PORTFOLIO MANAGEMENT OF COMMERCIAL BANKS IN NEPAL

A Dissertation submitted to the Office the Dean, Faculty of Management in partial fulfilment of the requirements for the Master of Business Studies (MBS)

By

Nisha Shrestha

Campus Roll No: 3139/076

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Shanker Dev Campus

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CERTIFICATE OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled **"Portfolio management of commercial banks 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 requirements for any other academic purposes. The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information sources and literature used are cited in the reference section of the dissertation.

…….

Nisha Shrestha

Date: -

REPORT OF RESEARCH COMMITTEE

Nisha Shrestha has defended research proposal entitled **"Portfolio management of commercial banks 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 Kamal Prakash Adhikari and submit the thesis for evaluation and viva voce examination.

Signature: ……
Kamal Prakash Adhikari
Dissertation supervisor

Dissertation proposal Defended Date:

Dissertation Submitted Date:

Asso. Prof. Dr Sajeeb Kumar Shrestha
Head of Research Committee
Signature: …….

Dissertation viva-voce Date:

APPROVAL - SHEET

We, the undersigned have examined the thesis entitled **"Portfolio management of commercial banks in Nepal"** presented by Nisha Shrestha, a candidate for the degree of Master of Business Studies (MBS Semester) and conducted the viva voce examination of the candidate. We hereby certify that the thesis acceptable for the award of degree.

…….
Kamal Prakash Adhikari
Dissertation Supervisor

……
Internal Examiner

……
Internal Expert

…….
External Expert

…….
Asso. Prof. Dr. Sajeeb Kumar Shrestha
Chairperson Research Committee

……
Asso. Prof. Dr. Krishna Prasad Acharya
Campus Chief

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Nisha Shrestha

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ABBREVIATIONS

AGR:	Growth Rate
Avg:	Average
C. Size:	Company Size
CAR:	Capital Adequacy Ratio
CRR:	Cash Reserve Ratio
EBL:	Everest Bank Limited
F.A:	Fixed Assets
LIQ:	Liquidity
Ltd.:	Limited
NEPSE:	Nepal Stock
NIBL:	Nepal Investment Bank Limited
NMB:	NMB Bank Limited
NPL:	Non-Performing Loan
NSBI:	Nepal SBI Bank Limited
ROA:	Return on Assets
ROE:	Return on Equity
SBL:	Siddhartha Bank Limited
Std. Dev:	Standard Deviation

ABSTRACT

This study is portfolio management of commercial banks in Nepal. The main objectives of this study are to analyze the portfolio investment managed by the commercial banks in Nepal, to assess the existing situation of financial position of commercial banks in Nepal, and to examine the investment portfolio choices, affect the performance of commercial banks in Nepal. Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Total Assets (TA) and Cash Reserve Ratio (CRR) are the independent variables and Return on Assets (ROA) and Return on Equity (ROE) are the dependent variable in this study. Mean, standard deviation, descriptive statistics, correlation and multiple regression analysis are taken to present data. The major finding of this study is the correlations across variables, we can identify patterns and interdependencies. For instance, the strong positive correlation between ROA and CRR that banks with higher returns on assets tend to hold more cash reserves, potentially for liquidity management purposes. On the other hand, the relatively weaker correlations between ROA and Total Assets (TA) imply that asset size alone does not strongly influence return on assets, highlighting the significance of efficient asset deployment and risk mitigation strategies. Furthermore, the high correlations between ROE and CAR as well as ROE and CRR indicate that banks with stronger capital adequacy and higher cash reserves tend to generate better returns for their equity holders. In regression analysis, CAR and TA are positive significant relationship with ROA and NPL and CRR are insignificant relationship with ROA. In similarly, NPL and TA are significant relationship with ROE and CAR and CRR are insignificant relationship with ROE.

Keywords: *Banks and Financial Institution, Return in Equity, Return on Assets, Non-Performing Loan, Size and Cash Reserve Ratio.*

CHAPTER I

INTRODUCTION

1.1 Background of the study

A bank is an institution, which bargains in cash, accepting it on store from the clients, honoring clients drawing against such stores on request, collecting cheques for clients and loaning or contributing excess stores until they are required for installment. Within the later days, different sorts of banks are set up for occurrence mechanical bank, commercial banks, agribusiness bank, joint wander bank, agreeable bank and development bank. This can be the since of the development in populace, changes happened within the mechanical field and exchange, the starting of the competitive age and changes within the individual's belief system and due to reliance on each other (Bhandari, 2013).

The financial position of commercial banks in Nepal is currently characterized by a blend of opportunities and challenges. In recent years, the banking sector has experienced significant growth, driven by increased deposits, expanded lending activities, and a wider reach of banking services across the country. The central bank's policies aimed at encouraging financial inclusion have led to a rise in the number of branches and banking agents, particularly in rural and underserved areas. Moreover, the adoption of modern banking technologies and digital services has enhanced operational efficiency and customer service, contributing to the sector's overall stability and profitability.

However, the sector also faces several challenges that impact its financial position. Non-performing loans (NPLs) remain a concern, posing risks to asset quality and profitability. Regulatory requirements have become more stringent, demanding higher capital adequacy and better risk management practices. Additionally, the economic impact of external factors such as political instability and natural disasters can strain the financial health of banks. Despite these hurdles, the resilience of Nepalese commercial banks is evident in their ability to adapt and sustain growth, reflecting a cautiously optimistic outlook for the future.

In most a long time, banks are the driving buyers of bonds and notes issued by government to back open offices, extending from clinic and football stadium to air terminal and thruways. In

addition, bank saves the central channel for government financial approach to stabilize the economy. And banks are too the foremost imperative sources of brief- term working capital required for the businesses. They have gotten to be progressively dynamic in later a long time in making long-term commerce credits for unused plant and hardware. When businesses and buyers must make installments for the buy of products and administrations, more regularly they utilize bank given cheques, credit or charge cards, or electronic accounts associated to a computer arrange. It is the investor to whom they turn most habitually for prompts and advise when they require monetary data and money related arranging (Pokharel, 2009).

A speculation in any reserves is made to have a few positive rates of return. No one is prepared to bear chance without any return but to have returned one must prepare to face some hazard. To play down the chance at the given rate of return the concept of portfolio broadening is necessary. Portfolio is basically a collection of securities assembled to realize certain speculation objectives. "Investment positions are attempted with the objective of winning a few anticipated returns. Financial specialists look for to play down wasteful deviations from this anticipated rate of return. Broadening is basic to the certain of a productive venture since it can decrease the changeability of returns around the anticipated return" (Francis, 2003).

A portfolio may be a combination of speculation of venture resources. The portfolio is the holding of securities and speculation in monetary resources i.e., bonds, stock. Portfolio administration is related to the proficient portfolio speculation in monetary resources. The portfolio examination is changed to create a portfolio that has the greatest return at anything level of chance and financial specialist considers suitable. On the off chance that portfolio is being built, they can diminish unsystematic risk without losing impressive return, hence we got to extend our investigation of chance and return of portfolio setting. “Portfolio implies a collection or group of resources. Venture portfolio alludes to a speculation that combines a few resources. It may be a collection of securities. Portfolio implies the records of possessions in securities possessed by a speculator or institution.” (John & Edmund, 1997).

Portfolio administration is concerned with effective administration of portfolio speculation in budgetary resources counting offers and debentures of companies. The administration may be by experts, by others, or people themselves. A portfolio of a person or a corporate unit is the holding of securities and venture in budgetary resources. These possessions are the result of

person inclinations and choices with respect to chance and return. The method of portfolio administration is closely and directly connected with the method of choice making the rightness of which cannot be guaranteed in all cases (Jaiswal, 2012).

Portfolio examination considers the assurance of future chance and return in holding mixes of person securities. Portfolio anticipated return could be a weighted normal of the anticipated return of the person securities. Speculation portfolio is one which the salary or benefit of the banks ought to never contribute its finance in those securities; contrast may cause a awesome misfortune. “Portfolio implies a collection or gather of resources. Venture portfolio alludes to an investment that combines a few resources. It could be a collection of securities. “Portfolio implies the records of property in securities claimed by a speculator or institution.” (John & Edmund, 1997).

It must not contribute its stores into theoretical trade man who may be bankrupt at once and who may win millions in a miniature. The bank ought to acknowledge that sort of securities which are commercial, strong, attractive steady, transferable and tall advertise costs. A commercial bank can maximize its volume of riches through maximization of return on their funds' speculations and loaning. So, they must contribute their stores where they pick up most extreme benefit. The benefit of commercial banks basically depends on the intrigued rate volume, residency of advance and nature of speculation completely different securities whereas contributing abundance reserves in numerous securities or at the bank in several securities. While contributing abundance stores completely different securities or at the loaning period, the banks ought to be beyond any doubt that the individuals store cash at the bank completely different account with certainty that the bank will reimburse their cash on request. Additionally, a bank ought to not lay all its eggs on the same wicker container i.e., to play down hazard, a bank must broaden its speculation on distinctive segments. Enhancement of credit or speculation makes a difference to maintain misfortune concurring to the law of normal since in the event that securities of a company denied, there may be appreciation within the securities of other companies.

1.2 Problem Statement

The contributing arranging of the commercial banks in Nepal intensely depends on the rules and controls given by the central bank i.e., Nepal Rastra Bank. So, the composition of the resources portfolio of the bank is impacted by the approach of the central bank. Consequently, typically the major issue for the investment in portfolio by banks. Within the show situation of Nepal, the complex political and financial circumstance, need of infrastructural offices and down drop of parcels of businesses (private or government) have too ended up the major issues for the portfolio administration for the banks as these all components have deterred the speculation openings for the banks.

The importance of understanding what drives profitability in the banking sector is particularly significant given that many countries rely heavily on bank-based financial systems. Banks, serving as financial intermediaries, are crucial for economic operations. This is especially true in Kenya, where banks have increasingly provided funds across various economic sectors, including the informal sector. The stability of these banks is vital for the financial system, making it essential to comprehend the factors influencing their profitability. Extensive empirical research has been conducted on this topic. Studies by Goaied (2001), Naceur (2003), Athanasoglou et al. (2005), and Aburime (2008) have identified operating expenses, loan provisions, asset values (capital ratios), and interest rates as key factors for achieving high profitability. Tobias and Themba (2011) and Ravallion (2009) emphasize the need for more detailed, country-specific research on what influences bank profitability and performance. Despite other business sectors underperforming, commercial banks in Kenya consistently report high profitability, underscoring the need for this study.

After the selection of financial liberalization approach, the competition for commercial banks have ended up the burning issue as there's crisis of parcels of fund companies, co-operative social orders and development banks within the short time span. This has debilitated the complete keeping money framework additionally made supervisors to move forward their efficiency. The credit arrangement, rebate rate arrangement, interest rate and loaning approach to impact the investment choices of the commercial banks. There's nonstop financial retreat going on within the nation. Lower volume of the venture is causing lower growth of net household item and consequently exchange shortage is expanding day by day. As a result,

exceptionally few business people are able to outlive and others who are less competitive are backing out from showcase. Commercial banks are too influenced specifically by this financial turmoil and confronting troubles in outfitting their credits and propels towards the productive segments. In such a circumstance the commercial banks are bound to contribute in government venture like T-bills, T-bonds or government securities which surrender lower rate of return in comparison to credit.

This state of undertakings cannot contribute much to the financial advancement of the nation and has too gotten to be the issue to commercial banks. In arrange to discover out the portfolio behavior and cures to their issue, ponders commercial banks and inquiries about are to be conducted to investigate the reality. So, this think about would be one of those endeavors to discover out the speculation design of commercial banks in portfolio with the investigation of these banks advertise returns and monetary explanations. This ponder looks for the answers of the taking after particular issues related to portfolio administration hones of Nepalese commercial banks.

i. What is the existing situation of financial position of commercial banks in Nepal?
ii. What is the relation of portfolio investment managed by the commercial banks in Nepal?
iii. How the investment portfolio choices affect the performance of commercial banks in Nepal?

1.3 Objectives of the Study

The main objectives of the study are to examine the portfolio investment management of the commercial banks in Nepal. This study is focused on investment decisions of banks on portfolio. The specific objectives of the study are as given below:

i. To assess the existing situation of financial position of commercial banks in Nepal.
ii. To analyze the relationship of portfolio investment managed by the commercial banks in Nepal.
iii. To examine the affect the performance of investment portfolio choice of commercial banks in Nepal.

1.4 Rationale of the Study

With the presentation to the globalization concept, the total advertises acts as a single advertise. The speculation is concentrated not as it were in one region of put. It has broadened its scope. Portfolio administration is picking up ubiquity. Overseeing portfolios speculation is very a challenging errand. Diverse parties stay beneath impact from any commerce specifically or by implication as each commerce firm's financial movement ought to be performed taking into thought the financial arrangement of the state which in turn influences the financial approach of the state and monetary condition of the firm. All financial specialists contribute their finance on share for getting more prominent return which is accomplished by the organization through esteem maximization objective. Already, the speculators had to concentrate as it were on offers of government divisions. But today with the presentation of financial liberalization within the nation, different joint wander banks have developed which have brought in adequate of openings for venture to the financial specialists within the nation. This has been emerged the require of profundity think about and examination of chance and return, advertise affectability and thus portfolio administration is made.

This consider has been critical to different perspectives of the economy. This think about makes a difference the organization to know around all its budgetary pointers and the slant in their variance. It moreover makes a difference the organization to have a clear picture with respect to its efficiencies and the execution deviations as well. The result of the by and large inquire about makes a difference the organization to enhance ways to illuminate the issues in the event that any. The ponder too makes a help to the complete managing an account industry. The instrument can be utilized to nearly all the banks and a comparative think about can moreover be done. It eventually makes a difference to know approximately the soundness of the keeping money division.

1.5 Limitation of the Study

Every study is guided under certain limitation but the researcher has tried to include all the necessary information for the conduct of the study as far as possible. Following are some limitations under which this study has been conducted.

i. The accuracy of the study is based on the data and the various published documents selected banks only.
ii. The data is used from the secondary sources.
iii. This study has concentrated only in the profitability measurement of EBL, NIBL, NMB, NSBI, and SBL banks out of 20 commercial banks in Nepal.
iv. This study is not applicable to all banks since it is concerned to five commercial banks.
v. This study is only based on profit, so few measurement tools will be applied.
vi. The reliability of the secondary data is highly depending on the accuracy of the annual report of the concerned banks.
vii. The time factor is the major limitation for this study has to be completed within a short span of time. The study has covered the data of past fiscal years from 2013/14 to 2022/23.
viii. The study only concerns portfolio management while doing the investment decision.

CHAPTER II

LITERATURE REVIEW

A literature review is a comprehensive examination of prior research studies and pertinent materials, representing a progression of existing knowledge and a thorough exploration of the subject matter. The process commences with the identification of a suitable topic and extends across various volumes encompassing similar or related subjects. This element is closely tied to the present research, introducing a novel dimension to the study. Undeniably, it stands as an integral and imperative component of any research endeavor. The focal point of this section lies in the conceptual framework and the review of literature, specifically pertaining to portfolio management. Extensive scrutiny has been applied to a plethora of resources, including books, journals, and articles germane to the topic. The review of literature is grounded in the available body of work within the research field. Diligent efforts have been exerted to assimilate knowledge and information gleaned from libraries, facilitating comprehensive feedback and augmenting the breadth of information for the study.

2.1 Theoretical Review

The primary motive behind any investment is the aspiration to augment wealth. Investment, essentially, involves dedicating funds with the anticipation of generating additional financial returns. It inherently carries a certain level of risk, demanding a current financial commitment in exchange for a prospective but uncertain future benefit. Given the focus of this thesis on portfolio investment management conducted by banks in Nepal, a comprehensive examination will delve into the intricacies of returns, risks, and subsequently, a detailed portfolio analysis in connection to this context.

2.1.1 Efficient Market Hypothesis (EMH) Theory

The Efficient Market Hypothesis (EMH) is a foundational theory in financial economics that posits that financial markets are efficient in reflecting all available information in asset prices. This theory was developed and popularized by Eugene Fama in the 1960s and has since been widely studied and debated by economists, financiers, and academics. EMH asserts that it is impossible to consistently achieve higher-than-average returns by using historical information

or analyzing current market data because all relevant information is already incorporated into asset prices. One key aspect of EMH is the three forms it takes: weak, semi-strong, and strong. The weak form suggests that past price and volume information is already reflected in current stock prices, making it difficult for investors to gain an edge through technical analysis. The semi-strong form extends this idea to argue that all publicly available information, including financial statements and economic indicators, is already incorporated into stock prices.

Support for EMH comes from various studies and empirical evidence. Fama (1991) conducted early research on the weak form, examining the randomness of stock prices and concluding that historical price information does not offer a reliable basis for predicting future price movements. Subsequent studies, such as those by Malkiel (1973), further reinforced the idea that market prices follow a random walk and are not predictable based on historical data. In the semi-strong form, studies like those by Jensen (1978) and Fama and French (1988) have examined the speed at which stock prices adjust to new information, providing insights into the efficiency of markets in incorporating publicly available data. Fama (1991) himself has acknowledged that while anomalies exist, they are often inconsistent and challenging to exploit systematically.

On the practical side, EMH has had a substantial impact on investment strategies. Index funds, which passively replicate the performance of a market index, are aligned with the EMH philosophy. Burton Malkiel's influential book, "A Random Walk Down Wall Street" (1973), popularized the idea that attempting to beat the market through active management is akin to a random walk. However, critics of EMH, such as Shiller (1981) and De Bondt and Thaler (1985), argue that market inefficiencies exist and that certain anomalies, such as stock market bubbles and crashes, cannot be explained solely by rational expectations. Behavioral finance, a field that emerged as a response to EMH, incorporates psychological factors and investor behavior to explain market anomalies.

In conclusion, while EMH has significantly shaped modern financial thought and influenced investment strategies, it remains a subject of ongoing debate. The efficient market hypothesis, with its various forms and empirical implications, continues to be a cornerstone in the understanding of financial markets and investment behavior.

2.1.2 Agency Cost Theory

The Agency Cost theory, developed within the framework of corporate finance, delves into the challenges and conflicts that arise between different stakeholders within a corporation. Originating from the seminal work of Michael C. Jensen and William H. Meckling in their influential paper "Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure" (1976), this theory addresses the agency problems that emerge due to the separation of ownership and control in corporations. At its core, the Agency Cost theory contends that when a firm's ownership is dispersed among numerous shareholders, managers may not always act in the best interest of the shareholders. This misalignment of interests between principals (shareholders) and agents (managers) leads to agency costs, which are the direct and indirect costs associated with the efforts to mitigate or resolve conflicts of interest. One aspect of agency costs is the divergence of goals between shareholders and managers. Jensen and Meckling (1976) argue that managers may pursue their own interests rather than maximizing shareholder wealth. This may manifest in decisions that prioritize managerial perks, job security, or empire-building over shareholder value maximization.

Monitoring mechanisms, such as executive compensation packages and performance incentives, are suggested by Jensen and Meckling as tools to align the interests of managers with those of shareholders. Fama (1970) extended this notion by emphasizing the role of monitoring and control mechanisms in mitigating agency costs, including the market for corporate control, where the threat of takeovers can discipline managerial behavior. The Agency Cost theory also considers the role of debt in mitigating agency problems. Jensen (1978) argued that debt acts as a disciplinary mechanism because it creates a financial cost for managers who deviate from shareholder interests. The possibility of bankruptcy and financial distress due to excessive risk-taking or poor managerial decisions can incentivize managers to act more responsibly.

Subsequent research by Shleifer and Vishny (1997) explored the impact of legal and regulatory systems on agency costs. They argued that the effectiveness of legal frameworks and the protection of minority shareholder rights play a crucial role in shaping the level of agency costs within a corporation. While the Agency Cost theory has provided valuable insights into understanding the dynamics of corporate governance, it has also faced criticisms. Some

scholars, such as Easterbrook and Fischel (1981), questioned the theory's broad applicability, highlighting that the costs associated with monitoring and control mechanisms could sometimes outweigh the benefits. In recent years, the Agency Cost theory has evolved to incorporate insights from behavioral economics and institutional perspectives. Scholars like Rajan and Zingales (1998) emphasized the importance of institutional factors in influencing agency costs, pointing to variations in legal and financial systems across countries.

In conclusion, the Agency Cost theory has significantly shaped the discourse on corporate governance and managerial behavior. Jensen and Meckling's seminal work have spurred extensive research, leading to a deeper understanding of the mechanisms employed to align the interests of shareholders and managers and the broader implications for corporate performance. Despite ongoing debates and refinements, the Agency Cost theory remains a crucial lens through which scholars and practitioners analyze corporate governance issues and develop strategies to enhance shareholder value.

2.1.3 Arbitrage Pricing Theory (APT)

Arbitrage Pricing Theory (APT), introduced by Stephen Ross in his groundbreaking paper "The Arbitrage Theory of Capital Asset Pricing" (1976), provides an alternative framework to the Capital Asset Pricing Model (CAPM) for understanding the relationship between risk and return in financial markets. APT departs from CAPM by suggesting that the expected return of an asset is not solely determined by its covariance with the market portfolio. Instead, APT incorporates multiple risk factors, acknowledging that various macroeconomic influences can impact asset prices. The foundation of APT lies in the idea that systematic risk, or non-diversifiable risk, can be attributed to different macroeconomic factors. Ross (1976) posited that these factors could include inflation rates, interest rates, and other economic variables. Unlike CAPM, which relies on a single factor (market beta) to explain expected returns, APT considers a multi-factor approach, allowing for a more nuanced understanding of risk exposures.

Empirical studies have provided support for the APT framework. Roll and Ross (1980) conducted an early empirical test of APT, finding that portfolios formed based on the APT model exhibited comparable performance to those constructed using the CAPM. Subsequent research by Chen et al. (1986) and Connor and Korajczyk (1986) provided further evidence

supporting the ability of APT to explain variations in asset returns beyond what could be explained by the CAPM. One notable advantage of APT is its flexibility in accommodating different risk factors tailored to specific markets or asset classes. Chen et al. (1986) applied APT to the stock market, introducing factors such as interest rates, inflation, and dividend yields. Other studies, such as those by Chen et al. (1986) and Rosenberg and Marathe (1979), explored the applicability of APT in real estate and fixed income markets. Despite its merits, APT has faced criticism and challenges. Critics, including Roll (1977) and Black (1974), questioned the empirical validity and practical application of APT, arguing that its success depends on the accurate identification of relevant risk factors, which may vary over time. Additionally, APT assumes that investors are risk-averse and rational, which may not always hold true in real-world scenarios.

In conclusion, Arbitrage Pricing Theory offers a comprehensive and flexible approach to understanding asset pricing, incorporating multiple risk factors beyond the scope of the traditional CAPM. While ongoing debates and challenges persist, APT has significantly contributed to the evolution of financial theory and empirical research, providing valuable insights into the complexities of risk-return relationships in financial markets.

2.1.4 Modern Portfolio Theory (MPT)

Modern Portfolio Theory (MPT), introduced by Harry Markowitz in his seminal paper "Portfolio Selection" published in the Journal of Finance in 1952, has been a cornerstone of financial theory. MPT provides a framework for constructing optimal portfolios that balance risk and return by emphasizing the importance of diversification. The fundamental insight of MPT is that individual assets should not be analyzed in isolation; instead, their contribution to a portfolio's overall risk and return should be considered. Markowitz (1952) introduced the concept of the efficient frontier, a graphical representation that illustrates the trade-off between risk and return for a given set of assets. The efficient frontier comprises portfolios that offer the maximum expected return for a given level of risk or the minimum risk for a given level of expected return. Investors can then choose a portfolio along the efficient frontier based on their risk tolerance.

The cornerstone of MPT is the concept of diversification, which seeks to reduce portfolio risk by combining assets that do not move in perfect correlation. Markowitz (1952) demonstrated that by holding assets with uncorrelated or negatively correlated returns, an investor can achieve a more efficient risk-return profile than by holding individual assets in isolation. This principle laid the groundwork for the development of the concept of the optimal portfolio, often referred to as the market portfolio in the context of MPT.

William Sharpe (1964) expanded on Markowitz's work by introducing the Capital Market Line (CML), which illustrates the relationship between risk and return for a risk-free asset combined with the market portfolio. The CML provides a benchmark for evaluating the risk and return of any portfolio and aids in identifying the optimal portfolio that maximizes returns for a given level of risk. Fama and French (1993) further extended MPT by introducing the Three-Factor Model, which considers not only market risk but also the factors of size and value. Their research suggested that these additional factors contribute to the explanation of asset returns, providing investors with insights into constructing more refined portfolios. While MPT has significantly influenced investment practices, it has also faced criticisms and challenges. Robert Haugen (1995) and others have questioned the assumptions of MPT, particularly the assumption that asset returns follow a normal distribution and that correlation coefficients remain stable over time. Critics argue that MPT may not fully account for extreme events and market dynamics. Recent developments in MPT include the integration of behavioral finance principles. Shefrin and Statman (2000) incorporated psychological factors, such as investor biases and sentiment, into MPT to better explain market phenomena. This behavioral perspective aims to provide a more realistic depiction of investor decision-making and its impact on portfolio construction.

In conclusion, Modern Portfolio Theory has played a pivotal role in shaping investment strategies and portfolio management practices. Its emphasis on diversification and the efficient frontier has become integral to the field of finance. While facing criticisms and evolving with advancements in financial research, MPT continues to be a foundational framework for investors seeking to construct well-balanced portfolios that optimize the trade-off between risk and return.

2.1.5 The Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM), first introduced by William Sharpe in 1964, with subsequent contributions by John Lintner and Jan Mossin, has been a fundamental tool in modern finance for assessing the relationship between risk and expected return of assets. At the heart of CAPM is the idea that the expected return on an asset is determined by its sensitivity to the market risk, commonly referred to as beta. CAPM provides a framework for estimating the required rate of return on an asset based on its risk relative to the overall market. The CAPM has been widely used in finance for estimating the cost of equity capital and determining the required rate of return for individual assets and portfolios. Fama and French (1996) expanded on CAPM's single-factor model by introducing the Three-Factor Model, which includes market risk, size risk, and value risk. This model seeks to provide a more comprehensive explanation for asset returns, acknowledging that factors beyond market beta may influence expected returns.

While CAPM has been a cornerstone in finance, it has faced criticisms and challenges. Black (1972) and Jensen (1968) raised concerns about the validity of the model's assumptions, particularly the assumption of a risk-free rate and the stable relationship between beta and expected returns. Fama and French (1996) extended their critique by arguing that other factors, such as the book-to-market ratio, can better explain variations in stock returns than beta alone. Moreover, behavioral finance research has questioned the rationality assumptions underlying CAPM. Shiller (1981) and De Bondt and Thaler (1985) have highlighted the impact of investor sentiment and behavioral biases on asset prices, challenging the efficiency assumptions that underlie CAPM.

Despite these criticisms, CAPM remains widely used in practice due to its simplicity and ease of application. It serves as a valuable tool for estimating the cost of equity, setting hurdle rates for investment projects, and evaluating the performance of investment portfolios. The ongoing debate and research surrounding CAPM continue to contribute to the evolution of financial models and the understanding of the complex interplay between risk and return in financial markets.

2.2 Empirical Review

Reviewing previous studies helps the researcher to carry out the research work satisfactorily. The main reason for this review is to use the same concept that was studied by the previous researcher in a new way. Many journals, theses, radical articles and similar articles on similar topics will be considered to make this research fruitful. The literature review provided guidelines for this study.

2.2.1 Summary and Empirical Review at International Context

Munyua and Lango (2023) examined the impact of project portfolio management on the performance of bank financing in Kenya. The specific objectives were to assess the influence of portfolio planning and portfolio inventory on the performance of bank financing programs in Kenya. The theoretical framework guiding the study comprised the theory of transactive planning and resource-based theory. The research design employed was descriptive, focusing on the 399 commercial bank branches in Nairobi City County, Kenya. The target population for the study included 399 bank project managers located at the headquarters in Nairobi City County. A sample size of 200 project managers was determined using Yamane's (1967) formula and selected through stratified random sampling. Data collection was carried out using questionnaires, and a pilot test involving 20 project managers (representing 10% of the sample) was conducted to ensure the instrument's reliability. Construct validity was employed, utilizing factor analysis to validate the study variables' constructs. Reliability was assessed through the Cronbach's Alpha Coefficient method, with a minimum acceptable scale set at 0.7 for reliability. Trained research assistants facilitated the distribution of questionnaires at the respondents' offices. Descriptive statistics such as frequency, percentage, and mean were utilized, while inferential statistics involved correlation and regression analyses. The study's findings were presented in tables, accompanied by a statistical discussion. The conclusions drawn from the study indicated that portfolio planning significantly influences the performance of bank financing programs in Nairobi City County, Kenya. Additionally, the study found that portfolio inventory has a significant effect on the performance of bank financing programs in the same region. In light of these findings, the study recommends that commercial bank management should ensure effective portfolio planning by implementing proper budgeting, well-defined project schedules, and project scopes. Furthermore, it is recommended that

commercial banks formulate and implement a robust framework for the identification and management of portfolio risks.

Assifuah-Nunoo (2023) examined the effects of loan portfolio management on the financial performance of banks in Ghana. The chosen research approach was an explanatory cross-sectional survey. The study relied on panel data collected from operational banks spanning from 2010 to the current period. Utilizing correlation and regression analyses, the researcher constructed regression models to evaluate the study's assumptions. The findings of the study indicate that personal loans, real estate loans, and loans to small and medium-sized enterprises collectively exert a statistically significant impact on the financial performance of commercial banks. The overall model suggests a satisfactory level of fit, demonstrating that the variables considered significantly influence Return on Assets (ROA), Return on Equity (ROE), and Credit Risk (CR). While some empirical research supports these conclusions, it is noteworthy that certain investigations present conflicting findings. Based on the study results, a recommendation is made for the diversification of personal loans to mitigate the risks of defaults. This can be achieved by adopting a discriminatory approach to borrowers, leveraging available information to make informed lending decisions.

Grace and Jummai (2023) examined the portfolio management and the financial performance of banks in Nigeria. This study holds significance for bank managers, providing insights into crucial considerations when selecting asset classes for a portfolio. Additionally, it offers valuable information for industry policymakers and contributes to the broader academic research landscape. The research design employed in this study is descriptive analytical. Secondary data was utilized, and the analysis was conducted using SPSS. The results revealed a positive relationship between portfolio management and the profitability levels of banks in Nigeria. The study concludes by recommending that banks develop robust investment strategies to effectively manage their portfolio investments, ultimately enhancing their profitability.

Mohammed (2021) examined the concept and techniques of multi-criteria decision-making in a fuzzy environment for prioritizing and selecting projects within portfolio management. The study specifically utilized fuzzy Analytic Hierarchy Process (AHP) to identify preference weights for criteria. Subsequently, these weights were incorporated into fuzzy Technique for

Order of Preference by Similarity to Ideal Solution (TOPSIS) to address project gaps and optimize interactions to align with organizational objectives. The evaluation involved twenty projects from the Iraqi Oil Company, assessed against five key criteria. The findings underscored the significance of accurately measuring criteria weights in the fuzzy TOPSIS technique. These weights not only influenced the ranking of projects but also played a crucial role in determining the most suitable project for achieving the desired objectives. The research is anticipated to serve as a valuable tool for stakeholders, aiding in the enhancement of portfolio management project quality.

Agblobi, Kuhorfah, and Asamoah (2020) analyzed the banks strategically invest to maximize profits, taking into account the associated risks in portfolio management. Portfolio management serves as a means for banks to hold investments receivable from other banks, acquire Government securities, and invest in subsidiaries. The research delves into the impact of banks' portfolio management on profitability, focusing on five randomly selected commercial banks listed on the Ghana Stock Exchange. Data spanning from 2008 to 2017, obtained from the Bank of Ghana and the Ghana Stock Exchange, included information on the total market value of Government securities, investments in subsidiaries, and due amounts from other banks. Employing a panel study approach, the researchers conducted regression analysis to examine the relationship between portfolio management and profitability. The study's outcomes reveal that holding government securities and investing in subsidiaries significantly and positively affect the profitability of banks in Ghana. Additionally, the findings highlight a notable negative impact of non-performing loans on bank profitability. Consequently, the study recommends that banks strive to strike a balance between holding government securities and investing in subsidiaries to enhance overall profitability. It is further suggested that banks intensify efforts to mitigate non-performing loans by enhancing the skills of their staff, reinforcing due diligence procedures, and enhancing monitoring activities.

Kumakov (2020) examined the maintainable working of the bank, both within the brief and long term, the arrangement of the speculation methodology of a commercial bank requires a certain strategy of understanding down to earth issues made in cutting edge competitive and advertise conditions. A commercial bank from the position of speculation action carries out its exercises with a high share of hazard within the monetary markets. To survey the bank's

portfolio, a methodological arrange has been drawn up and criteria for the adequacy of the bank's speculation portfolio have been characterized.

Yakubov and Meliboev (2020) analyzed the capacities of commercial banks as monetary middle people, hypothetical approaches to the "venture movement of commercial banks" and the needs of expanding the venture exercises of commercial banks at the macroeconomic and microeconomic level are displayed. The most headings of the participation of commercial banks within the speculation handle were recognized and proposals were given for the ensuing effective advancement of the speculation exercises of commercial banks.

Badran (2020) analyzed the venture portfolio in banks and how to oversee, think about and investigation on the Iraqi banks period 2010-2018 to appear the effect of the proficiency of the administration of speculation portfolio on the productivity of commercial banks recorded on the Iraqi Stock Trade. The consider was conducted on all Iraqi commercial banks recorded within the Iraqi Budgetary showcase, where the analyst to begin with calculated the 2012 file and chance of the speculation portfolio and return of the venture portfolio, the banks, which speak to the autonomous variable, the return on speculation and return on value, and the risk-free return as control and auxiliary factors. A money related examination pointed at recognizing the impact of the proficiency of the administration of the speculation portfolio on the productivity of commercial banks. The comes about of the investigation were indistinguishable with the comes about of the factual examination, which was performed utilizing the straightforward relapse condition and different relapses to recognize the impact and relationship coefficient Pearson to recognize the relationship between the free variable and the subordinate variable. The most comes about of the think about were the nonappearance of factually critical effect on the level of risk-free return on the return on speculation and the return on value and the nonappearance of statically critical affect at the same level of return on the venture portfolio on both the return on venture and the return on value and the presence of a factual affect at the same time Wei hazard venture portfolio on both return on venture and return on value.

Platanakis and Urquhart (2019) analyzed the crypto monetary standards, portfolio administration and estimation chance by comparing the execution of local enhancement, Markowitz enhancement and the progressed Black-Litter man demonstrate with VBCs that

controls for estimation blunders in a portfolio of crypto monetary standards. They appeared that the progressed Black-Litter man show with VBCs yields predominant out-of- test risk-adjusted returns as well as lower dangers. Their comes about are vigorous to incorporation of exchange costs and short-selling, showing that modern portfolio methods that control for estimation mistakes are favored when overseeing crypto money portfolios.

Mallick (2019) examined the bank portfolio administration beneath managing an account control and topsy-turvy data approximately borrower sorts and screening by banks and defective competition within the credit showcase. A bank tries to maximize anticipated benefits subject to a portfolio change imperative. The examination yields the taking after comes about: For a imposing business model bank, the motivating force imperative of the productive sort of borrowers will be official and the interest limitation of the wasteful sort of borrowers will be official. Encourage, given the fluctuation limitation being official, the ideal portfolio will be on the proficiency wilderness. The paper moreover analyzes duopoly; the ideal portfolio will be on the proficiency wilderness. The paper moreover analyzes duopoly competition between forceful (predator) and cautious (prey) banks and potential participation and uncovers that among the options of common restraining infrastructure, section discouragement, takeovers and proficient portfolio broadening through mergers or intrigued swaps, the agreeable productive portfolio enhancement technique will rule at whatever point portfolio returns are contrarily connected between any pair of curiously banks because it diminishes portfolio change for a given bundle of intrigued and credits i.e. Sensex.

Alarussi and Alhaderi (2018) examined the influencing productivity in Malaysian recorded companies. Information of 120 companies recorded on Bursa Malaysia covering the period from 2012 to 2014 were extricated from companies' yearly reports. Pooled conventional slightest squares relapse and fixed-effects were utilized to analyzed the information. The result appeared that a solid positive relationship between firm estimate (add up to deals), WC, companies' productivity (resources turnover proportion) and productivity. The result too appeared negative relationship between both obligation value proportion and use proportion and benefit. Liquidity (current proportion) has no critical relationship with benefit. The think about prescribed that inside client of company ought to concentrate more on the variables that improve their companies' productivity. And the outside client of company ought to concern

approximately the benefit of companies and the determinants of their productivity after the currency's deterioration.

Danesh, Ryan and Abbasi (2018) examined the portfolio administration (PPM) has gotten to be a key component of expansive organizations' benefit conveyance due to the near consideration intrinsically paid to various issues within the reach of venture administration. Its victory is closely related with the degree of understanding of its issues and the quality of choices made at the portfolio level which can be tended to utilizing multi-criteria choice making (MCDM) strategies. In spite of the fact that a few of these MCDM strategies have been presented to bolster decision-making capacities as portion of PPM, there has been small evaluation of their exhibitions, especially when combining a few of them. This paper recognizes the key challenges of PPM, proposes a unused system for classifying PPM MCDM related strategies and display a writing audit of applications of MCDM strategies to PPM. As a result of this examination, the key challenges of PPM incorporate a affectability examination of its interdependencies, traceability, straightforwardness, supporting quantitative and subjective information, venture amount, trade-offs, gather choice making and the shared joins between portfolio levels.

Pasini (2017) examined the subgroups of stocks within the American Dow Jones Industrial Average (DJIA) Index. The first and second groups exhibited homogeneity, while the third group comprised heterogeneous stocks. The determination of principal risk directions relied on Cumulative Variance and Kaiser's Rule. The results obtained through this analysis offer insights into optimizing portfolio investments for maximizing returns and ensuring effective financial control. The study emphasizes the strategic implications of the identified risk directions in shaping investment decisions within the context of the DJIA stocks.

Oliinyk and Kozmenko (2017) examined the assignment of making a speculation portfolio by a monetary institution. Stores for making a portfolio are taken from two sources: undertakings value reserves and borrowed reserves. Optimization of the made portfolio is performed. A portfolio of most extreme effectiveness was gotten with confinement on the degree of hazard, which is indicated within the shape of a Var marker. Utilizing the optimization portfolio information, a demonstrate of portfolio resource administration is being built. Utilizing the Pontryagin most extreme rule, ideal methodologies of its members are decided. The major

finding of the think about was the ideal work of managing the speculation portfolio within the frame of a share of the pay gotten is found. Numerical comes about of ideal administration of speculations in a monetary portfolio from the monetary institution as well as from the bank are displayed.

Orabi (2017) examined the execution of Jordanian Banks in their elective ventures in common and portfolio venture in specific. Ponder comes about uncovered those banks of Jordan follow to speculations of arrangement of venture portfolios, in terms of broadening, trade-off between return and hazard, and approach within the composition of the portfolios. The rule of comfort is connected to guarantee the solidness of the speculator and the capital return. Think about too pointed out that banks of Jordan follow to the guideline of expansion, and are committed to the guideline of trade-off between hazard and return and comply with the principles of the arrangement within the composition of the portfolio, and the rule of guaranteeing the steadiness of the speculator and the capital return.

Senthilnathan (2016) analyzed the pivotal role of risk and returns in investment decisions, particularly in the context of portfolio management. The study focused on independent variables such as bank size, loan and advance, and debenture, while dependent variables included Return on Assets (ROA) and Return on Equity (ROE). Utilizing a multiple regression model, the research aimed to offer a concise theoretical explanation with practical illustrations for assessing the returns and associated risks of shares and share portfolios. The presentation of data through tables and figures was a key aspect of the study, enhancing the reader's comprehension of portfolio management dynamics concerning risk and returns. The illustrative tables and figures significantly contribute to the paper's significance, providing readers with valuable insights and knowledge related to effective portfolio management.

Obamuyi (2013) examined the impacts of bank capital, bank measure, costs administration, intrigued salary and the financial condition on banks' productivity in Nigeria. The settled impacts relapse demonstrate was utilized on board information gotten from the monetary articulation of 20 banks from 2006 to 2012. Bank measure, GDP, costs administration, intrigued rate are the free factors. Productivity is the subordinate factors. The think about found that the relationship between productivity and capital was positive and measurably noteworthy. Bank measure features a negative but measurably critical impact on banks' productivity. The

costs administration variable has negative and critical impact on banks' benefit as anticipated. The variable of intrigued rate was positive and measurably critical. The GDP variable has positive and factually critical relationship with productivity. The consider concluded that moved forward bank capital and intrigued salary, as well as proficient costs administration and favorable financial condition, contribute to higher banks' execution and development in Nigeria. The think about prescribed that government approaches within the managing an account framework ought to empower banks to routinely raise their capital and give the empowering environment that will quicken financial development within the nation. Bank administration ought to productively oversee their portfolios in arrange to ensure the long run intrigued of benefit making.

Nanda, Mahanty and Tiwari (2010) examined the mining approach for classification of stocks minimizing the chance by enhancement of a portfolio. After classification, the stocks ought to be chosen from these bunches for building a portfolio. It meets the measure of minimizing the hazard by enhancement of a portfolio. Bank estimate, credit and progress and debenture are the autonomous factors. ROA and ROE are the subordinate factors. Relationship, relapse examination was utilized to display information. The clustering approach categorizes stocks on certain venture criteria. They have utilized stock returns at diverse times together with their valuation proportions from the stocks of Bombay Stock Trade for the monetary year 2007-2008. Results of this examination appear that K-means cluster investigation builds the foremost compact clusters as compared to SOM and Fluffy c- implies for stock classification information. At that point they select from the clusters to construct a portfolio, minimizing portfolio chance and compare the returns with that of the benchmark list.

Table 1

Summary of Literature Review at International Context

Authors	Objective	Methodology	Findings
Nanda, Mahanty and Tiwari (2010)	To investigated a data mining approach for classification of stocks minimizing the risk by diversification of a portfolio.	Bank size, loan and advance and debenture are the independent variables. ROA and ROE are the dependent variables. Correlation, regression analysis was used.	Results of this analysis show that K-means cluster analysis builds the most compact clusters as compared to SOM and Fuzzy c- means for stock classification data. Then they select from the clusters to build a portfolio, minimizing portfolio risk and compare the returns with that of the benchmarkindex.
Obamuyi (2013)	To investigated the effects of bank capital, bank size, expenses management, interest income and the economic condition on banks' profitability in Nigeria.	Bank size, GDP, expenses management, interest rate are the independent variables. Profitability is the dependent variables. Regression	The study found that the relationship between profitability and capital was positive and statistically significant. Bank size has a negative but statistically significant effect on banks' profitability. The expenses management variable has negative and significant effect on banks' profitability as expected.
Senthilnathan (2016)	To investment, particularly in the portfolio management, the risk and returns are two crucial measures in making investment decisions.	Bank size, loan and advance and debenture are the independent variables. ROA and ROE are the dependent variables. Multiple regression was used	The illustration of tables and figures can significantly contribute to the understanding of a reader in relation to portfolio management of risk and returns. The illustrative table and figures are the significance of this paper and it is believed that the reader of this paper would gain reasonable knowledge in portfolio management.
Orabi (2017)	To how investors select investments that will give them their required rate of return: they are mainly concerned with the performance alternatives.	Bank size, loan and advance, debenture are the independent variables. Investors and capital return are the dependent variables. Correlation coefficient was used.	Study results revealed that banks of Jordan adhere to theories of formation of investment portfolios, in terms of diversification, trade-off between return and risk, and policy in the composition of the portfolios. The principle of convenience is applied to ensure the stability of the investor and the capital return.
Oliinyk and	To considered the task of creating an	equity funds and borrowed funds are the independent variables.	The major finding of the study was the optimal function of managing the investment portfolio in the form of a

Kozmenko (2017)	investment portfolio by a financial institution.	Portfolio management is the dependent variables. optimization portfolio data, a model of portfolio asset management was used.	share of theincome received is found. Numerical results of optimal management of investments in a financial portfolio from the financial institution as well as from the creditor are presented.
Pasini (2017)	To applied the method of Principal Component Analysis to three subgroups of stocks of the American Index Down Jones Industrial (DJI) Average	expenses management, interest rate are the independent variables. Profitability is the dependent variables. Cumulative Variance and Kaiser's Rule are used.	Theobtained results show how to optimize portfolios investments to derive the best returns and financial control.
Danesh, Ryan and Abbasi (2018)	To suggested project portfolio management (PPM) has become a key element of large organizations' service delivery due to the close attentioninherently paid to numerous issues in the discipline of project management.	Sensitivity analysis, trade off, decision traceability, conflict, group decision making are the variables. PPM MCDM are used	As a result of this investigation, the key challenges of PPM include a sensitivity analysis of its interdependencies, traceability, simplicity, supporting quantitative and qualitative data, project quantity, trade-offs, group decision making and the mutual links between portfolio levels.
Alarussi & Alhaderi (2018)	To examined the factors affecting profitability in Malaysian listed companies. Data of 120 companies listed on Bursa Malaysia.	Firm size, assets turnover, debt equity ratio, leverage ratio, current ratio are the independent variables, profitability is the dependent variable. least squares regression and fixed-effects were used to analyzed the data.	The result showed that a strong positive relationship between firm size (total sales), WC, companies' efficiency (assets turnover ratio) and profitability. The result also showed negative relationship between both debt equity ratio and leverage ratio and profitability. Liquidity (current ratio) has no significant relationship with profitability.
Mallick (2019)	To examined bank portfolio management under banking regulation and asymmetric information about borrower types and screening by banks and imperfect	expenses management, interest rate are the independent variables. Profitability is the dependent variables. Hypothesis and regression was used.	The analysis yields the following results: For a monopoly bank, the incentive constraint of the efficient type of borrowers will be binding and the participation constraint of the inefficient type of borrowers will be binding.

	competition in the credit market.		Further, given the variance constraint being binding, the optimal portfolio will be on the efficiency frontier.
Platanakis and Urquhart (2019)	To contribute to the literature on crypto currencies, portfolio management and estimation risk by comparing the performance of native diversification.	Expenses management, interest rate are the independent variables. Profitability is the dependent variables. Markowitz diversification and the advanced Black-letterman model was used.	They showed that the advanced Black-Litterman model with VBCs yields superior out-of-sample risk-adjusted returns as well as lower risks. Their results are robust to inclusion of transaction costs and short-selling, indicating that sophisticated portfolio techniques that control for estimation errors are preferred when managing crypto currency portfolios.
Badran (2020)	To analyzed the investment portfolio in banks and how to manage, study and analysis on the Iraqi banks period 2010-2018 to show the impact of the efficiency of the management of investment portfolio on the profitability of commercial banks listed on the Iraqi Stock Exchange	The return on investment and return on equity, and the risk-free return as control and subsidiary variables are the independent variables. Return of the investment portfolio is the dependent variables. Simple regression equation and multiple regressions to identify the effect andcorrelation coefficient Pearson was used.	The main results of the study were the absence of statistically significant impact on the level of risk-free return on the return on investment and the return on equity and the absence of statically significant impact at the same level of return on the investment portfolio on both the return on investment and the return on equity and the existence of a statistical impact at the same time Wei risk investment portfolio on both return on investment and return on equity
Kumakov (2020)	To stated that for a stable and sustainable functioning of the bank, both in the short and long term, the formation of the investment strategy of a commercial bank requires a certain method of solving practical issues created	Expenses management, interest rate are the independent variables. Profitability is the dependent variables. Regression model was used.	The major finding of the study was to a commercial bank from the position of investmentactivity carries out its activities with a high share of risk in the financial markets. To assess the bank's portfolio, a methodological plan has been drawn up and criteria for the effectiveness of the bank's investment portfolio have been defined.

	in modern competitive and market conditions.		
Agblobi, Kuhorfah and Asamoah (2020)	To concluded that the banks optimally invest to earn profit as they consider the associated risks with such portfolio management.	Efficiency, government securities, investment portfolio are the independent variables. Profitability is the dependent variables. Regression portfolio management was used.	The findings show that holding of government securities and investing in subsidiaries have a significant positive effect on the profitability of the banks in Ghana. The findings also show that non-performing loans have a significant negative effect on the profitability of the banks. Therefore, it is recommended that banks should develop a balance between holding government securities and investing in subsidiaries to improve upon its profitability.
Mohammed (2021)	To provided and applied the concept and techniques of multi-criteria decision-making under fuzzy environment in the prioritization and selection of projectsin a portfolio management.	Bank size, loan and advance and debenture are the independent variables. ROA and ROE are the dependent variables. Correlation coefficient and regression was used.	The results showed that in fuzzy TOPSIS technique the measurement of criteria weights is important and they could adjust the ranking for other projects as well as figure out the best project to achieve the desired levels. This research as expected will serve as a helpful tool for stakeholders in improving the quality level of portfolio management projects.
Munyua and Lango (2023)	To assess the influence of portfolio planning and portfolio inventory on the performance of bank financing programs in Kenya	Descriptive statistics such as frequency, percentage, and mean were utilized, while inferential statistics involved correlation and regression analyses were used to present data.	The result shows that portfolio planning significantly influences the performance of bank financing programs in Nairobi City County, Kenya. Additionally, the study found that portfolio inventory has a significant effect on the performance of bank financing programs in the same region.
Assifuah-Nunoo (2023)	To examined the effects of loan portfolio management on the	Utilizing correlation and regression analyses, the researcher	The findings of the study indicate that personal loans, real estate loans, and loans to small

	financial performance of banks in Ghana.	constructed regression models to evaluate the study's assumptions	and medium-sized enterprises collectively exert a statistically significant impact on the financial performance of commercial banks. The overall model suggests a satisfactory level of fit, demonstrating that the variables considered significantly influence Return on Assets (ROA), Return on Equity (ROE), and Credit Risk (CR).
Grace and Jummai (2023)	To examined the portfolio management and the financial performance of banks in Nigeria.	The research design employed in this study is descriptive analytical. Secondary data was utilized, and the analysis was conducted using SPSS.	The results revealed a positive relationship between portfolio management and the profitability levels of banks in Nigeria. The study concludes by recommending that banks develop robust investment strategies to effectively manage their portfolio investments, ultimately enhancing their profitability.

2.2.2 Summary and Empirical Review at Nepalese Context

Maharjan and Pradhan (2023) examined the impact of credit portfolio enhancement on the execution of Nepalese commercial banks. Return on resource and return on value are chosen as the subordinate factors. Additionally, genuine domain advance, term advance, overdraft credit, denied segment credit, capital ampleness proportion, credit to store proportion, and non-performing credit are chosen as the free factors. This ponder is based on auxiliary information of 22 commercial banks with 132 perceptions for the think about period from 2015/16 to 2020/21. The information was collected from Managing an account and Budgetary measurements distributed by Nepal Rastra Bank, reports distributed by Service of Back, the yearly report of particular banks and World Bank database. The relationship coefficients and relapse models are assessed to test the noteworthiness and significance of credit portfolio enhancement on the execution of Nepalese commercial banks. The ponder appeared that genuine bequest advance incorporates a positive effect on return on value. It uncovers that higher the genuine bequest advance, higher would be the return on value. In addition, the think

about appeared that overdraft credit contains a positive effect on return on value. It shows that increment in overdraft credits leads to extend in return on value. Moreover, denied segment credit has a positive effect on return on value. It uncovers that higher the denied division credit, higher would be the return on value. Additionally, the consider appeared that non-performing credit contains a negative effect on return on value. It demonstrates that increment in non-performing advances leads to diminish in return on value. Besides, capital ampleness proportion features a positive effect on return on resources. It demonstrates that increment in capital ampleness proportion leads to extend in return on resources.

Bhatt et.al (2023) analyzed the issue of credit hazard administration has gotten expanded consideration from universal controllers. Credit chance administration systems are regularly not adequately coordinates inside the organization, there's no unified approach, and there's no all-encompassing see of all dangers. Moreover, where they exist, sound hazard administration hones have made a difference teach to climate monetary emergencies superior than others. In this manner, the current ponders pointed to look at the determinants of credit hazard administration and their relationship with the execution of commercial banks in Nepal. It too looks at the intervening part of credit hazard administration on the execution of commercial banks in Nepal. The result show that there's a positive relationship between natural hazard and credit hazard administration. It is additionally found that credit evaluation estimations have a significant effect on credit hazard administration. The comes about uncover that showcase hazard investigation incorporates a critical impact on credit chance administration. The comes about appear that credit chance administration intervenes the relationship between natural hazard, credit evaluation estimations, advertise hazard examination, and the execution of commercial banks. In this manner, directors ought to endeavor to confer chance avoidance and control components to diminish credit hazard and accomplish great money related execution.

Dahal (2023) examined the effect of non-performing resources (NPA) on the benefit of Nepalese commercial banks employing a board information approach. This consider utilizes board information from 21 as of now working commercial banks from 2017/18 to 2021/22, which aggregates 105 a long time of perceptions, to look at the effect of non-performing resources (NPA) on the productivity of Nepalese commercial banks. To examine the informative control of non-performing resources on banks' benefit, the commercial banks'

Return on Value (ROE) is utilized as the subordinate variable, and non-performing resources (NPA), the Laon misfortune arrangement to advance and progresses (LLP), advance and propels in connection to add up to stores (LTDR), return on venture (ROI), and capital ampleness proportion (CAR) are utilized as the controlled factors. Comes about from board relapse, relationship examination, information stationary, and expressive measurements are moreover detailed. As recommended by the Hausman test, the settled impact (FE) relapse show has been chosen as the reasonable show. The discoveries appear a noteworthy negative connect between non-performing resources and bank benefit. Operational and approach contemplations are essentially influenced by this conclusion. In arrange to reduce the negative impacts of an increment in non-performing loans and increments within the benefit of commercial banks in Nepal, it emphasizes the utilize of exhaustive financial soundness appraisals, progressing credit checking, and the foundation of suitable advance arrangements in compliance with administrative necessities.

Bagale (2023) analyzed the credit hazard administration enormously effect on benefit of the bank. Information were collection from the test of 15 commercial banks worked in Nepali economy for the period of 2011 to 2020 have been collected and analyzed utilizing cruel, standard deviation, relationship and relapse examination. Pooled relapse investigation demonstrate (OLS) of board information investigation is utilized as a major instrument of investigation. Within the show determination return on value (ROE) was utilized as bank benefit pointers whereas capital ampleness proportion, cash save proportion, credit misfortune arrangement proportion, non-performing advance proportion and bank estimate were utilized as markers of credit chance administration. The finding demonstrates that credit hazard has the critical effect on productivity of commercial banks in Nepal. The consider uncovers that cash save proportion, advance misfortune arrangement proportion and non-performing advance proportion has immaterial negative affect on return on value in Nepali commercial bank. The consider uncovers that bank measure and liquidity proportion have positive affect on return on value. The consider too uncovers that liquidity proportion has critical positive affect on return on value in Nepali commercial bank. Capital ampleness proportion moreover uncovers has critical negative affect on return on value.

Lan and Cong (2020) examined the determinants of the budgetary execution of 1343 Vietnamese companies categorized into six distinctive businesses recorded to on the Vietnamese Stock Trade over a four-year period from 2014-2017 utilizing STATA program. Those determinants incorporate firm measure, liquidity, dissolvability, monetary use, and money related ampleness whereas the money related execution is assessed by three distinctive proportions: return on resources (ROA), return on value (ROE), and return on deals (ROS). The investigate comes about from these companies amid the given period demonstrated that: (1) firm estimate incorporates a positive effect on both ROA and ROS, particularly ROA but it has the inverse impact on ROE, (2) ampleness proportion impacts emphatically on ROA and ROS but adversely on ROE, (3) monetary use impressively negative impacts on ROE and ROS but emphatically impacts on ROA, (4) liquidity has positive impact on both ROA and ROE but negative one on ROS and (5) dissolvability features a positive effect on ROA and ROS but the negative affect on ROE. Moreover, horticulture accounted for the most noteworthy rate of productivity at the starting, which was supplanted by benefit for ROA but fabricate for ROE from 2016 to 2017 as restricted to the slightest in transportation. The inquire about concluded that a critical contrast within the effect of five diverse free factors on ROA, ROE and ROS. The investigate prescribed that the state ought to direct the economy and advance the improvement of Vietnamese ventures by controls and law relating to the utilize of credits at sensible intrigued rate. The state ought to bolster Vietnamese undertakings to grow generation scale through labor instruction motivating forces, generation and commerce preface food, and input ensure. Recorded company of Vietnam ought to 20 necessaries to identify clearly distinctive variables influencing productivity in working the trade since they cannot accomplish their objectives without beneficial influencer acknowledgment. Vietnam trade ought to not rely dominantly on obligations to preserve their working capital.

Adhikari (2020) analyzed the effect of liquidity on productivity in Nepalese commercial banks. The ponder decides the affiliation between liquidity and benefit markers of 27 commercial banks out of 28 commercial banks in Nepal. Advertise cost, gaining per share, net benefit edge and return on resources are utilized as the pointers of productivity. Deposit-credit ratio, cash save proportion and capital ampleness proportion are utilized as the pointers of liquidity. Expressive and causal comparative investigate plan was connected to analyzed the information. Relationship investigation different common straight relapse investigation were

connected to set up the affiliation. This consider found that all CARs are over the prerequisite of NRB. All affiliations are statically immaterial. Connection of benefit edge with CD proportion, CRR and CAR isn't straight and relationship of ROA with CD proportion, CRR and CAR moreover not straight. The study concluded that there's no statically critical affiliation between liquidity and productivity markers in Nepalese commercial managing an account industry.

Neupane (2020) examined the cause-and-effect relationship between deals, liquidity, and benefit. The consider concentrated on the cement industry in Nepal for the four year's information. The quantitative inquire about plan utilized to draw a substantial conclusion. The graphic insights, relationship investigation relapse examination was utilized within the examination of the test and there's any relationship among deals, liquidity and productivity within the cement industry in Nepal. The ponder found that a noteworthy positive relationship between deals and productivity, essentially immaterial positive connection between net working capital and benefit.

Timilsina (2020) analyzed the determinants the Overseeing Venture Portfolio. He is in any case, stood up to with the issues of overseeing venture portfolio especially in time of financial lull like our own. A apportion financial specialist would like to broaden his speculation in numerous classes of resources to play down hazard and win sensible rate of return. Commercial banks have ceaselessly been diminishing intrigued rates on stores. Numerous contributors are uncovered to the expanding hazard of non-refund of their stores. Numerous contributors are uncovered to the expanding hazard of non-refund of their stores since of the fumble in a few of the banks and money related teach and amassing of colossal non-performing resources with them. Few investors of agreeable social orders misplaced their stores since a few of these cooperatives were closed down since of their liability to discount open deposits. An investor in days of emergency should make an exertion to play down the hazard and at slightest gain a reasonable rate of return on his total venture. A venture in value share can gain profit wage as well as capital pick up within the shape of reward share and right share until an financial specialist holds it capital benefit thus, he offers it within the stock showcase. As return from value speculations have changed inside an awfully wide extend, speculators feel it much troublesome to adjust chance and rewards in their value portfolio. In truth, financial specialists

in uniformity offers ought to contribute for a reasonable long period in order to manage the hazard.

Sudha (2020) investigated and compared the drives of bank's productivity in Nepalese as both monetary frameworks. This ponders utilized board information strategies particularly one-way settled impact demonstrate, information gotten from bank scope database, to address this paper title for the period 1992-2008. The graphic measurements come about appeared that banks are more beneficial and have higher advance to add up to resource proportion in comparison to banks. Opposite, the banks are more fluid; more capitalized and have higher saves. The relapse investigation detailed that capital ampleness (positive), Advance concentrated (negative), administration effectiveness (negative), slacked GDP development (positive) and genuine intrigued rate (positive) had the same critical impact on banks' productivity in banks. In the meantime, liquidity but had the same positive impact on banks 'profitability in Iran and Sudan the comes about were critical in case of Iran. On the other hand, estimate, credit hazard and industry concentration had inverse impact on banks in Iran and Sudan. The impact of measure was negative for Iranian banks and positive and critical for Sudanese banks. Moreover, credit hazard was negative and variable affected Iranian banks contrarily (critical) and Sudanese banks emphatically (critical). The ponder concluded that capital ampleness, liquidity, GDP development and genuine intrigued rate contributed emphatically to the productivity of banks in Iran and Sudan. On the other hand, advance did not move forward banks' benefit. The consider suggested that banks in Iran and Sudan ought to progress its administration hones to boost its benefit. Iranian banks ought to move forward its chance administration hones. Iranian banks ought to increment its measure to move forward its productivity.

Pradhan (2018) analyzed the investment policy of NBL (Nepal Bank Limited), focusing on the utilization of mobilized deposits during the period from 2029 to 2034 B.S. The research, based on secondary data, employed various statistical tools, including the Coefficient of Correlation to test the relationship between deposits and loans and advances. Additionally, ratio analysis was used to compare factors such as loans and advances, the bank's liquidity position, and profitability conditions. The findings indicated a significant relationship between deposits and loans and advances, revealing that an increase in deposits generally led to a corresponding increase in loans and advances. However, it was observed that an immense increase in deposits

resulted in only a marginal increase in loans and advances. Notably, the study highlighted that the bank allocated only 2.98% to the priority sector in 2034 B.S., indicating a challenge in resource mobilization. The study underscored the impact of the bank's assets, including current assets, credit portfolio, fixed assets, and other investments, on its profitability. The quality of the loan portfolio was identified as a critical determinant of bank profitability, with non-performing loan ratios serving as indicators of asset quality. Monitoring debtor compliance and ensuring timely loan repayments were emphasized to mitigate risks and sustain bank profitability.

Boateng (2018) examined the factors influencing the profitability of both private and public banks, examining the unique factors impacting banks in Nepal and vice versa. The study utilized financial data from a 7-year period, encompassing 10 banks from each country. The analysis employed Return on Assets (ROA) and multiple regression as the primary tools. The research findings highlighted that credit risk, net interest margin, capital adequacy, and inflation were the pivotal factors significantly affecting the profitability of both private and public banks in Nepal. Interestingly, while cost-to-income ratio and bank size exhibited an insignificant impact on the profitability of Nepalese banks, they significantly influenced the overall profitability of banks. Additionally, prudent credit risk management practices were emphasized for bank managers in both private and public banks. Moreover, as banks' size increased, the study suggested that managers should reinforce internal control measures to minimize excessive operational costs.

Bhattarai (2017) examined the impact of non-performing loans on the profitability of commercial banks in Nepal. Employing a descriptive and causal comparative approach, the study utilized pooled data from 14 commercial banks, comprising 77 observations spanning the period from 2010 to 2015. The regression analysis results revealed a negative effect of the non-performing loan ratio on overall profitability (Return on Assets - ROA), while showing a positive impact on shareholders' return (Return on Equity - ROE). Additionally, the study found that bank size significantly and positively influenced both ROA and ROE. Conversely, the gross domestic product growth rate exhibited a significant positive effect only on shareholders' return (ROE). The research concluded that the profitability of Nepalese commercial banks is intricately linked to non-performing loan ratios and other covariates,

including bank size, cost per loan assets, and gross domestic growth rate. To enhance their financial performance, the study recommended that Nepalese commercial banks adhere strictly to the prevailing NRB Directives and Basel II Accord when extending loans and advances to customers. Furthermore, the study advised banks to mitigate unexpected influences by fostering a positive political culture and maintaining law and order in Nepal.

Patel and Bhanushali (2017) examined the profitability of nationalized banks and private sector banks, focusing on three selected banks in India for the period 2010-2011 to 2014-2015. The study employed a random sampling technique, and data were collected from secondary sources to analyze the relationship among the profitability of Indian commercial banks, encompassing both public and private sector banks. The findings indicated that both nationalized and private sector banks were profitable. However, in the face of increasing competition within the banking sector, maintaining profitability posed a significant challenge for Indian commercial banks. The study, consisting of 16 recommendations, emphasized the need for banks to explore every possibility for improvement and to enhance profitability. It further suggested efforts to control expenditures and optimize resource utilization as key strategies for navigating the competitive landscape.

Shrestha (2016) examined the comparative analysis on investment performance of commercial banks in Nepal. The objectives of this study were examining the asset utilization system, profitability, and risk position of commercial banks. The study primarily relied on secondary data. The key finding of the research revealed that NIBL (Nepal Investment Bank Limited) exhibited a stronger liquidity position compared to NABIL (Nepal Bank Limited) and NSBI (Nepal SBI Bank Limited). However, it was noted that NIBL's liquidity position displayed significant fluctuations, indicating a higher level of risk compared to the other two banks. In terms of profitability, none of the three banks stood out distinctly, but NABIL demonstrated a slightly better profitability position, placing all three banks in a moderate profitability range. From a risk perspective, both NABIL and NIBL faced higher risks than NSBI, although the overall risk levels across the three banks appeared nearly identical. Growth ratios analysis indicated that NIBL performed better in terms of deposit collection, granting of loans and advances, and net profit. On the other hand, NSBI excelled in terms of investment.

Shah (2012) examined the impact of interest rate structure on investment portfolio of commercial banks in Nepal. The major objective was to analyze the structure of interest rates and its influence on various activities within commercial banks. The researcher measured the impact of interest rates by assessing returns on investments, utilizing financial tools to calculate returns on savings and fixed deposits, and examining the effects on loan distribution patterns. The study aimed to identify the significant differences in interest rate structures between deposits and loans, with a focus on the impact of liberalization policies. Assessing various ratios related to interest, the research concluded that interest rates on savings deposits remained relatively constant in the five years before liberalization but started to decline afterward. Similarly, fixed deposit rates also showed a decline post-liberalization, resulting in a decreasing growth rate of deposits. Lower interest rates were associated with a decrease in deposits. Regarding lending rates, purpose-wise loans for the industrial and agricultural sectors increased on average after liberalization but decreased in the commercial sector. The rise in lending rates led to a reduction in credit flow, subsequently affecting the profitability of commercial banks. While the number of deposits increased after liberalization, the growth rate only saw a marginal increase of 0.44% compared to the period before liberalization. This limited growth in deposits was attributed to declining deposit rates.

Parajuli (2011) examined the surge in the stock market, which has spurred the demand for portfolio management services provided by merchant bankers. Individuals aiming to capitalize on the fluctuations of the stock market but lacking the expertise or time to engage in stock trading can enlist the services of a portfolio management company. Portfolio managers, acting on behalf of their clients, engage in the buying and selling of securities and oversee the management of their investment portfolios. The increasing number of clients is attributed to professionals recognizing the value of having a professional manage their portfolio, especially when they lack the time for direct investment but seek to benefit from the capital market.

Mahandhar (2010) analyzed the risk and return on common stock investment of commercial banks in Nepal. The primary objective was to analyze the risk and return associated with common stock investments in commercial banks (CBs), calculate the risk and return of their portfolios, and identify whether stocks of selected banks were overpriced, underpriced, or equilibrium priced. The research focused on the risk and return patterns of samples taken from

listed companies, utilizing financial tools such as MPS (Market Price per Share) and DPS (Dividends Per Share). The analytical research design was employed to achieve the study objectives, utilizing major financial tools such as Holding Period Return (HPR), Expected Rate of Return, Beta coefficient for measuring systematic risk, and portfolio risk, along with other statistical measures. Hypothesis tests were conducted to draw conclusions, with a focus on satisfying the null hypothesis. The major findings of the study indicated the risks associated with common stock investments in different selected companies as follows: BOKL (1.3949), NABIL (0.4154), NSBI (0.7392), NBBL (0.6798), and NIBL (0.1429). The study classified the stocks of all banks as underpriced, suggesting that these common stocks were worth purchasing, given that their expected return exceeded the required rate of return. Additionally, the study revealed that the portfolio return was greater than the portfolio risk for two banks, namely NBBL and NSBI.

Table 2

Summar and Empirical Review at National Context

Authors	Objectives	Methodology	Findings
Mahandhar (2010)	To analyzed of risk and return on common stock investment of commercial bank in Nepal	Holding Period Return (HPR), Expected Rate or Return, Beta coefficient to measure systematic risk, portfolio risk are the independent variables. MPS and DPS are the dependent variables. Hypothesis was used.	Major finding of the study were risks associated with common stock investment of different selected companies are 1.3949, 0.4154, 0.7392, 0.6798 and 0.1429 of BOKL, NABIL, NSBI, NBBL, and NIBL respectively. Stock of all banks in this study are said to be underpriced. These companies' common sticks are worth to purchase, as their expected return is greater than required rate of return. Portfolio return is greater than portfolio risk of two banks (i.e., NBBL and NSBI)
Shah (2012)	To examined the impact of interest rate structure on investment portfolio of commercial banks in Nepal.	Interest rate, fixed deposit, lending rate and return on investment are the independent variables. Liberalization is dependent variables. Regression model was used.	The major finding of the study was to the significance difference of interest rate structure between deposits and loans. Taking the liberalization policy as a marginal impact researcher tried to conclude the research by assessing various ratios in terms of interest. Study concludes that the interest rates on saving deposit are less or more constant in five years of before liberalization but it started to decline after liberalization.

Shrestha (2013)	To examine the investment as utilization of saving for something that is expected to produce profit or benefits.	Real assets, fixed assets, tangible assets and liquid assets are the independent variables. Income or growth is the dependent variables. Multiple regression was used.	The major finding of the study was the investment generally involves real assets and financial assets. Real assets investment involves some kinds of tangible assets such as building, land, machinery and factory etc. and financial assets investment are pieces ofpaper representing an indirect claim to real assets held by someone else. Real assets are generally less liquid than financial assets
Shrestha, (2016)	To examined a comparative analysis on investment performance of commercial banks in Nepal.	Bank size, loan and advance, liquid assets, securities are the independent variables. Profitability position is dependent variables. Correlation coefficient and regression was used.	The major finding of the study was the liquidity position of NIBL was stronger than NABIL and NSBI. At the same time, liquidity position of NIBL was highly fluctuating, which showed that NIBL bore higher risk than other two banks. In the profitability analysis, none of the three banks' profitability position was clearly better.
Patel & Bhanushali (2017)	To examined the profitability of nationalized banks and private sector banks.	Bank size, loan and advance, liquid assets, securities are the independent variables. Profitability position is dependent variables. Regression was used.	The study found that analyzing the banks both nationalized and private sector banks are profitable. With the increasing competition in the banking sector, profitability has become a greatest challenge to Indian commercial banks. The 16-study recommended that banks should explore very possibility for improvement and increase the profitability.
Bhattarai (2017)	To examined the effect of non-performing loan on the profitability of Nepalese commercial banks using descriptive and causal comparative with pooled data of 14 commercial banks.	Bank size, loan and advance, shareholder return and GDP are the independent variables. ROA and ROE are the dependent variables. Regression model was used.	result showed that non-performing loan ratio was negative effect on overall profitability (ROA) whereas non-performing loan was positive effect on shareholders return (ROE). Moreover, the result showed that bank size has significant positive effect on bank profitability (ROA, ROE). Unlikely, gross domestic product growth rate was significant positive effect only on shareholders return (ROE).
Boateng (2018)	To evaluated the factors that make significant impact on profitability of banks in both	Bank size, income ratio, credit risk, net interest margin, capital adequacy and inflation are independent	The study concluded that credit risk, net interest margin, capital adequacy and inflation were the most important factors that significantly affect profitability of

	private and public banks in Nepal.	variables. ROA is the dependent variable. Multiple regression was used.	banks in both private and public banks in Nepal. Cost to income ratio and bank size had an insignificant impact on profitability of Nepalese bank but impacted significantly on bank's profitability
Pradhan (2018)	To examine the study on investment policy of NBL has tried to find out to what extent NBL has been able to utilized mobilized deposits.	current assets, credit portfolio, fixed assets, non-performing loan ratios, loan an advance are the independent variables. Profitability position is dependent variables. Coefficient of correlation was used.	The major finding of the study was the bank asset includes among others current assets, credit portfolio, fixed assets, and other investments. The quality of loan portfolio determines the profitability of banks. The loan portfolio quality has a direct bearing on bank profitability. The highest risk facing a bank is the losses derived from delinquent loans. The non-performing loan ratios are the best proxies for asset quality. This ratio portrays the bank's ability to keep the risk of loan repayment by the debtor.
Sudha (2020)	To explored and compared the drives of bank's profitability in Nepalese as both financial systems.	loan to total asset ratio, real interest rate, GDP growth and loan intensity are the independent variables. Banks profitability are the dependent variables. Regression model was used.	The major finding of the study was that capital adequacy (positive), Loan intensity (negative), management efficiency (negative), lagged GDP growth (positive) and real interest rate (positive) had the same significant effect on banks' profitability in banks. Meanwhile, liquidity albeit had the same positive effect on banks 'profitability
Timilsina (2020)	To determinants the Managing Investment Portfolio. He is however, confronted with the problems of managing investment portfolio in commercial banks.	Rate of return, deposit ratio, interest rate and non-performing assets are the independent variables. Return on equity is dependent variable. Correlation coefficient and regression model was used.	The major finding of the study was an investment in equity share can earn dividend income as well as capital gain in the form of bonus share and right share until an investor holds it capital profit hence, he sells it in the stock market. As return from equity investments have fluctuated within a very wide range, investors feel it much difficult to balance risk and rewards in their equity portfolio. In fact, investors in equality shares should invest for a reasonable long period in order to manage the risk
Neupane (2020)	To examined the cause-and-effect	Sales, net working capital are the	The study found that a significant positive

	relationship between sales, liquidity, and profitability.	independent variables. Profitability position is dependent variables. descriptive statistics, correlation analysis regression analysis was used.	relationship between sales and profitability, similarly insignificant positive relation between net working capital and profitability.
Adhikari (2020)	To examined the impact of liquidity on profitability in Nepalese commercial banks.	Deposit-credit ratio, cash reserve ratio and capital adequacy ratio are independent variables. CAR is the dependent variables. Correlation analysis multiple general linear regression analysis were used.	This study found that all CARs are above the requirement of NRB. All associations are statically insignificant. Relation of profit margin with CD ratio, CRR and CAR is not linear and relationship of ROA with CD ratio, CRR and CAR also not linear. The study concluded that there is no statically significant association between liquidity and profitability indicators in Nepalese commercial banking industry.
Lan & Cong (2020)	To investigated the determinants of the financial performance of 1343 Vietnamese companies categorized into six different industries.	include firm size, liquidity, solvency, financial leverage, and financial adequacy are the independent variables. ROA, ROS and ROE are the dependent variables. Regression model was used.	The research concluded that a significant difference in the impact of five different independent variables on ROA, ROE and ROS. The research recommended that the state should regulate the economy and promote the development of Vietnamese enterprises by regulations and law relating to the use of loans at reasonable interest rate.
Maharjan and Pradhan (2023)	To examined the impact of credit portfolio enhancement on the execution of Nepalese commercial banks.	Deposit-credit ratio, cash reserve ratio and capital adequacy ratio are independent variables. CAR is the dependent variables. Correlation analysis multiple general linear regression analysis were used.	It shows that increment in overdraft credits leads to extend in return on value. Moreover, denied segment credit has a positive effect on return on value. It uncovers that higher the denied division credit, higher would be the return on value. Additionally, the consider appeared that non-performing credit contains a negative effect on return on value.
Bhatt et.al (2023)	To analyzed the issue of credit hazard administration has gotten expanded	current assets, credit portfolio, fixed assets, non-performing loan ratios, loan an advance are the independent	The result show that there's a positive relationship between natural hazard and credit hazard administration. It is additionally found that credit evaluation estimations have a significant effect on

	consideration from universal controllers.	variables. Profitability position is dependent variables. Correlation analysis multiple general linear regression analysis were used.	credit hazard administration. The comes about uncover that showcase hazard investigation incorporates a critical impact on credit chance administration.
Dahal (2023)	To examined the effect of non-performing resources (NPA) on the benefit of Nepalese commercial banks employing a board information approach.	NPA, LLP, LTDR, CAR, ROI, and FE are the variable in this study. Correlation analysis multiple general linear regression analysis were used.	The result showed that there is a negative connect between non-performing resources and bank benefit. Operational and approach contemplations are essentially influenced by this conclusion. In arrange to reduce the negative impacts of an increment in non-performing loans and increments within the benefit of commercial banks in Nepal

4.3 Research Gap

After reviewing various articles, books, publications, and unpublished research works in the field, it is evident that portfolio management holds significant importance in finance, impacting investments strongly (Kumakov, 2020). While not a new concept, researchers have extensively explored this area, though no specific research has delved deeply into the topic and successfully achieved specified research objectives.

Distinguishing itself from previous studies, this research work serves a distinct purpose. Earlier studies on portfolio management of banks focused on different time periods, examining banking portfolios in the past (Parajuli, 2011) (Jaiswal, 2012). Recognizing the need for a more recent analysis, this research covers the period from 2013/14 to 2022/23, providing data and information on sample banks. Moreover, previous studies did not encompass the investment portfolio management of three specific banks EBL, NIBL, and NMB. To address this gap, a new research study was imperative to evaluate the portfolio management practices of these three banks.

Therefore, both from an academic and policy perspective, this research has proven to benefit all interested parties, individuals, scholars, professors, students and entrepreneurs. I hope this research will be useful to others on a related topic in the future.

CHAPTER III
RESEARCH METHODOLOGY

Research methodology is a method of systematically solving a research problem. It describes the many sequences of actions that a researcher needs to take when investigating a problem for a certain goal. Common research techniques are covered in this chapter for research objectives. This covers the demographic and sample, data sources, analysis techniques, and study design.

3.1 Research Design

Both descriptive and analytical research were used to achieve the objectives of this study. A descriptive research design was adopted for fact-finding and searching for pertinent information. It is a type of survey that is commonly conducted to assess the opinions, behaviors, and characteristics of a particular group and to explain current situations and events. This study is conducted to evaluate the portfolio management of Everest Bank Limited (EBL), Nepal Investment Bank Limited (NIBL) and NMB Bank Limited (NMB), Nepal SBI Bank (NSBI) and Siddhartha Bank Limited (SBL).

3.2 Population and Sample

The portfolio management of commercial banks in Nepal, the total number of commercial banks operating in Nepal corresponds to the population. Currently, 20 commercial banks are operating in Nepal. All 20 commercial banks were included as the total population of the study. Out of these, three commercial banks are considered as the sample for this study. Sample banks are selected using appropriate sampling techniques. This sampling technique involves assessing who can best provide information to achieve the research objectives. Therefore, this study selects a sample that is believed to provide the required information. The selected sample banks Everest Bank Limited (EBL), Nepal Investment Bank Ltd (NIBL) and NMB Bank Ltd (NMB) are used for the study.

3.3 Nature and Sources of Data

The primary focus of the study is secondary data. The balance sheet, profit and loss account, annual report, auditor's reports, relevant website, unpublished or published theses, bank financial performance, newspaper, journal, magazines, etc. are the sources of the secondary data.

3.4 Data Collection Procedure

The financial performance reports, publications, journals, references, annual reports, and corresponding websites of the banks that provide the data used in this study will all be taken into consideration for the necessary observation. Additional data is gathered from many agencies and institutions, including the Ministry of Finance, the Nepal Stock Exchange, and the NRB. In a similar vein, a variety of statistics and information are obtained for mandatory observations from a variety of sources, including economic journals, periodicals, bulletins, magazines, and a range of public and unpublished reports and papers. The primary source of some review materials is the Shanker Dev Campus central library at TU Kirtipur.

3.5 Data Processing Procedure

First, information was taken out of the bank's annual reports and entered into a sheet. Then, in accordance with the needs and requirements of this study, data were loaded into the spreadsheet to calculate the financial ratios and generate the required statistics. Software such as Microsoft Word and Excel have been used to process the collected data for this purpose.

3.6 Method of Analysis

To obtain the fact result, a variety of profitability measurement instruments and methodologies are used under this. Karl Pearson's correlation coefficient and ratio analysis are two statistical and financial techniques used to analyse and show the acquired and organised data in a systematic manner.

3.6.1 Statistical Tools

The use of statistical tools is crucial in company operations. In the world of business, every single performance needs to be calculated in order to determine the precise profit or loss. These are a few common mathematical tools used in daily life. The statistical tools listed below can

be used to interpret data.

1. Arithmetic Mean

The arithmetic mean, commonly referred to as the average, is a fundamental concept in statistics and mathematics used to measure central tendency. It is calculated by summing all the values in a dataset and then dividing by the number of values. The arithmetic mean provides a simple and intuitive measure of the center of a data distribution, making it a useful tool for summarizing data sets. However, it can be sensitive to extreme values or outliers, which can distort the representation of the data. Despite this limitation, the arithmetic mean remains a widely used and valuable measure in various fields, including finance, economics, and social sciences. $\bar{X} = \frac{\Sigma \times}{N}$

Where,

$\bar{X}$ = Arithmetic Mean

$\sum X$ = Sum of Elements

N = Number of Observation

2. Standard Deviation

Standard deviation is a key statistical measure that quantifies the amount of variation or dispersion in a set of data values. It indicates how much individual data points deviate, on average, from the mean (average) of the dataset. A low standard deviation suggests that the data points are close to the mean, indicating less variability and more consistency within the dataset. Conversely, a high standard deviation indicates that the data points are spread out over a wider range, showing greater variability. To calculate the standard deviation, one computes the square root of the average of the squared differences between each data point and the mean. This measure is essential in fields such as finance, research, and quality control, as it provides insight into the reliability and predictability of data.

$$S.D = \sqrt{\frac{\Sigma (X - \overline{X})^2}{N}}$$

3. Coefficients of Variation

The coefficient of variation (CV) is a standardized measure of dispersion of a probability distribution or frequency distribution, expressed as a percentage. The CV is particularly useful for comparing the degree of variation between different datasets, regardless of their units or scales. For example, in finance, it allows investors to assess the relative risk of different investments by comparing their volatility relative to their expected returns. A lower CV indicates less variability relative to the mean, suggesting more consistency, while a higher CV indicates greater variability and, hence, higher relative risk or diversity in the data. This measure is valuable in fields such as economics, biology, and engineering, where comparing the relative dispersion of data is essential. It is calculated as below.

$$\text{Coefficients of variation (C.V)} = \frac{S.D}{\bar{X}} * 100$$

4. Coefficient of Correlation

The coefficient of correlation, often denoted as \(r \), is a statistical measure that quantifies the strength and direction of the linear relationship between two variables. Its value ranges from -1 to 1, where 1 indicates a perfect positive linear relationship, -1 indicates a perfect negative linear relationship, and 0 indicates no linear relationship. A positive correlation means that as one variable increases, the other tends to increase as well, whereas a negative correlation means that as one variable increases, the other tends to decrease. The coefficient of correlation is widely used in fields such as finance, economics, psychology, and social sciences to determine the degree to which two variables move in relation to each other. It helps in understanding the nature of relationships between variables and in making predictions. The correlation coefficient always remains within the limit of +1 to -1. The correlation coefficients (r) between two variables X and Y can be obtained by using following formula."

$$r = \frac{N\Sigma XY - \Sigma X, EY}{\sqrt{N\Sigma X^2 - (\Sigma X)^2}\sqrt{N\Sigma Y^2 - (\Sigma Y)^2}}$$

5. Multiple Regression Analysis

Multiple regression analysis is a statistical technique used to understand the relationship between one dependent variable and two or more independent variables. This method extends simple linear regression by incorporating multiple predictors, allowing researchers to examine how each independent variable uniquely contributes to the dependent variable while controlling for the effects of other variables.

Multiple regression analysis is highly valuable in various fields, including economics, social sciences, and business, as it allows for more comprehensive modeling of complex phenomena. It helps in assessing the relative impact of each predictor, identifying significant relationships, and making informed decisions based on the model. Additionally, it can be used for prediction and forecasting, providing a more nuanced understanding of how multiple factors simultaneously influence an outcome. By accounting for the interplay between variables, multiple regression analysis offers deeper insights and more accurate estimations compared to simpler models.

Study Model

Profitability (Y)= $\beta 0+$ **X1** $\beta 1+$ **X2** $\beta 2+$ **X3** $\beta 3+$ **X4** $\beta 4+$ **X5** $\beta 5+e$

Where,

X1= Capital Adequacy Ratio

X2= Non-Performing Loan

X3= Total Assets

X4= Capital Reserve Ratio

3.6.2 Theoretical Framework and definitions of Variables

The conceptual framework of this research is presented in graphic form which reflects the variables selected in research. It is presented below.

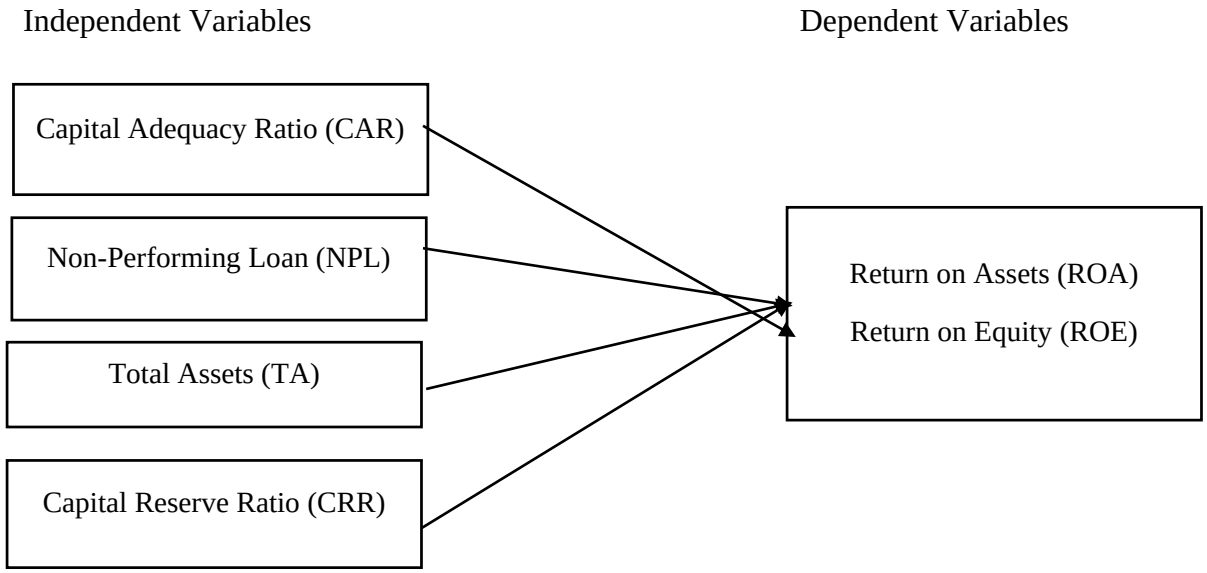

Figure: The Conceptual Framework

Source: Mohammad, (2023)

Definition of the Variables

Capital Adequacy Ratio

The Capital Adequacy Ratio (CAR) is a key financial metric that measures a bank's capital in relation to its risk-weighted assets. It is a crucial indicator of a bank's financial strength and ability to absorb potential losses. The CAR is expressed as a percentage and is designed to ensure that banks maintain a sufficient capital buffer to cover their risk exposures. The Basel Committee on Banking Supervision, through the Basel Accords, has provided international standards for calculating and maintaining the Capital Adequacy Ratio. These accords (Basel I, Basel II, and Basel III) outline guidelines to ensure that banks have adequate capital to cover credit, market, and operational risks. The formula for calculating the Capital Adequacy Ratio is:

$$\text{CAR} = \frac{\text{Tier 1 Capital+Tier 2 Capital}}{\text{Risk Weighted Assets}}$$

Non-Performing Loan

Non-performing loans (NPLs) refer to loans that have not generated the expected interest and principal repayments for a certain period, typically 90 days or more. In the banking and financial sector, NPLs are considered a key indicator of asset quality and credit risk. When borrowers fail to meet their repayment obligations, loans are classified as non-performing. Non-performing loans can have adverse effects on financial institutions, leading to potential losses and impacting their overall financial health. The management and resolution of NPLs are crucial for maintaining the stability and sustainability of banks and other lending institutions. Several factors contribute to the emergence of non-performing loans, including economic downturns, financial instability, inadequate credit risk assessment, and poor lending practices. During economic recessions, businesses and individuals may face financial challenges, making it difficult for them to service their debts.

$$\text{Non-Performing Loan} = \frac{Non-Performing\ Loan}{Number\ of\ Loans}$$

Total Assets

Total assets, measured by bank size, are used to reflect the fact that larger banks are better positioned than smaller banks to exploit economies of scale in transactions, this clearly means that they will tend to benefit from higher profits. Therefore, a positive relationship is expected between size and profitability. Molyneux & Thorton (1992) and Bikker & H (2002) find that firm size has a positive relationship with profits.

$$\text{Total Assets} = \text{Liabilities} + \text{Capital}$$

Cash Reserve Ratio (CRR)

The Cash Reserve Ratio (CRR) is a monetary policy tool utilized by central banks to regulate the liquidity in the financial system. It represents the percentage of a bank's total deposits that must be kept as reserves in the form of cash with the central bank. By adjusting the CRR,

central banks can influence the amount of money available for lending in the economy. A higher CRR reduces the funds available for banks to lend, thereby controlling inflation and curbing excessive credit creation. On the other hand, a lower CRR increases the funds available for lending, stimulating economic activity. The CRR is a crucial instrument for central banks to maintain financial stability and implement effective monetary policy.

Return on assets

Return on asset is an indicator of how profitable a company is relative to its total assets. ROA gives an idea as to how efficient management is at using its assets to generate earnings. Calculated by dividing a company's annual earnings by its total assets, ROA is displayed as a percentage. Sometimes this is referred to as 'return on investment'

$$ROA = \frac{NPAT}{Total\ assets}$$

Return on Equity

The ratio of net profit after tax obtained by dividing total equity gives us return on equity. This is the amount of money the company generates relative to shareholder equity. This is reflected in the company's balance sheet. Shareholders of any company expect a higher return on equity than they invested in the company. Companies with relatively higher ROE will generate higher amounts of internal cash. A higher ROE indicates better profitability. Khrawish (2011) suggests that the ratio obtained by dividing net profit after tax by shareholders' equity is reflected in ROE. It shows the rate of return on the money that the bank's shareholders have invested in the company. ROE measures a bank's management efficiency in allocating shareholder capital. We can conclude from the above statement that management will be more efficient in utilizing shareholders' capital when their ROE is higher.

$$\text{ROE} = \frac{Net\ Income\ After\ Tax}{Total\ Equity}$$

CHAPTER IV

RESULTS AND DISCUSSION

In this chapter, the collected data undergo examination and interpretation using the methodology outlined in the previous chapter. The study's outcomes are based on financial statements spanning from fiscal year 2013–14 to fiscal year 2022/23. Financial ratios are employed for data analysis, presented in both tabular and graphical formats. Additionally, statistical techniques including mean, standard deviation, and coefficient of variation, correlation coefficient, and regression analysis are applied to analyze the data.

4.1 Descriptive Analysis of the study

A descriptive analysis was conducted to assess the portfolio management practices of commercial banks in Nepal, focusing on several key variables including Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), Total Assets (TA), Cash Reserve Ratio (CRR), Return on Assets (ROA), and Return on Equity (ROE). The study spanned financial data from fiscal year 2013–14 to fiscal year 2022/23, drawing insights from financial statements and ratios.

The analysis involved computing various statistical measures such as mean, standard deviation, and correlation coefficients to understand the trends and relationships among these variables over time. The Capital Adequacy Ratio (CAR) was examined to gauge the banks' ability to absorb risks, with fluctuations in Non-Performing Loans (NPL) reflecting loan quality and credit risk management. Total Assets (TA) growth and Cash Reserve Ratio (CRR) trends provided insights into liquidity management strategies. Additionally, Return on Assets (ROA) and Return on Equity (ROE) were studied to evaluate profitability and efficiency in resource utilization. This descriptive approach aimed to offer a comprehensive overview of how Nepalese commercial banks managed their portfolios and financial performance during the specified period, highlighting key indicators of strength and areas for improvement.

Table 3

Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
ROA	18.90	18.03	1.3251	3.2513
ROE	165.60	194.06	18.069	33.100
CAR	8.76	91.70	31.911	18.816
NPL	-2.90	77.21	49.8139	12.783
TA	131.33	5918.88	2133.661	1362.685
CRR	0.61	25.35	5.125	5.673

Valid (Likewise N) 50

Table 2 presents descriptive statistics for key variables related to portfolio management in commercial banks in Nepal, based on a sample size of 50. The variables analyzed include Return on Assets (ROA), Return on Equity (ROE), Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), Total Assets (TA), and Cash Reserve Ratio (CRR). These statistics provide valuable insights into the range, central tendency, and variability of each variable, offering a comprehensive overview of the financial performance and risk management practices across the sampled banks.

Starting with Return on Assets (ROA), the table shows a mean value of 1.3251%, with a range from a minimum of 18.90% to a maximum of 18.03%. The standard deviation of 3.2513 indicates notable variability in ROA among the sampled banks. Return on Equity (ROE) exhibits a mean value of 18.069%, ranging from 165.60% to 194.06%, with a standard deviation of 33.100, suggesting considerable dispersion in ROE across the sample.

Capital Adequacy Ratio (CAR) has a mean of 31.911% with a wide range from 8.76% to 91.70% and a standard deviation of 18.816. This indicates varying levels of capital adequacy among the banks, with some institutions operating with significantly higher capital reserves than others. Non-Performing Loans (NPL) show a mean of 49.8139%, ranging from -2.90% to 77.21%. The presence of negative values suggests potential discrepancies in data reporting or calculation methods. The standard deviation of 12.783 reflects moderate variability in NPL levels across the sample.

Total Assets (TA) display a mean value of 2133.661 million Nepalese Rupees (NPR), ranging from 131.33 million NPR to 5918.88 million NPR, with a standard deviation of 1362.685. These highlights substantial differences in the size and scale of banks' balance sheets within the sample. Cash Reserve Ratio (CRR) exhibits a mean of 5.125%, ranging from 0.61% to 25.35%, with a standard deviation of 5.673, indicating significant variability in liquidity management practices among the surveyed banks.

In summary, the descriptive statistics provided in the table offer a comprehensive snapshot of the portfolio management and financial performance of commercial banks in Nepal. The findings highlight notable variations in key metrics such as ROA, ROE, CAR, NPL, TA, and CRR, underscoring the diversity of approaches and outcomes in risk management, profitability, capital adequacy, and asset management practices among the sampled institutions. Further analysis and interpretation of these statistics could yield valuable insights for stakeholders and policymakers seeking to understand and optimize the performance of the banking sector in Nepal.

4.2 Correlation Analysis

Correlation analysis is a statistical technique employed to measure the degree and direction of the relationship between two or more variables. It provides insights into the extent to which changes in one variable are associated with changes in another, aiding in the identification of patterns and dependencies within a dataset. The correlation coefficient, typically ranging from -1 to +1, quantifies the strength and direction of this relationship. A positive correlation close to +1 implies a direct relationship, indicating that as one variable increases, the other tends to increase as well. Conversely, a negative correlation close to -1 suggests an inverse relationship, indicating that as one variable increases, the other tends to decrease. A correlation coefficient near 0 indicates a weak or no linear relationship. Correlation analysis is widely utilized in various fields, including finance, economics, biology, and social sciences, to uncover connections between variables and make informed predictions. However, it's important to note that correlation does not imply causation. While a significant correlation indicates an association, it does not establish a cause-and-effect relationship between the variables. Thus, correlation analysis serves as a powerful tool for exploratory data analysis, hypothesis testing, and decision-making, providing a quantitative basis for understanding how changes in one

variable might be linked to changes in another. This methodological approach is invaluable for researchers, analysts, and decision-makers seeking a deeper comprehension of the intricate relationships within complex datasets.

Table 4

Correlation Metrix

	ROA	ROE	CAR	NPL	TA	CRR
ROA	1					
ROE	.719**	1				
CAR	.671**	.766**	1			
NPL	.492**	.616**	.665**	1		
TA	.226**	.350**	.368**	.357**	1	
CRR	.900**	.875**	.749**	.612**	.299**	1

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

Table 4 shows the correlation matrix table provides insights into the relationships among key variables related to portfolio management in commercial banks in Nepal. Each cell in the matrix displays the correlation coefficient between pairs of variables, with values ranging from -1 to +1. A positive correlation coefficient indicates a direct relationship (as one variable increases, the other tends to increase), while a negative coefficient indicates an inverse relationship (as one variable increases, the other tends to decrease).

The correlation coefficients, observe several significant relationships among the variables. For example, Return on Assets (ROA) shows strong positive correlations with Return on Equity (ROE) (0.719), Capital Adequacy Ratio (CAR) (0.671), and Cash Reserve Ratio (CRR) (0.900). These correlations suggest that banks achieving higher returns on assets tend to also

have higher returns on equity, maintain healthier capital adequacy levels, and hold higher cash reserves, reflecting efficient asset utilization and risk management practices.

Similarly, the correlation between Non-Performing Loans (NPL) and other variables is noteworthy. NPL exhibits positive correlations with ROE (0.616), CAR (0.665), and TA (0.357), indicating that banks facing higher non-performing loan levels may experience lower returns on equity, require stronger capital adequacy, and manage larger total assets. These relationships underscore the importance of effective credit risk management in enhancing financial performance and stability within the banking sector.

Comparing the correlations across variables, we can identify patterns and interdependencies. For instance, the strong positive correlation between ROA and CRR (0.900) suggests that banks with higher returns on assets tend to hold more cash reserves, potentially for liquidity management purposes. On the other hand, the relatively weaker correlations between ROA and Total Assets (TA) (0.226) imply that asset size alone does not strongly influence return on assets, highlighting the significance of efficient asset deployment and risk mitigation strategies. Furthermore, the high correlations between ROE and CAR (0.766) as well as ROE and CRR (0.875) indicate that banks with stronger capital adequacy and higher cash reserves tend to generate better returns for their equity holders. These relationships emphasize the integral role of capital management and liquidity planning in driving profitability and financial performance in Nepal's commercial banking landscape.

In summary, the correlation matrix unveils important linkages between key variables essential for portfolio management in commercial banks. These insights enable stakeholders and decision-makers to better understand the dynamics of financial performance, risk exposure, and strategic decision-making within the banking sector, ultimately guiding efforts to optimize portfolio management practices and enhance overall stability and profitability.

4.3 Regression Analysis

Regression analysis is a statistical method used to examine the relationship between a dependent variable (such as Return on Assets, ROA) and one or more independent variables (predictors) within the context of portfolio management in commercial banks. The analysis involves estimating coefficients that quantify the impact of each predictor variable (e.g., Capital Adequacy Ratio, Non-Performing Loans, Total Assets, Cash Reserve Ratio) on the dependent variable (ROA). The Regression Coefficient table provides insights into the direction and magnitude of these relationships, indicating how changes in the predictors influence the outcome variable. Additionally, statistical measures such as t-values and p-values assess the significance of each predictor, helping to identify which variables significantly contribute to explaining variations in ROA. This analytical approach aids in understanding the drivers of financial performance and informs strategic decision-making to optimize portfolio management practices and enhance overall profitability and stability within the banking sector.

4.3.1 The Multiple Regression of ROA

The regression analysis investigates the influence of liquidity variables such as Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Total Assets (TA), and Capital Reserve Ratio (CRR) on the Return on Assets (ROA) for the chosen commercial banks. The equation for this regression model is outlined below:

ROA = βo + β1CAR + β2NPL + β3TA+ β4CRR+ E……...(i)

Where, ROA= Return on Asset, a1= Constant, b1, b2, b3, b4 and b5 = Regression coefficient.

Table 5

Model Summary of Portfolio Management on ROA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.4701	.221	.133	.52999

a. Predictors: (constant), CAR, NPL, TA and CRR
b. Dependent Variables: ROA

The Model Summary table provides an overview of a regression model examining the relationship between various predictors—Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), Total Assets (TA), and Cash Reserve Ratio (CRR)—and the dependent variable, Return on Assets (ROA), within the context of portfolio management in commercial banks.

The table presents several key statistics to evaluate the effectiveness of the regression model in explaining variations in ROA based on the selected predictors. The R Square value of 0.221 indicates that approximately 22.1% of the variability in ROA can be explained by the predictors included in the model. This suggests that while the model captures a significant portion of the variance in ROA, there are other factors not accounted for by the predictors that influence ROA.

The Adjusted R Square value of 0.133 is slightly lower than the R Square, reflecting the adjustment for the number of predictors in the model. This adjusted value takes into consideration the degree of freedom and penalizes the inclusion of additional predictors that may not significantly contribute to explaining ROA. The standard error of the estimate (0.52999) represents the average deviation of the observed values of ROA from the predicted values by the regression model. A lower standard error indicates a better fit of the model to the data, suggesting that the model's predictions are relatively close to the actual ROA values observed in the sample.

In summary, the Model Summary table offers insights into the explanatory power and accuracy of the regression model for predicting Return on Assets based on portfolio management indicators in commercial banks. While the model explains a notable portion of the variability in ROA, further refinements or additional variables may be needed to enhance its predictive capabilities and better capture the complexities of portfolio management dynamics impacting financial performance in the banking sector.

Table 6

Analysis of Variance of ROA

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.376	5	.675	2.866	.024
	Residual	11.897	44	2.70		
	Total	15.273	49			

a. Dependent Variable: ROA
b. Predictors: (constant), CAR, NPL, TA and CRR

Table 6 shows the Analysis of Variance (ANOVA) table for the regression model predicting Return on Assets (ROA) based on portfolio management indicators provides insights into the significance and overall fit of the model.

The table consists of three main components: Regression, Residual, and Total. The Regression section evaluates the contribution of the predictors (Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), Total Assets (TA), and Cash Reserve Ratio (CRR)) in explaining the variability in ROA. The Sum of Squares (3.376) within the Regression section represents the amount of variability in ROA that is explained by the predictors included in the model. The degrees of freedom (df) associated with the Regression (5) and Residual (44) indicate the number of independent pieces of information used to estimate the parameters in the model and the remaining degrees of freedom after accounting for the predictors, respectively.

The Mean Square value (0.675) in the Regression section is calculated by dividing the Sum of Squares by its corresponding degrees of freedom, providing an estimate of the variance explained by the predictors. The F-statistic (2.866) compares the variance explained by the regression model to the variance left unexplained (or residual variance) and assesses whether the regression model as a whole is statistically significant. The associated significance value (Sig. = 0.024) indicates that the regression model is statistically significant at the 0.05 level, suggesting that at least one of the predictors (CAR, NPL, TA, CRR) significantly contributes to explaining variations in ROA. The Residual section of the ANOVA table summarizes the remaining unexplained variability in ROA after accounting for the predictors included in the model. The Sum of Squares (11.897) within the Residual section represents the amount of

variance that is not explained by the regression model. The degrees of freedom (44) associated with the Residual section are calculated as the total sample size minus the number of predictors in the model (constant + 4 predictors).

Overall, the ANOVA table provides a comprehensive assessment of the regression model's fit and significance in predicting Return on Assets based on portfolio management indicators. The statistically significant F-statistic (2.866) and associated p-value (0.024) suggest that the model is a meaningful predictor of ROA, though further analysis and refinement may be necessary to optimize the model's explanatory power and predictive accuracy.

Table 7

Regression Coefficient

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t-value	Sig.
1	(Constant)	14.153	0.994		14.235	0.000
	CAR	0.038	0.026	0.311	1.451	0.013
	NPL	-2.213	-0.637	1.515	0.107	0.916
	TA	0.453	0.125	0.271	3.296	0.005
	CRR	-0.053	0.039	-0.230	1.350	0.183

Dependent Variable: ROA

Table 7 shows the Regression Coefficient table presents the estimated coefficients for the predictors Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), Total Assets (TA), and Cash Reserve Ratio (CRR) in the regression model predicting Return on Assets (ROA) within the context of portfolio management in commercial banks in Nepal.

Starting with the intercept (Constant), the table shows that the estimated constant term (B = 14.153) represents the expected value of ROA when all predictor variables (CAR, NPL, TA, CRR) are zero. The standard error (Std. Error = 0.994) of the constant term measures the variability of the intercept estimate around its true value. The t-value (t = 14.235) associated with the intercept indicates that the intercept is statistically significant ($p < 0.001$), suggesting that even in the absence of predictors, there is a significant baseline level of ROA.

Moving on to the predictor variables, each coefficient (B) represents the estimated change in ROA associated with a one-unit increase in the corresponding predictor, holding other predictors constant. The Standardized Coefficients (Beta) provide a measure of the relative importance of each predictor in explaining variations in ROA, standardized to the same scale for comparison.

The coefficient for Capital Adequacy Ratio (CAR) is estimated at 0.038, indicating that a one-unit increase in CAR is associated with a 0.038-unit increase in ROA, all else being equal. The standardized coefficient (Beta = 0.311) suggests that CAR has a moderate positive impact on ROA, with higher capital adequacy levels contributing positively to return on assets. The t-value (t = 1.451) associated with CAR assesses the statistical significance of the coefficient, with a corresponding p-value of 0.013 (< 0.05), indicating that CAR is a statistically significant predictor of ROA in this model.

Conversely, the coefficient for Non-Performing Loans (NPL) is estimated at -2.213, suggesting that a one-unit increase in NPL is associated with a 2.213-unit decrease in ROA, holding other predictors constant. However, the standardized coefficient (Beta = 1.515) is not statistically significant (t = 0.107, p = 0.916), indicating that NPL does not significantly contribute to explaining variations in ROA in this model.

The coefficients for Total Assets (TA) and Cash Reserve Ratio (CRR) are estimated at 0.453 and -0.053, respectively. A one-unit increase in TA is associated with a 0.453-unit increase in ROA (Beta = 0.271), while a one-unit increase in CRR is associated with a 0.053-unit decrease in ROA (Beta = -0.230). Both TA and CRR show statistically significant relationships with ROA, with t-values of 3.296 (p = 0.005) for TA and 1.350 (p = 0.183) for CRR.

In summary, the Regression Coefficient table provides valuable insights into the direction, magnitude, and statistical significance of the relationships between predictor variables (CAR, NPL, TA, CRR) and Return on Assets (ROA) in the context of portfolio management in commercial banks. These findings can inform strategic decision-making and risk management practices aimed at optimizing financial performance and stability within the banking sector in Nepal.

4.3.2 The Multiple Regression of ROE

The regression analysis investigates the influence of liquidity variables such as Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Total Assets (TA), and Capital Reserve Ratio (CRR) on the Return on Equity (ROE) for the chosen commercial banks. The equation for this regression model is outlined below:

ROE = βo + β1CAR + β2NPL + β3TA+ β4CRR+ E……...(ii)

Where, ROE= Return on Asset, a1= Constant, b1, b2, b3, b4 and b5 = Regression coefficient.

Table 8

Model Summary of Portfolio Management on ROE

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.5746	.330	.251	5.6611

a. Predictors: (constant), CAR, NPL, TA and CRR
b. Dependent Variables: ROE

Table 8 shows the Model Summary table for the regression model predicting Return on Equity (ROE) based on portfolio management indicators provides a comprehensive overview of the model's performance and explanatory power. The R Square value of 0.330 indicates that approximately 33.0% of the variability in ROE can be explained by the predictors included in the model. This suggests that while the model captures a significant portion of the variance in ROE, there are other factors not accounted for by the predictors that influence ROE. The Adjusted R Square value of 0.251 is slightly lower than the R Square, reflecting the adjustment for the number of predictors in the model. This adjusted value takes into consideration the degree of freedom and penalizes the inclusion of additional predictors that may not significantly contribute to explaining ROE. The Standard Error of the Estimate (5.6611) represents the average deviation of the observed values of ROE from the predicted values by the regression model. A lower standard error indicates a better fit of the model to the data, suggesting that the model's predictions are relatively close to the actual ROE values observed in the sample.

In summary, the Model Summary table offers insights into the explanatory power and accuracy of the regression model for predicting Return on Equity based on portfolio management indicators in commercial banks. The significant R Square value indicates that the model is effective in explaining a substantial portion of the variance in ROE, with the included predictors (Capital Adequacy Ratio, Non-Performing Loans, Total Assets, Cash Reserve Ratio) contributing meaningfully to the prediction of ROE. However, the adjusted R Square and Standard Error of the Estimate suggest that there may be room for improvement in the model, potentially through the inclusion of additional relevant predictors or refinement of the existing variables to better capture the complexities of factors influencing ROE within the banking sector.

Table 9

Analysis of Variance of ROE

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	695.360	5	139.072	1.541	0.002
	Residual	1410.12	44	32.048		
	Total	2105.489	49			

a. Dependent Variable: ROE
b. Predictors: (constant), CAR, NPL, TA and CRR

Table 9 shows the Analysis of Variance (ANOVA) table for the regression model predicting Return on Equity (ROE) based on portfolio management indicators provides key insights into the significance and overall fit of the regression model.

The ANOVA table consists of three main components: Regression, Residual, and Total. The Regression section evaluates the contribution of the predictors (Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), Total Assets (TA), and Cash Reserve Ratio (CRR)) in explaining the variability in ROE. The Sum of Squares (695.360) within the Regression section represents the amount of variability in ROE that is explained by the predictors included in the model. The degrees of freedom (df) associated with the Regression (5) and Residual (44) indicate the number of independent pieces of information used to estimate the parameters in the model and the remaining degrees of freedom after accounting for the predictors, respectively.

The Mean Square value (139.072) in the Regression section is calculated by dividing the Sum of Squares by its corresponding degrees of freedom, providing an estimate of the variance explained by the predictors. The F-statistic (1.541) compares the variance explained by the regression model to the variance left unexplained (or residual variance) and assesses whether the regression model as a whole is statistically significant. The associated significance value (Sig. = 0.002) is less than 0.05, indicating that the regression model is statistically significant at the 0.05 level. This suggests that at least one of the predictors (CAR, NPL, TA, CRR) significantly contributes to explaining variations in ROE.

The Residual section of the ANOVA table summarizes the remaining unexplained variability in ROE after accounting for the predictors included in the model. The Sum of Squares (1410.12) within the Residual section represents the amount of variance that is not explained by the regression model. The degrees of freedom (44) associated with the Residual section are calculated as the total sample size minus the number of predictors in the model (constant + 4 predictors).

In summary, the ANOVA table provides a comprehensive assessment of the regression model's fit and significance in predicting Return on Equity based on portfolio management indicators. The statistically significant F-statistic (1.541) and associated p-value (0.002) suggest that the model is a meaningful predictor of ROE, with the included predictors collectively contributing to explaining variations in ROE within the commercial banking context. The analysis highlights the importance of portfolio management indicators such as CAR, NPL, TA, and CRR in influencing and predicting the financial performance and profitability of commercial banks in relation to Return on Equity.

Table 10

Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t-value	Sig.
1	(Constant)	46.361	7.019		6.605	0.000
	CAR	0.089	0.205	0.055	0.433	0.667
	NPL	2.725	1.547	0.248	1.761	0.015
	TA	0.055	0.027	0.469	2.065	0.044
	CRR	0.052	0.059	-0.271	0.869	0.379

Dependent Variable: ROE

Table 10 shows the Regression Coefficient table presents the estimated coefficients for the predictors Capital Adequacy Ratio (CAR), Non-Performing Loans (NPL), Total Assets (TA), and Cash Reserve Ratio (CRR) in the regression model predicting Return on Equity (ROE) within the context of portfolio management in commercial banks.

Starting with the intercept (Constant), the table shows that the estimated constant term (B = 46.361) represents the expected value of ROE when all predictor variables (CAR, NPL, TA, CRR) are zero. The standard error (Std. Error = 7.019) of the constant term measures the variability of the intercept estimate around its true value. The t-value (t = 6.605) associated with the intercept indicates that the intercept is statistically significant ($p < 0.001$), suggesting that even in the absence of predictors, there is a significant baseline level of ROE.

Moving on to the predictor variables, each coefficient (B) represents the estimated change in ROE associated with a one-unit increase in the corresponding predictor, holding other predictors constant. The Standardized Coefficients (Beta) provide a measure of the relative importance of each predictor in explaining variations in ROE, standardized to the same scale for comparison.

The coefficient for Capital Adequacy Ratio (CAR) is estimated at 0.089, indicating that a one-unit increase in CAR is associated with a 0.089-unit increase in ROE, all else being equal. However, the standardized coefficient (Beta = 0.055) for CAR is relatively small, suggesting a modest impact on ROE. The t-value (t = 0.433) associated with CAR indicates that the

coefficient is not statistically significant (p = 0.667), suggesting that CAR may not significantly contribute to explaining variations in ROE in this model.

Conversely, the coefficient for Non-Performing Loans (NPL) is estimated at 2.725, indicating that a one-unit increase in NPL is associated with a 2.725-unit increase in ROE, holding other predictors constant. The standardized coefficient (Beta = 0.248) for NPL suggests a moderate positive impact on ROE. The t-value (t = 1.761) associated with NPL indicates that the coefficient is statistically significant (p = 0.015), suggesting that NPL significantly contributes to explaining variations in ROE in this model.

The coefficient for Total Assets (TA) is estimated at 0.055, indicating that a one-unit increase in TA is associated with a 0.055-unit increase in ROE, all else being equal. The standardized coefficient (Beta = 0.469) for TA suggests a relatively strong positive impact on ROE. The t-value (t = 2.065) associated with TA indicates that the coefficient is statistically significant (p = 0.044), suggesting that TA significantly contributes to explaining variations in ROE in this model.

Lastly, the coefficient for Cash Reserve Ratio (CRR) is estimated at 0.052, indicating that a one-unit increase in CRR is associated with a 0.052-unit decrease in ROE, holding other predictors constant. The standardized coefficient (Beta = -0.271) for CRR suggests a moderate negative impact on ROE. However, the t-value (t = 0.869) associated with CRR indicates that the coefficient is not statistically significant (p = 0.379), suggesting that CRR may not significantly contribute to explaining variations in ROE in this model.

In summary, the Regression Coefficient table provides valuable insights into the direction, magnitude, and statistical significance of the relationships between predictor variables (CAR, NPL, TA, CRR) and Return on Equity (ROE) in the context of portfolio management in commercial banks. These findings can inform strategic decision-making and risk management practices aimed at optimizing financial performance and profitability within the banking sector. Further analysis and refinement of the model may be needed to enhance its explanatory power and predictive accuracy for ROE prediction.

4.4 Discussion

The portfolio management of commercial banks in Nepal involves strategic decision-making to optimize the composition of assets and liabilities in order to achieve financial goals while mitigating risks. Commercial banks in Nepal face unique challenges, including credit risk associated with lending activities and market risk related to investment portfolios. Effective portfolio management strategies aim to maximize returns on assets (ROA) and returns on equity (ROE) while ensuring regulatory compliance, particularly regarding capital adequacy ratios (CAR) and non-performing loans (NPL). In Nepal's banking sector, portfolio management also involves optimizing Total Assets (TA) and managing the Cash Reserve Ratio (CRR) to ensure liquidity and stability. Given the economic and regulatory environment, commercial banks must strike a balance between risk and return, employing sophisticated risk management tools and techniques. Effective portfolio management practices are essential for commercial banks in Nepal to navigate dynamic market conditions, support economic development, and sustain profitability while fulfilling their role as key financial intermediaries in the country's banking landscape.

The result showed significant impact of CAR and TA on ROA. The result is consistent with Assifuah-Nunoo (2023), Senthilnathan (2016), Nanda, Mahanty and Tiwari (2010), Dahal (2023) and Lan and Cong (2020) and the result contradict with Adhikari (2020), Timilsina (2020), Shrestha (2016), Munyua and Lango (2023), Grace and Jummai (2023), Platanakis and Urquhart (2019) and Alarussi and Alhaderi (2018).

The result showed insignificant impact of NPL and CRR on ROA. The result is consistent with Nanda, Mahanty and Tiwari (2010), Dahal (2023) and Lan and Cong (2020), Assifuah-Nunoo (2023), Senthilnathan (2016), and the result contradict with Shrestha (2016), Munyua and Lango (2023), Platanakis and Urquhart (2019), Timilsina (2020), Alarussi and Alhaderi (2018), Adhikari (2020), and Grace and Jummai (2023).

The result showed significant impact of NPL on ROE. The result is consistent with Nanda, Mahanty and Tiwari (2010), Dahal (2023), Assifuah-Nunoo (2023), Senthilnathan (2016), and Lan and Cong (2020) and the result contradict with Grace and Jummai (2023), Platanakis and Urquhart (2019), Shrestha (2016), Munyua and Lango (2023), and Alarussi and Alhaderi (2018), Timilsina (2020), and Adhikari (2020).

The result showed significant impact of TA on ROE. The result is consistent with Assifuah-Nunoo (2023), Senthilnathan (2016), Nanda, Mahanty and Tiwari (2010), Dahal (2023) and Lan and Cong (2020) and the result contradict with Grace and Jummai (2023), Mohammed (2021), Munyua and Lango (2023), Platanakis and Urquhart (2019), Alarussi and Alhaderi (2018), Grace and Jummai (2023) and Adhikari (2020).

The result showed insignificant impact of CAR and CRR on ROE. The result is consistent with Nanda, Mahanty and Tiwari (2010), Dahal (2023) and Lan and Cong (2020), Assifuah-Nunoo (2023), Senthilnathan (2016), and the result contradict with Shrestha (2016), Munyua and Lango (2023), Platanakis and Urquhart (2019), Timilsina (2020), Alarussi and Alhaderi (2018), Adhikari (2020), and Grace and Jummai (2023).

The portfolio management of commercial banks in Nepal is characterized by several key conclusions based on the analysis of financial indicators and performance metrics. Firstly, it is evident that effective management of capital adequacy ratios (CAR) plays a critical role in enhancing financial stability and resilience within the banking sector. Banks with higher CAR ratios are better positioned to absorb risks and maintain healthy operations amidst economic fluctuations and regulatory changes. Secondly, the analysis highlights the importance of credit risk management, particularly in minimizing non-performing loans (NPLs). Commercial banks need robust strategies to assess borrower creditworthiness and monitor loan portfolios to mitigate default risks and preserve asset quality.

Additionally, the findings underscore the significance of optimizing asset allocation, as reflected in total assets (TA), to achieve a balance between growth and risk management. Successful portfolio management in Nepalese banks requires prudent allocation of resources to maximize returns on assets (ROA) and returns on equity (ROE) while ensuring adequate liquidity and compliance with regulatory requirements. Moreover, effective management of cash reserve ratios (CRR) is essential to maintain liquidity buffers and support operational flexibility. Overall, the conclusions emphasize the importance of holistic portfolio management practices that integrate risk management, capital optimization, and strategic asset allocation to drive sustainable financial performance and stability in Nepal's commercial banking sector.

CHAPTER V

SUMMARY AND CONCLUSION

This completes the study's final chapter. There are three sections in this chapter: a summary, a conclusion, and recommendations. This chapter provides a brief summary of the study and offers some recommendations that may be helpful to interested parties and businesses.

5.1 Summary

This section provides a concise overview of the entire study and highlights its key findings. The study's primary objective was to analyze the portfolio management of commercial banks in Nepal. In Chapter One, a comprehensive background on portfolio management and the study's objectives was presented. The major objectives are to analyze the portfolio investment managed by the commercial banks in Nepal, to assess the existing situation of financial position of commercial banks in Nepal and to examine the investment portfolio choices, affect the performance of commercial banks in Nepal. The limitations of the study are it is mainly based on secondary data, descriptive statistics, correlation and multiple regression methods was used to present data, the study covers only ten years data, beginning from 2013/14 to 2022/23. In chapter Two delves into a review of theoretical literature on portfolio management, covering various portfolio theories. Additionally, international and national articles and theses related to the portfolio management of commercial banks in Nepal, manufacturing companies, and listed companies were reviewed. The chapter provides a critical analysis of major issues, followed by a summary and identification of gaps that the study aims to address.

In chapter three was organized to outline the research design, encompassing aspects such as the target population, sample design, data collection procedures and instruments, as well as data analysis and presentation. The total population of the study is 20 commercial banks in Nepal. This study is conducted to evaluate the portfolio management of Everest Bank Limited (EBL), Nepal Investment Bank Limited (NIBL) and NMB Bank Limited (NMB), Nepal SBI Bank (NSBI) and Siddhartha Bank Limited (SBL). The research design employed for the study involved both descriptive and casual comparative research methods. In chapter Four, the results of empirical testing on the determinants of the portfolio management of commercial banks in Nepal were presented and discussed. The analysis incorporated suitable financial,

descriptive, and analytical tools. Throughout the analysis, interpretations and comments were provided where necessary, and the key findings of the study were highlighted.

The major finding of study is correlation coefficients between each pair of variables, Similarly, the correlation between Non-Performing Loans (NPL) and other variables is noteworthy. NPL exhibits positive correlations with ROE (0.616), CAR (0.665), and TA (0.357), indicating that banks facing higher non-performing loan levels may experience lower returns on equity, require stronger capital adequacy, and manage larger total assets. These relationships underscore the importance of effective credit risk management in enhancing financial performance and stability within the banking sector. Comparing the correlations across variables, we can identify patterns and interdependencies. For instance, the strong positive correlation between ROA and CRR (0.900) suggests that banks with higher returns on assets tend to hold more cash reserves, potentially for liquidity management purposes. On the other hand, the relatively weaker correlations between ROA and Total Assets (TA) (0.226) imply that asset size alone does not strongly influence return on assets, highlighting the significance of efficient asset deployment and risk mitigation strategies.

The Regression Coefficient table provides valuable insights into the direction, magnitude, and statistical significance of the relationships between predictor variables (CAR, NPL, TA, CRR) and Return on Assets (ROA) in the context of portfolio management in commercial banks. These findings can inform strategic decision-making and risk management practices aimed at optimizing financial performance and stability within the banking sector in Nepal.

The Regression Coefficient table provides valuable insights into the direction, magnitude, and statistical significance of the relationships between predictor variables (CAR, NPL, TA, CRR) and Return on Equity (ROE) in the context of portfolio management in commercial banks. These findings can inform strategic decision-making and risk management practices aimed at optimizing financial performance and profitability within the banking sector. Further analysis and refinement of the model may be needed to enhance its explanatory power and predictive accuracy for ROE prediction

5.2 Conclusion

In conclusion, the portfolio management of commercial banks in Nepal underscores the critical importance of balancing risk and return while navigating a dynamic and evolving financial landscape. Key findings highlight the significance of maintaining optimal capital adequacy ratios (CAR) to bolster financial stability and resilience against economic uncertainties and regulatory requirements. Effective credit risk management practices are essential for minimizing non-performing loans (NPLs) and preserving asset quality, thereby safeguarding profitability and sustainability in the banking sector.

Furthermore, successful portfolio management in Nepalese banks hinges on strategic asset allocation and prudent management of total assets (TA) to optimize returns on assets (ROA) and returns on equity (ROE) while ensuring liquidity and compliance with regulatory standards. The management of cash reserve ratios (CRR) also plays a crucial role in maintaining liquidity buffers and operational flexibility. Overall, the conclusions underscore the imperative for commercial banks in Nepal to adopt comprehensive portfolio management strategies that integrate risk management, capital optimization, and strategic asset allocation to enhance financial performance, stability, and resilience in a competitive banking environment.

The coefficient for Capital Adequacy Ratio (CAR) is estimated at 0.038, indicating that a one-unit increase in CAR is associated with a 0.038-unit increase in ROA, all else being equal. The standardized coefficient (Beta = 0.311) suggests that CAR has a moderate positive impact on ROA, with higher capital adequacy levels contributing positively to return on assets. The t-value (t = 1.451) associated with CAR assesses the statistical significance of the coefficient, with a corresponding p-value of 0.013 (< 0.05), indicating that CAR is a statistically significant predictor of ROA in this model.

The coefficients for Total Assets (TA) and Cash Reserve Ratio (CRR) are estimated at 0.453 and -0.053, respectively. A one-unit increase in TA is associated with a 0.453-unit increase in ROA (Beta = 0.271), while a one-unit increase in CRR is associated with a 0.053-unit decrease in ROA (Beta = -0.230). Both TA and CRR show statistically significant relationships with ROA, with t-values of 3.296 (p = 0.005) for TA and 1.350 (p = 0.183) for CRR.

The coefficient for Capital Adequacy Ratio (CAR) is estimated at 0.089, indicating that a one-unit increase in CAR is associated with a 0.089-unit increase in ROE, all else being equal. However, the standardized coefficient (Beta = 0.055) for CAR is relatively small, suggesting a modest impact on ROE. The t-value (t = 0.433) associated with CAR indicates that the coefficient is not statistically significant (p = 0.667), suggesting that CAR may not significantly contribute to explaining variations in ROE in this model.

Conversely, the coefficient for Non-Performing Loans (NPL) is estimated at 2.725, indicating that a one-unit increase in NPL is associated with a 2.725-unit increase in ROE, holding other predictors constant. The standardized coefficient (Beta = 0.248) for NPL suggests a moderate positive impact on ROE. The t-value (t = 1.761) associated with NPL indicates that the coefficient is statistically significant (p = 0.015), suggesting that NPL significantly contributes to explaining variations in ROE in this model

5.3 Implications

The following recommendations have been given for the enhancement of the liquidity and profitability position of the selected banks.

i. The correlation between Non-Performing Loans (NPL) and other variables is noteworthy. NPL exhibits positive correlations with ROE (0.616), CAR (0.665), and TA (0.357), indicating that banks facing higher non-performing loan levels may experience lower returns on equity, require stronger capital adequacy, and manage larger total assets. These relationships underscore the importance of effective credit risk management in enhancing financial performance and stability within the banking sector.

ii. The coefficient for Capital Adequacy Ratio (CAR) is estimated at 0.038, indicating that a one-unit increase in CAR is associated with a 0.038-unit increase in ROA, all else being equal. The standardized coefficient (Beta = 0.311) suggests that CAR has a moderate positive impact on ROA, with higher capital adequacy levels contributing positively to return on assets. The t-value (t = 1.451) associated with CAR assesses the statistical significance of the coefficient, with a corresponding p-value of 0.013 (< 0.05), indicating that CAR is a statistically significant predictor of ROA in this model.

iii. The coefficient for Capital Adequacy Ratio (CAR) is estimated at 0.089, indicating that a one-unit increase in CAR is associated with a 0.089-unit increase in ROE, all else being equal. However, the standardized coefficient (Beta = 0.055) for CAR is relatively small, suggesting a modest impact on ROE. The t-value (t = 0.433) associated with CAR indicates that the coefficient is not statistically significant (p = 0.667), suggesting that CAR may not significantly contribute to explaining variations in ROE in this model.

iv. Conversely, the coefficient for Non-Performing Loans (NPL) is estimated at 2.725, indicating that a one-unit increase in NPL is associated with a 2.725-unit increase in ROE, holding other predictors constant. The standardized coefficient (Beta = 0.248) for NPL suggests a moderate positive impact on ROE. The t-value (t = 1.761) associated with NPL indicates that the coefficient is statistically significant (p = 0.015), suggesting that NPL significantly contributes to explaining variations in ROE in this model

v. This study may be helpful to fulfil the gaps of proper research about relationship between portfolio management, liquidity and profitability. It may provide the knowledge about liquidity in Nepalese commercial banks and their performance, and profitability position.

vi. This study reflects the relationship between liquidity, capital adequacy ratio, (CAR), Non-Performing Loan (NPL), Total Assets (TA), Capital reserve ratio (CRR) on Return on Assets (ROA) and Return on Equity (ROE) and profitability position of five selected commercial banks only. Furthermore, researchers can be carried out using larges sampling other development banks, microfinance, insurances companies, manufacturing companies and other financial institutions too.

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APPENDIX

Capital Adequacy Ratio (CAR)

Fiscal Year	NMB	EBL	NIBL	SBL	NSBI
2013/14	75.61	91.13	49.62	78.01	54.43
2014/15	72.90	91.20	49.55	76.20	57.84
2015/16	72.55	86.78	65.54	75.56	56.11
2016/17	62.84	89.02	78.39	74.31	48.32
2017/18	69.02	90.96	72.14	81.85	56.17
2018/19	75.59	88.37	77.27	83.52	61.47
2019/20	80.90	94.16	85.87	86.59	66.45
2020/21	78.24	91.52	86.17	90.39	70.11
2021/22	77.59	84.84	81.14	87.85	55.58
2022/23	84.36	92.50	91.25	91.81	71.27
Mean	74.96	90.05	73.70	82.60	59.77
SD	6.10	2.79	14.66	6.42	7.41
CV	8.132%	3.10%	19.89%	7.77%	12.39%

Non-Performing Loan (NPL)

Fiscal Year	NMB	EBL	NIBL	SBL	NSBI
2013/14	7.33	8.40	9.54	8.75	9.80
2014/15	8.62	7.69	10.42	12.34	11.61
2015/16	5.04	7.30	7.01	8.76	43.76
2016/17	3.82	8.89	6.42	16.55	32.07
2017/18	2.07	6.60	5.36	9.57	16.79
2018/19	2.35	8.33	5.45	9.65	38.06
2019/20	8.87	8.80	6.17	5.06	12.51
2020/21	10.98	7.73.	6.45	9.19	2.36
2021/22	3.27	6.53	6.34	6.78	59.73
2022/23	2.53	4.53	3.23	5.13	32.39
Mean	5.57	7.47	6.64	9.18	25.91
SD	3.13	1.33	2.05	3.40	18.17
CV	56.17%	17.81%	30.92%	37.07%	70.13%

Assets Growth Rate (AG)

Fiscal Year	NMB	EBL	NIBL	SBL	NSBI
2013/14	8.10	9.77	9.79	19.40	20.38
2014/15	10.27	12.44	12.12	22.97	20.63
2015/16	15.16	10.40	10.89	16.54	32.16
2016/17	15.98	11.46	14.23	26.28	36.27
2017/18	8.55	9.67	13.25	14.85	33.54
2018/19	9.43	12.31	13.26	15.11	29.98
2019/20	19.98	14.46	15.96	18.41	37.15
2020/21	19.04	12.99	15.18	22.17	26.89
2021/22	19.32	15.12	17.32	22.32	39.06
2022/23	13.43	12.34	8.85	22.92	25.36
Mean	13.93	12.10	13.09	20.10	30.14
SD	4.65	1.83	2.71	3.83	6.68
CV	33.38%	15.17%	20.77%	19.07%	22.45%

Cash Reserve Ratio (CRR)

Fiscal Year	NMB	EBL	NIBL	SBL	NSBI
2013/14	1.91	4.75	2.23	2.03	1.42
2014/15	1.79	4.39	2.10	2.33	1.74
2015/16	1.95	4.05	2.80	1.84	1.33
2016/17	1.75	3.80	3.40	2.23	1.37
2017/18	1.49	3.81	2.76	2.30	1.43
2018/19	1.38	3.70	2.43	2.33	1.27
2019/20	4.67	3.75	2.82	2.87	1.51
2020/21	1.57	2.83	2.60	2.50	1.21
2021/22	1.41	2.73	2.42	2.84	1.24
2022/23	1.38	2.58	1.80	2.54	1.25
Mean	1.93	3.64	2.54	2.38	1.38
SD	0.99	0.72	0.45	0.33	0.16
CV	51.19%	19.79%	17.63%	13.66%	11.69%

Return on Equity (ROE)

Fiscal Year	NMB	EBL	NIBL	SBL	NSBI
2013/14	30.98	13.97	15.02	2.31	28.36
2014/15	33.08	16.10	20.31	14.87	26.38
2015/16	30.39	11.68	20.81	15.42	26.27
2016/17	22.04	22.21	18.87	16.08	21.69
2017/18	24.22	13.60	19.24	16.08	16.71
2018/19	25.49	11.81	14.80	13.58	11.48
2019/20	19.24	19.34	14.07	15.81	11.24
2020/21	18.28	14.78	16.20	12.97	16.31
2021/22	13.39	11.70	10.44	8.18	13.16
2022/23	7.47	11.20	6.26	11.32	8.62
Mean	22.47	14.11	15.77	12.21	18.47
SD	8.13	3.26	4.57	4.29	6.48
CV	36.16%	23.12%	28.99%	35.17%	37.02%

Return on Assets (ROA)

Fiscal Year	NMB	EBL	NIBL	SBL	NSBI
2013/14	1.24	2.03	0.83	0.20	1.14
2014/15	1.03	2.15	1.10	1.40	1.02
2015/16	1.43	1.36	1.31	1.42	2.15
2016/17	1.57	2.04	1.25	1.28	1.05
2017/18	2.01	2.12	1.37	1.49	1.50
2018/19	2.48	2.02	1.54	1.69	1.84
2019/20	2.36	2.71	1.97	1.66	2.64
2020/21	2.11	2.77	1.94	1.67	2.61
2021/22	1.46	1.86	1.17	0.95	1.71
2022/23	0.87	1.59	0.70	1.17	1.22
Mean	1.66	2.07	1.32	1.29	1.69
SD	0.58	0.43	0.43	0.43	0.61
CV	34.89%	20.96%	31.62%	33.33%	36.28%

Descriptive Statistics

	Minimum	Maximum	Mean	Std. Deviation
ROA	18.90	18.03	1.3251	3.2513
ROE	165.60	194.06	18.069	33.100
CAR	8.76	91.70	31.911	18.816
NPL	-2.90	77.21	49.8139	12.783
TA	131.33	5918.88	2133.661	1362.685
CRR	0.61	25.35	5.125	5.673

Valid (N) 50

Correlation Matrix

	ROA	ROE	CAR	NPL	TA	CRR
ROA	1					
ROE	.719**	1				
CAR	.671**	.766**	1			
NPL	.492**	.616**	.665**	1		
TA	.226**	.350**	.368**	.357**	1	
CRR	.900**	.875**	.749**	.612**	.299**	1

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

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.4701	.221	.133	.52999

a. Predictors: (constant), CAR, NPL, TA and CRR

b. Dependent Variables: ROA

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.376	5	.675	2.866	.024
	Residual	11.897	44	2.70		
	Total	15.273	49			

a. Dependent Variable: ROA
b. Predictors: (constant), CAR, NPL, TA and CRR

Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.
		B	Std. Error	Beta		
1	(Constant)	14.153	0.994		14.235	0.000
	CAR	0.038	0.026	0.311	1.451	0.013
	NPL	-2.213	-0.637	1.515	0.107	0.916
	TA	0.453	0.125	0.271	3.296	0.005
	CRR	-0.053	0.039	-0.230	1.350	0.183

Dependent Variable: ROA

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.5746	.330	.251	5.6611

a. Predictors: (constant), CAR, NPL, TA and CRR
b. Dependent Variables: ROE

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	695.360	5	139.072	1.541	0.002
	Residual	1410.12	44	32.048		
	Total	2105.489	49			

a. Dependent Variable: ROE
b. Predictors: (constant), CAR, NPL, TA and CRR

Regression Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.
		B	Std. Error	Beta		
1	(Constant)	46.361	7.019		6.605	0.000
	CAR	0.089	0.205	0.055	0.433	0.667
	NPL	2.725	1.547	0.248	1.761	0.015
	TA	0.055	0.027	0.469	2.065	0.044
	CRR	0.052	0.059	-0.271	0.869	0.379

Dependent Variable: ROE

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ABSTRACT This study is

portfolio management of commercial banks in Nepal. The main objectives **of this**

study are to analyze the portfolio investment managed by the commercial banks in Nepal, to assess the existing situation of financial position of commercial banks in Nepal, and to examine the investment portfolio choices, affect the performance of commercial banks in Nepal. Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Total Assets (TA)

and Cash Reserve Ratio (CRR) are the **independent variables** and **Return on** Assets (ROA) **and Return on** Equity (ROE) **are** the **dependent** variable in this **study**

. Mean, standard deviation, descriptive statistics, correlation and multiple regression analysis are taken to present data. The major finding of this study is the correlations across variables, we can identify patterns and interdependencies. For instance, the strong positive correlation between ROA and CRR that banks with higher returns on assets tend to hold more cash reserves, potentially for liquidity management purposes. On the other hand, the relatively weaker correlations between ROA and Total Assets (TA) imply that asset size alone does not strongly influence return on assets, highlighting the significance of efficient asset deployment and risk mitigation strategies. Furthermore, the high correlations between ROE and CAR as well as ROE and CRR indicate that banks with stronger capital adequacy and higher cash reserves tend to generate better returns for their equity holders. In regression analysis,