IMPACT OF REGULATORY CHANGES ON BANKS AND FINANCIAL INSTITUTION IN NEPAL

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 IMPACT OF REGULATORY CHANGES ON BANKS AND FINANCIAL INSTITUTION IN NEPAL. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirement for any academic purposes.

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

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REPORT OF RESEARCH COMMITTEE

Mr. Gopikrishna Lamichhane has defended research proposal entitled IMPACT OF REGULATORY CHANGES ON BANKS AND FINANCIAL INSTITUTION IN NEPAL 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 Keshar Singh Khati of Shanker Dev Campus, T.U. and submit the thesis for evaluation and viva voce examination.

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APPROVAL SHEET

We have examined the dissertation entitled IMPACT OF REGULATORY CHANGES ON BANKS AND FINANCIAL INSTITUTION IN NEPAL presented by Mr. Gopikrishna Lamichhane for the degree of Master of Business Studies. We hereby certify that the dissertation is acceptable for the award of degree.

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ABBREVIATIONS

ANOVA	Analysis of Variance
CAR	Capital Adequacy Ratio
CDR	Credit Deposit Ratio
CRR	Cash Reserve Ratio
CV	Coefficient of Variation
HBL	Himalayan Bank Limited
ISR	Interest Spread Rate
LIQ	Liquidity Ratio
NABIL	Nabil Bank Limited
NICA	NIC Asia Bank Limited
NPLR	Non-performing Loan Ratio
ROA	Return on Assets
ROE	Return on Equity
SANIMA	Sanima Bank Limited
SBL	Siddhartha Bank Limited
SD	Standard Deviation
SIZE	Total Assets of the Bank
SPSS	Statistical Package for Social Sciences
TU	Tribhuvan University
VIF	Variance Inflation Factor

ABSTRACT

The main objective of the study is to analyze the impact of financial regulatory changes on the financial institutions in Nepal. This study examines impact of regulatory factors such as capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, non-performing loan ratio and bank size on profitability as return on assets and return on equity of selected commercial banks. The study is totally based on secondary sources of data collected from published annual reports of sample banks selected for this study and the study covers the data of sample banks from year 2013/14 to 2022/23. This study used descriptive and causal research design. In this study data collected from the different sample banks are arranged in the panel data set and analyzed with the help of SPSS software. It was found that that credit deposit ratio, liquidity ratio and non-performing loan ratio have significant negative effect on return on assets of the banks, whereas capital adequacy ratio and bank size have insignificant effect on return on assets of the banks. Likewise, it is also concluded that there is significant negative effect of credit deposit ratio and non-performing loan ratio on return on equity of the banks. However, there is significant positive effect of interest spread rate on return on equity of the banks. The capital adequacy ratio, liquidity ratio and bank size have no significant negative effect of return on equity of the banks. The results of this study help the policy makers to take effective action in order to improve banks' profitability by managing these regulatory factors of the profitability.

Keywords: *Capital Adequacy Ratio, Credit Deposit Ratio, Liquidity Ratio, Interest Spread Rate, Non-performing Loan Ratio, Bank Size, Return on Assets and Return on Equity*

CHAPTER I
INTRODUCTION

1.1 Background of the Study

A stable, effective, and sustainable banking system is essential for an economy to grow. The frameworks that govern the establishment, management, and dissolution of banks in any given economy are known as banking regulations. The country's finance minister and central bank are in charge of establishing these frameworks, which serve as the regulatory supervisory authority over the banking system (Banerjee & Majumdar, 2017). Traditional economic theory lists three primary goals for financial regulation: reducing the use of monopolies; preventing issues resulting from competition in the financial market to maintain market integrity; and determining whether the overall cost of market failure exceeds both private costs of failure and regulatory costs (Haris et al., 2020).

Intermediaries in the financial market assist in managing the risks and other uncertainties related to financial transactions. They make an effort to address these issues, yet financial intermediation only shifts, lessens, or does not entirely eradicate these issues. Thus, the financial market, which includes banks and other financial infrastructure, needs to be regulated and overseen in order to support the economy. They are required to increase the financial markets' efficiency, which in turn promotes the nation's economic expansion. Failure of the financial market is mostly caused by issues with costs and information (Dhungana, 2016).

Financial regulations employ a range of prudential regulations, policies, and circulars to tackle these issues. Financial regulation's primary objective has historically been to shield both knowledgeable and ignorant customers from different market defects. Preventing credit risk resulting from the flotation of loans to unworthy creditors, which could jeopardize depositors' funds, both individual and institutional, is the primary objective of banking regulation and supervision (Heremans & Pacces, 2018).

The phrase "capital structure" in finance describes how an organization is financed using a mix of short and long-term resources. Capital structure is one of the most

important and crucial decisions that any organization must make due to its influence on the performance of the company. It matters because businesses need to maximize their profits and because that choice affects how well the business can function in its competitive environment. For the banking sector as a whole, the relationship between capital structure and financial performance is essential (Hanson et al., 2019). The banking sector is very susceptible to changes in financial leverage due to its low equity capital to total asset ratio. Furthermore, the capital structure of banks is strictly regulated (Chalise & Adhikari, 2022).

Likewise, a liquid shortage impacts the commercial banks' brand and results in increased expenses due to the increased cost of obtaining liquidity. As a result, the commercial banks have to balance the risks associated with liquidity and profitability (Wuave et al., 2020). There are numerous ways to evaluate a bank's liquidity state, but only a limited number of methods can provide an exhaustive estimate of the bank's liquidity. A bank may be able to meet the requirements for certain liquidity ratios while still having insufficient liquid assets and liabilities. For all of these reasons, banks must continuously evaluate and examine their liquidity from a variety of angles in order to be able to make timely and informed management choices as well as to enhance it going forward (Chaudhary et al., 2021).

The goal of Nepal Rastra Bank (NRB), the country's central bank, was to uphold pricing, balance of payments (BOP), and overall financial sector stability in order to promote Nepal's long-term, sustainable growth. Its establishment was to preserve stability within the banking and financial industry. The NRB strictly regulates the operation of Nepal's banking sector, and the BFIs that are founded there abide by the rules, regulations, directives, and circulars that the NRB issues (Nepal Rastra Bank, 2022).

There is a relationship between rules and financial performance in financial institutions, according to the macro and micro prudential theories. These ideas contend that notwithstanding the possibility that laws will require a bank to reduce its holdings or look to the stock market for new funding, they must be implemented and upheld. The ideas seek to safeguard the interests of taxpayers while establishing economic stability.

This might have the impact of making commercial banks' financial performance less robust (Hanson et al., 2019).

All commercial banks aim to have strong financial performance because without it, they cannot remain in business over the long term. Determining the specific combination of rules and supervision requirements that support the smooth operation of commercial banks is made possible by research on financial performance, which makes it essential for advising policymakers on the best course of action. The evaluation of a commercial bank's capital sufficiency serves as a proxy for its financial health. The total capital to total RWA ratio is calculated in order to assess it. Liquidity ratios, credit deposit ratio, interest spread rate, loan loss provision ratios, and bank size are also used to gauge financial performance. The ability of a bank to receive interest from investments as and when they become due is gauged by the interest spread rate. Bank financial success is also determined by investment ratios like return on assets (ROA) and return on equity (ROE).

1.2 Problem Statement

Numerous studies conducted in the past have concluded that banking rules improve the efficiency of banks. Heremans and Pacces' (2018) stated that banking regulation enhances banking efficiency. An effective financial system in the country may be maintained with the right amount of banking rules.

Nonetheless, a number of studies have indicated that cost effectiveness is not as important as profit efficiency in the banking industry. While cost efficiency does not account for improved performance, profit efficiency does take this aspect of the firm into account (Almah, 2020). Numerous studies have examined how banking laws affect bank efficiency; however, the majority of these studies concentrate on the cost-efficiency of banks, with relatively few examining the effects of these restrictions on profit-efficiency (Hanson et al., 2019).

Although many nations, particularly the EMEs, find it difficult to implement financial laws, over time they help to fortify banking systems. Certain components of regulation can be focused on helping these nations achieve their development goals without compromising sound regulation and considerations for the stability of the financial

system (Chalise & Adhikari, 2022). The Nepal Rastra Bank makes the case that higher capital requirements are necessary for the stability of the financial sector and that banks with large capital bases are better able to weather market fluctuations (Nepal Rastra Bank, 2022).

These banks won't be able to offer loans if their capital requirements aren't met. Naturally, banks might attempt to avert this scenario by amassing greater capital and evading capital constraints (Dhungana, 2016). However, because capital is expensive, this could have an impact on bank lending levels and, consequently, market activity. Overregulating banks' capital runs the risk of impeding the expansion of national financial systems, making it more difficult to utilize domestic deposits, preventing nations from accessing foreign capital, and eventually resulting in slower growth (Hanson et al., 2019).

Discretionary funds should be readily available to the bank at a reasonable cost at the precise time when it needs them. Often, inadequate liquidity is one of the first signs that a bank is experiencing serious financial issues, such low profitability. Inefficiencies and defects in the financial statement analysis process affect the banks' financial performance (Christopoulos et al., 2013). The ratio of the bank's total deposit to its bank balance is used to determine the bank's liquidity, which helps to reduce the short-term risk of bank collapse. The bank may be unable to pay its depositors and make its regular payments if it does not have enough liquidity. Since the bank's ability to operate on a regular basis is influenced by its liquidity, the bank's performance is also closely related to its liquidity (Kosumi & Kosumi, 2021).

Because of increased competition among banks, interest rates on savings and loans are on the down. Non-performing assets have become a major issue for commercial banks. Commercial banks are required by NRB guidelines to set aside a specific percentage of their profits for bad loans and non-performing assets (Bhattarai, 2016). Is credit risk management important to commercial banks in practice? If it does, it should make a considerable contribution to earnings since strong profits are expected to increase shareholder value. Similarly, credit policies are not structured, and there is no clear vision of policy on credit elements. Loan acceptance and credit choices in Nepal have been shown to be flexible in order to promote personal networks as well (Mutua &

Gekara, 2017). Most commercial banks in Nepal have been shown to approve loans without sufficient inspections, potentially increasing the amount of loan defaults and non-performing loans. Furthermore, it is argued that Nepal's current credit risk management methods are insufficient to deal with the country's current credit risk concerns (Bhattarai, 2019).

There are many literatures that support that regulations have an impact in the banking system and there is literature focused on finding the determinants of profitability of banks in Nepal (Dhungana, 2016). There are few studies assessing how restrictions affect banking efficiency, particularly profit efficiency. The study topic is: What impact do changes in regulations have on the financial performance of commercial banks in Nepal? This is because several studies indicate that the true impact of laws is not well understood. This study attempts to close this knowledge gap and determine how banking regulations affect Nepali banks' profitability. The specific research questions try to solve in this study are as follows;

i. What is the position of regulatory factors and profitability of selected commercial banks?
ii. Is there any relationship between regulatory factors and profitability of selected commercial banks?
iii. What is the impact of regulatory factors on profitability of selected commercial banks?

1.3 Objectives of the Study

The main objective of the study is to analyze the impact of financial regulatory changes on the financial institutions in Nepal. The specific objectives of the study are:

i. To assess the position of regulatory factors and profitability of selected commercial banks.
ii. To analyze relationship between regulatory factors and profitability of selected commercial banks.
iii. To examine impact of regulatory factors on profitability of selected commercial banks.

1.4 Hypothesis of the Study

As per the study objectives, the following hypothesis are used to test the significance of the regulatory variables on profitability of commercial banks.

H1: Capital adequacy ratio has significant effect of profitability of commercial banks.

H2: Credit deposit ratio has significant effect of profitability of commercial banks.

H3: Liquidity ratio has significant effect of profitability of commercial banks.

H4: Interest spread rate has significant effect of profitability of commercial banks.

H5: Non-performing loan ratio has significant effect of profitability of commercial banks.

H6: Bank size has significant effect of profitability of commercial banks.

1.5 Rationale of the Study

Banking regulation is vital to ensure that banks are properly supervised and protected against various crises, including credit and market-related ones. But an excessive amount of this kind of regulation can hurt bank profits, which in turn affects the nation's general economic expansion.

Inability to produce and build quality loans and creditworthy consumers leads to default risk and bankruptcy, as well as stifles a country's economic progress. However, there has been minimal research on the methods and means that enable quality loan creation and development, as well as the link between theories, ideas, and credit policies at the national and regional levels. The capital structure has an impact on the organization's profitability and long-term financial status. The nature of the organization aids in the selection of a suitable debt-equity mix in the capital structure. Because of its relevance, the financial structure, capital, and profitability of the organization are justified as a specific subject for investigation.

The investigation of the liquidity and profitability of the commercial banks in Nepal is the subject of this study. This study examines how liquidity affects the profitability of Nepal's commercial banks, providing information about the liquidity and profitability situation of sample banks to a variety of stakeholders, including the management of the banks, financial institutions, shareholders, the general public, customers, depositors, and creditors.

Numerous studies on banking efficiency carried out in Nepal concentrate on the technical efficiency of the banks while ignoring their profit efficiency. The purpose of this research paper is to close this gap by examining how regulations affect banks' profitability.

1.6 Limitations of the Study

Some of the major limitations of the study are listed below:

i. The five commercial banks are the only ones included in the study. This study does not address other BFIs, because of the small sample size and short study duration, the results cannot be generalized.
ii. The study primarily examines the banking sector's profitability. Cost effectiveness, technical effectiveness, or scale effectiveness are not considered in this study.
iii. Qualitative aspects like political and economic situations that influence financial regulation, which in turn affects bank profitability, are not taken into account in this study.
iv. One further constraint of this research is the lack of relevant research, especially from a Nepalese perspective.
v. Lastly, the analysis relies on simplistic models and procedures, which further restricts the scope of the study's overall conclusions.

CHAPTER II
LITERATURE REVIEW

The chapter contains the review of various literature that can be helpful to define variables which ultimately help to obtain the defined objective of the study. The literature review is divided into two sections; theoretical review and empirical review to make it easier for understanding the variables. At the end of this chapter the research gap of the study also mentioned.

2.1 Theoretical Review

This section lists multiple theories related to banking efficiency and the regulatory framework that surrounds it. Finding out how the banks make their profits is crucial since the research tries to determine how the regulatory framework affects the banks' profit efficiency.

2.1.1 The Theory of Financial Intermediation

The functions that financial intermediaries perform in the financial market are outlined by the theory of financial intermediation. Banks' primary duties are to take deposits and issue credit. The banking industry is in charge of carrying out tasks like encouraging saving, spotting investment opportunities, establishing solid corporate control, gathering data for capital allocation, controlling liquidity risk, and raising funds to take advantage of economies of scale. Information asymmetry and transaction costs constitute the foundation of conventional theories of intermediation. But in the last few years, there have been significant adjustments. Moving toward risk trading and participation costs, the intermediation has risen above transaction costs and information asymmetry (Klomp & De Haan, 2012).

The financial intermediaries can offer are what determine banking efficiency. The effectiveness with which banks make and spend money to turn a profit determines their profit efficiency. The role of contemporary financial intermediaries is said to involve more than just serving as a passive middleman between investors and final savers, according to critics of classic financial theory. One of the main functions of a financial

intermediary is to add value for their clients. Financial transformation services have been offered by the new breed of financial intermediaries (Hanson et al., 2019).

2.1.2 Credit Creation Theory

The credit creation theory contends that banks do not require deposits in order to make loans, in contrast to the financial intermediation theory. The creation of credit is the banks' primary duty. The purpose of banking is to establish credit, not to lend money. These credits may now be moved from one bank to another using the Clearing House with the same ease that a credit can be moved from one account in the same bank to another using a check. The cost-effectiveness of the overall credit generated by BFIs can be greatly impacted by the learning-by-doing models of the banks, which in turn impacts the profit-efficiency (Banerjee & Majumdar, 2017).

2.1.3 The Fractional Reserve Theory

According to fractional reserve banking, banks take deposits from clients, keep just a portion of those deposits, and lend the remaining amount. A money multiplier effect is produced when the borrowed money is redeposited and re-loaned. If every depositor makes a full claim on their deposit at the same time, the banks will not be able to reimburse every depositor at once. This hypothesis also highlights the role that BFIs play in deposit gathering and loan distribution (Heremans & Pacces, 2018).

2.1.4 The Economic Theory of Regulation

The means of addressing the drawbacks of uneven competition, unbalanced market dynamics, absentee markets, and unfavorable market outcomes is government regulation. According to the public interest perspective, government regulation of banks should be implemented to prevent market failures and promote the interests of larger civil society. The banking system would serve the public interest if it distributed resources in a way that was socially efficient. The information available to regulators about quality, demand, cost, and other aspects of business behavior is insufficient (Akintoye & Somoye, 2008).

There are differing opinions in economic theory regarding the necessity and impact of banking regulations. Because banks are so vital to an economy, their widespread failure would have disastrous repercussions for the whole. Governments can support bank

stability through efficiently regulating the banking industry (Dhungana, 2016). Monopolistic banks are more likely to bear the costs of breaking through informational barriers, which in turn makes credit to more deserving businesses easier to come by. Entry limitations are a tool used by regulators to reward benevolent constituents, obtain political support, and amass bribes. Furthermore, it's possible that strong institutions that overly influence policymakers in ways that negatively affect bank performance and stability are less likely to emerge from an open and competitive banking sector (Naceur & Goaied, 2009).

2.1.5 Pecking Order Theory

According to the pecking order theory was money flows based on hierarchy (Myers, 1984). Before considering debt or equity financing, the firm would instead utilize internal funds. The theoretical basis for the pecking order is asymmetric information. Due to information asymmetry, communication breakdowns can arise when one person has more or better information than the other. According to the pecking order theory, when firms use internally generated money, which originates directly from the firm, it benefits in decreasing information asymmetry. When compared to the costs of getting external finance, such as debt or equity financing, internal financing is the most cost-effective and time-efficient choice. According to the pecking order principle, a firm prioritizes domestically generated funding over external capital such as debt and stock. There was no percentage specified in the capital structure for debt and equity financing (Ezirim et al., 2017).

2.1.6 The Real Bills Doctrine/ Theory

The real bills doctrine or the commercial loan theory states that a commercial bank should advance only short-term self-liquidating productive loans to business firms. Self-liquidating loans are those which are meant to finance the production. The theory states that when commercial banks make only short term self-liquidating productive loans, the central bank, in turn, should only land to the banks on the security of such short-term loans. This principle would ensure the proper degree of liquidity for each bank and the proper money supply for the whole economy. The central bank was expected to increase or diminish bank reserves by rediscounting approved loans. When business expanded and the needs of trade increased, banks were able to acquire additional reserves by rediscounting bills with the central banks (Meghana, 2021).

2.1.7 Efficiency Structure Hypothesis

The efficiency structure hypothesis has called into question the standard theoretical interpretation implied in structure conduct performance (SCP). According to the efficiency theory, an industry's structure emerges as a result of specific enterprises' greater operating efficiency. This theory assumes that enterprises with low-cost structures increase profits by lowering prices and increasing market share. According to the efficiency structure point of view, structure is caused by performance. Specifically, firms which increase their efficiency firms gain market share at the expenses of less efficient firms so that concentration increases. Viewed in this light, the concentration process would go hand in hand with a more efficient banking system (Khan et al., 2016).

2.1.8 Agency Cost Theory

According to agency theory, managers, shareholders, and debt holders have competing interests (Le & Phan, 2017). For a corporation to maximize its value, it needs to have the best capital structure, and having the best capital structure reduces agency costs (Rahmatillah & Prasetyo, 2016). An agency cost exists between the shareholders, management, and debt and equity holders (Niu, 2008). Because of agency issues, company officials prioritize their own interests over boosting shareholder wealth and stock price for investors. Managers prefer debt financing to stock financing because it is less expensive and eliminates faceless agency conflicts between management and shareholders (Myers, 1984).

2.1.9 Liquidity-Profitability Trade-off Theory

The Profitability-Liquidity Gap Another idea that this study is based on is the trade-off theory. A corporation cannot pursue the dual goals of profitability and liquidity simultaneously without inevitably impacting the other, according to the idea, which holds that there is a trade-off between the two. According to the notion, bank regulation is required to preserve the safety and soundness of the banking system to the degree that it enables banks to easily satisfy their obligations. The realization that capital requirements and liquidity are equally crucial to a bank's viability is one of the results of the most recent financial crises. Prior research has demonstrated that banks with greater liquidity and larger capital buffers are less likely to fail during a financial crisis.

For this reason, regulatory bodies must require individual banks to have higher levels of solvency and liquidity rather than offering an alternative (Bagyenda et al., 2011).

2.1.10 Impact of Regulation on Banking

The efficiency of banks is increased by banking regulation. Stricter rules make banks less efficient. Numerous studies have also confirmed that there is a mixed effect of banking laws on banking efficiency—that is, certain policies promote efficiency while others work to inhibit it. Regulation of banking enhances banking effectiveness. Higher efficiency has been attained by these institutions as a result of stricter oversight and regulation of small and large banks (Yang et al., 2019).

The banking and financial infrastructure need to be regulated and closely monitored in order to increase the financial market's efficiency, which is directly related to economic expansion. Strict rules make banking less efficient. Various interventional supervisory and regulatory measures, such as capital limitations, private sector surveillance, development of restrictive banking practices, and abandoning of supervisory authorities, can reduce the operating efficiency of banks within an economy (Pasiouras et al., 2009).

The efficiency of banks is impacted by banking regulations in many ways. Strict capital requirements improve cost efficiency, but they also have a negative effect on banks' profit margins. Increased regulations on the operations of banks have a beneficial effect on their profitability and a detrimental effect on their cost-efficiency (Pasiouras et al., 2009).

Recent efforts to increase bank efficiency have revealed that capital adequacy has a mixed effect on banking efficiency, loan loss provisions have a significant positive impact, liquidity has a mixed effect with a positive loan to deposit ratio, advance stable funding ratio has a negative impact, and cost to income ratio has a negative impact. The proper supervision of banks and protection against various types of crises, including credit and market-related ones, necessitate strict banking regulations; however, an excessive amount of regulation will negatively affect bank profitability and ultimately the nation's overall economic growth (Banerjee & Majumdar, 2017).

Prudent rules have a favorable impact on bank performance in industrialized nations, but prudential regulations should be implemented in emerging nations based on the size and risk profile of financial intermediaries in the economy. Both positive and bad effects are attributed to the money management regulations in banks. More expansionary monetary policies yield greater efficiency than more restrictive ones. Banking rules can affect both established and emerging economies in a positive or negative way (Almah, 2020).

2.2 Empirical Review

Mariscal-Cáceres et al. (2024) analyzed the regulatory implications of the supervision and management of liquidity risk: an analysis of recent developments in Spanish financial institutions. The study's objective was to examine how bank liquidity laws have changed since the start of the banking and liquidity crisis, taking into account the worldwide regulatory framework that applies to financial institutions. The documentary, bibliographical, and historical-regulatory analysis of recent changes in Spanish financial institutions served as the foundation for this investigation. It was discovered that banks have gotten better at diversifying their financing sources, which enables them to use a variety of financial instruments rather of depending just on one kind of funding. Enhancing liquidity at Spanish banks has also been facilitated by banking law and supervision.

Hasan and Kruse (2024) examined the impact of regulatory requirements on German financial institutions' outsourcing arrangements. This study examined the methods in which German financial institutions' outsourcing practices have been impacted and altered by more stringent outsourcing-related regulations. This study used a qualitative content analysis framework as its methodology. It was found that the suggested German financial institutions had to internally reorganize their outsourcing managements as a result of the revised legal requirements' substantial and possibly detrimental influence on outsourcing efficiency. The report also demonstrated the realistic realignment strategies that German financial companies used to comply with regulatory obligations.

Gržeta et al. (2023) studied on the size matters: analyzing bank profitability and efficiency under the Basel III framework. Examining the effects of the implementation of two significant regulatory reforms (Basel II and Basel III) on bank performance in

terms of bank size, bank-specific factors, and macroeconomic variables was the primary objective of the study. The generalized method of moments was employed in this work to analyze the data. It was discovered that bigger banks had adapted to the new regulatory landscape quite well. On the other hand, due of the added administrative and regulatory responsibilities brought about by the new regulatory framework, small banks are struggling with profitability and efficiency.

Velliscig et al. (2023) investigated the capital and asset quality implications for bank resilience and performance in the light of NPLs' regulation: a focus on the Texas ratio. This study examined the relationship between capital and asset quality and bank risk and performance. In this study correlational research design was used for the data analysis. The total capital ratio revealed a favorable and statistically significant connection with bank stability and adversely related to insolvency risk, indicating a critical role for capital in the overall resilience of banks. In contrast, the leverage ratio was found to be only related to the bank dimensional feature. Furthermore, better bank performance was linked to banks with bigger capitalization. Thick coverage and provisioning policies were often linked to lower bank performance and resilience in terms of asset quality.

Naji and Shabib-Ul-Hassan (2023) investigated credit risk management and its impact on the performance of commercial banks in pakistan. The objective of the study was to investigate the effect of default or credit risk management on the financial performance of banks and how factors of CRM affect each other. In this study sixteen private commercial banks have been taken into the consideration and the data from the year 2012 to 2021 were analyzed. In this study return on quuity, loan to deposit ratio, loan loss provision ratio, non-performing loan ratio and capital adequacy ratio were analyzed. In this study granger causality and impulse response were been identified and analyzed including regressiomn model. It was found that loan to deposit ratio showed the significant negative effect on ROE of the banks. Similarly, non-performing loan ratio has significant negative effect on ROE of the banks. On the other hand, coefficients of loan loss provision ratio and capital adequacy ratio showed positive effect on ROE of the banks the coefficients were not significant.

Qazi et al. (2022) analyzed on credit risk management practices and banks' performance in Pakistan. To investigate whether the credit risk management of Pakistan's commercial banks listed on the Pakistan Stock Exchange is linked to financial performance. In this study data of five major banks of Pakistan were analyzed. In this study non-performing loan ratio, capital adequacy ratio and profitability (ROA and ROE) of the banks were analyzed. For the data analysis linear regression model was applied. It was revealed that capital adequacy ratio has significant positive effect on profitability of the banks. Similarly, non-performing loan ratio has significant positive effect on profitability of the banks.

Yeasin (2022) examined the impact of credit risk management on financial performance: A study of commercial banks in Bangladesh. To analyze the impact of credit risk management on financial performance of commercial banks. In this study data of 6 commercial banks in Bangladesh were analyzed. ROA, non-performing loan ratio, capital adequacy ratio and loan to deposit ratio of the banks were analyzed. For the data analysis descriptive statistics and multiple regression model was used. It was found that non-performing loan ratio, capital adequacy ratio and loan to deposit ratio have significant effect on ROA of the banks. Non-performing loan ratio has significant negative effect on ROA of the banks and capital adequacy ratio has significant negative effect on ROA of the banks whereas loan to deposit ratio has no significant positive effect on ROA of the banks.

Chalise and Adhikari (2022) analyzed the impact of capital structure and firm size on financial performance of commercial banks in Nepal. This paper aimed to examine the impact of capital structure and firm size on financial performance of Nepalese commercial banks. Regression analysis was used in the estimation of functions relating the Return on Assets (ROA) and Earnings per Share (EPS) with measures of capital structure and firm size (total assets). The results revealed a negative relation of ROA and EPS with capital structure (Debt/Equity). However, it showed a positive relationship of ROA and EPS with size (total assets). The findings provided the evidence in support of high-level equity capital employed in the capital structure of Nepalese commercial banks.

Kawor and Atinyo (2021) explored the link between credit risk and profitability of universal banks in Ghana. The study tried to analyze the effect of bank credit risk on profitability of universal banks in Ghana. This study used data of 22 universal banks of Ghana. In this study non-performing loan ratio, loan to deposit ratio, provision to loan loss ratio and ROA of the banks were analyzed. Ordinary Least Squares (OLS) was used for estimation of the relationship between credit risk and profitability. The regression analysis revealed that non-performing loan ratio, loan to deposit ratio and provision to loan loss ratio have significant effect on ROA of the banks. The results revealed non-performing loan ratio and loan to deposit ratio to have significantly positive effects on ROA, while provision to loan loss ratio has negative effect on ROA. Overall, the findings pointed out that credit risk influences firm profitability, and thus, management of universal banks in Ghana are required to take pragmatic steps towards minimizing the threats posed by credit risk.

Ullah et al. (2020) studied on impact of bank-specific internal factors on the profitability of state-owned commercial banks in Bangladesh to identify the bank-specific internal factors that affect the profitability of state owned commercial banks of Bangladesh. This study applied explanatory research design and carried out based on secondary data only. Multiple regression model and descriptive statistics were used for data analysis in this study. Profitability of the banks was analyzed in term of return on assets of the banks and five internal factors were analyzed in term of NPL, liquidity, bank size, leverage ratio and solvency ratio of the banks. The regression analysis reveals that there is a significant and negative relationship between ROA and NPL ratio and liquidity ratio. On the other hand, ROA and bank size have significant positive relationship. But leverage ratio and solvency ratio have statistically insignificant relationship with ROA. The study concludes that NPL, liquidity and bank size are the most important bank specific internal factors that affect the profitability of banks.

Karki (2020) studied the impact of interest rate spread on profitability in Nepalese commercial banks. The objective of the study was to examine the relationship between interest rate spread (IRS) and profitability and the impact of IRS on profitability of commercial banks in Nepal. Regression analysis was used to examine secondary data from bank annual reports that were gathered for this study. According to this study, IRS has a beneficial effect on Nepalese commercial banks' profitability. The study's findings

suggested that Nepalese commercial banks must recognize the value of IRS and strike a balance between it and profitability.

Šušak (2020) analyzed the effect of regulatory changes on relationship between earnings management and financial reporting timeliness: the case of COVID-19 pandemic. The primary objective of the study was to investigate how the COVID-19 pandemic-related legislative amendments pertaining to financial reporting deadlines affected the relationship between timely financial reporting and earnings management. Panel data were used to build the pooled OLS regression model in this investigation. The relationship between earnings management and financial reporting delay was found to be statistically significantly positively impacted by both the pandemic and regulatory changes. This suggests that earnings management activities may be responsible for financial reporting delays resulting from regulatory changes during a pandemic.

Ali and Dhiman (2019) examined the impact of credit risk management on profitability of public sector commercial banks in India. This study tried to explore an empirical association between the credit risk management and banks' financial performance. In this study data of public sector commercial banks of India are analyzed. In panel model equation, non-performing loan ratio, loan loss provision ratio, capital adequacy ratio, assets quality, management, earnings, liquidity and ROA of the banks were analyzed in this study. The panel data regression was applied for the purpose of analysis of data. The results of the research revealed that credit risk management indicators have a significant influence on the financial performance of selected public sector banks in India. The empirical findings indicate that ROA (profitability) is positively affected by capital adequacy ratio, management quality and earnings ability have significant positive effect in ROA of the banks, whereas liquidity has no significant positive influence on ROA.

Shrestha (2018) studied on liquidity management and profitability of commercial banks in Nepal. This study examined the link between Nepalese commercial banks' profitability and liquidity management in order to determine the influence of liquidity management on profitability. In this study, regression analysis is used to examine the impact of liquidity on profitability. The commercial banks in Nepal from 2012 to 2016

were the subject of this investigation. The factors of the current reserve ratio (CRR), credit deposit ratio (CDR), and profitability, including return on equity (ROA), are represented by the liquidity management. The study found that Nepalese commercial banks' profitability is not significantly impacted by liquidity. All working capital metrics, including the credit deposit ratio (CDR) and current reserve ratio (CRR), have a negligible relationship with the banks' return on assets (ROA), which is favorably connected with all of them. This study comes to the conclusion that excess liquidity and illiquidity are both "financial diseases" that may quickly destroy a bank's profit base and impede its efforts to reach a high level of profitability.

Igbinosa et al. (2017) empirically examined on financial regulations and banking sector performance. Examining Nigeria's banking sector performance and financial regulation was the study's primary objective. In order to determine the short- and long-term dynamic relationships between the endogenous and exogenous variables, this study used statistical approaches such as Johansson co-integration and error correction model (ECM). The banking sector performance in Nigeria was found to be highly impacted by financial regulation, which also has both short- and long-term dynamic links with the industry's performance. The four-period lag in capital adequacy was found to have a detrimental impact on the performance of the banking sector, while it was not statistically significant.

Table 1

Summary of Empirical Review

Authors	Article	Objectives	Variables	Methodology	Findings
Mariscal-Cáceres et al. (2024)	The regulatory implications of the supervision and management of liquidity risk: an analysis of recent developments in Spanish	The study's objective was to examine how bank liquidity laws have changed since the start of the banking and liquidity crisis, taking into account the worldwide regulatory framework that	Liquidity Coverage Ratio, Net Stable Funding Ratio and banking regulation were analyzed in this study.	The documentary, bibliographical, and historical-regulatory analysis of recent changes in Spanish financial institutions served as the foundation for this investigation.	It was discovered that banks have gotten better at diversifying their financing sources, which enables them to use a variety of financial instruments rather of depending just on one kind of funding. Enhancing liquidity at Spanish banks has also been facilitated

	financial institutions.	applies to financial institutions.			by banking law and supervision.
Hasan & Kruse (2024)	The impact of regulatory requirements on German financial institutions' outsourcing arrangements.	This study examined the methods in which German financial institutions' outsourcing practices have been impacted and altered by more stringent outsourcing-related regulations.	Outsourcing in financial institutions, Outsourcing regulations, EBA guidelines, Minimum requirements on risk management, Outsourcing decisions, outsourcing management were analyzed in this study.	This study used a qualitative content analysis framework as its methodology.	It was found that the suggested German financial institutions had to internally reorganize their outsourcing managements as a result of the revised legal requirements' substantial and possibly detrimental influence on outsourcing efficiency.
Gržeta et al. (2023)	Size matters: analyzing bank profitability and efficiency under the Basel III framework.	Examining the effects of the implementation of two significant regulatory reforms (Basel II and Basel III) on bank performance in terms of bank size, bank-specific factors, and macroeconomic variables was the primary objective of the study.	Bank profitability, Bank efficiency, Bank size, Basel III regulatory framework were analyzed in this study.	The generalized method of moments was employed in this work to analyze the data.	It was discovered that bigger banks had adapted to the new regulatory landscape quite well. On the other hand, due of the added administrative and regulatory responsibilities brought about by the new regulatory framework, small banks are struggling with profitability and efficiency.
Velliscig et al. (2023)	Capital and asset quality implications for bank resilience and performance in the light of NPLs' regulation: a	This study examined the relationship between capital and asset quality and bank risk and performance.	Capital, Asset quality, Provisioning, Coverage, Bank stability and Bank performance were	In this study correlational research design was used for the data analysis.	It was found that total capital ratio revealed a favorable and statistically significant connection with bank stability and adversely related to insolvency risk, indicating a critical

	focus on the Texas ratio.		analyzed in this study.		role for capital in the overall resilience of banks. In contrast, the leverage ratio was found to be only related to the bank dimensional feature.
Naji & Shabib-Ul-Hassan (2023)	Credit risk management and its impact on the performance of commercial banks in Pakistan: an application of penal var approach.	The objective of the study was to investigate the effect of default or credit risk management on the financial performance of banks and how factors of CRM affect each other.	In this study return on equity, loan to deposit ratio, loan loss provision ratio, non-performing loan ratio and capital adequacy ratio were analyzed.	In this study granger causality and impulse response were been identified and analyzed including regression model.	It was found that loan to deposit ratio showed the significant negative effect on ROE of the banks. Similarly, non-performing loan ratio has significant negative effect on ROE of the banks. On the other hand, coefficients of loan loss provision ratio and capital adequacy ratio showed positive effect on ROE of the banks the coefficients were not significant.
Qazi et al. (2022)	Credit risk management practices and banks' performance in Pakistan	To investigate whether the credit risk management of Pakistan's commercial banks listed on the Pakistan Stock Exchange is linked to financial performance.	In this study non-performing loan ratio, capital adequacy ratio and profitability (ROA and ROE) of the banks were analyzed.	For the data analysis linear regression model was applied.	It was revealed that capital adequacy ratio has significant positive effect on profitability of the banks. Similarly, non-performing loan ratio has significant positive effect on profitability of the banks.
Yeasin (2022)	Impact of credit risk management on financial performance: A study of commercial banks in Bangladesh	To analyze the impact of credit risk management on financial performance of commercial banks.	ROA, NPLR, CAR and LDR of the banks were analyzed.	For the data analysis descriptive statistics and multiple regression model was used.	It was found that non-performing loan ratio, capital adequacy ratio and loan to deposit ratio have significant effect on ROA of the banks. Non-performing loan ratio has significant negative effect on ROA of the banks

					and capital adequacy ratio has significant negative effect on ROA of the banks whereas loan to deposit ratio has no significant positive effect on ROA of the banks.
Chalise & Adhikari (2022)	Impact of capital structure and firm size on financial performance of commercial banks in Nepal.	The objective of the study was to examine the impact of capital structure and firm size on financial performance of Nepalese commercial banks.	DER, Firm size, ROA and EPS were analyzed in this study.	Regression analysis was used in the estimation of functions relating the Return on Assets (ROA) and Earnings per Share (EPS) with measures of capital structure and firm size (total assets).	The results revealed a negative relation of ROA and EPS with capital structure (Debt/Equity). However, it showed a positive relationship of ROA and EPS with size (total assets).
Kawor & Atinyo (2021)	The link between credit risk and profitability of universal banks in Ghana.	The study tried to analyze the effect of bank credit risk on profitability of universal banks in Ghana.	In this study NPLR, LDR, PLLR and ROA of the banks were analyzed.	Ordinary Least Squares (OLS) was used for estimation of the relationship between credit risk and profitability.	It was found that non-performing loan ratio, loan to deposit ratio and provision to loan loss ratio have significant effect on ROA of the banks. The results revealed non-performing loan ratio and loan to deposit ratio to have significantly positive effects on ROA, while provision to loan loss ratio has negative effect on ROA.
Ullah et al. (2020)	Impact of bank-specific internal factors on the profitability of state-owned commercial	The objective of the study was to identify the bank-specific internal factors that affect the profitability of	NPL, liquidity, bank size, leverage ratio and solvency ratio of the banks were	Multiple regression model and descriptive statistics were used for data analysis in this study.	It was found that there is a significant and negative relationship between ROA and NPL ratio and liquidity ratio. On the other hand, ROA and bank size

	banks in Bangladesh	state owned commercial banks of Bangladesh.	analyzed in this study.		have significant positive relationship. But leverage ratio and solvency ratio have statistically insignificant relationship with ROA.
Karki (2020)	Impact of interest rate spread on profitability in Nepalese commercial banks.	The objective of the study was to examine the relationship between interest rate spread (IRS) and profitability and the impact of IRS on profitability of commercial banks in Nepal.	Interest rate spread, profitability, ROA, ROE were analyzed in this study.	Regression analysis was used to examine secondary data from bank annual reports that were gathered for this study.	According to this study, IRS has a beneficial effect on Nepalese commercial banks' profitability. The study's findings suggested that Nepalese commercial banks must recognize the value of IRS and strike a balance between it and profitability.
Šušak (2020)	The effect of regulatory changes on relationship between earnings management and financial reporting timeliness: the case of COVID-19 pandemic.	The primary objective of the study was to investigate how the COVID-19 pandemic-related legislative amendments and relationship between timely financial reporting and earnings management.	Earnings management, financial reporting delay, financial reporting timeliness were analyzed in this study.	Panel data were used to build the pooled OLS regression model in this investigation.	The relationship between earnings management and financial reporting delay was found to be statistically significantly positively impacted by both the pandemic and regulatory changes.
Ali & Dhiman (2019)	The impact of credit risk management on profitability of public sector commercial banks in India.	This study tried to explore an empirical association between the credit risk management and banks' financial performance.	In panel model equation, NPLR, LLPR, CAR, AQ, M, E, L and ROA of the banks were analyzed in this study.	The panel regression was applied for the purpose of analysis of data.	It was found that credit risk management indicators have a significant influence on the financial performance of selected public sector banks in India. The empirical findings indicate that ROA (profitability) is

					positively affected by capital adequacy ratio, management quality and earnings ability have significant positive effect in ROA of the banks, whereas liquidity has no significant positive influence on ROA.
Shrestha (2018)	Liquidity management and profitability of commercial banks in Nepal	The objectives of the study is to investigate the relationship between Liquidity management and profitability of commercial banks in Nepal.	CDR, CRR, ROA were analyzed in this study.	Correlation and multiple regression analysis	It was found that the profitability of Nepalese commercial banks is not significantly impacted by liquidity, such as the credit deposit ratio and cash reserve ratio. All working capital metrics, including the cash reserve ratio (CRR) and credit deposit ratio (CDR), have a positive correlation with return on assets (ROA) of banks, whereas there is no significant correlation between the two.
Igbinosa et al. (2017)	Empirical assessment on financial regulations and banking sector performance.	The objective of the study was to examine Nigeria's banking sector performance and financial regulation.	In this study Financial regulations, capital adequacy, bank size, monetary policy rate, reform, performance were analyzed.	This study used statistical approaches such as Johansson co-integration and error correction model (ECM).	The banking sector performance in Nigeria was found to be highly impacted by financial regulation, which also has both short- and long-term dynamic links with the industry's performance. The four-period lag in capital adequacy was found to have a detrimental impact on the performance of the banking sector, while it was not

statistically
significant.

2.3 Research Gap

Numerous studies have concluded that banking rules improve the efficiency of the banking industry. An effective financial system in the country may be maintained with an appropriate number of banking regulations. A company's success can be attributed in part to how it uses its resources. Numerous researchers have concentrated their efforts on assessing the banking system's profit and cost-efficiency. Few studies have examined how banking rules affect banks' profits; the majority of studies on the subject have concentrated on cost-efficiency. Regulations appear to be positively influencing financial institutions' financial performance in emerging nations, but they have had a negative impact on financial institutions' financial performance in developed countries like the USA and Europe.

Few studies have examined the effectiveness of Nepal's banking system, and even fewer have examined profit efficiency in the context of the nation's economy. The data from all of the banks that were selected for the last ten years (2013/14 to 2022/23) is taken into account for this study, which is a historical data analysis of recent regulatory changes related to the performance of commercial banks. The panel data of five sample banks was the data analysis technique employed in this study, which is a different effort from most previous studies that basically included comparison analysis. This study differs significantly from earlier ones in terms of the variables, statistical method, study area, sample organizations, and sample period of time. The parameters that the NRB monitors and provides instructions to commercial banks on are the capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, non-performing loan ratio, and bank size. These are the variables that are taken into consideration in this study. Additionally, panel data multiple regression analysis techniques were employed in this study to examine how regulatory variables affected commercial banks' profitability. This study aims to bridge this research gap by analyzing how changes in banking rules affect the profitability of Nepal's commercial banks.

CHAPTER III
RESEARCH METHODOLOGY

Research is the systematic process of collecting and analyzing information to increase our understanding of the phenomenon under study. It is the function of the researcher to contribute to the understanding of the phenomenon and to communicate that understanding to others. Research is the process of gathering information for the purpose of regulation of NRB regarding commercial banks and the profitability of commercial banks in Nepal.

3.1 Research Design

The research design followed for this study is descriptive and causal research design. The descriptive research design is adopted to clearly examine the detailed and accurate picture of the capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, non-performing loan ratio, bank size, return on assets and return on equity of sample banks while causal research is adopted for the relationship and effect analysis of regulatory variables on profitability of the commercial banks in Nepal.

3.2 Population and Sample

The large group about which the generalization is made is called the population under study or the universe and small portion which the study is made is called the sample of the study. There are altogether 20 commercial banks which are licensed by Nepal Rastra Bank in Nepal till December 2023. Out of them only five commercial banks are considered for samples to carry out this study i.e. NABIL, HBL, SBL, NICA and SANIMA. The sample banks are selected for the study using purposive sampling method non-probability sampling technique, since the purpose of this study is to analyze regulatory changes the selected sample banks have maintained regulatory requirements as per the NRB directives through the period and performance of these banks are quite satisfactory in the recent period. Similarly, the selected sample banks also represent private and joint venture commercial banks in Nepal which cover foreign and domestic capital composition and the capital requirement is also one of the major regulatory provision for the commercial banks in Nepal.

3.3 Nature and Sources of Data

The research is based on secondary source of data. The necessary information is derived from the balance sheets, profit and loss statements, and published financial annual reports of NABIL, HBL, SBL, SANIMA and NICA from 2013/14 to 2022/23. In this study the published financial information of the banks is collected from their official websites. These obtained data are appropriately synthesized, organized, and tabulated for analysis.

3.4 Methods of Analysis

A statistical tool is required to assess the relationship between two or more variables. It is a mathematical technique used to aid in the study and interpretation of organizational performance (Yadav et al., 2010). In this study, the following statistical tools are used:

- **Arithmetic Mean**

The arithmetic mean or simple mean is average of set of observations. The sum of all the observation divided by the number of observations is the mean value. It is the best value, which represent to the whole group means is the arithmetic average of a variable. Arithmetic mean of a series is given by:

$$\text{Mean } (\bar{X}) = \frac{\Sigma X}{n}$$

Where,

$\sum X$= Sum of the variables 'X'

n = No. of Observation

- **Standard Deviation**

The standard deviation is the absolute measure of dispersion in which the drawback presents in other measure of dispersion as it satisfied most of the requisites of a good measure of dispersion. Higher the standard deviation Higher will be the variability and vice versa. In other words, it helps to analyze the quality of data regarding its variability (Yadav et al., 2010). It is calculated as:

$$\text{Standard Deviation} = \sqrt{\frac{\Sigma(X - \bar{X})^2}{n-1}}$$

- **Correlation Coefficient**

Correlation coefficient is defined as the association between the dependent variable and independent variable. It is a method of determining the relationship between these two variables. If the two variables are so related change in the value of independent variable cause the change in the value of dependent variable then it is said to have correlation coefficient (Yadav et al., 2010).

$$\text{Correlation Coefficient} = \frac{n\Sigma XY - \Sigma X\Sigma Y}{\sqrt{n\Sigma X^2 - (\Sigma X)^2}\sqrt{n\Sigma Y^2 - (\Sigma Y)^2}}$$

Where;

X & Y are the variables used for the analysis of capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, non-performing loan ratio, bank size, return on assets and return on equity.

- **t-test**

For this study, t-test for significance of an observed and sample correlation coefficient is used. Set up Hypothesis

Null hypothesis (H_0); $\rho = 0$ i.e. the correlation between X and Y are not significantly correlated in the population.

Alternative Hypothesis (H_1); $\rho \neq 0$ i.e. the correlation between X and Y are significantly correlated in the population.

Test statistic under H_0;

$$t = \frac{r}{\sqrt{1 - r^2}} \times \sqrt{n - 2}$$

Where,

r = Sample correlation between two variables

r^2 = Coefficient of determination

n = No of Pair of observations

Level of significance: Level of significance (α) = 5%

Decision: If p-value for the calculated correlation coefficient is less than the significance level the null hypothesis is rejected concluding the correlation is significant in the population and if p-value for the calculated correlation coefficient is greater than the significance level null hypothesis is accepted concluding that the correlation is not significant in the population.

Regression Analysis

Regression analysis is a statistical measure to define the relationship between the independent variables and the dependent variables. Regression analysis can be divided into two categories. The study takes into account only the multiple regression analysis that is the relationship between a single dependent variable and a number of independent variables. The model estimated in this study assumes that the profitability (ROA and ROE) depend on regulatory variables i.e. capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, non-performing loan ratio and bank size). Therefore, the following model has been employed for the study of relationship and effect of the study variables.

The models:

Model 1: $ROA = \beta_0 + \beta_1 CAR + \beta_2 CDR + \beta_3 LIQ + \beta_4 ISR + \beta_5 NPLR + \beta_6 SIZE + e$

Model 2: $ROE = \beta_0 + \beta_1 CAR + \beta_2 CDR + \beta_3 LIQ + \beta_4 ISR + \beta_5 NPLR + \beta_6 SIZE + e$

Where,

ROA = Return on Assets

ROE = Return on Equity

β_0 = Intercept of the regression equation

β_1 = Coefficient of capital adequacy ratio

β_2 = Coefficient of credit deposit ratio

β_3 = Coefficient of liquidity ratio

β_4 = Coefficient of interest spread rate

β_5 = Coefficient of non-performing loan ratio

β_6 = Coefficient of size

CAR = Capital adequacy ratio

CDR = Credit deposit ratio

LIQ = Liquidity ratio

ISR = Interest spread rate

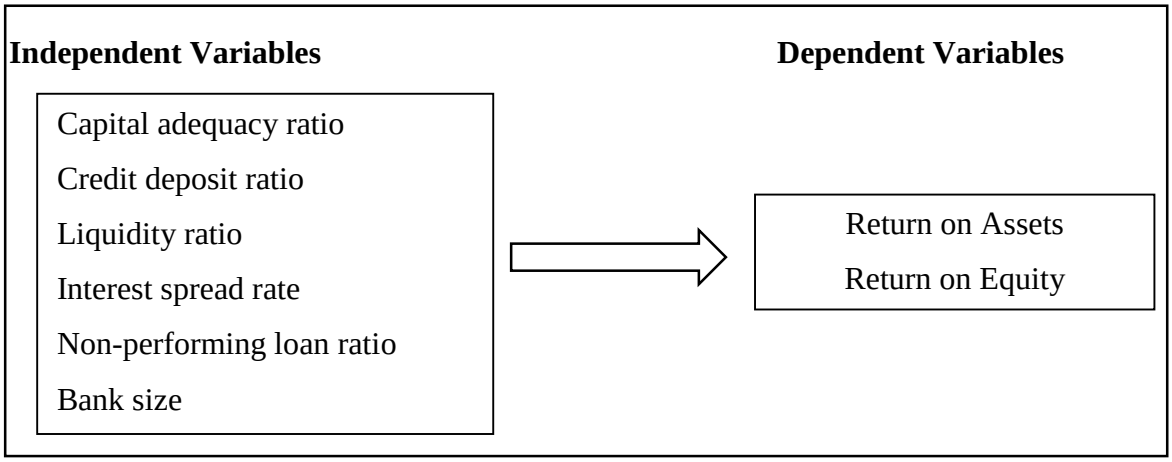
NPLR = Non-performing loan ratio

SIZE = Logarithm of Total Assets

e = Residual term of the regression equation

3.5 Research Framework and Definition of Variables

The empirical literature reviews done in the second chapter of the study support the following conceptual framework for this study. Previous researchers have used the following variables as dividend practice and market price of the stock in their studies.



Source: Ullah et al., (2020); Karki, (2020); Chalise & Adhikari, (2022); Naji & Shabib-Ul-Hassan, (2023)

Figure 1: Research Framework

Definition of Variables

Capital Adequacy Ratio

The Capital Adequacy Ratio (CAR) is a ratio that expresses a bank's available capital as a percentage of its risk-weighted credit exposures. The Capital Adequacy Ratio, commonly known as the capital-to-risk-weighted assets ratio (CRAR), is used to protect depositors while simultaneously promoting the stability and efficiency of global financial institutions. There are two categories of capital measured: tier one capital, which can absorb losses without requiring a bank to discontinue business, and tier two capital, which can absorb losses in the case of a winding-up but offers less protection to depositors. Total Capital (Tier 1 Capital plus Tier 2 Capital) must be at least 8.0% of risk-weighted exposure at all times. Ullah et al. (2020) found the positive effect of capital adequacy ratio on profitability of the banks. It is calculated as;

$$\text{Capital Adequacy Ratio} = \frac{\text{(Tier 1 Capital + Tier 2 Capital)}}{\text{Risk Weighted Assets}}$$

Credit Deposit Ratio

The loan and advance to total deposit ratio shows the relationship between the loan and advance and total deposit of the banks. Loan is the major source of income for the banks. It has significant impact on the performance of the banking sector (Yeasin, 2022). It is calculated as:

$$\text{Credit to Deposit Ratio} = \frac{\text{Loan and Advance}}{\text{Total Deposit}}$$

Liquidity Ratio

It shows the proportion between the total amount of deposits received by commercial banks and the amount deposited in Nepal Rastra Bank. A higher ratio indicates that the banks have a strong position in terms of liquidity (Shrestha, 2018). It is calculated as;

$$\text{Cash Reserve Ratio} = \frac{\text{NRB Balance}}{\text{Total Deposit}}$$

Interest Spread Rate

The net interest rate spread is the difference between the interest rate a bank pays to depositors and the interest rate it receives from loans to consumers. The net interest rate spread is instrumental to a bank's profitability (Okon et al., 2020). In this study average interest spread rate of the banks are considered for the analysis. The interest spread rate in this study is taken form the indicators of the published annual reports of the corresponding sample banks.

Non-performing Loan Ratio

NRB has directed all the commercial banks to create loan loss provision against the doubtful and bad debts. This ratio helps in minimizing the non-performing loans and helps to control the credit. Non-performing loans shows the ability of bank management to manage non-performing loans provided by banks. So the higher the ratio, the worse the quality of a bank will be, where the possibility of a troubled bank is also getting bigger (Yeasin, 2022). This ratio is used by Kawor & Atinyo (2021) and Naji & Shabib-Ul-Hassan (2023) in their study before and it is calculated as;

$$\text{Non-performing Loan Ratio} = \frac{\text{Non-performing Loan}}{\text{Loan and Advance}}$$

Bank Size (Total Assets)

In this study the size of the bank can be measured with the natural logarithm of total assets. Bank size is used to capture the fact that larger firms are better placed than smaller firms in harnessing economies of scale in transactions and enjoy a higher level of profits (Ullah et al., 2020). The previous study revealed that there was significant positive effect of banks size on profitability of the banks which was measured as total assets.

Return on Assets

The return on total assets ratio assesses a corporation's profitability by explaining how a firm may generate a reasonable return on all financial resources invested in the bank's assets. The ratio explains net income for each asset unit. The profitability of the banks had been analyzed as return on assets in the previous study by Ullah et al. (2020). It is calculated as:

$$\text{Return on Assets Ratio} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}}$$

Return on Equity

Shareholders fund is a long-term source of funds obtained via the use of equity and preference shares. The return on shareholders' equity ratio is used to evaluate the profitability on the owners' capital or investment to measure the return earned by shareholders. This ratio can be used to determine whether or not the company has been able to give a higher return on investment to its owners. The profitability of the banks had been analyzed as return on equity in the previous study by Ullah et al. (2020). It is calculated as:

$$\text{Return on Equity} = \frac{\text{Net Profit After Tax}}{\text{Total Equity}}$$

CHAPTER IV
RESULTS AND DISCUSSION

The purpose of this chapter is to analyze the collected data to achieve the objective of the study. In this chapter of results of the data analysis through financial as well as statistical tools and the discussion of the results are presented.

4.1 Results

The results section of the study tries to reveal the position regulatory variables and profitability of the sample banks and the effect of regulatory variables on profitability of the banks here under.

4.1.1 Descriptive Summary of the Variables

The descriptive summary of variables of NABIL, HBL, SBL, NICA and SANIMA during the study period such as, capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, NPL ratio, bank size, return on assets and return on equity are analyzed in this part of the study.

Table 2

Descriptive Summary of Variables

Variables	N	Minimum	Maximum	Mean	SD
CAR	50	10.84	15.57	12.72	1.03
CDR	50	64.43	96.08	84.56	6.59
LIQ	50	3.23	37.52	18.59	9.84
ISR	50	2.75	5.03	4.02	0.52
NPLR	50	0.01	4.93	1.15	0.98
TA	50	29377.00	481204.00	166997.12	106039.90
ROA	50	0.47	2.89	1.59	0.46
ROE	50	0.97	27.29	16.69	4.94

Source: Appendix- II

Table 2 shows that the descriptive summary of the variables of the study i.e. capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, NPL ratio, bank

size, return on assets and return on equity of the sample banks. The observation for the study is 50 for each variable since five sample banks and 10 years' data are arranged in the panel data set.

The average capital adequacy ratio over the study period is 12.72 percent, with maximum of 15.57 percent and minimum of 10.84 percent during the study period. The average capital adequacy ratio shows that the banks have maintained the capital requirement as per the NRB guidelines. There is 1.03 percent standard deviation in the capital adequacy ratio, which means that capital adequacy ratio of the banks fluctuated by 1.03 percent from the average of the capital adequacy ratio, which is quite consistent capital adequacy ratio.

The average loan to deposit ratio of the banks is 84.56 percent, while the guideline for CD ratio by NRB guideline is 80 percent, meaning that banks have slightly higher average loan to deposit ratio as per the NRB guideline. There is quite consistent loan to deposit ratio in the banks during the study period since the standard deviation in loan to deposit ratio of the banks is only 6.59 percent.

The average liquidity ratio over the study period is 18.59 percent, with maximum and minimum of 37.52 percent and 2.23 percent respectively. The liquidity ratio shows that the banks have maintained the liquidity requirement since there is more that 10 percent liquidity in hand which makes banks secured in term of short term liquidity crisis. There is 9.84 percent standard deviation in the liquidity ratio, which means that liquidity ratio of the banks quite highly fluctuates from the average of the liquidity ratio.

The average interest spread rate over the study period is 4.02 percent, with maximum of 5.03 percent and minimum of 2.75 percent during the study period. The interest spread rate shows that the banks on average earn 4.02 percent more interest income form loan and advance than interest paid to depositors during the study period. There is 0.52 percent standard deviation in the interest spread rate, which means that interest spread rate of the banks is quite consistent during the study period and spread rate fluctuates by 0.52 percent from the average of the interest spread rate.

The average NPL ratio over the study period is 1.15 percent, with maximum of 4.93 percent and minimum of 0.01 percent during the study period. The NPL ratio shows that the banks are quite efficiently managing their loan and advances since there is less than 5 percent NPL ratio in the banks on average. There is 0.98 percent standard deviation in the NPL ratio, which means that NPL ratio of the banks fluctuated by 0.98 percent from the average of the NPL ratio, which indicates that NPL ratio of the banks is not consistent over the study period.

There is on average total assets of Rs. 166997.12 million in the sample banks during the study period with maximum of Rs. 481204.00 million and minimum of Rs. 29377.00 million. The standard deviation in the total assets of the sample banks is Rs. 106039.90, which shows the variance of total assets from the average total assets over the study period and there is quite consistent assets pattern during the study period.

The average return on assets over the study period is 1.59 percent, with maximum of 2.89 percent and minimum of 0.47 percent during the study period. The return on assets shows that the banks are managing the assets properly in the earning activities. There is 0.46 percent standard deviation in the ROA, which means that ROA of the banks fluctuated by 0.46 percent from the average ROA.

The average return on equity over the study period is 16.69 percent, with maximum of 27.29 percent and minimum of 0.97 percent during the study period. The return on equity shows that the equity holders of the banks earn more than 15 percent. There is 4.94 percent standard deviation in the ROE, which means that there is high fluctuation in ROE of the banks.

4.1.2 Correlation Analysis

In this part of the analysis the relationship of ROA and ROE of NABIL, HBL, SBL, NICA and SANIMA with capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, NPL ratio and bank size are analyzed through Pearson's correlation coefficient and the results of correlation is calculated with the help of SPSS software.

Table 3

Correlation Matrix

Variables	CAR	CDR	LIQ	ISR	NPLR	SIZE	ROA	ROE
CAR	1							
p-value								
CDR	.426**	1						
p-value	(0.002)							
LIQ	0.145	-0.068	1					
p-value	(0.315)	(0.641)						
ISR	-0.179	-0.211	0.192	1				
p-value	(0.214)	(0.142)	(0.181)					
NPLR	-.377**	-0.257	-0.071	0.242	1			
p-value	(0.007)	(0.072)	(0.623)	(0.090)				
SIZE	.318*	.321*	-.302*	-0.227	0.101	1		
p-value	(0.025)	(0.023)	(0.033)	(0.112)	(0.486)			
ROA	-0.098	-.499**	-0.155	.305*	-0.222	-.336*	1	
p-value	(0.499)	(0.000)	(0.283)	(0.031)	(0.121)	(0.017)		
ROE	-0.241	-.470**	-0.002	.374**	-0.180	-.360*	.728**	1
p-value	(0.092)	(0.001)	(0.991)	(0.008)	(0.210)	(0.010)	(0.000)	

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

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

Source: Appendix- III

Table 3 highlights that the relationship analysis results between profitability i.e. ROA and ROE and the bank specific factors i.e. capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, NPL ratio and bank size of sample banks. The correlation coefficient of return on assets (ROA) with capital adequacy ratio (CAR) is negative -0.098 (i.e. - ve correlation) which means that increasing capital adequacy ratio of the banks decreases the return on assets of the banks and the negative correlation between return on assets and capital adequacy ratio is not significant since p-value (i.e. 0.499) is higher than 0.05 level of significance.

On the other hand, correlation coefficient of return on assets (ROA) with credit deposit ratio (CDR) is negative -0.499 (i.e. - ve correlation) which means that increasing credit deposit ratio of the banks decreases the return on assets of the banks and the negative correlation between return on assets and credit deposit ratio is significant since p-value (i.e. 0.000) is less than 0.01 level of significance.

Likewise, correlation coefficient of return on assets (ROA) with liquidity ratio (LIQ) is negative -0.155 (i.e. - ve correlation) which means that increasing liquidity ratio of the

banks decreases the return on assets of the banks and the negative correlation between return on assets and liquidity ratio is not significant since p-value (i.e. 0.283) is higher than 0.05 level of significance.

Moreover, correlation coefficient of return on assets (ROA) with interest spread rate (ISR) is positive 0.305 (i.e. + ve correlation) which means that increasing NPL ratio of the banks increases the return on assets of the banks and the positive correlation between return on assets and interest spread rate is significant since p-value (i.e. 0.031) is less than 0.05 level of significance.

In contrast, correlation coefficient of return on assets (ROA) with NPL ratio (NPLR) is negative -0.222 (i.e. - ve correlation) which means that increasing NPL ratio of the banks decreases the return on assets of the banks and the negative correlation between return on assets and NPL ratio is not significant since p-value (i.e. 0.121) is higher than 0.05 level of significance.

In contrast, the correlation coefficient of return on assets (ROA) with bank size (SIZE) is negative -0.336 (i.e. - ve correlation) which means that increasing total assets of the banks decreases the return on assets of the banks and the negative correlation between return on assets and banks size is significant since p-value (i.e. 0.017) is less than 0.05 percent level of significance.

Table 2 also shows that correlation coefficient of return on equity (ROE) with capital adequacy ratio (CAR) is negative -0.241 (i.e. - ve correlation) which means that increasing capital adequacy ratio of the banks decreases the return on equity of the banks and the negative correlation between return on equity and capital adequacy ratio is not significant since p-value (i.e. 0.092) is higher than 0.05 level of significance.

On the other hand, correlation coefficient of return on equity (ROE) with credit deposit ratio (CDR) is negative -0.470 (i.e. - ve correlation) which means that increasing credit deposit ratio of the banks decreases the return on equity of the banks and the negative correlation between return on equity and credit deposit ratio is significant since p-value (i.e. 0.001) is less than 0.01 level of significance.

Likewise, correlation coefficient of return on equity (ROE) with liquidity ratio (LIQ) is negative -0.002 (i.e. - ve correlation) which means that increasing liquidity ratio of the banks decreases the return on equity of the banks and the negative correlation between return on equity and liquidity ratio is not significant since p-value (i.e. 0.991) is higher than 0.05 level of significance.

Moreover, correlation coefficient of return on equity (ROE) with interest spread rate (ISR) is positive 0.374 (i.e. + ve correlation) which means that increasing NPL ratio of the banks increases the return on equity of the banks and the positive correlation between return on equity and interest spread rate is significant since p-value (i.e. 0.008) is less than 0.01 level of significance.

However, correlation coefficient of return on equity (ROE) with NPL ratio (NPLR) is negative -0.180 (i.e. - ve correlation) which means that increasing NPL ratio of the banks decreases the return on equity of the banks and the negative correlation between return on equity and NPL ratio is not significant since p-value (i.e. 0.210) is higher than 0.05 level of significance.

In contrast, the correlation coefficient of return on equity (ROE) with bank size (SIZE) is negative -0.360 (i.e. - ve correlation) which means that increasing total assets of the banks decreases the return on equity of the banks and the negative correlation between return on equity and banks size is significant since p-value (i.e. 0.010) is less than 0.05 level of significance.

4.1.3 Regression Analysis

Here in this section a regression analysis is presented to analyze the impact of regulatory variables i.e. CAR, CDR, LIQ, ISR, NPLR and SIZE on profitability i.e. ROA and ROE of the NABIL, HBL, SBL, NICA and SANIMA during the study period. Since, the panel ordinary least square regression model is adopted for the analysis and the results are;

Analysis of Model 1

Table 4

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.761	0.580	0.521	0.321

a. Predictors: (Constant), SIZE, NPLR, LIQ, ISR, CDR, CAR

Source: Appendix- IV

Table 4 presents the regression analysis result for the dependent variable ROA and independent variables capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, NPL ratio and bank size of NABIL, HBL, SBL, NICA and SANIMA over the study period. The table shows that the total effect of independent variables into dependent variable i.e. R-squared is 0.580 which means that out of total change in ROA of the banks, 58.00 percent change is explained by capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, NPL ratio and bank size of the banks and the remaining change in ROA is affected by other variables which are not included in this regression analysis. It also explained that the independent variables have strong association with dependent variables of the model.

Table 5

ANOVA Table

Statistics	Sum of Squares	df	Mean Square	F	Sig.
Regression	6.093	6	1.015	9.881	0.000
Residual	4.419	43	0.103		
Total	10.512	49			

a. Dependent Variable: ROA, $\alpha = 5\%$ (0.05)

b. Predictors: (Constant), SIZE, NPLR, LIQ, ISR, CDR, CAR

Source: Appendix- IV

Table 5 shows the analysis of ANOVA showing the significance of regression model used in this study. Here, Sig. value is 0.000 which is less than 5 percent meaning that overall regression model is significant and there is linear relationship between capital

adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, NPL ratio, bank size and return on assets of the banks. And the regression model in fit for the analysis.

Table 6

Coefficients Table

Variables	Beta Coefficient	t	Sig.	Tolerance	VIF
(Constant)	4.984	4.429	0.000		
CAR	0.079	1.403	0.168	0.625	1.600
CDR	-0.039	-4.911	0.000	0.750	1.334
LIQ	-0.018	-3.413	0.001	0.816	1.225
ISR	0.299	3.143	0.003	0.852	1.174
NPLR	-0.183	-3.353	0.002	0.734	1.362
SIZE	-0.146	-1.729	0.091	0.671	1.491

a. Dependent Variable: ROA, $\alpha = 5\%$ (0.05)

Source: Appendix- IV

Table 6 presents the regression coefficients of each independent variables of the regression model. Table also presents the multicolinearity status among the independent variables of the regression model. Since the values of VIF for all the independent variables are less than 5, there is no problem of multicolinearity in the regression model. The beta coefficient of capital adequacy ratio is 0.079 with the p-value 0.168, which indicates that capital adequacy ratio of the banks has no significant positive effect on ROA of the banks. The coefficient also depicts that if capital adequacy ratio of the banks increases by 1 percent ROA of the banks also increases by 0.079 percent.

Similarly, the effect of credit deposit ratio into the ROA of the banks is negative i.e. -0.039 which indicates that if loan to deposit ratio of the banks increases by 1 percent ROA of the banks decreases by 0.039 percent and the coefficient is statistically significant at 1 percent level of significance since p-value i.e. 0.000 is less than 1 percent level of significance.

Likewise, the effect of liquidity ratio into the ROA of the banks is negative i.e. -0.018 which indicates that if loan to deposit ratio of the banks increases by 1 percent ROA of

the banks decreases by 0.018 percent and the coefficient is statistically significant at 1 percent level of significance since p-value i.e. 0.001 is less than 1 percent level of significance.

However, the coefficient of interest spread rate is 0.299 which indicates that if interest spread rate of the banks increases by 1 percent ROA of the banks also increases by 0.299 percent and this coefficient is statistically significant at 1 percent level of significant since the p-value i.e. 0.003 for the coefficient is less than 1 percent.

On the other hand, the coefficient of non-performing loan ratio is -0.183 which indicates that if non-performing loan ratio of the banks increases by 1 percent ROA of the banks also decreases by 0.183 percent but the coefficient is significant at 1 percent level of significance since the p-value i.e. 0.002 for the coefficient is less than 1 percent.

In contrast, the beta coefficient of bank size is -0.146 which indicates that if total assets of the banks increases by 1 percent ROA of the banks decreases by 0.146 percent and the coefficient is statistically not significant since p-value i.e. 0.091 is higher than 5 percent level of significance.

Analysis of Model 2

Table 7

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.692	0.479	0.406	3.809

a. Predictors: (Constant), SIZE, NPLR, LIQ, ISR, CDR, CAR

Source: Appendix- IV

Table 7 shows the regression analysis result for the dependent variable ROE and independent variables capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, NPL ratio and bank size of NABIL, HBL, SBL, NICA and SANIMA over the study period. The table shows that the total effect of independent variables into dependent variable i.e. R-squared is 0.479 which means that out of total change in ROE of the banks is 47.90 percent change is explained by capital adequacy ratio, credit

deposit ratio, liquidity ratio, interest spread rate, NPL ratio and bank size of the banks and the remaining change in ROE is affected by other variables which are not included in this regression analysis. It also explained that the independent variables have strong association with dependent variables of the model.

Table 8

ANOVA Table

Statistics	Sum of Squares	df	Mean Square	F	Sig.
Regression	573.641	6	95.607	6.589	0.000
Residual	623.92	43	14.51		
Total	1197.561	49			

a. Dependent Variable: ROE, $\alpha = 5\%$ (0.05)

b. Predictors: (Constant), SIZE, NPLR, LIQ, ISR, CDR, CAR

Source: Appendix- IV

Table 8 shows the analysis of ANOVA showing the significance of regression model used in this study. Here, Sig. value is 0.000 which is less than 5 percent meaning that overall regression model is significant and there is linear relationship between capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, NPL ratio, bank size and return on equity of the banks. And the regression model in fit for the analysis.

Table 9

Coefficients Table

Variables	Beta Coefficient	t	Sig.	Tolerance	VIF
(Constant)	49.271	3.684	0.001		
CAR	-0.424	-0.634	0.529	0.625	1.600
CDR	-0.326	-3.418	0.001	0.750	1.334
LIQ	-0.077	-1.255	0.216	0.816	1.225
ISR	3.514	3.106	0.003	0.852	1.174
NPLR	-2.088	-3.226	0.002	0.734	1.362
SIZE	-0.839	-0.835	0.409	0.671	1.491

a. Dependent Variable: ROE, $\alpha = 5\%$ (0.05)

Source: Appendix- IV

Table 9 presents the regression coefficients of each independent variables of the regression model. Table also presents the multicolinearity status among the independent variables of the regression model. Since the values of VIF for all the independent variables are less than 5, there is no problem of multicolinearity in the regression model. The beta coefficient of capital adequacy ratio is -0.424 with the p-value 0.529, which indicates that capital adequacy ratio of the banks has no significant negative effect on ROE of the banks. The coefficient also depicts that if capital adequacy ratio of the banks increases by 1 percent ROE of the banks decreases by 0.424 percent.

Similarly, the effect of credit deposit ratio into the ROE of the banks is negative i.e. -0.326 which indicates that if loan to deposit ratio of the banks increases by 1 percent ROE of the banks decreases by 0.326 percent and the coefficient is statistically significant at 1 percent level of significance since p-value i.e. 0.001 is less than 1 percent level of significance.

Likewise, the effect of liquidity ratio into the ROE of the banks is negative i.e. -0.077 which indicates that if loan to deposit ratio of the banks increases by 1 percent ROE of the banks decreases by 0.077 percent and the coefficient is statistically not significant at 5 percent level of significance since p-value i.e. 0.216 is higher than 5 percent level of significance.

However, the coefficient of interest spread rate is 3.514 which indicates that if interest spread rate of the banks increases by 1 percent ROA of the banks also increases by 3.514 percent and this coefficient is statistically significant at 1 percent level of significant since the p-value i.e. 0.003 for the coefficient is less than 1 percent.

On the other hand, the coefficient of non-performing loan ratio is -2.008 which indicates that if non-performing loan ratio of the banks increases by 1 percent ROA of the banks also decreases by 2.008 percent but the coefficient is significant at 1 percent level of significance since the p-value i.e. 0.002 for the coefficient is less than 1 percent.

In contrast, the beta coefficient of bank size is -0.839 which indicates that if total assets of the banks increases by 1 percent ROA of the banks decreases by 0.839 percent and

the coefficient is statistically not significant since p-value i.e. 0.409 is higher than 5 percent level of significance.

4.2 Discussions

The descriptive analysis in this study revealed that the average capital adequacy ratio shows that the banks have maintained the capital requirement as per the NRB guidelines. The banks have slightly higher average loan to deposit ratio as per the NRB guideline. The liquidity ratio shows that the banks have maintained the liquidity requirement since there is more that 10 percent liquidity in hand which makes banks secured in term of short term liquidity crisis. The interest spread rate shows that the banks on average earn 4.02 percent more interest income form loan and advance than interest paid to depositors during the study period. The NPL ratio shows that the banks are quite efficiently managing their loan and advances since there is less than 5 percent NPL ratio in the banks on average. The return on assets shows that the banks are managing the assets properly in the earning activities. The return on equity shows that the equity holders of the banks earn more than 15 percent.

The relationship analysis found that there is negative correlation between return on assets (ROA) and capital adequacy ratio (CAR) i.e. -0.098 which means that increasing capital adequacy ratio of the banks decreases the return on assets of the banks. On the other hand, correlation between return on assets (ROA) and credit deposit ratio (CDR) is negative i.e. -0.499 which means that increasing credit deposit ratio of the banks decreases the return on assets of the banks. Likewise, correlation between return on assets (ROA) and liquidity ratio (LIQ) is negative i.e. -0.155 which means that increasing liquidity ratio of the banks decreases the return on assets of the banks. Moreover, correlation between return on assets (ROA) and interest spread rate (ISR) is positive i.e. 0.305 which means that increasing NPL ratio of the banks increases the return on assets of the banks. Moreover, correlation between return on assets (ROA) with NPL ratio (NPLR) is negative i.e. -0.222 which means that increasing NPL ratio of the banks decreases the return on assets of the banks. In contrast, the correlation between return on assets (ROA) and bank size (SIZE) is negative i.e. -0.336 which means that increasing total assets of the banks decreases the return on assets of the banks.

The negative relationship between ROA and CAR is consistent with the finding of Gautam (2019) who revealed that capital adequacy ratio negatively associated with return on assets of the banks. The negative relationship between ROA and CDR is not consistent with the finding Kawor and Atinyo (2021) and Yeasin (2022) who found positive effect of loan to deposit ratio on ROA of the banks. The negative relationship between ROA and LIQ is consistent with the finding of Shehzad et al. (2013) and Atabaeva et al. (2022) who found the negative relation of retrn on assets and liquidity in their study. The positive relationship between ROA and ISR is consistent with Alhassan et al. (2018) who found that higher intererst spread means higher net interest income of the banks and profitability of the banks increases. The negative relationship between ROA and NPLR is consistent with the findings of Yeasin (2022) who showed the negative effect of non-performing loan ratio into ROA of the banks. The negative relationship between ROA and SIZE is not consistent with the finding of Pradhan and Khadka (2017) who stated that total assets of the banks has positive relation with return on assets of the banks.

Similarly, correlation between return on equity (ROE) and capital adequacy ratio (CAR) is negative i.e. -0.241 which means that increasing capital adequacy ratio of the banks decreases the return on equity of the banks. On the other hand, correlation between return on equity (ROE) and credit deposit ratio (CDR) is negative i.e. -0.470 which means that increasing credit deposit ratio of the banks decreases the return on equity of the banks. Likewise, correlation between return on equity (ROE) and liquidity ratio (LIQ) is negative i.e. -0.002 which means that increasing liquidity ratio of the banks decreases the return on equity of the banks. Moreover, correlation between return on equity (ROE) and interest spread rate (ISR) is positive i.e. 0.374 which means that increasing NPL ratio of the banks increases the return on equity of the banks. However, correlation between return on equity (ROE) and NPL ratio (NPLR) is negative i.e. -0.180 which means that increasing NPL ratio of the banks decreases the return on equity of the banks. In contrast, correlation between return on equity (ROE) and bank size (SIZE) is negative i.e. -0.360 which means that increasing total assets of the banks decreases the return on equity of the banks.

The negative relationship between ROE and CAR is consistent with Pradhan and Kafle (2021) who revealed the negative association between capital adequacy ratio and return

on equity. The negative relationship between ROE and CDR is similar to the finding of Rahmanullah (2021) who found negative effect of loan to deposit ratio on ROE of the banks. The negative relationship between ROE and LIQ is similar with the finding of and Atabaeva et al. (2022) who found negative relation return on equirt with liquidity ratio of the banks. The positive relationship between ROE and ISR is consistent with Karki (2020) who found that higher intererst spread means higher net interest income of the banks and profitability of the banks increases. The negative relationship between ROE and NPLR is consistent with the result of Naji and Shabib-Ul-Hassan (2023) who found negative effect on non-performing loan ratio on ROE of the banks. But the result is not consistent with the finding of Javaid et al. (2011) who found the positive association between return on equity and NPL ratio of the banks. The negative relationship between ROE and SIZE is opposite with the finding of Pradhan and Khadka (2017) who found the positive relation between assets of the banks and return on equity of the banks.

The regression analysis found that capital adequacy ratio (CAR) has significant positive effect on ROA of the banks. Similarly, credit deposit ratio (CDR) of the banks has significant negative effect on return on assets of the banks. Likewise, the effect of liquidity ratio (LIQ) on return on assets is significant negative. Moreover, the effect of interest spread rate (ISR) on return on assets is significant positive. In contrast, bank size (SIZE) has negative effect on ROA of the banks. Moreover, NPL ratio (NPLR) has significant negative effect on ROA of the banks.

The positive effect of CAR on ROA is consistent with the findings of Mahmud et al. (2016) and Kamande et al. (2016) and contradict with the findings of Neupane (2020), Budathoki and Rai (2020) and KC and Acharya (2023) who found negative effect of capital adequacy ratio on return on assets of the banks. The negative effect of CDR on ROA is opposite with the finding Kawor and Atinyo (2021) and Yeasin (2022) who found positive effect of loan to deposit ratio on ROA of the banks. The negative effect of LIQ on ROA is in line with the findings of Shehzad et al. (2013) and Islam and Nishiyama (2016) found negative effect of liquidity ratio on return on assets of the banks. The positive effect of ISR on ROA is in line with the findings with Alhassan et al. (2018) and Karki (2020) who found that higher interest spread means higher net interest income of the banks and profitability of the banks increases. The negative effect of NPLR

on ROA is consistent with the finding of Mahmud et al. (2016) who stated that NPL ratio has negative effect on return on assets of the bansk. The negative effect of SIZE on ROA is opposite with the findings of Shehzad et al. (2013) and Kosumi and Kosumi (2021) who found the positive effect of assets of the banks on return on assets of the banks.

The another regression analysis found that capital adequacy ratio (CAR) has insignificant negative effect on ROE of the banks. In the same way, credit deposit ratio (CDR) of the banks has significant negative effect on return on assets of the banks. Similarly, liquidity ratio (LIQ) has no significant negative effect on ROE of the banks. Likewise, the effect of interest spread rate (ISR) on return on equity is significant positive. Moreover, NPL ratio (NPLR) has significant negative effect of NPL ratio on ROE of the banks. In contrast, bank size (SIZE) has no significant negative effect on ROE of the banks.

The negative effect of CAR on ROE is not consistent with the finding of Naji and Shabib-Ul-Hassan (2023) who found opsitive effect of capital adequacy on return on equity of the banks. The negative effect of CDR on ROE is opposite with the finding Kawor and Atinyo (2021) and Yeasin (2022) who found positive effect of loan to deposit ratio on ROA of the banks. The negative effect of LIQ on ROE is consistent with the finding of Shehzad et al. (2013) who found that increase in liquidity ratio influence to decrease return on equity of the banks. The positive effect of ISR on ROE is in line with the findings with Alhassan et al. (2018) and Karki (2020) who found that higher interest spread means higher net interest income of the banks and profitability of the banks increases. The negative effect of NPLR on ROE is consistent with the findings of Naji and Shabib-Ul-Hassan (2023) who found negative effect of NPL ratio on return on equity of the banks. The negative effect of SIZE on ROE is not consistent with the findings of Shehzad et al. (2013) who found that increase in bank size influence to increase return on equity of the banks.

CHAPTER V
SUMMARY AND CONCLUSION

In this chapter, the summary of the study has been presented along with conclusions and actionable suggestions for the sample banks for the enhancement of profitability with the proper balance in the factors of the profitability analyzed in this study.

5.1 Summary

An economy controlled by banks has a greater role for the banking sector than one dominated by capital. Growth of Nepal's economy is largely dependent on the performance of banks. Financial regulations employ a range of prudential regulations, policies, and circulars to tackle these issues. The goal of Nepal Rastra Bank (NRB), the country's central bank, was to uphold pricing, balance of payments (BOP), and overall financial sector stability in order to promote Nepal's long-term, sustainable growth. The NRB strictly regulates the operation of Nepal's banking sector, and the BFIs that are founded there abide by the rules, regulations, directives, and circulars that the NRB issues. Determining the specific combination of rules and supervision requirements that support the smooth operation of commercial banks is made possible by research on financial performance, which makes it essential for advising policymakers on the best course of action. Profitability analysis means the study of profit and ability which motivates the organization to achieve the objectives effectively and efficiently. It is one of the most important mechanisms for running business operations. The effective operation of a business concern resulting into the excess of income over the expenditure fully depends upon as to what extent the management follows proper study, effective coordination and dynamic control.

The main objective of the study is to analyze the impact of financial regulatory changes on the financial institutions in Nepal. This study mainly analyzed the impact of regulatory factors as capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, non-performing loan ratio and bank size since on these variables NRB has regulatory provisions for the financial institutions. The study is totally based on secondary sources of data collected from published annual reports of sample banks

selected for this study and the study covers the data of sample banks from year 2013/14 to 2022/23.

There are 20 commercial banks have been operating in Nepal which are considered to be the population of the study and out of them five commercial banks i.e. NABIL, HBL, SBL, NICA and SANIMA have been taken as a sample of the study and the collected data have been analyzed. This study used descriptive and causal research design. The descriptive research design is adopted to clearly examine the detailed and accurate picture of the capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, non-performing loan ratio, bank size, return on assets and return on equity of sample banks while causal research is adopted for the relationship and effect analysis of regulatory variables on profitability of the commercial banks in Nepal. In this study data collected from the different sample banks are arranged in the panel data set and analyzed with the help of SPSS software.

The analysis found that that the average capital adequacy ratio shows that the banks have maintained the capital requirement as per the NRB guidelines. The banks have slightly higher average loan to deposit ratio as per the NRB guideline. The liquidity ratio shows that the banks have maintained the liquidity requirement since there is more that 10 percent liquidity in hand which makes banks secured in term of short term liquidity crisis. The interest spread rate shows that the banks on average earn 4.02 percent more interest income form loan and advance than interest paid to depositors during the study period. The NPL ratio shows that the banks are quite efficiently managing their loan and advances since there is less than 5 percent NPL ratio in the banks on average. The return on assets shows that the banks are managing the assets properly in the earning activities. The return on equity shows that the equity holders of the banks earn more than 15 percent.

The relationship analysis found that there is negative correlation between return on assets and capital adequacy which is not significant. On the other hand, there is negative correlation between return on assets and credit deposit ratio which is significant. Likewise, there is negative correlation between return on assets and liquidity ratio which is not significant. Moreover, there is positive correlation between return on assets and interest spread rate which is significant. In contrast, there is negative correlation

between return on assets and NPL ratio which is not significant. In contrast, there is negative correlation between return on assets and banks size which is significant.

Another relationship analysis found that there is negative correlation between return on equity and capital adequacy ratio which is not significant. On the other hand, there is negative correlation between return on equity and credit deposit ratio which is significant. Likewise, there is negative correlation between return on equity and liquidity ratio which is not significant. Moreover, there is positive correlation between return on equity and interest spread rate which is significant. However, there is negative correlation between return on equity and NPL ratio which is not significant. In contrast, there is negative correlation between return on equity and banks size which is significant.

5.2 Conclusion

The purpose of this study is to examine the effect of regulatory factors on profitability of Nepalese commercial banks. In this study regulatory factors of profitability are analyzed as capital adequacy ratio, credit deposit ratio, liquidity ratio, interest spread rate, non-performing loan ratio and bank size and the profitability of the banks such as return on assets and return on equity. It is concluded that profitability of the banks as ROA and ROE of the banks during the study period have higher variances in comparison to other variables of the study. There is consistent assets growth in the banks during the period. Banks have maintained total assets, capital adequacy, liquidity and spread rate as per the NRB guidelines. However, there is slightly higher credit deposit ratio on average the non-performing loan ratio of the banks are under the limit.

The relationship analysis concludes that capital adequacy ratio, liquidity ratio and non-performing loan ratio have negative relation with profitability as return on assets and return on equity of the banks and only one variable interest spread rate has significant positive relation with return on assets and return on equity of the banks. However, there is significant negative association between profitability and credit deposit ratio and bank size of the banks.

The regression analysis concludes that credit deposit ratio, liquidity ratio and non-performing loan ratio have significant negative effect on return on assets of the banks,

whereas capital adequacy ratio and bank size have insignificant effect on return on assets of the banks. Likewise, it is also concluded that there is significant negative effect of credit deposit ratio and non-performing loan ratio on return on equity of the banks. However, there is significant positive effect of interest spread rate on return on equity of the banks. The capital adequacy ratio, liquidity ratio and bank size have no significant negative effect of return on equity of the banks. The results of this study help the policy makers to take effective action in order to improve banks' profitability by managing these regulatory factors of the profitability.

5.3 Implications

The bank specific factor of profitability analysis in the study has various implications to different stakeholders.

- The management of the banks can look at the variables analyzed in this study and can get idea to maintain the level of these variables as the NRB guideline to get better financial performance. The management of liquidity ratio can help to get adequate liquidity in hand and utilize the fund in earning sector to increase profitability.
- Since NPL ratio usually decreases the earning of the banks, but the increasing NPL shows higher flow of loan and advance in the bank which increases the interest income and the profitability increases, so banks should focus on the granting loan and advance with the plan to recover in future.
- As this study include the variables like; capital adequacy ratio and liquidity ratio for the analysis the policy makers can get the information of the availability of liquidity and capital in the banks and can make required action toward this in future for better banking environment.
- The central bank modifies several provisions and keeps a close eye on the banks. Banks can adjust their policies accordingly by taking into account the various aspects and how these factors may affect the banks' profitability and efficiency.
- The foundation of the nation's financial system is its banks. Because it undermines the confidence of different stakeholders in the system, a notable decline in profit for such a crucial component of the system could trigger the collapse of the financial system as a whole. When formulating regulations, the supervisory body ought to appropriately assess how those regulations would

affect the banks' profitability. This study supports similar actions by the regulator.

- This study clearly shows the significant factors affecting the profitability of the Nepalese commercial and the investors who are interested to invest in banking sectors can select the stronger banks to invest by reviewing the findings of this study.
- This study covers only six regulatory factors and five sample banks into consideration, therefore, further research needs to be done by including more variables and more samples to make comprehensive study.

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