such as political instability, natural disasters, or global economic changes that could influence the capital adequacy ratio.

CHAPTER- II

LITERATURE REVIEW

This chapter centers on reviewing the literature related to the “determinants of capital adequacy ratio of Nepalese development bank." The purpose of such a review is to acquire insights into the field, identify recent contributions, and draw inspiration for a study strategy. Past studies form the foundation for the current investigation and are, therefore, integral. The chapter focuses on available literature in the field, encompassing research works, relevant studies, reviews of journals and papers, and analyses of prior thesis work. The following topics are explored within this section.

2.1 Theoretical Review

Capital Adequacy Ratio

The Capital Adequacy Ratio (CAR) is a pivotal measure in assessing the financial health and stability of development banks. It serves as a key indicator of a bank's ability to absorb potential losses and withstand adverse economic conditions while continuing to operate effectively. The CAR is calculated by dividing a bank's capital by its risk-weighted assets, typically expressed as a percentage. Regulatory authorities impose minimum CAR requirements to ensure that banks maintain sufficient capital reserves relative to their risk exposure. Capital, comprising Tier 1 and Tier 2 capital, acts as a buffer against unexpected losses, with Tier 1 capital consisting primarily of common equity and retained earnings. Risk-weighted assets reflect the level of risk associated with a bank's assets, accounting for factors such as credit risk, market risk, and operational risk. A higher CAR indicates a stronger financial position, suggesting that the bank has adequate capital to support its operations and protect depositors' interests. Conversely, a lower CAR may signal heightened risk and potential vulnerability to financial distress. Therefore, monitoring the CAR is essential for regulators, investors, and stakeholders to assess a bank's resilience and ensure the stability of the broader financial system (Setiawan & Muchtar, 2021).

Return on Assets

Return on Assets (ROA) is a pivotal financial metric rooted in the theory of profitability and efficiency in asset utilization. At its core, ROA reflects the ability of a company to generate

profits relative to its total assets, offering insights into the effectiveness of its operations and management. This metric derives its significance from several fundamental principles in finance and accounting. Firstly, ROA embodies the concept of profitability, capturing the relationship between a company's earnings and the resources it deploys. By dividing net income by average total assets, ROA quantifies the return generated by each unit of asset investment, providing a standardized measure of profitability that facilitates comparison across companies and industries (AlZoubi, 2021).

ROA reflects the efficiency of asset utilization, emphasizing the importance of optimizing resource allocation and operational effectiveness. A higher ROA suggests that the company is adept at leveraging its assets to generate earnings, signaling strong management practices and operational efficiency. Conversely, a lower ROA may indicate inefficiencies in asset management or underutilization of resources, prompting further analysis into the company's operations and strategy (Thoa, Anh & Minh, 2020).

ROA is grounded in the principle of financial performance evaluation, serving as a key tool for investors, analysts, and managers alike. By assessing a company's ROA over time and in comparison to industry benchmarks, stakeholders can gauge its financial health, profitability trends, and competitive position. ROA facilitates informed decision-making regarding investment allocation, strategic planning, and performance monitoring, enabling stakeholders to identify areas for improvement and capitalize on opportunities for value creation (El-Ansary & Hafez, 2015).

ROA is intertwined with broader financial theories and models, such as the DuPont analysis and the Capital Asset Pricing Model (CAPM), which delve deeper into the drivers of profitability and risk-adjusted returns. These theoretical frameworks provide valuable insights into the factors influencing ROA, including revenue growth, cost management, asset turnover, and capital structure, thereby enriching the understanding of financial performance dynamics (Abba, Okwa, Soje & Aikpitanyi, 2018).

Return on Equity

Return on Equity (ROE) is a critical financial metric that embodies essential principles of profitability, efficiency, and shareholder value creation. Rooted in finance theory, ROE serves as a key indicator of a company's ability to generate returns for its shareholders

relative to their equity investment. At its core, ROE reflects the relationship between a company's net income and its shareholders' equity, offering insights into both profitability and capital efficiency (Sunaryo, Santoni, Endri & Harahap, 2020).

The theory of Return on Equity underscores the principle that shareholders invest capital in a company with the expectation of earning a return on their investment. By dividing net income by shareholders' equity, ROE quantifies the profitability of this investment, expressing the percentage return generated on each unit of equity capital. A higher ROE signifies stronger profitability and value creation, suggesting that the company is effectively utilizing shareholders' funds to generate earnings (Ehiedu, 2022).

ROE reflects the efficiency of capital utilization and asset management, emphasizing the importance of maximizing returns while minimizing capital employed. Companies that achieve high ROE levels demonstrate adeptness in deploying capital resources efficiently, optimizing operational performance, and generating sustainable growth. Conversely, a lower ROE may indicate inefficiencies in capital allocation or operational processes, prompting further scrutiny into the company's strategy and management practices (AlZoubi, 2021).

ROE is also deeply intertwined with financial theory and models that explore the drivers of profitability and shareholder value, such as the DuPont analysis and the Capital Asset Pricing Model (CAPM). These frameworks delve into the components of ROE, including profit margin, asset turnover, and financial leverage, providing a nuanced understanding of the factors influencing profitability and risk-adjusted returns (Gharaibeh, 2023).

ROE plays a crucial role in guiding investment decisions, capital allocation, and corporate strategy. Investors, analysts, and management teams rely on ROE as a key performance measure to assess a company's financial health, growth prospects, and competitive position. ROE facilitates informed decision-making by providing a standardized metric for evaluating performance across companies and industries, enabling stakeholders to identify opportunities for value creation and allocate resources effectively (Vu & Dang, 2020).

Liquidity Risk

Liquidity risk is a critical consideration in the management of financial institutions and markets, encompassing the potential for inability to meet short-term obligations due to a lack of readily available funds. This risk arises from the imbalance between a firm's assets and

liabilities in terms of maturity and liquidity characteristics. Liquidity risk can manifest in various forms, including funding liquidity risk, which pertains to the inability to obtain necessary funding to meet obligations, and market liquidity risk, which involves difficulties in buying or selling assets without significantly impacting their prices. One of the primary sources of liquidity risk is mismatches in the maturity and liquidity profiles of assets and liabilities. Financial institutions often fund long-term assets with short-term liabilities, relying on the ability to roll over or refinance their obligations as they come due. However, disruptions in funding markets or changes in investor sentiment can impede access to short-term funding, leading to liquidity shortages and potential distress. Moreover, illiquid assets, such as certain types of loans or securities, may be difficult to sell quickly without incurring significant discounts or losses, exacerbating liquidity risk (Sunaryo et al., 2020).

Financial institutions employ various strategies to manage liquidity risk, including maintaining sufficient liquidity buffers, diversifying funding sources, and closely monitoring cash flows and liquidity metrics. Central banks and regulatory authorities also play a critical role in mitigating liquidity risk by providing liquidity support facilities, conducting stress tests, and setting prudential liquidity standards to promote stability in the financial system (El-Ansary & Hafez, 2015).

Credit Risk

Credit risk is a significant concern in the financial industry, encompassing the potential for borrowers to default on their obligations, resulting in losses for lenders or investors. It is a fundamental aspect of lending and investing activities, as financial institutions and investors are exposed to the risk of non-payment or deterioration in the credit quality of borrowers. Credit risk arises from various sources, including loans, bonds, derivatives, and other financial instruments, and can have profound implications for financial stability and profitability (Abusharba et al., 2013).

One of the primary sources of credit risk is lending activities, where financial institutions extend credit to individuals, businesses, or governments. These loans may be subject to default risk, reflecting the borrower's inability or unwillingness to repay the principal and interest according to the terms of the loan agreement. Credit risk assessment is crucial in evaluating the creditworthiness of borrowers, including factors such as their financial

condition, repayment capacity, collateral, and credit history. Effective credit risk management involves implementing robust underwriting standards, conducting thorough due diligence, and monitoring credit exposures to mitigate potential losses (Tran & Pham, 2022).

Credit risk also extends to investments in fixed income securities, such as bonds and asset-backed securities, where investors are exposed to the risk of issuer default or downgrade. The credit quality of these securities depends on the issuer's ability to meet its debt obligations, as well as macroeconomic factors, industry conditions, and market sentiment. Investors assess credit risk by analyzing credit ratings assigned by rating agencies, conducting fundamental analysis of the issuer's financial health, and considering market factors that may impact creditworthiness (Gharaibeh, 2023).

Derivatives and other financial instruments can also introduce credit risk, particularly in counterparty transactions where one party may fail to fulfill its contractual obligations. Counterparty credit risk arises from the potential for default by the counterparty or adverse changes in its creditworthiness, leading to financial losses or disruptions in the derivatives market. Market participants manage counterparty credit risk through bilateral agreements, collateralization, and netting arrangements to mitigate potential exposures (Naoaj, 2023).

Deposit to Assets Ratio

The Deposit to Assets Ratio is a key financial metric used to evaluate the funding structure and liquidity position of financial institutions, particularly banks. It measures the proportion of a bank's total assets that are funded by customer deposits, providing insights into the reliance on deposit funding as a source of liquidity and stability. Calculated by dividing total deposits by total assets, the Deposit to Assets Ratio is expressed as a percentage and serves as an important indicator of the bank's ability to meet its short-term obligations and manage liquidity risk (Abusharba et al., 2013).

A higher Deposit to Assets Ratio indicates a greater reliance on customer deposits to finance the bank's operations and investments. Customer deposits are generally considered a stable and low-cost source of funding, providing banks with a consistent and reliable source of liquidity to support lending activities and other investment opportunities. Moreover, banks with higher deposit ratios may be perceived as more trustworthy and financially stable, as

they have a larger pool of customer funds to cover potential withdrawals and contingencies (Sudiyatno et al., 2019).

Loan to Assets

The Loan to Assets ratio is a financial metric used to assess the extent to which a company's assets are financed through loans. It provides valuable insights into the company's reliance on debt financing to support its operations, investments, and growth initiatives. The Loan to Assets ratio is calculated by dividing the total outstanding loans or borrowings by the total assets of the company, typically expressed as a percentage (Thoa et al., 2020).

A higher Loan to Assets ratio indicates that a larger proportion of a company's assets are funded through loans, suggesting higher financial leverage and risk exposure. While debt financing can provide companies with access to capital for expansion and investment opportunities, excessive reliance on loans may increase the company's vulnerability to changes in interest rates, economic conditions, and market dynamics. High levels of debt may also lead to higher interest expenses, reduced financial flexibility, and increased default risk, potentially impairing the company's ability to meet its debt obligations and maintain profitability (Setiawan & Muchtar, 2021).

Leverage Ratio

The Leverage Ratio is a critical financial metric used to assess a company's level of financial leverage and risk exposure by comparing its equity to its total assets. It serves as a key indicator of the extent to which a company's operations and investments are funded through debt versus equity. Calculated by dividing total liabilities by total equity, the Leverage Ratio provides valuable insights into a company's capital structure, financial stability, and ability to meet its financial obligations (Tran & Pham, 2022).

A higher Leverage Ratio indicates that a larger proportion of a company's assets are financed through debt, suggesting higher financial leverage and risk. While debt financing can provide companies with access to capital for investment and growth opportunities, excessive leverage may increase the company's vulnerability to changes in interest rates, economic conditions, and market dynamics. High levels of leverage may also lead to higher interest expenses, reduced financial flexibility, and increased default risk, potentially impairing the company's ability to meet its debt obligations and maintain profitability (Ehiedu, 2022).

Gross Domestic Product

Gross Domestic Product (GDP) serves as a fundamental measure of a country's economic performance and overall economic health. It represents the total monetary value of all goods and services produced within a country's borders over a specific period, typically a year or a quarter. GDP encompasses various economic activities, including consumption, investment, government spending, and net exports, providing a comprehensive snapshot of the size and growth of an economy (Vu & Dang, 2020).

As a key indicator of economic output, GDP plays a central role in informing government policy-making, business decision-making, and financial market analysis. Governments use GDP data to assess economic growth trends, formulate fiscal and monetary policies, and allocate resources to promote economic stability, job creation, and social welfare. Central banks and policymakers also rely on GDP metrics to gauge inflationary pressures, assess the health of the labor market, and adjust interest rates and monetary policy measures accordingly.

Businesses and investors use GDP data to assess market conditions, identify growth opportunities, and make strategic investment decisions. Changes in GDP growth rates can impact consumer confidence, business investment, and market sentiment, influencing corporate earnings, stock market performance, and asset prices. International investors and organizations also use GDP comparisons to evaluate the relative economic performance of different countries and regions, inform investment allocation decisions, and assess global economic trends and risks (AlZoubi, 2021).

GDP data is typically reported in nominal terms, reflecting current market prices, as well as in real terms, adjusted for inflation to provide a more accurate measure of economic growth. Additionally, GDP can be broken down into components such as consumption, investment, government spending, and net exports to analyze the drivers of economic activity and identify areas of strength or weakness within the economy.

2.2 Empirical Review

2.2.1 Review in international Article

Luqman Hakim (2024) analyzed and answer the inconsistencies in the results of previous research, as well as the phenomenon of Non-Performing Loans (NPL) which does not answer

its effect on the Capital Adequacy Ratio (CAR). This is what prompted the researcher to conduct research again using a different time series and cross-sectional. This type of research is quantitative descriptive with a panel data multiple regression analysis method using a sample of 18 banking companies over five years. This research formula is to maximize the CAR value through NPL as an intervening variable using the research object of banking companies on the Indonesia Stock Exchange. Two research models are integrated into one and each goes through model selection test stages, Chow Test, Housman Test, and Lagrange Multiplier Test. Results in the first research model; that LDR can explain its effect on NPL with a positive correlation as the applicable theory. Meanwhile, BOPO can explain its effect on NPL with a negative correlation, not as in theory. Results of the second research model; only IO can directly explain its effect on CAR, while other variables, either directly or indirectly, cannot explain its effect on CAR. The use of NPL as an intervening variable does not function to mediate CAR so that this variable cannot be used as a reference for predicting CAR. It is hoped that these results can provide maximum guidance for banking management.

Huy et al. (2024) investigated what influences the capital adequacy ratio of Vietnam's joint-stock commercial banks. The authors combed through data from 25 different Vietnamese joint-stock commercial banks. The authors employed the system generalized method of moment's model and other conventional techniques for panel data analysis. The authors derived key findings: Fourteen components are statistically significant, affecting the capital adequacy ratio. Therefore, it is evident that the equity capital of Vietnamese commercial banks has successfully met the required safety standards for assets with credit risk as per legislation. As a result, this assists Vietnamese commercial banks in managing potential losses from credit activities, thus assuring the security of banking operations and protecting depositors.

Obeid (2023) investigated the banking and economic factors that could affect the capital adequacy ratio in the Arab banking sector, by using dynamic panel data model for a panel of 35 banks spread across seven Arab. The results show that there is a positive and significant relationship between credit risk (ratio of non-performing loans to total loans) and the size of the bank on the one hand, and capital adequacy ratio on the other hand. There is also a negative significant relationship between bank profitability (return on assets) and capital adequacy ratio, while there is no significant relationship between dynamic provisions and

capital adequacy ratio. Finally, regarding the role of economic variables, the study shows that the real GDP growth rate has a significant positive impact on the capital adequacy ratio in the Arab region.

Balili and Tola (2023) analyzed of the factors that affect bank capital for the entire banking system in Albania, measured through the CAR report. In the study is used quarterly data for the period. The panel data is analyzed by using R-Studio software. The selection of variables in the model was carried out with OLS Stepwise Backward. Seven independent variables DEP, LOA, BS, ROA, LLR, LEV, RNI and dependent variable CAR were identified in the study. The results of the best statistically model show that loan loss reserve ratio and bank size are the factors that affect significantly negatively CAR. The results of statistically significant two-variable models showed that DEP, LOA, LLR and LEV affect significantly negatively CAR, while BS affects it positively. While ROA and RNI variables do not show statistically significant relationships neither in the integral model nor in the two-variable models.

Gharaibeh (2023) examined the determinants of the capital adequacy ratio (CAR) in the context of Jordanian banks through a literature review and analysis of empirical evidence. The aggregate data were obtained from Globaleconomy.com, the Financial Soundness Indicators, and the Central Bank of Jordan. The aggregate data were analyzed using autoregressive distributed lag (ARDL), utilizing Econometric Views (EViews) software. The empirical results suggest a short-run causality relationship running from banks' credit-to-deposits ratio, banks' leverage ratio, banks' liquidity ratio, and one-year-lagged ROE to the CAR. The results also suggest the existence of short-run causality running from the capital-to-assets ratio, one-year-lagged capital-to-asset ratio, liquid-assets-to-deposits ratio, and coverage ratio to CAR. In addition, the results show the leverage ratio and liquidity ratio as having positive long-run associations with CAR. A positive and significant long-run association was also found between CAR, on the one hand, and the capital-to-assets ratio and the liquid assets to deposits ratio; the coverage ratio, on the other hand, showed a negative and statistically significant long-run association with CAR. The pairwise Granger causality test results reveal that liquid asset to deposits, money supply, profitability, and the capital-to-assets ratio Granger cause CAR. The study findings emphasize the importance of understanding the factors impacting CAR, the direction of the influence, the magnitude of the

influence of the determinants of CAR in emerging economies such as Jordan and taking appropriate measures to safeguard the stability and resilience of the banking industry.

Naoaj (2023) investigated the factors that influence the capital adequacy of commercial banks in Bangladesh using panel data from 28 banks over the period of 2013-2019. Three analytical methods, including the Fixed Effect model, Random Effect model, and Pooled Ordinary Least Square (POLS) method, are employed to analyze two versions of the capital adequacy ratio, namely the Capital Adequacy Ratio (CAR) and Tier 1 Capital Ratio. The study reveals that capital adequacy is significantly affected by several independent variables, with leverage and liquidity risk having a negative and positive relationship, respectively. Additionally, the study finds a positive correlation between real GDP and net profit and capital adequacy, while inflation has a negative correlation. For the Tier 1 Ratio, the study shows no significant relationship between leverage and liquidity risk, but a positive correlation with the number of employees, net profit, and real GDP, while a negative correlation with size and GDP deflator. Pooled OLS analysis reveals a negative correlation with leverage, size, and inflation for both CAR and Tier 1 Capital Ratio, and a positive correlation with liquidity risk, net profit, and real GDP. Based on the Hausman test, the Random Effect model is deemed more suitable for this dataset. These findings have important implications for policymakers, investors, and bank managers in Bangladesh by providing insights into the factors that impact the capital ratios of commercial banks.

Shrestha (2023) identified the factors determining the CAR of commercial banks in Nepal. For this purpose, this study has used annual panel data of 6 joint venture commercial banks of Nepal. This paper's regression analysis revealed that bank-specific factors significantly determine the capital adequacy ratio. Further, the study concluded that the financial performance measured by ROE and lending policy measured by the ratio of the total loan and advance to total assets (LTA) plays an inverse role. Liquidity LTD), management efficiency (ME), operational efficiency (OE), and the size of the bank (SIZE) play a positive role in determining the capital adequacy ratio. The bank's management can implement the findings of this paper to maintain a sufficient capital adequacy ratio. Further, the finding of this study can also be implemented by the regulatory bodies to develop policies relating to the capital requirements of commercial banks.

Ehiedu (2022) analyzed of micro prudential determinants of capital adequacy of deposit money banks (CADMBs) in Nigeria. This was done in respect to the measures of micro prudential determinants of CADMBs, namely; Profitability (PROF), Liquidity Ratio (LIQR), Bank Size (BS), Ratio of Total Loan and Advances to Total Assets (RTLADTA) and Ratio of Total Deposits to Total Assets (RTDTA) in relation to CADMBs proxied with Capital Adequacy Ratio (CAR) of deposit money banks (DMDs) in Nigeria. The data for the study was sourced from CBN statistical bulletin, CBN bank supervisory annual report and NDIC annual report. Then, the stationary and normality tests was carried out, followed by the descriptive statistics, correlation and multiple regression tool of analysis with the aid of E-VIEW 9.0 statistical package. The findings revealed that PROF exerts negative insignificant effect on CAR of banks in Nigeria; LIQR exerts negative significant effect on CAR of banks in Nigeria; BS exerts positive significant effect on CAR of banks in Nigeria; RTLADTA exerts positive significant effect on CAR of banks in Nigeria and RTDTA exerts positive insignificant effect on CAR of banks in Nigeria. Thus, the study concluded that the identified measures of micro prudential determinants have significant effects on CADMBs. The study recommended that banks should also ensure strict compliance with regulatory requirements concerning CAR, risk management and loans administration since they may have a toll on the profitability and sustenance of the banks.

Tran and Pham (2022) determined the internal and macro factors affecting Vietnamese commercial banks. Applying the feasible generalized least squares (FGLS) estimator, they found that return on equity (ROE) and bank size (SIZE) had the significantly opposite impact on Vietnamese banks' capital adequacy. They found that the return on assets (ROA), customer deposits (DEP), credit risk (CR), and liquidity (LIQ) had similar direction effects and were statistically significant on banks' capital adequacy. For the macroeconomic factors, the inflation rate positively impacted the capital adequacy of Vietnamese commercial banks.

Setiawan and Muchtar (2021) concluded the factors that affect bank capital adequacy ratios. The sample used is 42 banks listed on the Indonesia Stock Exchange. The analysis method used was panel data regression and using purposive sampling for the sampling technique. The independent variables in this study are loan loss reserves, return on equity, bank size liquidity ratio and loan ratio, and capital adequacy ratio is the dependent variable. The results show that bank size and the return on equity have a positive effect on capital adequacy ratio,

while loan ratio has a negative effect on capital adequacy ratio. The liquidity ratio and loan loss reserve have no effect on the capital adequacy ratio. It is expected that the results of this study will provide a reference for companies to understand the factors that affect capital adequacy. Managerial implications: Banking companies are expected to increase the total number of assets held, increase return on equity and reduce bank loan ratios to avoid the risk of bad credit.

Vu and Dang (2020) identified the factors that significantly affect the capital adequacy ratio (CAR) of Vietnamese commercial banks. Using employs a panel data analysis. The variables that are hypothesized to affect the capital adequacy ratio of commercial banks in Vietnam include bank size (SIZE), deposit (DEP), loan (LOA), loan loss reserves (LLR), liquidity (LIQ), return on assets (ROA), return on capital (ROE), net interest margin (NIM), non-performing loans (NPL) and leverage (LEV). The results indicate that LEV, LLR, ROE had a negative impact, ROA had a positive impact, and SIZE, DEP, LOA, LIQ, NIM, NPL did not significantly influence the CAR of Vietnamese commercial banks.

Abiodun et al. (2020) examined the antecedents to capital adequacy. They have used the data set of ten leading banks of Nigeria. They found that ROA and loan to total assets are significantly associated with capital adequacy. However, they found that nonperforming loans and size are negatively associated with the capital adequacy. Therefore, they recommend that all banking entities should reserve sufficient cash and cash equivalents as a percentage of deposits and apply aggressive risk management practices to reduce the magnitude of nonperforming loans. This study was restricted to one country. Future studies can be carried out in other countries. A comparative data set of more than one country may bring further insight into the phenomenon.

Thoa et al. (2020) examined the antecedents to capital adequacy. They have used the data set of ten leading banks of Nigeria from 2007 to 2017. They found that ROA and loan to total assets are significantly associated with capital adequacy. They also found that nonperforming loans and size are negatively associated with the capital adequacy. The result do not support the association between macroeconomics variables and capital adequacy.

Sunaryo et al. (2020) identified factors that influence adequacy ratio of fund (RKD) of the Defined Benefit Pension Plan (PPMP) Pension Fund such as Return on Asset (ROA), Cash

Conversion Rate (CCR), Central Board Revenue (CBR), Operating Expense Ratio (OER), Investment Expense Ratio (IER), and investment. The data analysis was common effect panel data regression method and the samples were twenty pension funds. The results showed that ROA, CCR, and investment have a significant and positive influence towards RKD, CBR and OER have a significant and negative influence towards RKD. IER did not have significant influence towards RKD.

Timilsina (2020) examined the determinants of capital structure in Nepalese Commercial Banks. The total debt to total assets and total debt to total equity were selected as dependent variables while return on assets, bank size, assets tangibility, assets growth and liquidity are the independent variables. The data were collected from annual reports of concerned sample bank. The Pearson's correlation coefficients and regression models are estimated to test the significance and impact of bank specific factors on the capital structure of Nepalese commercial banks. The result shows that banks size and assets tangibility are positively correlated with total debt to total assets whereas return on assets, assets growth and liquidity are negatively correlated with total debt to total assets. Likewise return on assets, bank size, assets tangibility, assets growth and liquidity are negatively correlated with total debt to total equity. It indicates that higher assets growth, return on assets and liquidity lower would be the total debt to total assets and total debt to total equity. Likewise higher the bank size and assets tangibility higher would be the total debt to total assets. This study concludes that return on assets, bank size and assets tangibility are the most influencing factors and assets growth and liquidity are the least influencing factor affecting the capital structure of Nepalese commercial banks.

Usman et al. (2019) determined the factors that affect the CAR. The sample used in this study is the banking industry listed on the Indonesia Stock Exchange (IDX) from 2007 until 2018. Independent variables are bank size, leverage, loan loss reserves, net interest margin, loan assets ratio, and liquidity. The dependent variable is CAR. The number of samples is 27 conventional banks by using purposive sampling. By using panel data regression analysis by estimating ordinary General Least Squares (GLS) method. The results of this study indicate that bank size, leverage, loan loss reserve, net interest margin, and loan asset ratio has an effect on CAR significantly while liquidity has no effect on CAR. The results of this study

are expected to be used as a reference for bank managers and investors in looking at the factors that affect the CAR in the banking industry.

Abba et al. (2018) analyzed the bank-specific determinants of CAR in the Nigerian Deposit Money Banks (DMBs) using balanced panel data collected from financial statements. The index for profitability which is ROA was found to be the most important determinant of CAR, having recorded the highest coefficient in the multiple regression result. The study found out that Capital Adequacy Ratio of Nigerian deposit money banks is well above the regulatory minimum set by CBN as well as the requirements of Basel Accord. Also, Nigerian banks' risk portfolio is quite high and ROA is quite low. Depositors' interests are well protected as the asset base of DMBs is well above the total deposits. The study concludes that CAR is largely determined by banks risk-portfolio, deposit level, profitability and asset quality and that CAR of Nigerian banks is well above the regulatory minimum. The study recommends that Nigerian deposit money banks should adopt a more pragmatic risk-management mechanism and a risk-based capital maintenance approach backed by a robust data management system. The study recommends improvement in operational performance of banks, strict compliance with various capital regulations, frequent stress tests for banks and more detailed disclosure practice to include details of changes in Tier I and Tier II capital, risk-weighted assets and trend analysis of changes in Capital Adequacy Ratio.

Aryal (2016) examined the relationship between capital adequacy and its variables in the context of Nepalese commercial banks. The study is based on panel data analysis of the secondary data. As a first approximation to the theory, this study hypothesizes that the capital adequacy ratio depends on several bank-specific and microeconomic variables such as return on equity, total assets, total loan, deposits, leverage, nonperforming loan, inflation and economic growth. The regression result shows that the total assets, total loan, deposits, leverage and nonperforming loans have negatively significant impact on capital adequacy ratio. Similarly, total assets, total loan, deposits, and leverage have negatively significant impact on tier 1 capital. Thus, this study concludes that total assets, total loan, deposits, leverage and nonperforming loan are major determinants of capital adequacy ratio in Nepalese commercial banks.

Paudel and Khanal (2015) evaluated the determinants of the capital adequacy ratio of Nepalese cooperative societies through descriptive, correlation, and regression analysis using an unbalance panel. The core determinants of capital adequacy ratio for the Nepalese cooperatives are credit to deposit ratio, net interest margin and types of cooperative in positive direction, whereas assets utilization ratio, size and return on equity in negative direction. Though, the big sized cooperatives have poor strategic capital, the resulted mean and standard deviation suggest cooperatives' capital adequacy ratio is higher but inconsistent than commercial banks.

El-Ansary and Hafez (2015) examined explanatory victors that influence capital adequacy ratio (CAR) in the Egyptian commercial banks. The study covers 36 banks during the period from. They examined the relationship between CAR as dependent variable and the following independent variables: earning assets ratio, profitability, and liquidity, Loan loss provision as measure of credit risk, net interest margin growth, size, loans assets ratio and deposits assets ratio. They found that liquidity, size and management quality are the most significant variables. They also found that asset quality, size and profitability are the most significant variables. The result is also asset quality, size, liquidity, management quality and credit risk are the most significant variable that explain the variance of Egyptian banks' CAR.

Dreca (2014) analyzed of a data set of observation for 10 banks in period of 6 years in B&H shows how Capital Adequacy Ratio (CAR) is influenced by many factors such as: capital structure, size of the bank, profitability indicators, participation of deposits and loans in total asset, and leverage. Selected variables are chosen on the previous research and analysis is done through several methods and some diagnostics tests are performed in order to determine the most appropriate model that explains determinants of CAR. Results indicate based on data that SIZE, DEP, LOA, ROA, ROE AND LEV have significant effect on CAR. On the other hand LLR and NIM do not appear to have significant effect on CAR. Variables SIZE, DEP, LOA and ROA have negative effect on CAR, while variables LLR, ROE, NIM and LEV are positively related with CAR. All variables except LOA and ROA have expected signs. It is hard to distinguish which CAR is better higher or lower, form stability aspect it is better to have higher CAR, but from profitability side lower CAR is more preferable, so the banks should decide based on this study which variable to use in order to reach targeted CAR level.

Abusharba et al. (2013) analyzed the determinants of the capital adequacy ratio in the Indonesian Islamic banking industry. Secondary data were obtained from Islamic banks annual reports and Islamic banking statistics that derived from Bank Indonesia. Multiple linear regression analysis and pair-wise correlation matrix are used to explain the effect of explanatory variables; profitability (ROA), assets earning quality (NPF), deposits structure (DEP), liquidity (FDR) and operational efficiency (OEOI) on a proxy variable which is the capital adequacy ratio (CAR). The study found that profitability and liquidity are positively related to the capital adequacy requirements. Meanwhile, uncollectable funds measured by nonperforming financing (NPF) is significant but negatively related to the capital adequacy ratio. On the other hand, depositor's funds and operational efficiency have no significant effect on capital adequacy of Indonesian Islamic banks. Moreover, this study revealed that all selected Islamic commercial banks in Indonesia are committed over than 8 percent the minimum of capital requirements during the period of financial global crises. Finally, it was found that Indonesian Islamic banks have an excessive fund to meet their obligations and protect the owners of capital.

Table 1

Meta-analysis

Author/ date	Title	Objectives	Methodology	Findings
Luqman Hakim (2024)	Determinant model of capital adequacy ratio with intervening variable non-performing loan.	To analyze and answer the inconsistencies in the results of previous research, as well as the phenomenon of Non-Performing Loans (NPL) which does not answer its effect on the Capital Adequacy Ratio (CAR).	This research formula is to maximize the CAR value through NPL as an intervening variable using the research object of banking companies on the Indonesia Stock Exchange. Two research models are integrated into one and each goes through model selection test stages, Chow Test, Housman Test, and Lagrange Multiplier Test.	He found that LDR can explain its effect on NPL with a positive correlation as the applicable theory. Meanwhile, BOPO can explain its effect on NPL with a negative correlation, not as in theory. Results of the second research model; only IO can directly explain its effect on CAR, while other variables, either directly or indirectly, cannot explain its effect on CAR.
Huy et al. (2024)	An Empirical Analysis of Bank Capital Adequacy Ratio in Vietnam:	To investigate what influences the capital adequacy ratio of	The authors employed the system generalized method of	They found that statistically significant, affecting the capital adequacy ratio. Therefore, it is evident that

	A Data Science Approach Using System Generalized Method of Moments	Vietnam's joint-stock commercial banks.	moment's model and other conventional techniques for panel data analysis.	the equity capital of Vietnamese commercial banks has successfully met the required safety standards for assets with credit risk as per legislation.
Obeid (2023)	Determinants of Capital Adequacy Ratio in the Banking Sector: Evidence from the Arab Region.	To investigate the banking and economic factors that could affect the capital adequacy ratio in the Arab banking sector	by using dynamic panel data model for a panel	The results show that there is a positive and significant relationship between credit risk (ratio of non-performing loans to total loans) and the size of the bank on the one hand, and capital adequacy ratio on the other hand. There is also a negative significant relationship between bank profitability
Balili and Tola (2023)	Determinants of Capital Adequacy Ratio. An Empirical Study on Albanian Banking Sector.	To analyze of the factors that affect bank capital for the entire banking system in Albania, measured through the CAR report.	The selection of variables in the model was carried out with OLS Stepwise Backward. Seven independent variables DEP, LOA, BS, ROA, LLR, LEV, RNI and dependent variable CAR were identified in the study.	The results of statistically significant two-variable models showed that DEP, LOA, LLR and LEV affect significantly negatively CAR, while BS affects it positively. While ROA and RNI variables do not show statistically significant relationships neither in the integral model nor in the two-variable models.
Gharaibeh (2023)	The determinants of capital adequacy in the Jordanian banking sector: an autoregressive distributed lag-bound testing approach.	To examine the determinants of the capital adequacy ratio (CAR) in the context of Jordanian banks through a literature review and analysis of empirical evidence.	The aggregate data were analyzed using autoregressive distributed lag (ARDL), utilizing Econometric Views (EViews) software.	The empirical results suggest a short-run causality relationship running from banks' credit-to-deposits ratio, banks' leverage ratio, banks' liquidity ratio, and one-year-lagged ROE to the CAR. The results also suggest the existence of short-run causality running from the capital-to-assets ratio, one-year-lagged capital-to-asset ratio, liquid-assets-to-deposits ratio, and coverage ratio to CAR. In addition, the results show the leverage ratio and liquidity ratio as having positive long-run associations with CAR. A positive and significant long-run association was also found between CAR, on the one hand, and the

				capital-to-assets ratio and the liquid assets to deposits ratio; the coverage ratio, on the other hand, showed a negative and statistically significant long-run association with CAR.
Naoaj (2023)	Exploring the Determinants of Capital Adequacy in Commercial Banks: A Study of Bangladesh's Banking Sector.	To investigate the factors that influence the capital adequacy of commercial banks	Pooled Ordinary Least Square (POLS) method, are employed to analyze two versions of the capital adequacy ratio, namely the Capital Adequacy Ratio (CAR) and Tier 1 Capital Ratio	The study reveals that capital adequacy is significantly affected by several independent variables, with leverage and liquidity risk having a negative and positive relationship, respectively. Additionally, the study finds a positive correlation between real GDP and net profit and capital adequacy, while inflation has a negative correlation. For the Tier 1 Ratio, the study shows no significant relationship between leverage and liquidity risk, but a positive correlation with the number of employees, net profit, and real GDP, while a negative correlation with size and GDP deflator. Pooled OLS analysis reveals a negative correlation with leverage, size, and inflation for both CAR and Tier 1 Capital Ratio, and a positive correlation with liquidity risk.
Ehiedu (2022)	Analysis of micro prudential determinants of capital adequacy in deposit money banks.	To analyze of micro prudential determinants of capital adequacy of deposit money banks	The stationary and normality tests was carried out, followed by the descriptive statistics, correlation and multiple regression tool of analysis with the aid of E-VIEW 9.0 statistical package.	The findings revealed that PROF exerts negative insignificant effect on CAR of banks in Nigeria; LIQR exerts negative significant effect on CAR of banks in Nigeria; BS exerts positive significant effect on CAR of banks in Nigeria; RTLADTA exerts positive significant effect on CAR of banks in Nigeria and RTDTA exerts positive insignificant effect on CAR of banks in Nigeria. Thus, the study concluded that the identified measures of micro prudential determinants

				have significant effects on CADMBs.
Tran and Pham (2022)	Factors Influencing the Capital Adequacy Ratio-A Panel Regression Analysis for the Vietnamese Banking Sector.	To determine the internal and macro factors affecting Vietnamese commercial banks.	Applying the feasible generalized least squares (FGLS) estimator,	They found that return on equity (ROE) and bank size (SIZE) had the significantly opposite impact on Vietnamese banks' capital adequacy. They found that the return on assets (ROA), customer deposits (DEP), credit risk (CR), and liquidity (LIQ) had similar direction effects and were statistically significant on banks' capital adequacy.
Setiawan and Muchtar (2021)	Factor affecting the capital adequacy ratio of banks listed in Indonesia Stock Exchange.	To conclude the factors that affect bank capital adequacy ratios	The analysis method used was panel data regression and using purposive sampling for the sampling technique.	The results show that bank size and the return on equity have a positive effect on capital adequacy ratio, while loan ratio has a negative effect on capital adequacy ratio. The liquidity ratio and loan loss reserve have no effect on the capital adequacy ratio.
Vu and Dang (2020)	Determinants influencing capital adequacy ratio of Vietnamese commercial banks.	To identified the factors that significantly affect the capital adequacy ratio (CAR) of Vietnamese commercial banks	Using employs a panel data analysis.	The results indicate that LEV, LLR, ROE had a negative impact, ROA had a positive impact, and SIZE, DEP, LOA, LIQ, NIM, NPL did not significantly influence the CAR of Vietnamese commercial banks.
Abiodun et al. (2020)	Determinants of capital adequacy of Nigerian banks.	To examine the antecedents to capital adequacy.	They have used the data set of ten leading banks of Nigeria	They found that nonperforming loans and size are negatively associated with the capital adequacy.
Thoa et al. (2020)	The determinant of capital adequacy ratio: Empirical evidence from Vietnamese banks (a panel data analysis).	To examine the antecedents to capital adequacy.	They have used the data set of ten leading banks of Nigeria	They found that ROA and loan to total assets are significantly associated with capital adequacy. They also found that nonperforming loans and size are negatively associated with the capital adequacy.
Sunaryo et al. (2020)	Determinants of capital adequacy ratio for pension funds: a case study in Indonesia	To identify factors that influence adequacy ratio of fund (RKD) of the Defined Benefit Pension Plan	The data analysis was common effect panel data regression method and the samples were twenty pension funds.	The results showed that ROA, CCR, and investment have a significant and positive influence towards RKD, CBR and OER have a significant and negative influence towards RKD. IER did not have significant influence towards RKD.

Usman et al. (2019)	Determinants of capital adequacy ratio on banking industry: Evidence in Indonesia Stock Exchange.	To determine the factors that affect the CAR.	. By using panel data regression analysis by estimating ordinary General Least Squares (GLS) method.	The results of this study indicate that bank size, leverage, loan loss reserve, net interest margin, and loan asset ratio has an effect on CAR significantly while liquidity has no effect on CAR. The results of this study are expected to be used as a reference for bank managers and investors in looking at the factors that affect the CAR in the banking industry.
Abba et al. (2018)	Determinants of capital adequacy ratio of deposit money banks in Nigeria.	To analyze the bank-specific determinants of CAR in the Nigerian Deposit Money Banks	Using balanced panel data collected from financial statements.	The study found out that Capital Adequacy Ratio of Nigerian deposit money banks is well above the regulatory minimum set by CBN as well as the requirements of Basel Accord. Also, Nigerian banks' risk portfolio is quite high and ROA is quite low. Depositors' interests are well protected as the asset base of DMBs is well above the total deposits. The study concludes that CAR is largely determined by banks risk-portfolio, deposit level, profitability and asset quality and that CAR of Nigerian banks is well above the regulatory minimum.
El-Ansary and Hafez (2015)	Determinants of capital adequacy ratio: An empirical study on Egyptian banks.	To examine explanatory victors that influence capital adequacy ratio (CAR) in the Egyptian commercial banks.	They examined the relationship between CAR as dependent variable and the following independent variables: earning assets ratio, profitability, and liquidity, Loan loss provision as measure of credit risk, net interest margin growth, size, loans assets ratio and deposits assets ratio.	They found investigate determinants of CAR before and after the international financial crises. Results vary according to the period understudy. They show that liquidity, size and management quality are the most significant variables. Before the period 2008 results show that asset quality, size and profitability are the most significant variables.

2.3 Research Gap

The research is don for the propose of achieving the objectives to assess the current status of the Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, Gross Domestic Product and Capital Adequacy Ratio of the development bank in Nepal, to analyze the relationship of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product to the Capital Adequacy Ratio of the development bank in Nepal and to examine the impact of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product to the Capital Adequacy Ratio of the development bank in Nepal. Descriptive & casual comparative research design used. Descriptive statistics, correlation and regression analysis are conducted for the achievement of the objectives of research design. The relationship between independent and dependent variables under study calculated. The random sampling methods is used for the sample selection. Three sample development banks are taken from total 14 banks till mid July 2023 under studies. Each sample bank ten year of data collected, in this ways total observation of research is 30.

Previous researches used one sample banks; they used other techniques such as panel analysis etc. for data analysis. Some of the research is casual comparative methods used. Their propose is for not in academic and sample is more than this research. Most of them used a five to eight years of data for analysis. They used all population for studies. Future researches may also use more or less data, more or less dependent and independent variable for studies. They may use other than expletory and correlation research designs for their studies. They may take whole population of the studies.

CHAPTER- III

RESEARCH METHODOLOGY

The research methodology serves as a set of defined procedures and techniques employed to identify, select, process, and analyze information related to a particular topic. Within a research paper, the methodology section provides the reader with the means to critically assess the overall validity and reliability of the study. This chapter outlines the comprehensive roadmaps followed in conducting the research.

3.1 Research Design

This research has utilized descriptive and casual comparative research designs to analyze issues related to the determinants of capital adequacy ratio and effect of different variable on capita adequacy. Descriptive research design is applied to identify the factors influencing capital adequacy ratio and gather sufficient information on these determinants. Additionally, the study is also based on casual comparative research design to analyze the direction and magnitude of correlations and regression analysis among the dependent variable and the independent variables.

3.2 Population and Sample

Sample is selected using random sampling method. The population of development bank in the mid July 2023 and they are 17 in that day. Three development bank are selected they are Excel development bank, Karnali Bikash Bank and Sindhu Bikash bank. Similarly, financial statements of three development banks for ten years research period i. e. FY 2014 to FY 2023 has been taken as sample for the same purpose.

Table 2

Sample of the Bank

Populations	17 banks as per NRB in the f/y end 2022/23
Sample	three banks
Name of the bank	Excel development bank, Karnali Bikash Bank and Sindhu Bikash bank

3.3 Nature and Sources of Data

Within this section, the researcher delineates the nature and origins of the data. Two primary categories of data, namely primary and secondary, are identified. Various research works utilize different sources, which can be broadly classified as published or unpublished. Published sources encompass articles by researchers, annual reports, newspapers, tax reports, and government policies. Unpublished sources include internal organizational decision-making materials, minutes, vouchers, and other records of management and board of director decisions. Secondary data are used in this research.

3.4 Instrument of Data Collection

The term "instrument" pertains to the tools employed for data collection. Secondary data is acquired from the respective banks' websites and annual reports. The economic report from the Nepal Rastra Bank (Banking and Financial Statistics), along with other published statistical data, has been referenced. Informal discussions and procedures were utilized for obtaining supplementary information. Primary data, on the other hand, were gathered through various instruments such as questionnaires, observations, interviews, laboratory experiments, quasi-experiments, and the use of scales.

3.5 Methods of Analysis

For the achievement of the objectives of the study various financial and statistical tools / methods have been used. They are namely following.

3.5.1 Financial Analysis

Financial analysis is the systematic examination of a company's financial statements to assess its performance and financial health. This involves scrutinizing the income statement, balance sheet, and cash flow statement to evaluate profitability, liquidity, solvency, and operational efficiency. Key techniques include ratio analysis, where metrics such as return on assets (ROA), return on equity (ROE), and current ratio are calculated and interpreted. Trend analysis helps identify performance patterns over time, while benchmarking compares the company’s financial metrics against industry standards or competitors. Horizontal and vertical analyses further break down financial data to uncover growth trends and proportional relationships within financial statements. Cash flow analysis assesses liquidity by examining

the inflows and outflows of cash. In-depth methods like DuPont analysis decompose ROE into its contributing factors, providing a nuanced view of profitability drivers.

3.5.1.1 Return on Assets

Return on Assets (ROA) is a financial ratio that indicates how profitable a company is relative to its total assets. It gives an idea of how efficient management is at using its assets to generate earnings.

$$\text{ROA} = \frac{Net\ profit\ after\ tax}{Total\ assets} \times 100$$

3.5.1.2 Return on Equity

Return on Equity (ROE) is a financial ratio that measures a company's ability to generate profits from its shareholders' equity. It indicates how effective the company is at turning the equity invested by shareholders into net income.

$$\text{ROE} = \frac{Net\ profit\ after\ tax}{Total\ equity} \times 100$$

3.5.1.3 Liquidity Risk

Liquidity risk is the risk that a company or financial institution will not be able to meet its short-term financial obligations due to an inability to convert assets into cash quickly without incurring a significant loss. This type of risk can arise from a mismatch between the timing of cash inflows and outflows, market conditions, or specific company issues. Here liquidity risk can be calculated thorough current ratio.

$$\text{Current Ratio} = \frac{Current\ Assets}{Current\ Liabilities} \times 100$$

3.5.1.4 Credit Risk

Credit risk refers to the possibility of a loss resulting from a borrower's failure to repay a loan or meet contractual obligations. It is a fundamental concern for lenders, investors, and any entities that extend credit. Effective management of credit risk involves assessing the borrower's ability to repay, monitoring their financial health, and using various strategies to mitigate potential losses.

Credit Risk Ratio measured by non-performing loan ratio

$$\text{Non-performing loan ratio} = \frac{Non\ performing\ Loan}{total\ loan} \times 100$$

3.5.1.5 Loan Asset

The loan ratio, often referred to as the loan-to-deposit ratio (LDR) or loan-to-assets ratio, is a key financial metric used to evaluate a bank's liquidity and its ability to cover withdrawals made by its customers. Here are a few common loan ratios and their interpretations:

Loan assets ratio $= \frac{total\ loan}{total\ assets} \times 100$

3.5.1.6 Leverage Ratio

The leverage ratio is a financial metric that measures the extent to which a company or financial institution is using borrowed money (debt) to finance its assets. It helps assess the level of financial risk and the ability of a company to meet its debt obligations.

Leverage Ratio $= \frac{total\ loan}{total\ equity} \times 100$

3.5.1.7 Capital Adequacy Ratio

This ratio is calculated the equity divided by the total assets and this ratio used to evaluate the percent of equity for asset purchase. Is higher is the percent than the debenture holder and creditors are secured when liquidation made. If ratio is low its means outside investment is more than owner investment. Formula is below:

Capital Adequacy Ratio $= \frac{Equity\ Capital}{Total\ Assets} \times 100$

3.5.2 Statistical Analysis

Descriptive Analysis

Descriptive analysis involves examining the mean, standard deviation, minimum, and maximum values of the provided data variables.

Arithmetic Mean

The arithmetic mean, also known as the average, is computed by adding up all the values in a dataset and dividing the sum by the number of observations. This statistical measure is considered a representation of central tendency and is applied in this research to analyze data concerning sample banks across ten fiscal years. It is calculated as;

Mean $(\underline{X}) = \frac{\sum X}{n}$

Where, $\underline{X}$ = Mean

$\sum X$ = Sum of all the variable X

n = Variable involved

Standard Deviation (σ)

Standard deviation, a statistical metric, gauges the extent of variability or spread within a dataset. Computed as the square root of the variance, it involves assessing the deviation of each data point from the mean. It is denoted by (**σ**).

Standard Deviation (**σ**) = $\sqrt{\frac{\sum(X - \overline{X})^2}{N}}$

Where,

X=variables

$\overline{X}$ = mean

N= No. of Period

Minimum

The minimum, representing the lowest value in a given dataset, is also referred to as the smallest data point within the variable under examination. It is the initial data value when the dataset is arranged in ascending order. While the minimum value may be duplicated in the dataset, it is considered a unique figure, as one instance must be lesser than the other if there are repetitions.

Maximum

The maximum, denoting the highest value within a provided dataset, is also known as the largest data point associated with the variable under consideration. It represents the final data value when the dataset is arranged in ascending order. The maximum value is considered unique in a dataset, even if it appears more than once, as one instance must be greater than the other if there are repetitions.

Correlation Analysis

Correlation is a statistical technique employed to determine the direction and strength of the relationship between two sets of variables. It illustrates how two variables co-vary and quantifies the degree of association between them. The Pearson correlation coefficient is utilized to elucidate this relationship, with values ranging from -1 to +1. A correlation coefficient of exactly -1 indicates a perfect negative correlation, signifying that the variables

move precisely in opposite directions. Conversely, a correlation coefficient of +1 implies a perfect positive correlation, indicating that the variables are perfectly related in the same direction. The correlation is calculated between dependent and independent variables. The dependent variable is capital adequacy ratio and independent variables are return on assets, return on equity, liquidity risk, credit risk, loan to assets, leverage ratio and gross domestic product.

Regression Analysis

Multiple regression analysis is a statistical method employed to examine the association between a singular dependent (criterion) variable and multiple independent (predictor) variables. The primary aim of multiple regression analysis is to forecast alterations in the dependent variable in relation to variations in the independent variables. This method gauges the effectiveness of multiple regression in predicting outcomes. The multiple determination, or R-squared, denotes the percentage of variability in the dependent variable that can be elucidated by the regression equation. The multiple regression equation for this research can be as follows:

Regression Model

$CAR = \beta_0+\beta_1\times ROA+\beta_2\times ROE+ \beta_3\times LR+ \beta_4\times CR+ \beta_5\times LA+ \beta_6\times LVR+ \beta_7\times GDP +e$

Where,

CAR=Capital Adequacy Ratio

ROA= Return on Assets

ROE= Return on Equity

LR= Liquidity Risk

CR= Credit Risk

LA= Loan to Assets

LVR= Leverage Ratio

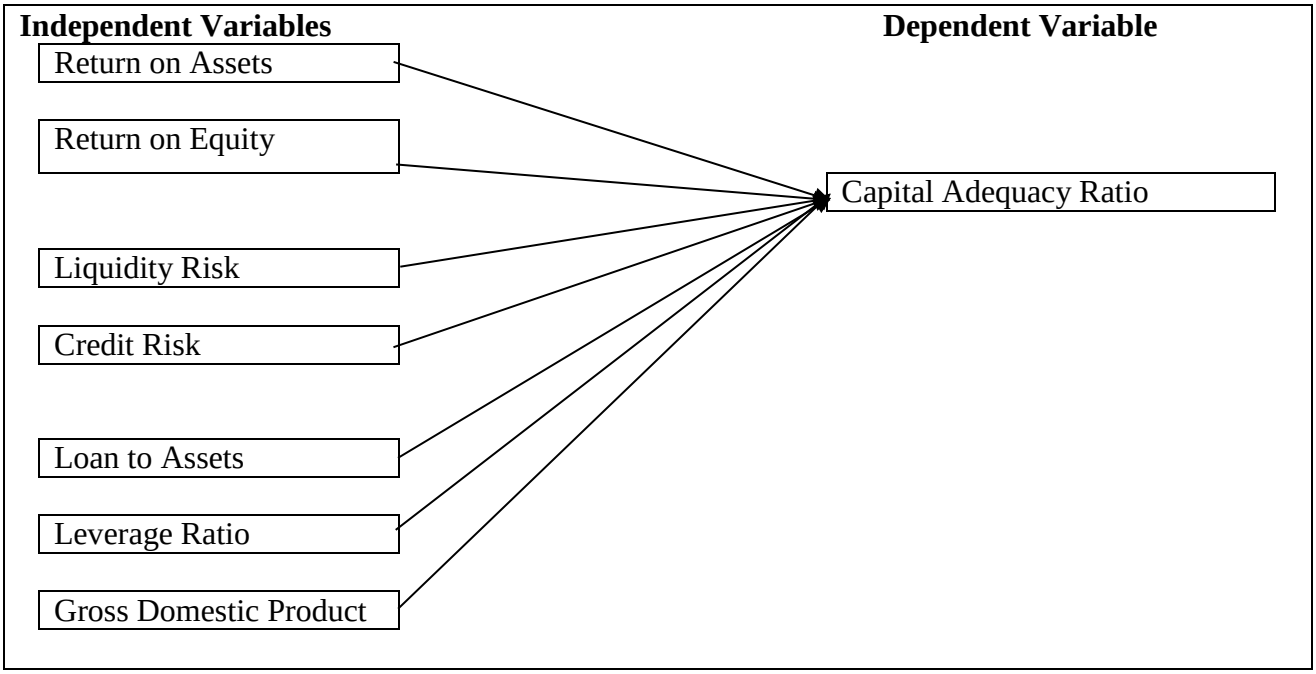
GDP= Gross domestic product

3.6 Research Framework

The research framework is the clear bird eye view of the research. It explain the dependent and independent variables of the related research. The figure below explain the research framework where dependent variable is capital adequacy ratio and independent variables are

assets, return on equity, liquidity risk, credit risk, loan to assets, leverage ratio and gross domestic product.

Figure1: *Research Framework*



Source: *Billel, (2023) & Mekonnen, (2015)*

3.7 Definitions of Variables

Dependent Variable

Capital Adequacy Ratio

This ratio is calculated the equity divided by the total assets and this ratio used to evaluate the percent of equity for asset purchase. Is higher is the percent than the debenture holder and creditors are secured when liquidation made. If ratio is low its means outside investment is more than owner investment. Formula is below:

Independent Variables

Return on Assets

Return on Assets (ROA) is a financial ratio that indicates how profitable a company is relative to its total assets. It gives an idea of how efficient management is at using its assets to generate earnings. A higher ROA suggests that the company is more effective at converting its investment in assets into net income. For investors and analysts, ROA are

provides insight into how well a company is utilizing its assets to produce profits. Companies with higher ROA are generally seen as more efficient and potentially more profitable. Conversely, a lower ROA can indicate inefficiencies in asset use or lower profitability. By comparing ROA across similar companies or against industry benchmarks, stakeholders can assess a company's operational performance and make more informed investment decisions.

Return on Equity

Return on Equity (ROE) is a financial ratio that measures a company's ability to generate profits from its shareholders' equity. It indicates how effective the company is at turning the equity invested by shareholders into net income. A higher ROE signifies that the company is efficiently utilizing its equity base to generate profits, which can be a sign of strong financial performance and effective management. Investors often use ROE to compare the profitability of companies within the same industry, as it reflects how well a company is generating returns on the investment made by its shareholders. Conversely, a lower ROE may indicate potential issues in the company's ability to generate sufficient profits from its equity. Overall, ROE is a crucial metric for assessing a company's financial health and its ability to provide value to its shareholders.

Liquidity Risk

Liquidity risk is the risk that a company or financial institution will not be able to meet its short-term financial obligations due to an inability to convert assets into cash quickly without incurring a significant loss. This type of risk can arise from a mismatch between the timing of cash inflows and outflows, market conditions, or specific company issues. Here liquidity risk can be calculated thorough current ratio.

Credit Risk

Credit risk refers to the possibility of a loss resulting from a borrower's failure to repay a loan or meet contractual obligations. It is a fundamental concern for lenders, investors, and any entities that extend credit. Effective management of credit risk involves assessing the borrower's ability to repay, monitoring their financial health, and using various strategies to mitigate potential losses. Credit risk is inherent in all forms of lending and financial transactions involving credit extensions. Financial institutions and investors use various risk

management techniques, such as credit derivatives and risk transfer mechanisms, to minimize exposure to credit risk. Effective credit risk management is essential for maintaining financial stability, safeguarding assets, and ensuring sustainable profitability in lending and investment activities.

Loan Ratio

The Loan to Assets ratio is a key financial metric that measures the proportion of a financial institution's total assets that are comprised of loans. It is calculated by dividing the total value of loans by the total value of assets. This ratio provides insight into the bank's asset composition and lending activities. A higher Loan to Assets ratio indicates that a larger portion of the bank's assets is tied up in loans, suggesting a strong focus on lending. This can lead to higher income from interest but also increases exposure to credit risk, especially if the loans are not well-secured or if there is a high level of non-performing loans. Conversely, a lower ratio implies that the bank has a more diversified asset base, with investments spread across various assets such as securities, cash, and other financial instruments, indicating a more conservative approach to risk management.

Leverage Ratio

The leverage ratio is a financial metric used to measure the extent to which a company or entity relies on debt to finance its operations and assets. It provides insight into the financial risk and stability of an organization by comparing its debt to its equity or other financial metrics. Leverage ratios are crucial for assessing the financial health of companies, especially in understanding their ability to meet financial obligations and withstand economic downturns. One of the most common leverage ratios is the debt-to-equity ratio, which compares a company's total debt to its shareholders' equity.

Gross Domestic Product (GDP)

Gross Domestic Product (GDP) is a fundamental indicator of a nation's economic performance, representing the total monetary value of all goods and services produced within a country's borders over a specific period, usually a year or a quarter. GDP is calculated using three main approaches: the production (output) approach, which measures the value of output produced by various industries; the income approach, which sums up total national income, including wages, rents, interest, and profits; and the expenditure approach, which

adds up all expenditures made in the economy, including consumption, investment, government spending, and net exports (exports minus imports). As a comprehensive measure, GDP provides crucial insights into the economic health and growth rate of a country, serving as a key metric for policymakers, economists, and analysts to assess and compare the economic performance across different regions and time periods.

CHAPTER-IV

RESULT AND DISCUSSION

Data results and discussion are a very important part of research work. Displays all numerical data in a represented analytical form. It is the process of tabulating and organizing data into a displayable format using various tables, figures, and sources. Results are the first part of data presentation and analysis. Here various financial ratios are calculated and their mean and standard deviation are calculated. Correlations and multiple regressions are calculated in one part of the results, and the second part is the discussion, presenting objective findings and comparative studies of the findings with other scholars.

4.1 Result

4.1.1 Financial analysis

Financial analysis involves evaluating the financial health and performance of a business or project to determine its stability, profitability, and suitability for investment. This process typically includes analyzing financial statements such as the income statement, balance sheet, and cash flow statement to assess revenues, expenses, assets, liabilities, and cash flows. Key tools in financial analysis include ratio analysis, which encompasses liquidity ratios (measuring the ability to cover short-term obligations), profitability ratios (evaluating the ability to generate profit), and solvency ratios (assessing long-term financial stability). Through these methods, financial analysis provides crucial insights into the economic viability and operational efficiency of an entity, guiding investment decisions and strategic planning.

4.1.1.1 Capital Adequacy Ratio

This ratio is calculated the equity divided by the total assets and this ratio used to evaluate the percent of equity for asset purchase. Is higher is the percent than the debenture holder and creditors are secured when liquidation made. If ratio is low its means outside investment is more than owner investment.

Table 3 shows the capital adequacy ratio of different three development bank and also calculated the mean standard deviation and coefficient of variation of each of the bank. The bank are EDBL, KBBL limited and SBBL. The highest mean found that 21.06 in the SBBL, highest standard deviation is in the SBBL i.e. 22.9 and highest coefficient of variation

108.73% which is in the SBBL. On the basis of the standard deviation and coefficient of variation the capital adequacy ratio is more fluctuating in the SBBL.

Table 3

Years CAR	EDBL	KBBL	SBBL
2023	10.91	7.11	85.63
2022	11.41	6.67	11.03
2021	9.81	6.75	12.08
2020	10.02	8.77	15.31
2019	11.98	8.56	18.45
2018	13.57	10.14	19.58
2017	11.6	11.68	14.57
2016	11.32	10.38	11.43
2015	9.65	10.79	10.55
2014	8.29	9.87	11.97
Mean	10.85	9.07	21.06
SD	1.47	1.78	22.9
CV (%)	13.54	19.62	108.73

Capital Adequacy Ratio

Source: *Appendix – 1 &2*

4.1.1.2 Return on Assets

Return on Assets (ROA) is a financial ratio that indicates how profitable a company is relative to its total assets. It gives an idea of how efficient management is at using its assets to generate earnings.

Table 4
Return on Assets

Years ROA	EDBL	KBBL	SBBL
2023	0.78	0.95	0.23
2022	0.93	1.11	0.83
2021	0.77	1.14	-0.18
2020	1.47	1.07	0.28
2019	1.91	1.65	1.23
2018	2.38	1.66	0.52
2017	1.85	2.48	1.59
2016	1.69	2.79	1.92
2015	1.79	2.4	2.23
2014	0.85	2.5	1.03
Mean	1.44	1.77	.96
SD	.57	.708	.78

CV (%)	39.58	40	81.25

Source: *Appendix – 1 &2*

Table 4 shows the Return on Assets ratio of different three development bank and also calculated the mean standard deviation and coefficient of variation of each of the bank. The bank are EDBL, KBBL limited and SBBL. The highest mean found that; 1.77 in the KBBL limited, highest standard deviation is in the SBBL i.e. 0.78 and highest coefficient of variation 81.25% which is in the sindhu bikash bank imitated. On the basis of the standard deviation and coefficient of variation the Return on Assets is more fluctuating in the SBBL.

4.1.1.3 Return on Equity

Return on Equity (ROE) is a financial ratio that measures a company's ability to generate profits from its shareholders' equity. It indicates how effective the company is at turning the equity invested by shareholders into net income.

Table 5

Years ROE	EDBL	KBBL	SBBL
2023	7.13	13.33	0.27
2022	8.14	16.6	7.49
2021	7.86	16.94	-1.52
2020	14.66	12.15	1.81
2019	15.94	19.24	6.68
2018	17.56	16.36	2.67
2017	15.97	21.23	10.91
2016	14.95	26.88	16.77
2015	18.52	22.25	21.09
2014	10.2	25.38	8.62
Mean	13.09	19.03	7.48
SD	4.31	4.88	7.25
CV (%)	32.92	25.64	96.92

Return on Equity

Source: *Appendix – 1 &2*

Table 5 shows the Return on Equity ratio of different three development bank and also calculated the mean standard deviation and coefficient of variation of each of the bank. The bank are EDBL, KBBL limited and SBBL. The highest mean found that; 19.03 in the KBBL limited, highest standard deviation is in the SBBL i.e. 7.25 and highest coefficient of

variation 96.92% which is in the SBBL. On the basis of the standard deviation and coefficient of variation the Return on Equity is more fluctuating in the SBBL.

4.1.1.4 Liquidity Risk

Liquidity risk is the risk that a company or financial institution will not be able to meet its short-term financial obligations due to an inability to convert assets into cash quickly without incurring a significant loss. This type of risk can arise from a mismatch between the timing of cash inflows and outflows, market conditions, or specific company issues. Here liquidity risk can be calculated thorough current ratio.

Table 6

Years LR	EDBL	KBBL	SBBL
2023	108.11	105.98	109.75
2022	108.45	104.42	104.4
2021	107.96	105.83	107.06
2020	107.77	107.63	110.24
2019	109.14	107.08	118.21
2018	110.14	109.79	120.4
2017	110.35	144.71	114.01
2016	110.29	142.11	109.16
2015	108.31	144.39	108.29
2014	106.7	109.24	109.85
Mean	108.7	118.11	111.13
SD	1.22	17.76	4.97
CV (%)	1.12	15.03	4.47

Liquidity Risk

Source: *Appendix – 1 &2*

Table 6 show the liquidity risk ratio of different three development bank and also calculated the mean standard deviation and coefficient of variation of each of the bank. The bank are EDBL, KBBL limited and SBBL. The highest mean found that; 118.11 in the KBBL limited, highest standard deviation is in the KBBL limited i.e. 17.76 and highest coefficient of variation 15.03% which is in the KBBL imitated. On the basis of the standard deviation and coefficient of variation the liquidity risk is more fluctuating in the KBBL limited.

4.1.1.5 Credit Risk

Credit risk refers to the possibility of a loss resulting from a borrower's failure to repay a loan or meet contractual obligations. It is a fundamental concern for lenders, investors, and any entities that extend credit. Effective management of credit risk involves assessing the borrower's ability to repay, monitoring their financial health, and using various strategies to mitigate potential losses.

Table 7

Years CR	EDBL	KBBL	SBBL
2023	4.88	0.88	1.33
2022	2.52	0.21	1.6
2021	3.14	0.23	2.81
2020	2.76	0.25	1.97
2019	0.63	0.07	1.62
2018	0.64	0.07	2.89
2017	1.33	0.05	0.86
2016	1.76	0.02	1.24
2015	2.79	0.09	1.62
2014	3.76	0.18	1.39
Mean	2.4	.2	1.73
SD	1.35	.25	.65
CV (%)	56.25	125	37.5

Credit Risk

Source: *Appendix – 1 &2*

Table 7 show the Credit Risk ratio of different three development bank and also calculated the mean standard deviation and coefficient of variation of each of the bank. The bank are EDBL, KBBL limited and SBBL. The highest mean found that; 2.4 in the EDBL, highest standard deviation is in the EDBL i.e. 1.35 and highest coefficient of variation 56.25% which is in the EDBL. On the basis of the standard deviation and coefficient of variation the Credit Risk is more fluctuating in the EDBL.

4.1.1.6 Loan Asset

The loan ratio, often referred to as the loan-to-deposit ratio (LDR) or loan-to-assets ratio, is a key financial metric used to evaluate a bank's liquidity and its ability to cover withdrawals made by its customers.

Table 8 show the loan asset ratio of different three development bank and also calculated the mean standard deviation and coefficient of variation of each of the bank. The bank are EDBL, KBBL limited and SBBL. The highest mean found that; 74.07 in the KBBL limited, highest standard deviation is in the EDBL i.e. 10.05 and highest coefficient of variation 17.033% which is in the excel development bank imitated. On the basis of the standard deviation and coefficient of variation the loan asset is more fluctuating in the EDBL.

Table 8

Loan Asset

Years LA	EDBL	KBBL	SBBL
2023	71.32	73.7	72.72
2022	74.05	73.95	71.73
2021	70.15	75.55	72.42
2020	55.7	72.74	63.73
2019	49.72	73.37	62.69
2018	60.02	72.16	54.38
2017	60.57	77.37	61.68
2016	49.99	75.74	65.49
2015	53.49	73.61	55.89
2014	45.01	72.6	59.55
Mean	59.00	74.07	64.028
SD	10.05	1.64	6.61
CV (%)	17.033	2.21	10.32

Source: *Appendix – 1 &2*

4.1.1.7 Leverage Ratio

The leverage ratio is a financial metric that measures the extent to which a company or financial institution is using borrowed money (debt) to finance its assets. It helps assess the level of financial risk and the ability of a company to meet its debt obligations.

Table 9

Leverage Ratio

Years LEV	EDBL	KBBL	SBBL
2023	653.65	1036	84.92
2022	649.3	1108.68	650.33
2021	714.87	1119.28	599.49
2020	555.76	829.55	416.42
2019	414.97	857.36	339.73
2018	442.39	711.53	277.72
2017	521.94	662.25	423.33
2016	441.68	729.56	572.9
2015	554.01	682.29	529.69
2014	542.75	735.63	497.41
Mean	549.13	847.21	439.19
SD	100.11	177.81	170.61
CV (%)	18.23	20.98	38.8

Source: *Appendix – 1 &2*

Table 9 show the leverage ratio of different three development bank and also calculated the mean standard deviation and coefficient of variation of each of the bank. The bank are EDBL, KBBL limited and SBBL. The highest mean found that; 847.21 in the KBBL limited, highest standard deviation is in the KBBL limited i.e. 177.81 and highest coefficient of variation 38.8% which is in the sindhu bikash bank imitated. On the basis of the standard deviation and coefficient of variation the leverage is more fluctuating in the karnali and sindhu bank limited.

4.1.1.7 Gross Domestic Product

Gross Domestic Product (GDP) is a fundamental indicator of a nation's economic performance, representing the total monetary value of all goods and services produced within a country's borders over a specific period, usually a year or a quarter. GDP is calculated using three main approaches: the production (output) approach, which measures the value of output produced by various industries; the income approach, which sums up total national income, including wages, rents, interest, and profits; and the expenditure approach, which adds up all expenditures made in the economy, including consumption, investment, government spending, and net exports (exports minus imports).

Table 10

Gross Domestic Product (GDP)

Years GDP	In billion
2023	38.14
2022	36.29
2021	36.29
2020	34.19
2019	30.64
2018	24.47
2017	21.68
2016	21.18
2015	21.14
2014	21.37
Mean	28.53
SD	7.24
CV (%)	25.37

Source: *Appendix – 1 &2*

Table 10 show the gross domestic product in the billion in the Nepal. Gross domestic factors is the macroeconomic factors in the development bank capital adequacy ratio. The ten year mean, standard deviation and coefficient variation of Nepal is 28.53, 7.24 and 25.37 respectively.

4.1.2 Descriptive Statistics Analysis

The company's strengths and flaws are analyzed and presented. Stronger organizations do better than weaker ones do. Both the organization's strengths and faults provide opportunities for future progress. In this case, a number of ratios are calculated together with their means and standard deviations in order to assess the financial status. The descriptive statistics calculated the minimum, maximum, mean and standard deviation.

Table 11

Descriptive statistics analysis

	N	Minimum	Maximum	Mean	Std. Deviation
Capital Adequacy Ratio	30	6.67	85.63	13.66	13.9
Return on Assets	30	-.18	2.79	1.39	.74
Return on Equity	30	-1.52	26.88	13.20	7.2
Liquidity Risk	30	104.40	144.71	112.65	11.06
Credit Risk	30	.02	4.88	1.45	1.27
Loan to Assets	30	45.01	77.37	65.7	9.29
Leverage Ratio	30	84.92	1119.28	611.8	229.55
Gross Domestic Product	30	21.14	38.14	28.5	6.99
Valid N (listwise)	30				

Source: *Appendix – 1 &2*

Table 11 related to the descriptive statistics analysis of the development bank of Nepal using the three bank as a sample. The total number of observations are 30 which are 10 observations are each of the sample development banks. The minimum, maximum, mean and standard deviations are calculated.

The return on assets is minimum, maximum, mean and standard deviation are -.18, 2.79, 1.39 and .74 respectively. The return on equity is minimum, maximum, mean and standard deviation are -1.52, 26.88, 13.20 and 7.2 respectively. The liquidity risk is minimum, maximum, mean and standard deviation are 104.40, 144.71, 112.65 and 11.06 respectively. The credit risk is minimum, maximum, mean and standard deviation are .02, 4.88, 1.45 and 1.27 respectively. The loan to assets is minimum, maximum, mean and standard deviation are 45.01, 77.37, 65.7 and 9.29 respectively. The leverage ratio is minimum, maximum, mean and standard deviation are 84.92, 1119.28, 611.8 and 229.55 respectively. The gross domestic product is minimum, maximum, mean and standard deviation are 21.14, 38.14, 28.5 and 6.99 respectively.

The given table shows that all the variables have standard deviation higher. The higher standard deviations means the higher variation in the data flow. The higher variation or fluctuating are found in the dependent and independent variables they are; capital adequacy

ratio, return on assets, return on equity, liquidity risk, credit risk, loan to assets, leverage ratio and gross domestic product.

4.1.3 Correlation Analysis

Correlation analysis is a statistical technique used to determine the strength and direction of the relationship between two variables. It reflects how variables are related and can be determined through various methods such as graphical representation or formulaic approaches. The Pearson correlation coefficient, which ranges from -1 to +1, is commonly used to quantify this relationship. A coefficient of -1 indicates a perfect negative correlation, while +1 indicates a perfect positive correlation. This study aims to identify the correlation between selected variables over the study period.

Table 12 related to the correlations analysis of the development bank of Nepal using the three bank as a sample. The total number of observations are 30 which are 10 observations are each of the sample development banks.

The relationship between the capital adequacy ratio and return on assets is negative and not significant so the hypothesis is not true. The negative relationship value is 0.313 and not significant value which is more than 0.05 i.e. 0.093, so the relationship is not significant.

The relationship between the capital adequacy ratio and return on equity is negative and significant so the hypothesis is true. The negative relationship value is 0.420 and significant value which is less than 0.05 i.e. 0.021, so the relationship is significant.

The relationship between the capital adequacy ratio and liquidity ratio is positive and not significant so the hypothesis is not true. The positive relationship value is 0.003 and not significant value which is more than 0.05 i.e. 0.987, so the relationship is not significant.

Table 12

Correlations analysis

		CAR	ROA	ROE	LR	CR	LA	LVR	GDP
CAR	Pearson Correlation	1							
	Sig. (2-tailed)								
	N	30							
ROA	Pearson Correlation	-.313	1						
	Sig. (2-tailed)	.093							
	N	30	30						
ROE	Pearson Correlation	-.420*	.927**	1					
	Sig. (2-tailed)	.021	.000						
	N	30	30	30					
LR	Pearson Correlation	.003	.504**	.380*	1				
	Sig. (2-tailed)	.987	.005	.038					
	N	30	30	30	30				
CR	Pearson Correlation	.027	-.551**	-.588**	-.328	1			
	Sig. (2-tailed)	.889	.002	.001	.077				
	N	30	30	30	30	30			
LA	Pearson Correlation	.073	-.032	.092	.242	-.410*	1		
	Sig. (2-tailed)	.703	.867	.627	.197	.024			
	N	30	30	30	30	30	30		
LVR	Pearson Correlation	-.580**	.122	.432*	-.084	-.339	.555**	1	
	Sig. (2-tailed)	.001	.522	.017	.659	.067	.001		
	N	30	30	30	30	30	30	30	
GDP	Pearson Correlation	.210	-.690**	-.548**	-.439*	.229	.425*	.272	1
	Sig. (2-tailed)	.265	.000	.002	.015	.224	.019	.146	
	N	30	30	30	30	30	30	30	30

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).
Source: *Appendix-1&2*

The relationship between the capital adequacy ratio and credit risk is positive and not significant so the hypothesis is not true. The positive relationship value is 0.027 and not significant value which is more than 0.05 i.e. 0.889, so the relationship is not significant.

The relationship between the capital adequacy ratio and loan assets ratio is positive and not significant so the hypothesis is not true. The positive relationship value is 0.073 and not significant value which is more than 0.05 i.e. 0.703, so the relationship is not significant.

The relationship between the capital adequacy ratio and leverage is negative and significant so the hypothesis is true. The negative relationship value is 0.58 and significant value which is less than 0.05 i.e. 0.0001, so the relationship is significant.

The relationship between the capital adequacy ratio and gross domestic product is positive and not significant so the hypothesis is not true. The positive relationship value is 0.21 and not significant value which is more than 0.05 i.e. 0.265, so the relationship is not significant.

4.1.4 Regression analysis

Predicting how the dependent variable will vary in response to changes in the independent variables is the goal of regression analysis. It may be understood as the likelihood that your multiple regressions will be a good predictor. A multiple determination may also be seen as the proportion of variance in the dependent variables that the regression equation can account for.

Table 13

Model summary of regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.921[a]	.847	.799	6.23

a. Predictors: (Constant), Gross Domestic Product, Credit Risk , Leverage Ratio, Liquidity Risk , Loan to Assets, Return on Assets , Return on Equity

Source: *Appendix-1&2*

Table 13 present the model summary of the 30 observation of three development banks of 10 each of bank. Here adjusted R square is 0.799, its represent the goodness of fit. The cumulatively the independent variable namely Gross Domestic Product, Credit Risk , Leverage Ratio, Liquidity Risk , Loan to Assets, Return on Assets , Return on Equity variation made to the dependent variable called capital adequacy ratio by 79.9%. Remaining 20.1% is by other variable.

Table 14

ANOVA of regression

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4750.268	7	678.610	17.447	.000[b]
	Residual	855.688	22	38.895		
	Total	5605.955	29			

a. Dependent Variable: Capital Adequacy Ratio

b. Predictors: (Constant), Gross Domestic Product, Credit Risk , Leverage Ratio, Liquidity Risk , Loan to Assets, Return on Assets , Return on Equity

Source: *Appendix-1&2*

Table 14 present ANOVA of the three development bank of Nepal. Here is the 10 observation of each bank in total 30 observations. The dependent variable is capital adequacy ratio and independent variables called predictor are gross domestic product, credit risk, leverage ratio, liquidity risk, and loan to assets, return on assets, and return on equity. Here is multiple regression value is significant because significant value is less than 5% i.e. 0.000. The regression is very strong.

Table 15

Coefficient of regression

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	14.563	17.941		.812	.426
	Return on Assets	-41.141	8.108	-2.217	-5.074	.000
	Return on Equity	4.623	.912	2.410	5.070	.000
	Liquidity Risk	-.063	.150	-.050	-.422	.677
	Credit Risk	-2.637	1.290	-.241	-2.043	.050
	Loan to Assets	.895	.222	.599	4.027	.001
	Leverage Ratio	-.112	.013	-1.846	-8.881	.000
	Gross Domestic Product	.562	.304	.283	1.846	.078

a. Dependent Variable: Capital Adequacy Ratio

Source: *Appendix-1&2*

Table 15 present coefficient of regression of the three development bank of Nepal. Here is the 10 observation of each bank in total 30 observations. The dependent variable is capital adequacy ratio and independent variables called predictor are gross domestic product, credit risk, leverage ratio, liquidity risk, and loan to assets, return on assets, and return on equity. The beta, standard error and significant are calculated here under.

The impact of return on assets on capital adequacy ratio is negative and the impact is significant so the hypothesis of the statement is true. The negative beta 41.141 represent the 1 percent change into the return on assets 41.14 percent change into the capital adequacy ratio. The standard error is 8.108 which is higher it means the low accuracy of calculations. The significant impact because the significant value is less than 0.05 i.e. 0.000.

The impact of return on equity on capital adequacy ratio is positive and the impact is significant so the hypothesis of the statement is true. The positive beta 4.623 represent the 1 percent change into the return on equity 4.623 percent change into the capital adequacy ratio. The standard error is 0.912 which is low it means the higher accuracy of calculations. The significant impact because the significant value is less than 0.05 i.e. 0.000.

The impact of liquidity risk on capital adequacy ratio is negative and the impact is not significant so the hypothesis of the statement is not true. The negative beta 0.063 represent the 1 percent change into the liquidity risk 0.063 percent change into the capital adequacy ratio. The standard error is 0.15 which is low it means the higher accuracy of calculations. The not significant impact because the significant value is more than 0.05 i.e. 0.677.

The impact of credit risk on capital adequacy ratio is negative and the impact is significant so the hypothesis of the statement is true. The negative beta 2.637 represent the 1 percent change into the credit risk 2.637 percent change into the capital adequacy ratio. The standard error is 1.29 which is higher it means the low accuracy of calculations. The significant impact because the significant value is less than 0.05 i.e. 0.05.

The impact of loan to assets ratio on capital adequacy ratio is positive and the impact is significant so the hypothesis of the statement is true. The positive beta 0.895 represent the 1 percent change into the loan to assets ratio.895 percent change into the capital adequacy ratio. The standard error is 0.222 which is low it means the higher accuracy of calculations. The significant impact because the significant value is less than 0.05 i.e. 0.001.

The impact of leverage ratio on capital adequacy ratio is negative and the impact is significant so the hypothesis of the statement is true. The negative beta 0.112 represent the 1 percent change into the leverage ratio .112 percent change into the capital adequacy ratio. The standard error is 0.013 which is low it means the higher accuracy of calculations. The significant impact because the significant value is less than 0.05 i.e. 0.000.

The impact of loan to assets ratio on capital adequacy ratio is positive and the impact is not significant so the hypothesis of the statement is true. The positive beta 0.562 represent the 1 percent change into the loan to assets ratio 0.562 percent change into the capital adequacy ratio. The standard error is 0.304 which is low it means the higher accuracy of calculations. The not significant impact because the significant value is more than 0.05 i.e. 0.078.

4.2 Discussion

The first objective of research is to assess the current status of the return on assets, return on equity, liquidity risk, credit risk, and debt to assets ratio, loan to assets, leverage ratio, gross domestic product and capital adequacy ratio of Nepalese development banks. It is found that the capital adequacy ratio is more fluctuating in the SBBL, return on assets is more fluctuating in the SBBL, return on equity is more fluctuating in the SBBL, liquidity risk is more fluctuating in the KBBL limited, credit risk is more fluctuating in the EDBL, loan asset is more fluctuating in the EDBL and leverage is more fluctuating in the Karnali and Sindhu bank limited. The result is consistent with the result of Aryal (2016). The higher variation or fluctuating are found in the dependent and independent variables they are; capital adequacy ratio, return on assets, return on equity, liquidity risk, credit risk, loan to assets, leverage ratio and gross domestic product. The result is consistent with the result of Balili & Tola, (2023).

The second objectives of research is to examine the relationship of return on assets, return on equity, liquidity risk, credit risk, and debt to assets ratio, loan to assets, leverage ratio, and gross domestic product to the capital adequacy ratio of Nepalese development banks. It is found that the relationship between the capital adequacy ratio and return on assets is negative and not significant so the hypothesis is not true. The result is consistent with the result of Gharaibeh, (2023). The relationship between the capital adequacy ratio and return on equity is negative and significant so the hypothesis is true. The result is consistent with the result of Naoaj, (2023). The relationship between the capital adequacy ratio and liquidity ratio is

positive and not significant so the hypothesis is not true. The result is consistent with the result of Shrestha, (2023). The relationship between the capital adequacy ratio and credit risk is positive and not significant so the hypothesis is not true. The result is consistent with the result of Ehiedu, (2022). The relationship between the capital adequacy ratio and loan assets ratio is positive and not significant so the hypothesis is not true. The result is consistent with the result of Tran & Pham, (2022). The relationship between the capital adequacy ratio and leverage is negative and significant so the hypothesis is true. The result is consistent with the result of Setiawan & Muchtar, (2021). The relationship between the capital adequacy ratio and gross domestic product is positive and not significant so the hypothesis is not true. The result is consistent with the result of Vu & Dang, (2020).

The third objectives of research is to analyze the impact of return on assets, return on equity, liquidity risk, credit risk, and debt to assets ratio, loan to assets, leverage ratio, and gross domestic product on the capital adequacy ratio of Nepalese development banks. It is found that the impact of return on assets on capital adequacy ratio is negative and the impact is significant so the hypothesis of the statement is true. The result is consistent with the result of Abiodun et al., (2020). The impact of return on equity on capital adequacy ratio is positive and the impact is significant so the hypothesis of the statement is true. The result is consistent with the result of Thoa et al., (2020). The impact of liquidity risk on capital adequacy ratio is negative and the impact is not significant so the hypothesis of the statement is not true. The result is consistent with the result of Sunaryo et al., (2020). The impact of credit risk on capital adequacy ratio is negative and the impact is significant so the hypothesis of the statement is true. The result is consistent with the result of Timilsina, (2020). The impact of loan to assets ratio on capital adequacy ratio is positive and the impact is significant so the hypothesis of the statement is true. The result is consistent with the result of Usman et al., (2019). The impact of leverage ratio on capital adequacy ratio is negative and the impact is significant so the hypothesis of the statement is true. The result is consistent with the result of Abba et al., (2018). The impact of loan to assets ratio on capital adequacy ratio is positive and the impact is not significant so the hypothesis of the statement is true. The result is consistent with the result of Paudel & Khanal, (2015).

CHAPTER- V

SUMMARY AND CONCLUSION

Summery gives a very thorough explanation of the study method from start to finish, covering every aspect of the research activity. The thesis desertion work contains a summary at the end. The summary, the conclusion, and the inference are the three components that this chapter explains. The research's possible future uses were discussed.

5.1 Summary

Capital in this context refers to the bank's core capital, which includes common equity, preferred stock, and certain reserves. Risk-weighted assets are a measure of a bank's assets adjusted for the level of risk associated with each asset. For example, cash and government securities typically have a lower risk weight compared to loans and other investments. A development bank is a financial institution that provides a range of services to individuals, businesses, and governments. These services typically include accepting deposits, providing loans, issuing credit cards, facilitating money transfers, and offering various investment products. The Capital Adequacy Ratio (CAR) of a bank is influenced by several key determinants that collectively shape its financial resilience and regulatory compliance. Firstly, regulatory requirements established by supervisory bodies mandate minimum CAR thresholds, typically based on international standards like the Basel Accords. Externally, the regulatory environment plays a pivotal role. The directives and requirements set by the Nepal Rastra Bank (NRB), the central bank of Nepal, mandate minimum CAR thresholds that banks must adhere to, thereby influencing their capital management strategies. Economic conditions, such as GDP growth, inflation, and interest rates, also affect the CAR by impacting the overall financial health of the banking sector and the broader economy. Favorable economic conditions typically lead to increased lending and investment opportunities, which can enhance a bank's profitability and, subsequently, it’s CAR. Conversely, economic downturns can strain capital reserves due to higher loan defaults and reduced profitability. Lastly, market competition compels banks to maintain robust capital levels to safeguard against potential losses and to maintain customer and investor confidence.

Therefore, a comprehensive understanding of both internal mechanisms and external pressures is essential for assessing and managing the CAR in Nepalese development banks.

The problem of the statement of the study are What are the current status of the Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, Gross Domestic Product and Capital Adequacy Ratio of Nepalese development banks? Is there any relationship of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product to the Capital Adequacy Ratio of Nepalese development banks? Do Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product have impact on Capital Adequacy Ratio of Nepalese development banks? The problem are solve using the objectives they are To assess the current status of the Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, Gross Domestic Product and Capital Adequacy Ratio of Nepalese development banks. To examine the relationship of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product to the Capital Adequacy Ratio of Nepalese development banks. To analyze the impact of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product on the Capital Adequacy Ratio of Nepalese development banks. The article reviewed from the google scholar. In Nepalese context article from the google scholar, TU sites and shanker dev campus library. This research has utilized descriptive and casual comparative research designs to address issues related to the determinants of capital adequacy ratio. Sample is selected using random sampling method. Secondary data are used in this research. Financial and statistical analysis are conducted. It is found that the higher variation or fluctuating are found in the dependent and independent variables they are; capital adequacy ratio, return on assets, return on equity, liquidity risk, credit risk, loan to assets, leverage ratio and gross domestic product. The relationship of return on equity and leverage has significant to the capital adequacy ratio. The return on equity, liquidity ratio, credit risk, loan to assets ratio and gross domestic product have not significant relationship to the capital adequacy ratio. The impact of return on assets, return on equity, credit risk, loan to assets ratio and leverage ratio significantly impacted to the capital

adequacy ratio. The liquidity ratio and gross domestic product have not significant impact to the capital adequacy ratio.

5.2 Conclusion

The first objectives of the study is to assess the current status of the Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, Gross Domestic Product and Capital Adequacy Ratio of Nepalese development banks. It is found that that the higher variation or fluctuating are found in the dependent and independent variables they are; capital adequacy ratio, return on assets, return on equity, liquidity risk, credit risk, loan to assets, leverage ratio and gross domestic product. In conclusion all the independent and dependent variables are fluctuating in nature.

The second objectives of the study is to examine the relationship of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product to the Capital Adequacy Ratio of Nepalese development banks. It is found that that the relationship of return on equity and leverage has significant to the capital adequacy ratio. The return on equity, liquidity ratio, credit risk, loan to assets ratio and gross domestic product have not significant relationship to the capital adequacy ratio. . In conclusion the relationship of return on equity and leverage has significant to the capital adequacy ratio.

The third objectives of the study is to analyze the impact of Return on Assets, Return on Equity, Liquidity Risk, Credit Risk, and Debt to Assets Ratio, Loan to Assets, Leverage Ratio, and Gross Domestic Product on the Capital Adequacy Ratio of Nepalese development banks. It is found that the impact of return on assets, return on equity, credit risk, loan to assets ratio and leverage ratio significantly impacted to the capital adequacy ratio. The liquidity ratio and gross domestic product have not significant impact to the capital adequacy ratio. . In conclusion the impact of return on assets, return on equity, credit risk, loan to assets ratio and leverage ratio significantly impacted to the capital adequacy ratio.

5.3 Implications

The study on the determinants of the Capital Adequacy Ratio (CAR) in Nepalese development banks has several significant implications for various stakeholders. For regulators, such as the Nepal Rastra Bank, the findings provide critical insights into how

different internal and external factors influence banks' capital buffers, aiding in the formulation of more effective regulatory policies and supervision strategies to ensure the stability and resilience of the banking sector. For bank management, understanding these determinants allows for better strategic planning and risk management, enabling them to optimize their capital structures and improve overall financial health.

Investors and shareholders can use this knowledge to make informed decisions regarding their investments in development banks by assessing the institutions' capital adequacy and associated risks. Additionally, the study contributes to the academic literature by filling gaps in research specific to the Nepalese context, offering a foundation for future research on banking sector stability and performance.

Ultimately, the implications extend to the broader economy, as well-capitalized banks are better positioned to support economic growth through increased lending and investment, thereby enhancing financial inclusion and development in Nepal.

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APPENDIXES

1) Excel Development bank

Year	Equity	Total Assets	Current assets	Current liabilities	Total loan	Non-performing loan	Net profit after tax
2080	1,767	16,194	15596	14426	11550	564	126
2079	1633	14318	13756	12684	10603	267	133
2078	1,311	13,359	13006	12047	9372	294	103
2077	1,146	11,434	11086	10287	6369	176	168
2076	1029	8588	8250	7559	4270	27	164
2075	854	6295	5983	5432	3778	24	150
2074	620	5343	5205	4717	3236	43	99
2073	475	4197	4105	3722	2098	37	71
2072	324	3356	3284	3032	1795	50	60
2071	255	3075	3009	2820	1384	52	26

Rs in million

Year	Equity	Total assets	Current assets	Current liabilities	Total loan	Non-performing loan	Net profit after tax
2080	9363	131611	128230	121000	97001	851	1248

2) Muktinath Bikash Bank

Rs in million

2079	8076	121083	116696	111755	89537	188	1341
2078	6826	101126	99797	94300	76402	176	1156
2077	5818	66348	65149	60529	48263	123	707
2076	4449	51991	50907	47541	38144	27	856
2075	3514	34649	34188	31140	25003	18	575
2074	2289	19592	19262	13311	15159	7	486
2073	1343	12936	12584	8855	9798	2	361
2072	971	9000	11593	8029	6625	6	216
2071	595	6029	5937	5435	4377	8	151

Year	Equity	Total assets	Current assets	Current liabilities	Total loan	Non-performing loan	Net profit after tax
2080	4769	5569	5234	4769	4050	54	13
2079	614	5567	5170	4952	3993	64	46
2078	594	4917	4627	4322	3561	100	-9
2077	609	3979	3714	3369	2536	50	11
2076	599	3246	3129	2647	2035	33	40
2075	561	2865	2774	2304	1558	45	15
2074	330	2265	2206	1935	1397	12	36
2073	155	1356	1311	1201	888	11	26
2072	128	1213	1175	1085	678	11	27
2071	116	969	937	853	577	8	10

3) Sindhu Bikash bank

Rs in million

Here is the data for Nepal's GDP (in billion USD) from 2014 to 2023:

Year	**GDP (in billion USD)**
2023	38.14
2022	36.29
2021	36.29
2020	34.19
2019	30.64
2018	24.47
2017	21.68

Year	GDP (in billion USD)
2016	21.18
2015	21.14
2014	21.37

Appendix 2

Result from spss analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.921[a]	.847	.799	6.23658

a. Predictors: (Constant), Gross Domestic Product, Credit Risk , Leverage Ratio, Liquidity Risk , Loan to Assets, Return on Assets , Return on Equity

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4750.268	7	678.610	17.447	.000[b]
	Residual	855.688	22	38.895		
	Total	5605.955	29			

a. Dependent Variable: Capital Adequacy Ratio

b. Predictors: (Constant), Gross Domestic Product, Credit Risk , Leverage Ratio, Liquidity Risk , Loan to Assets, Return on Assets , Return on Equity

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	14.563	17.941		.812	.426
	Return on Assets	-41.141	8.108	-2.217	-5.074	.000
	Return on Equity	4.623	.912	2.410	5.070	.000
	Liquidity Risk	-.063	.150	-.050	-.422	.677
	Credit Risk	-2.637	1.290	-.241	-2.043	.050
	Loan to Assets	.895	.222	.599	4.027	.001
	Leverage Ratio	-.112	.013	-1.846	-8.881	.000
	Gross Domestic Product	.562	.304	.283	1.846	.078

a. Dependent Variable: Capital Adequacy Ratio

Correlations

		CAR	ROA	ROE	LR	CR	LA	LVR	GDP
CAR	Pearson Correlation	1	-.313	-.420*	.003	.027	.073	-.580**	.210
	Sig. (2-tailed)		.093	.021	.987	.889	.703	.001	.265
	N	30	30	30	30	30	30	30	30
ROA	Pearson Correlation	-.313	1	.927**	.504**	-.551**	-.032	.122	-.690**
	Sig. (2-tailed)	.093		.000	.005	.002	.867	.522	.000
	N	30	30	30	30	30	30	30	30
ROE	Pearson Correlation	-.420*	.927**	1	.380*	-.588**	.092	.432*	-.548**
	Sig. (2-tailed)	.021	.000		.038	.001	.627	.017	.002
	N	30	30	30	30	30	30	30	30
LR	Pearson Correlation	.003	.504**	.380*	1	-.328	.242	-.084	-.439*
	Sig. (2-tailed)	.987	.005	.038		.077	.197	.659	.015
	N	30	30	30	30	30	30	30	30
CR	Pearson Correlation	.027	-.551**	-.588**	-.328	1	-.410*	-.339	.229
	Sig. (2-tailed)	.889	.002	.001	.077		.024	.067	.224
	N	30	30	30	30	30	30	30	30

LA	Pearson Correlation	.073	-.032	.092	.242	-.410*	1	.555**	.425*
	Sig. (2-tailed)	.703	.867	.627	.197	.024		.001	.019
	N	30	30	30	30	30	30	30	30
LVR	Pearson Correlation	-.580**	.122	.432*	-.084	-.339	.555**	1	.272
	Sig. (2-tailed)	.001	.522	.017	.659	.067	.001		.146
	N	30	30	30	30	30	30	30	30
GDP	Pearson Correlation	.210	-.690**	-.548**	-.439*	.229	.425*	.272	1
	Sig. (2-tailed)	.265	.000	.002	.015	.224	.019	.146	
	N	30	30	30	30	30	30	30	30

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

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

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Capital Adequacy Ratio	30	6.67	85.63	13.6634	13.90355
Return on Assets	30	-.18	2.79	1.3946	.74914
Return on Equity	30	-1.52	26.88	13.2029	7.24753
Liquidity Risk	30	104.40	144.71	112.6587	11.06553
Credit Risk	30	.02	4.88	1.4531	1.27009
Loan to Assets	30	45.01	77.37	65.7033	9.29969
Leverage Ratio	30	84.92	1119.28	611.8464	229.55240
Gross Domestic Product	30	21.14	38.14	28.5390	6.99197
Valid N (listwise)	30				

Descriptive Statistics[a]

	N	Mean	Std. Deviation
Capital Adequacy Ratio	10	21.0608	22.90345
Return on Assets	10	.9674	.78202
Return on Equity	10	7.4805	7.25389
Liquidity Risk	10	111.1365	4.97121
Credit Risk	10	1.7333	.65637
Loan to Assets	10	64.0285	6.61804
Leverage Ratio	10	439.1954	170.61148
Gross Domestic Product	10	28.5390	7.24631
Valid N (listwise)	10		

a. bank name = Sindhu Bikash bank

Year	CAR	ROA	ROE	LR	CR	LA	LVR	GDP
2023	10.91	0.78	7.13	108.11	4.88	71.32	653.65	38.14
2022	11.41	0.93	8.14	108.45	2.52	74.05	649.3	36.29
2021	9.81	0.77	7.86	107.96	3.14	70.15	714.87	36.29
2020	10.02	1.47	14.66	107.77	2.76	55.7	555.76	34.19
2019	11.98	1.91	15.94	109.14	0.63	49.72	414.97	30.64
2018	13.57	2.38	17.56	110.14	0.64	60.02	442.39	24.47
2017	11.6	1.85	15.97	110.35	1.33	60.57	521.94	21.68
2016	11.32	1.69	14.95	110.29	1.76	49.99	441.68	21.18
2015	9.65	1.79	18.52	108.31	2.79	53.49	554.01	21.14
2014	8.29	0.85	10.2	106.7	3.76	45.01	542.75	21.37
2023	7.11	0.95	13.33	105.98	0.88	73.7	1036	38.14
2022	6.67	1.11	16.6	104.42	0.21	73.95	1108.68	36.29
2021	6.75	1.14	16.94	105.83	0.23	75.55	1119.28	36.29
2020	8.77	1.07	12.15	107.63	0.25	72.74	829.55	34.19
2019	8.56	1.65	19.24	107.08	0.07	73.37	857.36	30.64
2018	10.14	1.66	16.36	109.79	0.07	72.16	711.53	24.47
2017	11.68	2.48	21.23	144.71	0.05	77.37	662.25	21.68
2016	10.38	2.79	26.88	142.11	0.02	75.74	729.56	21.18
2015	10.79	2.4	22.25	144.39	0.09	73.61	682.29	21.14
2014	9.87	2.5	25.38	109.24	0.18	72.6	735.63	21.37
2023	85.63	0.23	0.27	109.75	1.33	72.72	84.92	38.14
2022	11.03	0.83	7.49	104.4	1.6	71.73	650.33	36.29
2021	12.08	-0.18	-1.52	107.06	2.81	72.42	599.49	36.29
2020	15.31	0.28	1.81	110.24	1.97	63.73	416.42	34.19
2019	18.45	1.23	6.68	118.21	1.62	62.69	339.73	30.64
2018	19.58	0.52	2.67	120.4	2.89	54.38	277.72	24.47
2017	14.57	1.59	10.91	114.01	0.86	61.68	423.33	21.68

2016	11.43	1.92	16.77	109.16	1.24	65.49	572.9	21.18
2015	10.55	2.23	21.09	108.29	1.62	55.89	529.69	21.14
2014	11.97	1.03	8.62	109.85	1.39	59.55	497.41	21.37

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ABSTRACT The objectives of study **are to** assess **the current status of**

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