

BANK SPECIFIC FACTORS DETERMINING PROFITABILITY OF NEPALESE DEVELOPMENT BANKS

A Dissertation submitted to the office of the dean, faculty of management in partial
fulfillment of the requirements for the Master's Degree

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CERTIFICATION OF AUTHORSHIP

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled “Bank Specific Factors Determining Profitability of Nepalese Development Banks”. The work of this dissertation has not been submitted previously for the purpose of conferral of any degrees nor it has been proposed and presented as part of requirement for any academic purposes.

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

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REPORT OF RESEARCH COMMITTEE

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ABBREVIATIONS

ATM	:	Automated Teller Machine
BS	:	Bikram Sambat
CAR	:	Capital Adequacy Ratio
CB	:	Commercial Banks
CRR	:	Cash Reserve Ratio
CV	:	Coefficient of Variation
F/Y	:	Fiscal Year
GDP	:	Gross Domestic Products
IR	:	Interest Rate
JVBs	:	Joint Venture Banks
LA	:	Loan and Advance
LATA	:	Liquid Assets to Total Assets Ratio
LDR	:	Loan to Deposit Ratio
LSIZE	:	Logarithm of Total Assets
NRB	:	Nepal Rastra Bank
ROA	:	Return on Assets
ROE	:	Return on Equity
SD	:	Standard Deviation
TA	:	Total Assets
TU	:	Tribhuvan University

ABSTRACT

The objective of this study is to examine the bank specific factors of profitability of Nepalese development banks. The study is conducted using panel data of five development banks of Nepal with 50 observations for the period 2012/13 to 2021/22. Ordinary least square regression (OLS) of panel data analysis is used as a major tool of analysis. The result reveals that there is strong liquidity position of development banks in form of cash reserve ratio, liquid assets ratio and loan to deposit ratio etc. The relationship analysis depicts that cash reserve ratio has positive association with ROA and ROE. Similarly, liquid assets ratio has significant positive relation with ROA. Further, the relationship analysis shows that there is positive correlation between loan to deposit ratio (LDR) and ROA and ROE of the banks. At the same time, capital adequacy ratio (CAR) has significant positive relation with ROA. The multiple regression analyses revealed that cash reserve ratio has no significant positive impact on profitability (ROA and ROE) of the banks. At the meantime, liquid assets to total assets ratio has significant positive impact on ROA and ROE. Similarly, loan to deposit ratio has significant positive impact on ROA ROE. Moreover, capital adequacy ratio has insignificant negative impact on ROA and it has significant negative impact on ROE of the development banks.

Keywords: *Cash reserve ratio, Liquid assets to total assets ratio, Loan to deposit ratio, Capital adequacy ratio, Return on assets and Return on equity*

CHAPTER - I

INTRODUCTION

1.1 Background of the study

Banks today are under great pressure to perform to meet the objectives of their stockholders, employees, depositors and borrowing customers, while somehow keeping government regulators satisfied that the bank's policies, loans, investment are sound. As other type of business entity, commercial banks are inspired by the profit. The main objectives of the commercial banks are to maximize profit. Profit earned by the firm is main financial indicators of a business enterprise. Profit maximization is the ultimate objectives of commercial banks and banks have to follow NRB directives and regulations policies while operation.

By allocating resources and breaking the hoarding tendency, banks play a crucial role in promoting thrift and discouraging hoarding. They actively pursue fast economic growth, instilling a banking habit in the populace by gathering little, dispersed resources into one large quantity, putting them to use for further productive uses, and providing other important services to the nation. As a result, this presents the person with the chance to borrow money against their potential future earnings, which might enhance their financial security. Bank handles the offer of gathered deposits and extends credit for business use (Bhatta & Joshi, 2010).

Profit has been universally recognized and accepted as a measure of business efficiency. Thus, the larger the profits, the more efficiency and profitable the bank is deemed to be. This criterion has the greater advantage that it provides a common standard of measuring the efficiency of different bank. The profit motive remains on the main springs of an enterprise and spur to efficiency. It is clearly the desire to make profit which inspires the search for more efficient methods, reduced unit costs, better organization and greater turnover (Khan & Jain, 1992).

The terms "profit" and "ability" combine to form the word profitability. The definition of profit was previously discussed, and ability refers to a company's capacity to turn a profit. An organization's ability also indicates its profitability or operational

effectiveness. The profitability of an investment may be characterized as its capacity to generate income from its utilization. While profit is an absolute notion, profitability is a relative idea. Profit and profitability are two distinct ideas, notwithstanding their close relationship and mutual dependence. Put differently, each of them plays a unique role in business while being generic (Dangol, 1999).

Profitability is a phrase that deviates from "profit" and refers to the capacity to turn a profit as the primary indicator of a commercial enterprise's performance. It is only describing the fundamental test performance of every firm. Profit is the excess of sales revenue over expenses, yet the term "profit" is highly contested and has several meanings (Horngren, 1992).

Profitability analysis is a component of enterprise resource planning that allows administrators to forecast the profitability of a proposal or optimize the profitability of an existing project. Profitability analysis can anticipate sales and profit potential specific to aspects of the market such as customer age groups, geographic regions, or product types. In cost accounting, profitability analysis is an analysis of the profitability of an organization's output. Output of an organization can be grouped into products, customers, locations, channels or transactions (Fregmen, 1976).

Generally, there are two ways of classifying the factors of development banks liquidity. The internal factors are individual bank characteristics which affect the development bank's performance. These factors are basically influenced by the internal decisions of management and board. The external factors are sector wide or country wide factors which are beyond the control of the company and affect the liquidity of development banks (Wuave et al., 2020). The company specifics factors such as assets size (LOGA), capital adequacy (CA), liquidity ratio (LIQ), assets quality (AQ), assets management (AM), profitability (ROA, ROE, NIM), operation efficiency (OPEF), and non-interest income (NII), and macroeconomic factors such as (economic activity (GDP), inflation rate (IFR), exchange rate (EXCH), and interest rate (INTRT).

The cash balance, bank balance with NRB and other BFIs, money at call and the investment in the government securities are considered as liquid assets of the commercial banks. The total liquid assets of the commercial banks increased in year

2021/22. However, the total liquid assets to deposit ratio decreased in year 2021/22 (Nepal Rastra Bank, 2022).

Bank's profitability is measured by ratios such as (firm's returns on asset, return on equity, and net interest margin) that summarize large quantities of financial data and to make qualitative judgment about the firm's profitability (Neupane, 2019). The affecting factor of profitability are size, capital, risk management, expense management, marketable securities and non-performing loans are generally taken as micro or bank specific variables whereas inflation, interest rate, GDP growth and tax rate are used as macro variables. In this study the bank specific variables such as bank size, capital adequacy ratio, liquidity ratio, credit deposit ratio and non-performing loan ratio of five development banks i.e. Jyoti Bikash Bank Limited, Muktinath Bikas Bank Limited, Garima Bikas Bank Limited, Kamana Sewa Bikas Bank Limited and Shangri-La Development Bank Limited are considered as the bank specific factors of profitability (i.e. ROA and ROE) of the banks.

1.2 Problem statement

Profitability analysis is the vital tool which indicates the organization's efficiency towards achieving profit. Profit is the very basic primary short term and long term objectives of every business organization. Even increasing ratio of profit is a good symbol of organization. Basically, it can be expected that there is a positive relationship between asset quality and bank performance. This ratio may be used to examine the security and soundness of a bank. The likelihood of bankruptcy will decrease with increasing value of this ratio, boosting investor confidence and profitability (Budathoki & Rai, 2020).

There is a significant positive relationship between the age and size of a company and its profitability as measured by ROA, which is becoming vital in various sectors these days (Chaudhary et al., 2021). Banking profit determinants in terms of bank specific, such as non-performing loan ratio which indicates higher provision for the security of loan and higher provision makes less funds available for the investment and the earning power of bank is decreased and profitability of the banks is negatively affected (Islam & Nishiyama, 2016).

Performance and efficiency of the banking sector and profitability has been analyzed using various bank specific variables, industry specific variables such as; ROA, ROE, bank size, capital adequacy, assets quality, liquidity, management quality, operating efficiency and leverage (Javaid & Alalawi, 2017).

The bank's liquidity is measured by using the ratio between cash and bank balance and total deposit of the banks, which mitigate the risk of bank's failure in short-term. If the bank lacks sufficient liquidity, then it may fail in paying its depositors and financing its routine payments. Since, regular operation of the bank is affected by liquidity, the performance of the bank also significantly associated with the liquidity of the banks (Kosumi & Kosumi, 2021).

Likewise, credit to deposit ratio measures the asset structure defining how the flow of deposit enhances the credit/loan operation of banks and how it assists banks in generating profit. Credit is also major earning source in the bank and credit deposit ratio have significant effect in the profitability of the banks (Neupane, 2019).

In this regard, this study attempts to address the following questions:

- a. How does banks specific factors (i.e. cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio) effect on the profitability (i.e. return on assets and return on equity) in Nepalese development banks?
- b. Is there any relationship between bank specific factors (i.e. cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio) and profitability (i.e. return on assets and return on equity) of Nepalese development banks?
- c. What is the comparative position of development banks in term of cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio and profitability in term of return on assets and return on equity?

1.3 Objectives of the study

The basic objective of the study is to analyze the bank specific factors of profitability of Nepalese development banks. The specific objectives of the study are:

- a. To analyze the impact of bank specific factors (i.e. cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio) on the profitability (i.e. return on assets and return on equity) in Nepalese development banks.
- b. To examine the relationship between bank specific factors (i.e. cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio) and profitability (i.e. return on assets and return on equity) of Nepalese development banks.
- c. To assess the comparative position of development banks in term of cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio and profitability in term of return on assets and return on equity.

1.4 Rationale of the study

The rate of interest of deposit is highly increased which reduced profit of the bank. The banks are also required to manage cost of fund and control their operating cost in this scenario. There have been many studies of financial performance of the Nepalese commercial banks; however, most of them have been concentrated on the investment function and financial analysis. The study will be mainly beneficial to the shareholders, depositors and other creditors to identify the productivity of their funds in commercial banks. Likewise, other financial agencies, e.g. financial experts are also interested in the performance of bank. Besides them, every individual as well as further researcher will have a good source of literature for review about the findings done by this project.

1.6 Limitations of the study

Along with the significance of this study also have some limitations which are as follows:

- a. The study is limited to only five development banks of Nepal.
- b. This study concentrates only liquidity as cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio and their impact on profitability as return on assets and return on equity and ignores the other financial aspects.
- c. Only secondary data is used for analysis so the reliability of the results depends on the source of data.
- d. The study is limited to the past ten years from 2012/13 to 2021/22.

- e. Limited financial tools as cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio, capital adequacy ratio, return on assets and return on equity and statistical tools as mean, standard deviation, coefficient of variation, correlation analysis and regression tools are used for analysis.

CHAPTER - II

LITERATURE REVIEW

Review of literature is stock taking of available literature in one's field of research. It comprises the concept of financial analysis, conceptual review and review of related books, journals, articles and previous studies in the same area of the study.

2.1 Conceptual review

In this part of the conceptual idea relating to profit and profitability of commercial banks are reviewed.

Concept of profit

There are several interpretations of what profit is. Profit might refer to the payment a company receives for its managerial services. It is referred to as regular profit and is the minimal amount required to keep the company operating. One may view profit as a reward for actual entrepreneurial activity. It is the compensation an entrepreneur receives for taking on risk. We call this kind of analysis supernormal profit. Monopoly profit may be implied by profit. A company obtains it through extortion as a result of its market monopoly. It has nothing to do with any practical, niche purpose. Monopoly profit is therefore not a useful reward. Sometimes profit might be in the form of a windfall. It is an unforeseen benefit that a business receives by pure happenstance, an inflationary boom (Chand, 2019).

For example, various people—businesspeople, accountants, legislators, laborers, and economists—have varied definitions of what profit is. A profit is just a positive amount that remains after all costs and expenses have been deducted from company operations or investments. In the language of economics, profit is the benefit that an entrepreneur receives by bringing together all the elements of production to meet the needs of people in the economy who are facing uncertainty. Simply said, a profit is an amount of money that goes to the investor. Profit in accounting refers to surplus income over all expenses that have been paid out. In the language of economics, a profit is referred to as pure, economic, or just profit (Nitisha, 2019).

Types of profit

Profit has been defined differently by different people. People have equated profit with more money, rewards, and income. But none of the descriptions of profit are considered to be correct or incorrect; rather, it all relies on the context in which they are used. Profit may be divided into two categories based on fields, and these are described as follows (Nitisha, 2019):

- **Gross profit**

In addition to the net profit owed to the entrepreneur, gross profit also includes the following: compensation for the entrepreneur's own inputs into the manufacturing process, depreciation and maintenance costs, additional personal earnings, and net profit (Nitisha, 2019).

- **Net profit**

The only compensation an entrepreneur receives for carrying out the following tasks: coordinating, taking risks, bearing uncertainty, and innovating. This compensation is known as net profit (Nitisha, 2019).

- **Accounting profit**

It refers to an organization's overall earnings. It is a return that is computed as the difference between income and expenses, which includes overhead and production costs. Explicit costs, or monetary payments made by the business to third parties for its goods and services, are the most common type of expenses. Stated differently, payments made by an organization for labor, materials, plants, ads, and machinery are referred to as explicit expenses (Nitisha, 2019).

- **Economic profit**

considers hidden, or imputed, costs in addition to apparent costs. Implicit that an entrepreneur may profit from by forgoing in favor of the greatest possible alternative use of resources. Implicit costs are therefore sometimes referred to as opportunity costs. Examples of implicit expenses include interest on an entrepreneur's own investment, proprietor salary, and rent on their own property (Nitisha, 2019).

- **Normal profits**

The term "normal profits" refers to the assumed returns on capital and risk-taking that are simply required to keep the owners from leaving the business. Typically, the supply price or opportunity cost of entrepreneurship is used to determine normal earnings. If the company wants to continue operating in the long run, these costs must be met. When there is perfect competition among business owners, the product's market price is equal to its average cost, which already includes "normal profit." The minimal profit required to persuade an entrepreneur to stay in business over the long term is normal profit. An entrepreneur may have to sell his product at a loss in the short term if he does not receive a normal profit, but in the long term, every entrepreneur must receive at least a normal profit. It is said to be included in the cost (Nitisha, 2019).

- **Supernormal profits**

The excess over normal profit is known as supernormal profit. The super-marginal businesses acquire it. The marginal firm establishes the supernormal profit of the company but only receives the normal profit (Nitisha, 2019).

Concept of profitability

The terms "Profit" and "Ability" combine to form the phrase "Profitability." Regarding the term profit, there are two primary ideas: accounting and economics. The father of economics, Adam Smith, stated that "Profit is the amount left over after all wages are paid." Wages in economics include payments to farmers, proprietors, officers of corporations, partners, and laborers, as well as what is now known as rent on the unimproved value of land, which is considered the return on capital. The ultimate "accounting" profit of such firms has two components, according to the mathematics of capital of accountancy: a return on capital and a return reflecting economic rent on the land value. Still, not a shred of knowledge exists on what percentage of "accounting" profit each of these two economic components represents. This leads to the perplexing fact that "economic" profit is not the same as "accounting" profit or the profit of a firm (Gupta, 1992).

Determining whether a bank has utilized its resources efficiently to meet its profitability goals is the goal of profitability measurement. The profitability objectives pertain to the

least profit that the firm must generate, rather than the greatest profit that it may generate. The profit at the lowest rate necessary for the intended kind of bank investment is known as the minimal profit. But, there must be insufficient profit to pay both the new capital required to meet operating expenses and the capital in the market rate of return on money that has already been invested in the firm (Dangol, 1999).

Profit, according to economists, is what entrepreneurship gets in exchange for taking risks. Labor leaders may argue that it serves as a gauge of labor productivity and a starting point for wage increase negotiations. Additionally, investors will see it as an indicator of their financial return. It might be used as a basis by an internal revenue agent to calculate income taxes. It is simply defined by the accountant as the difference between the firm's income and its revenue-producing expenses over a specific fiscal quarter (Lynch & Williamson, 1989).

Every company has a variety of objectives. Maximizing profits is the aim of business. For a business, profit is everything. It holds the same significance as water. To pay for ongoing expenses associated with operating a firm, such as replacing furnishings and equipment, managing market or technological risks, etc. In the context of the self-financing principle, profit is crucial. It lowers the cost of capital and offers structure. An enterprise's profitability attracts investors. So, when there is a sufficient profit, investors would put their money to work. Therefore, in order to guarantee and fulfill the expectations of management, owners, investors, employees, and the country at large, profit is necessary (Dangol, 1999).

Profit and profitability

Profit and profitability are concepts that are occasionally used interchangeably. However, there is a true distinction between the two. While profitability is a relative idea, profit is an absolute phrase. Nonetheless, they play different functions in business and are mutually dependent and intimately connected. Profit is the entire revenue generated by the business during the given time period, whereas profitability is the business's operational effectiveness. It is the business's capacity to turn a profit on sales. It is the capacity of an organization to obtain a respectable return on the capital and labor utilized in its operations (Fregmen, 1976).

The financial management profit is the test of efficiency and a measure of control, to the owners a measure of the worth of their investment, to the creditors the margin of safety, to the government a measure of taxable capacity and a basis of legislative action and to the country profit is an index of economic progress, national income generated and the rise in the standard of living (Weston et al., 1996), while profitability is an outcome of profit. In other words, no profit drives towards profitability. Firms having same amount of profit may vary in terms of profitability. Profit in two separate business concern may be identical, yet, many a times, and it usually happens that their profitability varies when measured in terms of size of investment (Horngren, 1992).

Earning sources of banks

Banks' business models are entwined with the economy and several other allied companies that enhance their client base and overall business strategy. The several revenue streams that a bank has are listed below (Mamtani, 2016):

i) Lending money at a greater interest rate than borrowing is how banks generate revenue. Loans come in the following varieties: Individual Loan Mortgage Loan (Loan secured by stocks, real estate, etc.) Loan for Working Capital Loan for Small Businesses Auto Loan Loans for education, etc.

ii) Banks make money by charging on various bank services like;

- Locker Facility: Patrons can keep cash, jewels, papers, and valuables in the locker facility. They hire this facilities annually for a price.
- Cheque Books: There is a set charge per cheque book for all checks that are supplied to the customer.
- Internet Banking: Customers are charged fees while using internet banking to send money, make payments, etc.
- Account Type: Premium accounts require users to keep a larger balance at a lower interest rate or pay a set charge for the services.
- Non-AMB: Customers are charged for non-maintenance if they fail to keep the minimum annual balance as required by the bank.
- ECS / Cheque Return: The bank charges the client's account (often referred to as cheque return or cheque bounce costs) when the consumer has consented to

automatic payments to EMIs or individuals to whom they owe money, and when the payment returns unpaid.

- **SMS Alerts and Mobile Banking:** Customers want to be notified by SMS when there are charges, deposits, and withdrawals made by the bank.
- **Credit, Debit, and Forex Cards:** There is a one-time registration cost and a yearly renewal fee for these instruments.
- **DeMAT Services:** De-Materialization, which is required for the holding of shares in virtual accounts, charges for trading on the stock market, and contributes to the bank's revenue.
- **Foreign Exchange:** Banks mark up or discount foreign currency notes that they sell.
- **Cash Management Services:** Companies that transact a lot of cash are required to pay a fee-based turnover for cash management services.
- **Deposits:** Making a cash deposit or a deposit at a branch that is not your home may result in fees.
- **ATM withdrawals:** Customers who take out cash from non-self-banking ATMs will be charged a fee for each withdrawal.
- **Lost Instrument:** The client will be responsible for paying for a replacement if they misplace their passbook, pin, password, or card (Mamtani, 2016).

iii) **Income from investments:** Banks do make significant investments in the stock market as well as in government bonds and securities. These days, these instruments regularly yield respectable returns. This includes the revenue from trading securities.

iv) **Income from other ancillary businesses or subsidiaries:** Many banks serve as lead managers for FPOs and IPOs. These services also bring in money for these institutions.

Bank specific factors of profitability

- **Bank Size:** The bank size is an important determinant of profitability. It can influence the banks operations internally in either way. The positive relation of bank size with ROA indicates that the bank has been able to achieve economies of scale which in affect reduces the costs of operation and hence helps to achieve greater

profitability. A negative relation on the other hand indicates a diseconomies of scale (Mahmud et al., 2016).

- **Gearing Ratio:** The gearing ratio shows how much equity and debt the banks are utilizing to fund their assets. The debt-to-equity ratio is used to measure it. greater liquidity risk is indicated by a relatively greater gearing ratio since the debt holders may demand a higher rate of return. It indicates a significant danger of liquidity, which might reduce profitability. According to earlier research, this is a highly important factor in determining credit position.
- **Non-performing Loan Ratio:** Loan default rate is measured by non-performing loan ratio. It was discovered that the quantity of non-performing loans (NPLs) had a negative relationship with bank profitability. Bank profitability decreases with the quantity of categorized loans as a percentage of total loans.
- **Liquidity:** The trade-off between profitability and liquidity exists. Liquid assets serve as a buffer against deposits that might need to be paid for immediately. Therefore, increased liquidity lowers risk but also lowers the amount of money available for lending. Hence, more liquidity denotes decreased profitability. Thus, there is a bad relationship between the two of them.
- **Leverage Ratio:** Empirical evidences found that leverage had statistically significant relationship but negative (Kosumi & Kosumi, 2021). Higher ratio shows the higher portion of deposit/ liabilities in the banks which generates more interest expenses in the bank and profitability decreases.
- **Operating Expense Ratio:** Reduced operational expenses are the result of efficient management, and this raises the company's profitability. It is anticipated that ROA and operating expenditure ratio would have an inverse connection.
- **Capital Adequacy Ratio:** A bank's net value is determined by its capital adequacy ratio. It shows how much money is available to protect against unfavorable developments. The relationship between CAR and ROA is erratic. While some

study show that the relationship is unfavorable other research indicates a positive relationship.

2.2 Theoretical review

i) Structure conduct performance hypothesis

This method was first introduced in 1940. There are two prototypes of this SCP. The first one consists of the performance of the structure, and the second is called efficient structure. The way the structure performs reveals the relationship between the market's attentiveness and the competitiveness. According to this theory, the firm's performance (ROA) would rise in tandem with increased market awareness. The entire deposits are ignored by this factor. If the market is attentive to one another, the total deposit will not change. The businesses will make more money if they pay closer attention. According to the second hypothesis, an institution's profit is positively correlated with its overall spending, or the firm's efficiency (Edwards et al., 2006).

ii) Efficiency structure hypothesis

The efficiency structure hypothesis has cast doubt on the conventional theoretical viewpoint that is implied in the structure conduct performance (SCP). According to the efficiency hypothesis, a firm's higher operational efficiency leads to the formation of an industry's structure. This theory is predicated on the idea that businesses with low cost structures boost profitability by cutting costs and gaining market share. The efficiency structure perspective holds that structure results from performance. More specifically, when businesses become more efficient, they take market share away from less efficient enterprises, leading to an increase in concentration. When considered in this context, a more effective banking system would naturally accompany the concentration process (Khan et al., 2016).

iii) The real bills doctrine/ theory

According to the real bills philosophy, also known as the commercial loan theory, a commercial bank should only provide business organizations with short-term, self-liquidating loans that are productive. Self-liquidating loans are designed to fund the manufacturing process. According to the notion, the central bank should only lend money to commercial banks based on the security of short-term, self-liquidating loans that the banks make. This idea would guarantee that every bank has the right amount of

liquidity and that the money supply is appropriate for the whole economy. It was anticipated that the central bank will adjust bank reserves by rediscounting authorized loans. Rediscounting invoices with the banks allowed banks to obtain more reserves as business expanded and trade requirements increased (Meghana, 2021).

iv) The shift-ability theory

The shift-ability theory of bank liquidity was propounded by H.G. Moulton who asserted that if the commercial banks maintain a substantial amount of assets that can be shifted on to the other banks for cash without material loss in case of necessity, then there is no need to rely on maturities. According to this view, an asset to be perfectly shift able must be immediately transferable without capital loss when the need for liquidity arises. This theory has certain elements of truth. Banks now accept sound assets which can be shifted on to other banks. Shares and debentures of large companies are accepted as liquid assets along with treasury bills and bills of exchange. This has encouraged term lending by banks (Meghana, 2021).

v) The anticipated income theory

The anticipated income theory was developed in 1944 on the basis of the practice of extending term loans by the US commercial banks. According to this theory, regardless of the nature and character of a borrower's business, the bank plans the liquidation of the term-loan from the anticipated income of the borrower. A term-loan is for a period exceeding one year and extending to less than five years. Therefore, rather than receiving a single payment at the loan's maturity, a bank loan is returned in installments from the borrower's future income. Because it satisfies the three goals of liquidity, safety, and profitability, this theory is better than the shift ability hypothesis and the real bills doctrine. The bank is guaranteed liquidity when the borrower maintains savings and makes timely loan repayments in installments (Meghana, 2021).

vi) The liabilities management theory

The 1960s saw the development of this idea. This theory holds that since banks may borrow reserve money in the money market in an emergency, they do not need to provide self-liquidating loans and maintain liquid assets. Through the creation of new obligations against itself from various sources, a bank can obtain reserves. These sources include of raising money through the issuance of shares, keeping earnings,

borrowing from central banks, other commercial banks, and time certificates of deposit (Meghana, 2021).

vii) Risk and uncertainty bearing theory of profit

According to this idea, an entrepreneur must get earnings in exchange for taking on risk and uncertainty in a dynamic market. Thus, the theory of profits is functional. Because the future is unknown, profits can be made.

viii) Frictional theory of profits

This theory states that there is a normal rate of profit, which is a return on capital that capital owners must get in exchange for investing and preserving their money as opposed to hoarding or consuming it all. In a static economy with no unexpected shifts in cost or demand, the companies would only be making a regular rate of return on capital in the long term.

2.3 Empirical review

Narwal and Pathneja (2015) reported on determinants of productivity and profitability of Indian banking sector: A comparative study. This study was conducted to discuss the different determinants of productivity and profitability of banks functioning in India. This study measured the different components of productivity and profitability over the period of ten years (2004-05 to 2013-14). The regression analysis was used to assess the effects of different variables on the productivity and profitability of banks and linear programming method data envelopment analysis based productivity index was used to measure the productivity and its different components. The study revealed a noteworthy distinction in the overall factor productivity between public and private sector banks. The findings suggest that the former are more productive than the latter, as seen by the negative value. It turned out that variances in production were mostly caused by changes in technology rather than shifts in efficiency. Comparably, the reason for the rise in private sector banks' productivity and the decline in public sector banks' productivity in the second sub-period. The findings indicate that, in the second sub-period, technical advancements rather than changes in efficiency are the primary reason of the public sector banks' declining productivity, which ultimately lowers the group's total productivity of the banks. On the other hand, the banks in the private sector are

able to maintain their level of efficiency despite the rapid advancement of technology, which boosts their total output.

Khanal (2016) studied on determinants of profitability in Nepalese commercial bank. Examining the macroeconomic and bank-specific factors that affect Nepalese commercial banks' profitability was the aim of this study. Profitability was measured using return on equity (ROE) and return on assets (ROA). Regression models and Pearson's correlation coefficients were used in this study to assess the importance and influence of macroeconomic and bank-specific factors on the profitability of commercial banks in Nepal. It was discovered that return on assets and return on equity are positively connected with equity to total assets, loan loss provision to total loan, GDP growth rate, and inflation, and negatively correlated with expense to revenue ratio, total loan to total deposit ratio, and bank size. It suggests that ROA and ROE would be higher the greater the equity to total assets, loan loss provision to total loan, GDP growth rate, and inflation. Similarly, worse ROA and ROE would result from bigger expenditure to revenue ratios, total loans to total deposits, and bank sizes.

Kamande et al. (2016) researched on the effect of bank specific factors on financial performance of commercial banks in Kenya. Every financial organization wants to run as profitably as possible in order to preserve stability and long-term growth. The internal and external economic conditions are seen to be important factors influencing a bank's success. The return on assets (ROA) was the dependent variable that was being studied. Capital sufficiency, asset quality, management effectiveness, earnings potential, and liquidity were the independent factors. In order to achieve its goals, this study used a panel data research design and an explanatory methodology. According to this report, capital adequacy has significantly declined during the last five years. Additionally, it was shown that asset quality had an impact on banks' financial performance and profitability. The analysis comes to the conclusion that a bank's asset quality has the most impact on its return on assets.

Islam and Nishiyama (2016) reported in a study entitled determinants of bank profitability: Dynamic panel evidence from South Asian countries. The main objective of the study was to examine the determinants of banking profitability of South Asian countries. The study used GMM estimator, this paper empirically studies the bank-

specific, industry specific and macroeconomics specific determinants of bank profitability of 259 commercial banks in the South Asian countries (Bangladesh, India, Nepal and Pakistan) for the period of 1997-2012. The empirical model used ROA and ROE as profitability factor and equity to assets ratio, non-performing loan ratio, liquidity ratio, cost of fund ratio, productivity ratio, earning power, growth rate of deposit, credit deposit ratio, interest income ratio, interest rate, inflation rate, funding gap, GDP growth rate etc. were analyzed as the explanatory factor of the profitability. It was found that that capital plays a strong determinant of bank profitability. Equity to total assets ratio positively and significantly affect ROA. Cost of fund, liquidity, funding gap, term structure of interest rate and economic growth rate found negative influence while rate of inflation positively affect bank profit. It was found that deposit growth rate and a bank size have no significant effect on bank profitability. But rate sensitive assets and rate sensitive liabilities and loan to deposit ratio have significant negative and effect on profitability of banks. It also revealed that the term structure of interest rate and macroeconomic growth rate of a country negatively influence bank profitability.

Khan et al. (2016) examined on effect of firm specific & country specific factor's on profitability of banks in Pakistan. The study's goal was to look into the variables that influence Pakistani banks' profitability. This research analyzes many parameters to ascertain how they affect profit. The fixed effect model and random effect model outcomes were measured using the panel data approach. In summary, the analysis revealed that the bank's profitability has been significantly impacted by the independent factors. The money and quasi money variables, as well as the changeable net interest margin, have a big influence on the banks' profitability. The findings showed that changes in firm- and country-specific variables as well as firm-specific internal factors affect commercial bank earnings.

Mahmud et al. (2016) reported a study entitled bank-specific factors affecting the profitability of commercial banks in Bangladesh: A panel data analysis. This study tried to identify the bank specific variables that affect the profitability of commercial banks of Bangladesh. This study used panel data research design to fulfill the objectives with the help of correlation and regression analysis tools. The study used return on asset as the dependent variable & bank specific variables like capital adequacy ratio, gearing

ratio (risk), liquidity, non-performing loan ratio, operating expense ratio and bank size as independent variables. This study found that bank size, operating expense, gearing ratio and capital were found to be important variables that affect the bank profitability of Bangladesh. Capital shows positive relation to bank profitability but other three statistically significant variables showed negative relation to performance.

Javaid and Alalawi (2017) analyzed on performance and profitability of Islamic banks in Saudi Arabia: An empirical analysis. Using a variety of methods to examine bank-specific, industry-specific, and macroeconomic variables, the study's goal was to investigate the performance and efficiency of Saudi Arabia's banking sector as well as the contribution of Islamic banking to its profitability and efficiency between 2000 and 2013. Using robust fixed effect regression models using unbalanced panel data, this study looks at how profitability is affected by characteristics unique to banks, the sector, and the macroeconomic environment. It was discovered that, while not statistically significant, size and the natural logarithm of total assets had a beneficial impact on profitability. Growing in size is said to bring advantages that can improve profitability. The strong financial standing of Saudi banks is shown in both ROA and ROE, which both have positive and very significant coefficients of the capital adequacy variable (CAR). A bank that has a healthy capital position can be more profitable because it can take advantage of business opportunities more successfully and has more time and flexibility to handle issues that arise from unanticipated losses. The ratio of non-performing loans to total loans has a positive relationship with both bank performance metrics. This suggests that higher asset quality correlates with improved bank performance. Put differently, Saudi Islamic banks keep adequate reserves to manage non-performing loans. Operating efficiency appears to be highly significant but negative at the 1% level with both profitability measures, cash and balances less than assets have negative and insignificant relationships with both performance ratios, management quality is significantly positive related to both profitability measures, and growth and profitability have significant negative associations.

Hallunovi (2018) examined the determinants of profitability of commercial banks in Albania. Return on equity (ROE) and return on assets (ROA) were the two dependent variables in this study that were utilized to quantify profitability. In this study, macroeconomic variables including GDP, inflation, and exchange rate were evaluated

in addition to banking-specific variables like bank size, asset management, credit risk, asset liquidity, capital adequacy, operational efficiency, and cost of financing. Multiple regression analysis was employed in this study to assess the influence of the factors influencing bank profitability. This study discovered that, while only in the case of the ROA model exhibited substantial statistical significance, there is a positive correlation between capital adequacy and profitability in both models (ROA/ROE). While having a low coefficient of relevance to ROA, total assets had a beneficial influence on profitability (ROA/ROE). Both ROA and ROE show a negative correlation with liquidity assets in terms of profitability; however, the correlation for ROA was not statistically significant, while the correlation for ROE was at 1%. In both models, there was a statistically significant negative correlation between credit risk and profitability (5% for ROA and 1% for ROE).

Neupane (2019) conducted a study on factors influencing profitability in Nepalese commercial banks. The objective of the study was to examine factors influencing profitability in Nepalese Commercial Banks. This study used return on assets and net interest margin as profitability indicator of the banks and capital adequacy ratio, size, credit to deposit ratio, operational expense to operational income, non-performing loan to total loan and non-interest income to total assets were used as bank-specific variable, GDP and inflation were taken as macro variable to determine the influence of these independent variables on bank profitability. The regression analysis has been employed in this study to examine the effect of the bank specific and macro-economic factor on profitability. It was found that operational expense to operational income and non-interest income to total assets effect return on assets, credit to deposit ratio showed significant effects on net interest margin. However, size has shown significant effect on both ROA and NIM of Nepalese commercial banks. Furthermore, ROA is positively influenced by CD which means that increase in credit and deposit flow leads to increase in profitability. Finally, the study revealed that capital adequacy ratio, credit risk, GDP and inflation has no significant effect on Nepalese commercial bank profitability.

Neupane (2020) reported on profitability determinants of Nepalese commercial banks. The purpose of this study is to examine the key determinants of profitability of Nepalese commercial banks. This study used descriptive statistics was employed to describe the profitability of Nepalese banks and its determinants. This study also adopted a panel

data regression model (Fixed Effect Model and Random Effect Model) to investigate the determinants and their impact on profitability of Nepalese commercial banks. It was found that the bank profitability measured by ROA of Nepalese commercial banks was significantly affected by concentration ratio, banking sector development, GDP growth, inflation and exchange rate significantly in opposite direction. NIM was significantly affected only by capital adequacy, absolute number of branches and inflation rate. The study revealed that capital adequacy and deposit of the bank have negative effect on ROA of the banks.

Budathoki and Rai (2020) analyzed on the effect of specific factors on bank profitability: Evidence from Nepalese banks. The major objective of the study was to examine the impact of assets quality, capital adequacy ratio, assets diversification and operating efficiency on banks' profitability. This study employs bank scope data of eight commercial banks during the period of 2002/03–2016/17. This study employed ordinary least squares regression models to gauge the relationship between response and predictor variables. Profitability in this study was measured as ROA of the banks. It was found that the independent variables such as assets quality, operating efficiency and capital adequacy ratio have significant negative effect on bank profitability. The results of this study help the bankers and policymakers to take effective action in order to improve banks' profitability.

Chaudhary et al. (2021) researched on the practice of profitability and liquidity of Nepalese joint venture banks: A comparative study. The goal of this study was to examine the operations and the connection between Everest Bank Ltd. and Himalayan Bank Limited, two Nepalese joint venture banks, and profitability. Both a descriptive and an inferential research strategy were employed in this study to achieve its goals. It was discovered that there is a very high degree positive link between the total deposit and the cash and bank balances of EBL and HBL. During the research period, there was a noteworthy positive correlation seen between net profit and the total deposit of both EBL and HBL. Compared to HBL, EBL had a greater average cash and bank balance to total deposit ratio. This demonstrates their depositors' capacity to take out money right away and their much greater ability to cover their deposits.

Kosumi and Kosumi (2021) examined in a study on banks specific factor that determinate the profitability of commercial banks in republic of North Macedonia. This study used the Republic of North Macedonia as a case study to determine the major factors influencing the profitability of commercial banks. Commercial banks' performance is assessed based on their unique characteristics, using data from 13 commercial banks from 2012 to 2018. Return on assets (ROA) is considered the dependent variable for this purpose, whereas the independent variables include capital adequacy (CAP), bank size (SIZE), credit risk (CR), revenue diversification (DIV), liquidity (L), and leverage (LEV). Multiple regression analysis was employed in this study to assess the influence of the factors influencing bank profitability. Since liquidity and bank size were found to have a strong beneficial impact on profitability, the study concluded that these factors have mostly driven the profitability of commercial banks. However, this analysis also discovered that the banks' ROA and their capital adequacy, credit risk, and leverage were inversely correlated.

Paul et al. (2021) investigated impact of liquidity on profitability: a study on the commercial banks in Bangladesh. This research aimed to investigate the effect of banks' liquidity on its profitability; with the ordinary course of business and in the medium term (10 years). The performance over the previous ten years (2009–2018) of the annual report of Bangladesh's commercial banks is assessed using secondary data. The liquidity representation of the proposed variables is represented by LDR, DAR, CDR, LAR, and CR; the profitability representation is represented by ROE. There are now five established theories to evaluate how liquidity affects profitability. Regression analysis and correlation analysis were the methodologies employed in this study for the analysis. The profitability as evaluated by ROE was found to be significantly impacted by LDR, DAR, and CDR, whereas LAR and CR were not found to be significant. Thus, it can be said that, generally speaking, Bangladesh's commercial banking industry's profitability is greatly impacted by liquidity. Bangladeshi banks will be in the greatest position to maintain parity between their liquidity and profitability if they depend on this report.

Ojo et al. (2022) investigated liquidity management on performance of deposit money banks in Nigeria. Over a 35-year span, from 1986 to 2020, the study assessed the impact of liquidity management on bank performance in Nigeria. The Autoregressive

distributed lag model was one of the inferential statistics employed in the study. The cash reserve ratio, liquidity ratio, loan to deposit ratio, and return on shareholder's money were time series statistics that were gathered using the Central Bank of Nigeria Statistical Bulletin. The study found evidence of a long-term correlation between bank performance and liquidity management in Nigeria. The study also found that bank performance in Nigeria is positively and significantly impacted by the cash reserve ratio, liquidity ratio, and loan to deposit ratio. Therefore, liquidity management has the ability to enhance bank performance in Nigeria as determined by the cash reserve ratio, liquidity ratio, and loan to deposit ratio. The study's conclusions indicate that liquidity management significantly and favorably affects bank performance in Nigeria.

Hermuningsih et al. (2023) investigated the moderating role of bank size: influence of fintech, liquidity on financial performance. The study aimed to investigate the effects of financial technology, liquidity, and bank size on the financial performance of traditional commercial banks in Indonesia. In this work, SmartPLS software was utilized for hypothesis testing (PLS-SEM approach). It was discovered that bank size was a moderating factor for the effects of bank technology on financial performance. Liquidity also had a positive effect on financial performance, and bank size was a moderating factor for the effects of liquidity on financial performance. Financial technology was found to have a positive effect on financial performance.

Table 2.1
Summary of empirical review

Authors	Methodology	Findings
Narwal & Pathneja (2015)	The regression analysis was used to assess the effects of different variables on the productivity and profitability of banks and linear programming method.	A noteworthy distinction in the overall factor productivity between public and private sector banks was discovered, with the negative number signifying a higher level of productivity for private sector banks. It was discovered that variances in production are mostly caused by changes in technology rather than shifts in efficiency.
Khanal (2016)	This study used Pearson's correlation coefficients and regression models are estimated the impact of bank	It was discovered that return on assets and return on equity are positively connected with equity to total assets, loan loss

	specific factor and macroeconomic factors on profitability.	provision to total loan, GDP growth rate, and inflation, and negatively correlated with expense to revenue ratio, total loan to total deposit ratio, and bank size. It suggests that ROA and ROE would be higher the greater the equity to total assets, loan loss provision to total loan, GDP growth rate, and inflation.
Kamande et al. (2016)	This study adopted an explanatory approach by using panel data research design to fulfill the objectives.	It was discovered that throughout the course of the five years, capital adequacy had significantly decreased. Additionally, it was shown that asset quality had an impact on banks' financial performance and profitability.
Islam & Nishiyama (2016)	The study used GMM estimator, this paper empirically studies the bank-specific, industry specific and macroeconomics specific determinants of bank profitability of 259 commercial banks in the South Asian countries.	It was discovered that capital is a significant factor in determining bank profitability. ROA is favorably and considerably impacted by the equity to total assets ratio. Cost of funds, liquidity, funding gap, interest rate term structure, and economic growth rate were found to have a negative impact, whilst inflation rate had a favorable impact on bank profit. It was discovered that the size of the bank and the rate of deposit growth had no appreciable impact on bank profitability.
Khan et al. (2016)	Panel data technique was used to measure the results of the fixed effect model and random effect model.	It was discovered that the independent factors significantly affected the bank's profitability. The money and quasi money variables, as well as the changeable net interest margin, have a big influence on the banks' profitability.
Mahmud et al. (2016)	This study used panel data research design to fulfill the objectives with the help of correlation and regression analysis tools.	It was discovered that capital, gearing ratio, bank size, and operational expenses are significant factors influencing Bangladeshi banks' profitability. While the other three statistically significant factors indicated a negative relationship with

Javaid & Alalawi (2017)	Using robust fixed effect models of regressions and unbalanced panel data, this study looks at the effects of macroeconomic, industry-specific, and bank-specific factors on profitability.	performance, capital demonstrates a positive relationship with bank profitability. It was discovered that, while not statistically significant, size and the natural logarithm of total assets had a beneficial impact on profitability. The strong financial standing of Saudi banks is shown in both ROA and ROE, which both have positive and very significant coefficients of the capital adequacy variable (CAR). The ratio of non-performing loans to total loans has a positive relationship with both bank performance metrics. While cash and balances smaller than assets have negative and negligible relationships with both performance, management quality has a strong positive correlation.
Hallunovi (2018)	Multiple regression analysis was employed in this study to assess the influence of the factors influencing bank profitability.	It was discovered that, albeit only in the case of the ROA model, there is a substantial statistically significant positive correlation between capital adequacy and profitability in both models (ROA/ROE). While having a low coefficient of relevance to ROA, total assets had a beneficial influence on profitability (ROA/ROE). Profitability in ROA and ROE is negatively correlated with liquidity assets.
Neupane (2019)	This study has used regression analysis to look at how macroeconomic and bank-specific factors affect profitability.	It was discovered that the ratio of credit to deposit had substantial impacts on net interest margin, as did the ratio of operational expenditure to operational income and non-interest income to total assets on return on assets. Nonetheless, size has had a noteworthy impact on Nepalese commercial banks' ROA and NIM. Additionally, CD has a favorable impact on ROA,

Neupane (2020)	The present investigation employed a panel data regression model, namely the Fixed Effect Model and the Random Effect Model, to examine the factors that influence the profitability of commercial banks in Nepal.	indicating that higher credit and deposit flows translate into higher profitability. It was discovered that the concentration ratio, the growth of the banking industry, GDP expansion, inflation, and exchange rate all had a substantial negative impact on the bank profitability of Nepalese commercial banks as determined by ROA. Only the capital adequacy, total number of branches, and inflation rate had a substantial impact on NIM.
Budathoki & Rai (2020)	This study employed ordinary least squares regression models to gauge the relationship between response and predictor variables.	It was found that the independent variables such as assets quality, operating efficiency and capital adequacy ratio have significant negative effect on bank profitability.
Chaudhary et al. (2021)	Both a descriptive and an inferential research strategy were employed in this study to achieve its goals.	It was discovered that there is a very high degree positive link between the total deposit and the cash and bank balances of EBL and HBL. During the research period, there was a noteworthy positive correlation seen between net profit and the total deposit of both EBL and HBL. Compared to HBL, EBL had a greater average cash and bank balance to total deposit ratio.
Kosumi & Kosumi (2021)	Multiple regression analysis was employed in this study to assess the influence of the factors influencing bank profitability.	It was found that commercial banks profitability has been driven mainly by banks liquidity and bank size, since liquidity and bank size has significant positive effect on profitability was found in this study. On the other hand, this study also found that there was an inverse relationship between the capital adequacy, credit risk and leverage and ROA of the banks.
Paul et al. (2021)	In this study a correlation and regression analysis methods were used for the analysis.	The profitability as evaluated by ROE was found to be significantly impacted by LDR, DAR, and CDR, whereas LAR and CR were not found to be

Ojo et al. (2022)	The Autoregressive distributed lag model was one of the inferential statistics employed in the study.	significant. Thus, it can be said that, generally speaking, Bangladesh's commercial banking industry's profitability is greatly impacted by liquidity. It was discovered that the loan to deposit ratio, cash reserve ratio, and liquidity ratio all significantly and favorably affect the profitability of Nigerian banks. Therefore, liquidity management has the ability to enhance bank performance in Nigeria as determined by the cash reserve ratio, liquidity ratio, and loan to deposit ratio.
Hermuningsih et al. (2023)	In this study, SmartPLS software was utilized for hypothesis testing (PLS-SEM approach).	It was discovered that bank size was a moderating factor for the effects of bank technology on financial performance. Liquidity also had a positive effect on financial performance, and bank size was a moderating factor for the effects of liquidity on financial performance. Financial technology was found to have a positive effect on financial performance.

2.4 Research Gap

Previously various research studies were made regarding profitability analysis of different banks by different students, experts and researcher. However, the limited findings, extensive testing and adjustment in necessary variables limits result of previous study. Since those studies have limitation on their research, a new research study was required and validating.

The purpose of this research works and previous studies is quite different. Firstly, the studies of bank specific factor of profitability of commercial banks were made on different period, the previous studies covered the five years' data and this study covers the ten years' data. It became necessary to do new research study on profitability analysis of recent periods. To overcome this lacking, a new research study was required to evaluate the bank specific factors of profitability of sample commercial banks. The major different in this study is the data analysis model for the impact analysis of cash

reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio on the profitability of the development banks using multiple regression analysis. This analysis makes the clear vision on the impact of the bank specific variables into the profitability of the Nepalese development banks.

CHAPTER - III

RESEARCH METHODOLOGY

It explains the procedures, instruments, methods, and approaches employed in the report's preparation and data analysis. It involves meticulous study, particularly by looking for fresh information in any field to choose the best research methods. The study's goals have been attained by employing the following approach.

3.1 Research design

The process and methods for gathering the required data are specified in the research design. It addresses what data should be gathered, from where, and using what methods. A well-defined research design guarantees that data is gathered using impartial, cost-effective methods and is pertinent to the study topics. Research using both descriptive and causal comparative research design has been conducted in order to meet the specific objective of the study. Analysis of the pattern and state of profitability and liquidity is done using descriptive design. The elements unique to each bank that impact the profitability of Nepal's development banks are measured using a causal comparative approach.

3.2 Population, sample and sampling design

Nowadays a number of development banks have been merging. Currently, there are 16 development banks in Nepal. In this study, all the development banks are population of the study. Among them five development banks have been selected as sample. The sample development banks of the study are Jyoti Bikash Bank Limited, Muktinath Bikas Bank Limited, Garima Bikas Bank Limited, Kamana Sewa Bikas Bank Limited and Shangri-La Development Bank Limited. Purposive sampling technique is used in this study because these development banks are top five in terms of profitability in present context and they have strongest position among the development banks.

3.3 Nature and sources data, and instrument of data collection

To conduct this study, secondary data are taken from annual reports of related office and their websites. So, the major sources and types of data include these published sources such as financial statement of sample development banks, different previous

studies and related bulletins, NRB reports, periodically published by various government bodies. Conducting appropriate data gathering instruments helped researchers to combine the strengths and amend some of the inadequacies of any source of data to minimize risk of irrelevant conclusion. Data is collected from audited financial statements (balance sheet and profit and loss account) of each development bank included in the sample and various journals and publications of NRB etc.

3.4 Method of analysis

In this study, descriptive analysis, correlation analysis and multiple regressions are applied to examine the bank specific factors affecting profitability of development banks in Nepal.

3.4.1 Descriptive analysis

Mean (\bar{X})

The arithmetic mean or average is the sum of total values to the number of observations in the sample. It represents the entire data which lies almost between the two extremes. For this reason, an average is frequently referred as a measure of central tendency. It is calculated as:

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

Where,

\bar{X} = Sum of the variables 'X'

n = No. of observations

Standard deviation

The positive square root of the mean, or the square of the variation taken from the arithmetic mean, is the definition of the standard deviation. It displays the ranges and magnitudes of deviations from the mean or center. It gauges the dispersion in absolute terms. Greater standard deviation The variability will be higher and vice versa. Dispersion quantifies how far the data deviate from the center value. Put differently, it is beneficial to examine the data's quality in terms of its variability. It is calculated as:

$$\text{Standard Deviation (S.D.)} = \sqrt{\frac{\sum (X - \bar{X})^2}{n-1}}$$

Co-efficient of variation

The standard deviation represents the dispersion in absolute terms. The measurement of the coefficient of standard deviation is the relative measure of dispersion depending on the standard deviation. Coefficient of variation is the percentage measure of coefficient of so. More homogeneity and consistency with fewer CVs, and vice versa. Standard deviation alone is inappropriate when comparing two sets of data; nevertheless, CV may also compare two variables separately based on their variability. It is calculated as under:

$$\text{Coefficient of Variation (C.V.)} = \frac{\sigma}{\bar{X}} \times 100$$

3.4.2 Correlation analysis

Out of several mathematical method of measuring correlation the Karl Pearson popularity known as Pearson's coefficient of correlation widely used in practice to measure the degree of relationship between two variables. Two variables are said to have correlation when the value of one variable is accompanied by the change in the value of the other. Therefore, it is measured by following formula using two variables. It is denoted by small 'r'. The value of this coefficient can never be more than + 1 or less than -1. Thus, + 1 and -1 are the limit of this coefficient. The value of $r = + 1$ implies the correlation between variables is positive and vice-versa. And zero denoted no correlation.

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

Where, X & Y are cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio, capital adequacy ratio return on assets and return on equity

3.4.3 Multiple regressions analysis

Multiple linear regression attempts to model the relationship between two or more explanatory variables and a response variable by fitting a linear equation to observed data. Every value of the independent variable 'x' is associated with a value of the dependent variable 'y'. On this regression analysis, development banks profitability variables (dependent) return on assets (ROA) and return on equity (ROE) will be tested for their relationship with explanatory variables. The explanatory variables are independent variables, which are taken from development banks specific

(internal) factors such as cash reserve ratio (CRR), liquid assets to total assets (LATA), loan to deposit ratio (LDR) and capital adequacy ratio (CAR). Therefore, the following model has been employed for the study of relationship and effect of the study variables.

$$\text{Model 1: } ROA_{it} = \beta + \beta_1 CRR_{it} + \beta_2 LATA_{it} + \beta_3 LDR_{it} + \beta_4 CAR_{it} + e_{it} \dots \dots \dots (1)$$

$$\text{Model 2: } ROE_{it} = \beta + \beta_1 CRR_{it} + \beta_2 LATA_{it} + \beta_3 LDR_{it} + \beta_4 CAR_{it} + e_{it} \dots \dots \dots (2)$$

Where:

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

ROE_{it} = Return on equity of development banks i^{th} for the time period t

CRR_{it} = Cash reserve ratio of development banks i^{th} for the time period t

$LATA_{it}$ = Liquid asset to total asset ratio of development banks i^{th} for the time period t

LAR_{it} = Loan to deposit ratio of development banks i^{th} for the time period t

CAR_{it} = Capital adequacy ratio for time period t

β = The intercept (constant)

$\beta_1, \beta_2, \beta_3,$ and β_4 = The slope which represents the degree with which finance company profitability changes as the independent variable changes by one-unit variable.

e = error component

3.5 Research framework and definition of variables

From the theoretical and empirical literature reviews, the following conceptual framework of the study is developed by the researcher.

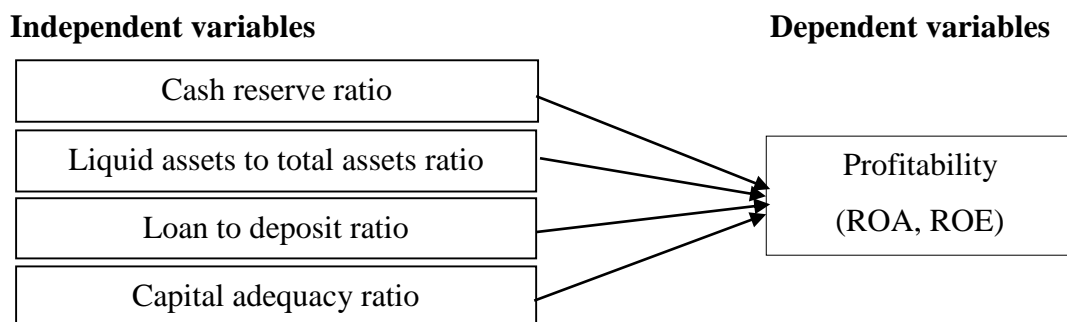


Figure 1: Research framework

Source: Fagboyo et al. (2018); Bhatt and Verghese (2018); Pokhrel and Pokhrel (2019); Budhathoki et al. (2020) and Ojo et al. (2022)

Definition of variables

Return on assets (ROA)

Previous research on profitability and credit risk management revealed that Return on assets (ROA) was a crucial metric for evaluating development banks' financial performance. A financial measure called return on assets (ROA) indicates how much profit (or percentage of return) a business is making relative to its total resources. The return on assets (ROA) of a development bank indicates how profitable its management is able to make use of the bank's assets. Since it shows the returns from the assets that development banks possess, this ratio is perhaps the most significant one for evaluating the effectiveness and operational performance of development banks. It demonstrates how well assets are managed to produce profits. Siraj and Pillai (2012) found that the ratio of net income to total assets measures the return on total assets (ROA) after interest and taxes.

$$\text{Return on assets (ROA)} = \frac{\text{Net Profit}}{\text{Total Assets}}$$

Return on equity (ROE)

The other metric used to assess profitability success is return on equity. Ratio The other metric used to assess profitability success is return on equity. The most often used internal performance indicator of shareholder value is the ratio of return on equity, or ROE. The amount paid to shareholders on their equity is known as return on equity. Siraj and Pillai (2012) describes that Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. The amount of net income returned as a percentage of shareholders equity. Net income is for the full fiscal year (before dividends paid to common stock holders but after dividends to preferred stock).

$$\text{Return on equity (ROE)} = \frac{\text{Net Profit After tax}}{\text{Total Equity}}$$

Cash reserve ratio (CRR)

A proportion of all customer deposits held with the central bank is the cash reserve ratio. It is one of the tools the reserve bank uses for monetary policy to regulate the amount of money in the economy (Abid & Lodhi, 2015). The interest rates, liquidity, and bank profitability are all significantly impacted by this (Teja et al., 2013; Bhattarai,

2014). When a central bank reduces the CRR, there is an increase in the amount of money available in development banks, which results in a fall in interest rates and an increase in profitability as more money is available for funding and generates higher interest profits. Conversely, if CRR rises, less funds are accessible to development banks, which implies that there is less money available for loans, which lowers interest income and lowers profitability. The availability and lack of funds in development banks will be a function of the CRR's rise and decline, indicating the banks' liquidity position. The ratio of cash and bank balance to total deposit was used to calculate liquidity in this case. Reduced risk to the company is indicated by a higher liquidity ratio. It also says that a larger ratio will result in a lower level of organization profitability.

$$\text{Cash reserve ratio (CRR)} = \frac{\text{Cash and Bank Balance}}{\text{Total Deposit}}$$

Liquid assets to total assets (LATA)

The ratio of liquid assets to total assets is determined by this ratio. As a proportion of all development bank assets, liquid assets comprise cash and equivalents as well as cash reserve at the central bank, short-term deposits in development banks, and other government and nongovernment backed securities. The acid liquid ratio may be divided by the total assets to get the liquid ratio. One kind of risk that development banks face is liquidity risk; if they have fewer liquid assets on hand, they are more susceptible to significant deposit withdrawals. As a result, the ratio of liquid assets to deposits and liquid assets to total assets is used to measure liquidity risk. Profitability and liquidity ratio were found to be negatively correlated (Pasiouras & Kosmidou, 2007). Zidan (2020) found a negative relationship between liquidity and bank profitability.

$$\text{Liquid assets to total assets ratio (LATA)} = \frac{\text{Liquid Assets}}{\text{Total Assets}}$$

Loan to deposit ratio (LDR)

In order to continue its regular business activities, a lending institution that takes deposits has to maintain a particular level of liquidity. Most of the loans it makes to its clients aren't regarded as liquid, therefore they're investments that take longer to mature. To guarantee that any necessary funds may be obtained quickly, development banks may decide to retain a portion of their non-lending investments in short-term securities

in addition to the minimum required reserves. One measure of liquidity risk is the credit to deposit ratio (LDR). For a development bank, the risk of loss stemming from the incapacity to fulfill its funding requirements is known as the liquidity risk (Lartey et al., 2013). It concerns the development bank's balance between deposits and loans, or the amount coming in vs the amount going out. As long as the loans are used to secure debtors, the more money the development bank has given out yields higher interest revenue. Deposits represent the development bank's obligations to the depositors. Accordingly, a sound development bank has a large number of safe loans that bring in a large amount of money (interest) to fund depositor accounts (Gijaw et al., 2015).

$$\text{Loans and advance to total deposit ratio} = \frac{\text{Loans and advance}}{\text{Total Deposit}}$$

Capital adequacy ratio (CAR)

Capital ratios show how resilient financial organizations are to shocks. These ratios show which issues are now present. Problems with capital sufficiency and increased risk exposure might result from negative developments in these ratios. The equity/total assets ratio, or CAR, was employed in this study to gauge capital adequacy. Put another way, this equity ratio to total assets indicates the solvency or capital strength of the development bank (Bhatt & Verghese, 2018). The development bank is more reliable and effective when the ratio is higher. Although this variable's link to profitability may change depending on the stage of the business cycle, it is anticipated that it will generally have a positive association with profitability (Budhathoki et al., 2020).

$$\text{Capital adequacy ratio (CAR)} = \frac{\text{Total Equity}}{\text{Total Assets}}$$

CHAPTER - IV

RESULTS AND DISCUSSION

This chapter deals with the results and analysis of the data. The study's variable structure, descriptive, correlation, and regression analyses were reported in the first section, and a discussion of the findings in connection to earlier research was offered in the second. The collected data were analyzed using statistical software SPSS version 23.

4.1 Results

This section employs statistical analytical methods, including multiple regression analysis, correlation analysis, and descriptive statistics, to analyze the bank specific determinants of development banks' profitability.

4.1.1 Cash reserve ratio

Cash reserve ratio is one of the control variable used in analyzing effect of liquidity on the profitability of banks. It would also mean that banks earn less interest and expect that their profitability may decline. The comparative position of cash reserve ratio of JBBL, MNBBL, GBBL, KSBBL and SADBL are presented below;

Table 4.1

Cash reserve ratio

(In percent)

Year	JBBL	MNBBL	GBBL	KSBBL	SADBL
2012/13	5.54	8.06	5.87	7.6	17.01
2013/14	4.57	6.64	5.68	5.02	11.23
2014/15	5.28	7.95	5.42	5.33	9.81
2015/16	5.36	8.49	6.22	5.44	9.71
2016/17	5.35	9.74	6.22	5.44	11.52
2017/18	5.16	5.34	5.87	24.25	7.21
2018/19	4.32	6.49	4.06	21.76	5.97
2019/20	3.74	7.58	3.94	8.45	7.17
2020/21	3.10	4.72	3.46	11.79	5.15
2021/22	3.23	4.59	3.14	12.34	6.16
Mean	4.57	6.96	4.99	10.74	9.09
SD	0.93	1.71	1.20	7.00	3.58
CV	20.31	24.53	24.06	65.16	39.34

Source: Appendix - I

Table 4.1 depicts that the cash reserve ratio of five sample development banks in Nepal for the ten years study period. It is clear that cash reserve ratios of the banks are in fluctuating trend over the period. The average cash reserve ratio of KSBBL is highest i.e. 10.74 percent and the lowest average cash reserve ratio is in JBBL i.e. 4.57 percent. It is meant that KSBBL has strong liquidity position and the bank has smooth functioning for day to day operation. On the other hand, this bank has lesser money to loan out, hence proportionately lowering the investment amount, interest income and its profitability. The standard deviation in cash reserve ratio of JBBL is lowest among the banks i.e. 0.93, which mean JBBL has the lowest risk among the sample banks. By the coefficient of variation of the ratios, it can be said that JBBL has seen the most consistent in the ratios with the lowest CV of 20.31 percent.

4.1.2 Liquid assets to total assets ratio

It refers to the ratio of liquid assets by total assets. It shows how sound is the development bank in terms of making their payments. Higher liquidity ratio indicates less risk to the development bank. Here, liquidity was measured as the ratio of liquid assets to total assets ratio of development banks. The comparative position of liquid assets to total assets ratio of JBBL, MNBBL, GBBL, KSBBL and SADBL are presented below;

Table 4.2

Liquid assets to total assets ratio

(In percent)

Year	JBBL	MNBBL	GBBL	KSBBL	SADBL
2012/13	26.74	29.29	27.30	23.53	32.06
2013/14	27.10	24.26	22.89	29.60	28.31
2014/15	28.70	24.17	24.81	39.12	25.23
2015/16	27.27	20.64	22.64	34.56	19.92
2016/17	26.17	19.41	24.29	27.56	23.14
2017/18	26.73	24.03	22.30	27.72	25.88
2018/19	20.66	18.72	19.59	18.72	17.74
2019/20	18.75	14.89	17.35	7.58	15.99
2020/21	9.26	7.24	10.70	10.41	1.11
2021/22	15.63	8.83	9.69	12.10	12.55
Mean	22.70	19.15	20.16	23.09	20.19
SD	6.42	7.05	5.92	10.61	8.94
CV	28.29	36.80	29.36	45.96	44.28

Source: Appendix - I

Table 4.2 shows that the liquid assets to total assets ratio of sample development banks in Nepal during the ten years study period. The liquid assets to total assets ratio of KSBBL is highest 23.09 percent and the lowest average liquid assets to total assets ratio is in MNBBL i.e. 19.15 percent. It indicates that KSBBL has maintained stronger liquid fund as per total assets and smooth functioning for operating risk among them. The standard deviation of liquid assets to total assets ratio of GBBL is lowest among the banks i.e. 5.92, which mean GBBL has the lowest risk among the sample development banks. By the coefficient of variation of liquid assets to total assets ratios, it can be said that JBBL has seen the most consistent in the ratios with the lowest CV of 28.29 percent.

4.1.3 Loan to deposit ratio

Loan to deposit ratio is used as indicators of profitability. For development banks, it is how much they have coming in (deposits) vs how much they have going out (loans). The more money the bank has loaned out generates more interest income provided the loans are to secure borrowers. The comparative position of loan to deposit ratio of JBBL, MNBBL, GBBL, KSBBL and SADBL are presented below;

Table 4.3

Loan to deposit ratio

	(In percent)				
Year	JBBL	MNBBL	GBBL	KSBBL	SADBL
2012/13	83.95	81.86	79.91	85.09	77.31
2013/14	80.65	84.22	86.12	77.83	79.66
2014/15	78.27	85.14	85.52	80.42	80.45
2015/16	76.74	86.89	85.70	84.88	87.10
2016/17	85.36	90.37	88.44	93.23	83.02
2017/18	79.90	82.07	87.74	84.26	81.96
2018/19	84.24	81.55	85.83	88.15	86.11
2019/20	82.46	80.93	77.77	81.60	81.58
2020/21	86.11	82.76	81.05	87.26	84.45
2021/22	89.00	82.58	86.44	87.59	83.87
Mean	82.67	83.84	84.45	85.03	82.55
SD	3.79	2.93	3.57	4.39	2.99
CV	4.59	3.50	4.23	5.17	3.62

Source: Appendix - I

Table 4.3 reveals that the loan to deposit ratio of five sample development banks in Nepal during the ten year study period. The average ratios of all development banks are

more than 80 percent. The average loan to deposit ratio of KSBBL is highest i.e. 85.03 percent and the lowest average loan to deposit ratio is in SADBL i.e. 82.55 percent. It can be concluded that KSBBL is the most successful among them to mobilize its total deposit as loan and advances and acquiring high profit. In terms of variability, the maximum standard deviation of 4.39 percent was realized for KSBBL and the minimum standard deviation of 2.93 percent was realized by MNBBL. As a result, MNBBL was considered as the least variation in terms of loan to deposit ratio and KSBBL was considered as highest variation in terms of loan to deposit ratio. By the coefficient of variation of loan to deposit ratio, it can be concluded that MNBBL has seen the most consistent in the ratios with the lowest CV of 3.50 percent.

4.1.4 Capital adequacy ratio

Capital adequacy ratios is used as total capital fund/risk weighted assets to measure capital adequacy. Higher the ratio, more stable and efficient the development bank is and good financial performance. The comparative position of capital adequacy ratio of JBBL, MNBBL, GBBL, KSBBL and SADBL are presented below;

Table 4.4

Capital adequacy ratio

(In percent)

Year	JBBL	MNBBL	GBBL	KSBBL	SADBL
2012/13	17.27	9.01	9.36	10.80	14.60
2013/14	14.63	10.01	11.35	10.58	11.43
2014/15	13.54	10.80	13.06	15.38	11.25
2015/16	12.98	10.39	11.36	10.64	11.29
2016/17	19.35	11.69	16.01	17.04	10.63
2017/18	13.46	10.43	12.55	16.26	14.72
2018/19	10.99	8.56	9.78	12.16	12.69
2019/20	10.63	8.77	8.64	8.75	10.05
2020/21	8.76	6.76	7.33	7.48	0.78
2021/22	7.89	6.67	8.24	7.41	7.15
Mean	12.95	9.31	10.77	11.65	10.46
SD	3.58	1.67	2.63	3.51	4.05
CV	27.65	17.99	24.43	30.15	38.69

Source: Appendix - I

Table 4.4 represents that the capital adequacy ratio of sample development banks in Nepal during the study period. The average capital adequacy ratio of JBBL is highest i.e. 12.91 percent and the lowest average capital adequacy ratio is in MNBBL i.e. 9.31

percent. Higher the ratio, more stable and efficient the bank is and good financial performance. That's why, JBBL has the highest the degree of protection money to depositors as well as efficiency and stability of a development bank performance. The standard deviation in capital adequacy ratio of MNBBL is lowest i.e. 1.67, which indicates that the bank has the lowest risk among the banks. By the coefficient of variation of the capital adequacy ratio, it can be said that MNBBL has seen the most consistent in the ratios with the lowest CV of 17.99 percent.

4.1.5 Return on assets

ROA is a financial ratio that reflects the ability of a bank's management to generate profits from the bank's assets employed for the business. The comparative position of return on assets of JBBL, MNBBL, GBBL, KSBBL and SADBL are presented below;

Table 4.5

Return on assets

	(In percent)				
Year	JBBL	MNBBL	GBBL	KSBBL	SADBL
2012/13	1.43	2.22	1.80	2.08	3.25
2013/14	1.01	2.52	2.26	2.09	0.99
2014/15	1.39	2.42	1.94	3.14	1.94
2015/16	1.70	2.79	2.10	1.97	1.80
2016/17	1.73	2.49	1.98	1.82	2.17
2017/18	1.48	1.79	1.75	1.99	1.43
2018/19	1.46	1.65	1.53	1.07	1.30
2019/20	1.15	1.07	1.15	0.33	0.58
2020/21	1.11	1.14	1.15	1.17	0.09
2021/22	0.94	1.11	1.29	1.06	1.00
Mean	1.34	1.92	1.70	1.67	1.46
SD	0.28	0.65	0.40	0.78	0.89
CV	20.58	34.10	23.47	46.83	61.29

Source: Appendix - I

Table 4.5 shows that the return on assets of sample development banks in Nepal during the ten years period. The average return on assets of MNBBL is highest i.e. 1.92 percent and the lowest average return on assets is in JBBL i.e. 1.34 percent. It indicates that, MNBBL could manage their overall operations due to highest ratio among them. In other word, MNBBL is able to make highest return to its assets by optimum utilization of the asset that contributes more to the combined mean of ROA. In terms of variability, the minimum standard deviation of 0.28 was realized for JBBL and the

maximum standard deviation of 0.89 was realized by SADBL. It indicates that JBBL was considered as the least variation in terms of return on assets and SADBL was considered as highest variation in terms of ROA. By the coefficient of variation of ROA, it can be said that JBBL has seen the most consistent in the ratios with the lowest CV of 20.58 percent.

4.1.6 Return on equity

Return on equity is the return to shareholders on their equity. Return on equity measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested. The amount of net income returned as a percentage of shareholder's equity. The comparative position of return on equity of JBBL, MNBBL, GBBL, KSBBL and SADBL are presented below;

Table 4.6

Return on equity

	(In percent)				
Year	JBBL	MNBBL	GBBL	KSBBL	SADBL
2012/13	8.28	24.60	19.25	19.29	22.24
2013/14	6.94	25.17	19.90	19.78	8.68
2014/15	10.24	22.39	14.81	20.43	17.27
2015/16	13.13	26.88	18.47	18.49	15.95
2016/17	8.95	21.27	12.34	10.70	20.39
2017/18	10.99	17.21	13.95	12.22	9.75
2018/19	13.26	19.24	15.68	8.77	10.25
2019/20	10.84	12.16	13.28	3.74	5.78
2020/21	12.66	16.93	15.64	15.58	11.05
2021/22	11.89	16.61	15.61	14.34	13.98
Mean	10.72	20.25	15.89	14.33	13.53
SD	2.14	4.63	2.55	5.49	5.35
CV	19.93	22.85	16.05	38.29	39.54

Source: Appendix - I

Table 4.6 reveals that the return on equity of sample development banks in Nepal during the study period. The average return on equity of MNBBL is highest i.e. 20.25 percent and the lowest average return on equity is in JBBL i.e. 10.72 percent. It is meant that the return on equity for the MNBBL is the best or most effective management in earning profit among them. Moreover, it can be said that MNBBL is making progressive performance. In terms of variability, the minimum standard deviation of 2.14 was realized for JBBL and the maximum standard deviation of 5.49 was realized by

KSBBL. It indicates that JBBL was considered as the least variation in terms of return on equity and KSBBL was considered as highest variation in terms of ROE. By the coefficient of variation of ROE, it can be said that GBBL has seen the most consistent in the ratios with the lowest CV of 16.05 percent.

4.1.7 Descriptive analysis

The descriptive statistics of dependent variables profitability (ROA and ROE) and independent variables (cash reserve ratio, liquid assets ratio, loan to deposit ratio, and capital adequacy ratio) of the study is shown in Table 8. The descriptive statistics used in this study includes mean, standard deviation, minimum and maximum value of variables, scale and N represent the number of the observations.

Table 4.7

Descriptive statistics

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	0.090	3.250	1.616	0.649
ROE	3.740	26.880	14.945	5.177
CRR	3.100	24.250	7.270	4.245
LATA	1.110	39.120	21.058	7.807
LDR	76.740	93.230	83.708	3.567
CAR	0.780	19.350	11.027	3.307

Source: Appendix - II

Table 4.7 reveals a summary of the descriptive statistics of two response variables: ROA and ROE; five predictor variables like cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio used in the study. The summary of ROA shows that the average return on assets over the study period is 1.616 percent with standard deviation of 0.649, the maximum return on assets is 3.250 percent and the minimum of 0.090 percent. The return on assets shows how efficient the banks are using its assets to generate profit measured by profit before interest and tax divided by total assets. ROE mean is 14.945 percent from the range to minimum 3.740 to maximum 26.880 percent, which is satisfactory since it is between ROE near 15 to 25 or average. Then, standard deviation for ROE is 5.177, which indicates that ROE of the banks is volatile during the study period.

Similarly, the average cash reserve ratio (CRR) is 7.270 percent with standard deviation of 4.245 and ranges from 3.100 to 24.250 percent. The average liquid assets to total assets ratio is 21.058 percent and standard deviation of 7.807 over the study period with the maximum ratio at 39.120 percent and the minimum this ratio is 1.110 percent. The another independent variables loan to deposit ratio shows that this ratio varies from a minimum of 76.740 percent to a maximum of 93.230 percent with an average of 83.708 percent and standard deviation of 3.567. The fourth independent variable capital adequacy ratio, higher the value of capital ratio, better the safety for the depositors because shareholder's equity provides a buffer against adversity. Capital adequacy ratio ranged from 0.780 to 19.350 percent respectively. Then, the average capital adequacy ratio is 11.027 percent and the standard deviation is low i.e. 0.3.307.

The summary of independent variables showed that more variation in cash reserve ratio of the banks during the study period in comparison to other independent variables and the profitability as ROA and ROE of the banks also found to consistent throughout the study period.

4.1.8 Correlation analysis

Correlation analysis is a statistical tool which studies the relationship between seven variables. Correlation analysis involves various methods and techniques which is used for measuring the extent of the relationship between two variables, whether a positive or a negative relationship exist between seven variables. It also indicates whether the relationship is significant or insignificant and the correlation analysis is used to identify the relationship between ROA, ROE, CRR, LATA, LDR and CAR.

Table 4.8
Correlation among variables

	ROA	ROE	CRR	LATA	LDR	CAR
ROA	1.000					
ROE	.765**	1.000				
CRR	0.193	0.034	1.000			
LATA	.693**	0.237	0.145	1.000		
LDR	0.022	0.020	0.076	-0.249	1.000	
CAR	.459**	-0.191	0.198	.738**	0.045	1.000

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

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

Source: Appendix - III

Table 4.8 reveals the correlation analysis results of response variables as return on assets and return on equity and predictor variables as cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio of the Nepalese development banks. Correlation result shows cash reserve ratio has no significant positive correlation with ROA and ROE with the coefficients 0.193 and 0.034 respectively, meaning that ROA and ROE of the banks increases with the increment in cash reserve ratio of the banks. Similarly, liquid assets to total assets ratio has significant positive correlation with ROA but insignificant negative relationship with ROE with the coefficients 0.693 and 0.237 respectively, meaning that profitability of the banks increases with the stronger liquidity position of the banks.

The correlation analysis also shows that there is no significant positive relationship between loan to deposit ratio with ROA and ROE of the banks with the coefficients 0.022 and 0.020 respectively, meaning that profitability of the banks increases with the increment in loan distribution of the banks. At the same time, capital adequacy ratio has significant positive correlation with ROA but it has no significant negative relation with ROE with the coefficients 0.459 and -0.191 respectively, meaning that return on assets of the banks increases with the increment in capital adequacy ratio while return on equity of the banks decreases with the increment in capital adequacy ratio of the banks.

4.1.9 Regression analysis

In coefficient analysis, two or more independent variables are used to estimate the value of dependent variables whereas in the simple regression analysis single independent variable is used to estimate the values of a dependent variable. Multiple regression analysis helps to know relative movement in the variable. To estimate the relationship between liquidity and profitability, the theoretical statement of the model is that the ROA and ROE would depend on cash reserve ratio, liquid assets ratio, loan to deposit ratio and capital adequacy ratio.

4.1.9.1 Regression analysis for dependent variable ROA

Return on assets is the dependent variable and independent variables are cash reserve ratio, liquid assets ratio, loan to deposit ratio and capital adequacy ratio to analyze the impact of liquidity on profitability of the banks.

Table 4.9

Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.744	0.553	0.513	0.453

a. Predictors: (Constant), LDR, CAR, CRR, LATA

b. Dependent Variable: ROA

Source: Appendix - IV

Table 4.9 shows the adjusted R square value is 0.513 in the models denote that 51.30 percent of the observed variability in return on assets can be explained by the differences in the independent variables. Remaining 48.70 percent of the variance in preference is related to other variable which did not explain, because they are not depicted in the model. The R-Square which is also a measure of the overall fitness of the model indicates that the model is capable of explaining about 55.30 percent of the variability in the ROA of banks. In this study, the R statistic is 0.744, indicated that there is high degree of relationship between study variables. This implies that the ROA was highly influenced by its independent variables. Standard error of estimate is flawlessly associated with regression analysis due to small value.

Table 4.10

ANOVA table

Model	Sum of Squares	df	Mean Square	F	p-value
Regression	11.428	4	2.857	13.915	0.000
Residual	9.239	45	0.205		
Total	20.668	49			

a. Dependent Variable: ROA

b. Predictors: (Constant), LDR, CAR, CRR, LATA

Source: Appendix - IV

Table 4.10 depicts the ANOVA analysis results of overall regression model fitness for the data. It showed p-value of 0.000 which is less than 0.05 this indicates that liquidity predicts the profitability (ROA) considerably, and this also shows that the variables used in regression model is significant for the analysis.

Table 4.11

Multiple regression equation of ROA on all predictor variables

Variables	B	Std. Error	t	p-value	Tolerance	VIF
(Constant)	-3.535	1.690	-2.092	0.042		
CRR	0.014	0.016	0.867	0.391	0.956	1.046
LATA	0.078	0.014	5.777	0.000	0.375	2.664
LDR	0.048	0.020	2.369	0.022	0.818	1.222
CAR	-0.052	0.031	-1.664	0.103	0.396	2.527

Source: Appendix - IV

Table 4.11 presents the regression coefficient of each independent variables cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio of the sample banks and the intercept value of dependent variable ROA. The multiple regression analysis found that the coefficient for cash reserve ratio is 0.014, which indicates that if CRR increased by one percent then ROA increased by 0.014 percent and the p-value of cash reserve ratio (CRR) is 0.391 reveals that it is statistically not significant at 5 percent level of significance. Hence, cash reserve ratio doesn't have significant effect on ROA of the banks.

The coefficient for liquid assets to total assets ratio (LATA) is 0.078, which indicates that if LATA increased by one percent then ROA increased by 0.078 percent and the p-value of liquid assets to total assets ratio is 0.000 reveals that it is statistically significant at 1 percent level of significance. Hence, the positive effect of liquid assets to total assets ratio on ROA is significant. Similarly, the coefficient for loan to deposit ratio (LDR) is 0.048, which indicates that if LDR increased by one percent then ROA increased by 0.048 percent and the p-value of LDR is 0.022 reveals that it is statistically significant at 5 percent level of significance. Hence, the positive effect of loan to deposit ratio on ROA of the banks is significant. However, the coefficient for capital adequacy ratio (CAR) is -0.052, which indicates that if CAR increased by one percent then ROA decreased by 0.052 percent and the p-value of CAR is 0.103 discloses that it is statistically insignificant at 5 percent level of significance. This means CAR has insignificant negative impact on ROA of the banks.

4.1.9.2 Regression analysis for dependent variable ROE

Return on equity is the dependent variable and independent variables are cash reserve ratio, liquid assets ratio, loan to deposit ratio and capital adequacy ratio to analyze the impact of liquidity on profitability of the banks.

Table 4.12

Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.661	0.437	0.387	4.055

a. Predictors: (Constant), LDR, CAR, CRR, LATA

b. Dependent Variable: ROE

Source: Appendix - V

Table 4.12 shows the adjusted R square value is 0.387 in the models denote that 38.70 percent of the observed variability in return on equity can be explained by the differences in the independent variables. Remaining 61.30 percent of the variance in preference is related to other variable which did not explain, because they are not depicted in the model. The R-Square which is also a measure of the overall fitness of the model indicates that the model is capable of explaining about 43.80 percent of the variability in the ROE of banks. In this study, the R statistic is 0.661, indicated that there is high degree of relationship between study variables. This implies that the ROE was highly influenced by its independent variables. Standard error of estimate is flawlessly associated with regression analysis due to small value.

Table 4.13

ANOVA table

Model	Sum of Squares	df	Mean Square	F	p-value
Regression	573.455	4	143.364	8.718	0.000
Residual	740.009	45	16.445		
Total	1313.464	49			

a. Dependent Variable: ROE

b. Predictors: (Constant), LDR, CAR, CRR, LATA

Source: Appendix - V

Table 4.13 depicts the ANOVA analysis results of overall regression model fitness for the data. It showed p-value of 0.000 which is less than 0.05 this indicates that liquidity

predicts the profitability (ROE) considerably, and this also shows that the variables used in regression model is significant for the analysis.

Table 4.14

Multiple regression equation of ROE on all predictor variables

Variables	B	Std. Error	t	Sig.	Tolerance	VIF
(Constant)	-21.395	15.128	-1.414	0.164		
CRR	0.064	0.140	0.462	0.646	0.956	1.046
LATA	0.680	0.121	5.612	0.000	0.375	2.664
LDR	0.458	0.180	2.551	0.014	0.818	1.222
CAR	-1.521	0.279	-5.462	0.000	0.396	2.527

Source: Appendix - V

Table 4.14 presents the regression coefficient of each independent variables cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio of the sample banks and the intercept value of dependent variable ROE. The multiple regression analysis found that the coefficient for cash reserve ratio is 0.064, which indicates that if CRR increased by one percent then ROE increased by 0.064 percent and the p-value of cash reserve ratio (CRR) is 0.646 reveals that it is statistically not significant at 5 percent level of significance. Hence, cash reserve ratio doesn't have significant effect on ROE of the banks.

The coefficient for liquid assets to total assets ratio (LATA) is 0.680, which indicates that if LATA increased by one percent then ROE increased by 0.680 percent and the p-value of liquid assets to total assets ratio is 0.000 reveals that it is statistically significant at 1 percent level of significance. Hence, the positive effect of liquid assets to total assets ratio on ROE is significant. Similarly, the coefficient for loan to deposit ratio (LDR) is 0.458, which indicates that if LDR increased by one percent then ROE increased by 0.458 percent and the p-value of LDR is 0.014 reveals that it is statistically significant at 5 percent level of significance. Hence, the positive effect of loan to deposit ratio on ROE of the banks is significant. However, the coefficient for capital adequacy ratio (CAR) is -1.521, which indicates that if CAR increased by one percent then ROE decreased by 1.521 percent and the p-value of CAR is 0.000 discloses that it is statistically significant at 5 percent level of significance. This means CAR has significant negative effect on ROE of the banks.

4.2 Discussion

The main purpose of this study is to examine the impact of liquidity on profitability of development banks in Nepal. Liquidity has a direct impact on assets and returns on equity, the two main parameters for measuring profitability of the development banks. Based on the analysis, the highest average cash reserve ratio is in KSBBL and the lowest average cash reserve ratio is in JBBL. It is meant that KSBBL has strong liquidity position and the bank has smooth functioning for day to day operation. On the other hand, this bank has lesser money to loan out, hence proportionately lowering the investment amount, interest income and its profitability. The highest average liquid asset to total assets is in KSBBL and the lowest average liquid assets to total assets ratio is in MNBBL. It indicates that KSBBL has maintained stronger liquid fund as per total assets and smooth functioning for operating risk among them.

The highest average loan to deposit ratio is in KSBBL and the lowest average loan to deposit ratio is in SADBL. It can be concluded that KSBBL is the most successful among them to mobilize its total deposit as loan and advances and acquiring high profit. The highest average capital adequacy ratio is in JBBL and the lowest average capital adequacy ratio is in MNBBL. Higher the ratio, more stable and efficient the bank is and good financial performance. That's why, JBBL has the highest the degree of protection money to depositors as well as efficiency and stability of a development bank performance. The highest average return on assets is in MNBBL and the lowest average return on assets is in JBBL. It indicates that, MNBBL could manage their overall operations due to highest ratio among them. In other word, MNBBL is able to make highest return to its assets by optimum utilization of the asset that contributes more to the combined mean of ROA. The highest average return on equity is in MNBBL and the lowest average return on equity is in JBBL. It is meant that the return on equity for the MNBBL is the best or most effective management in earning profit among them. Moreover, it can be said that MNBBL is making progressive performance.

Correlation result shows that cash reserve ratio (CRR) is positively related to return on assets. This indicates that higher the cash reserve ratio higher would be the return on assets. Similarly, CRR is positively related to ROE. An insignificant and positive association between CRR and ROE was found in the previous study of Pokhrel and Pokhrel (2019). Similarly, liquid assets to total assets has significant positive

correlation with ROA but insignificant negative relationship with ROE. This study is similar with the previous study of Bhatt and Verghese (2018); Saleh et al. (2020) and Pradhan and Shrestha (2016) which observed that liquid assets ratio have positive relationship with ROA. Then, there is no significant positive relationship between loan to deposit ratio (LDR) and ROA which is partially consistent with the findings of Khati (2020) and Swain and Mishra (2020) which observed that LDR has significant positive relationship with ROA but it contradicts with the findings of Kajola et al. (2019). LDR has also positive and insignificant relation with ROE. This result is not similar with the prior study of Mohanty and Mehrotra (2019); Khati (2020). At the same time, capital adequacy ratio (CAR) has significant positive correlation with ROA. The result is consistent with the finding of Budhathoki et al. (2020) and Zidan (2020) but capital adequacy ratio has negative relation with ROE. A negative association of these variables has been found in previous study Bhatt and Verghese (2018).

Results obtained from regression analysis, cash reserve ratio (CRR) has positive impact on ROA which is similar with the previous study of Ojo et al. (2022). However, it contradicts with the finding of Pokhrel and Pokhrel (2019); Wuave et al. (2020) who found that cash reserve ratio has negative impact on ROA of the banks. Then, liquid assets to total assets ratio has significant positive impact on ROA. This result is similar to the result of Al-Husainy and Jadah (2021); Nourrein and Mennawi (2020) but it does not consistent with the findings of Zidan (2020). Then, loan to deposit ratio has positive and significant impact on ROA, which means the more money the sample banks has loaned out generates more interest income provided the loans are to borrowers. The result is consistent with the findings of prior empirical studies of Zidan (2020); Ojo et al. (2022) but contradicts with the results of Bhatt and Verghese (2018); Budhathoki et al. (2020); Khati (2020); Wuave et al. (2020); Swain and Mishra (2020) mentioned that loan to deposit ratio has negative effect on ROA. However, capital adequacy ratio has negative impact on ROA of the development banks which is not consistent with the findings Budhathoki et al. (2020); Zidan (2020) who found that capital adequacy ratio has positive effect on ROA of the banks.

As regards regression in ROE, cash reserve ratio (CRR) has positive impact on ROE of the development banks in Nepal. Higher percentage of cash reserve ratio shows the greater liquidity position of the banks and low risk of technical insolvency and vice-

versa but this finding is partially consistent with the findings of Wuave, Yua and Yua (2020) which observed that cash reserve ratio has significant positive effect on ROE. However, it contradicts with the prior study of Pokhrel and Pokhrel (2019) who found negative effect of cash reserve ratio on ROE of the banks. Then, liquid assets to total assets ratio has significant positive impact on ROE of the development banks. This result is opposite with the results identified by Saleh et al. (2020) but it is consistent with the findings of Al-Husainy and Jadah (2021), who found that liquid assets to total assets ratio has significant positive effect on ROE of the banks. At the same time, loan to deposit ratio has positive and significant impact on ROE which is consistent with the findings of prior empirical studies of Swain and Mishra (2020); Rudhani and Balaj (2019); but it contradicts with the findings of Mohanty and Mehrotra (2019); Budhathoki et al. (2020); Wuave et al. (2020), who found negative effect of loan to deposit ratio on ROE of the banks. However, capital adequacy ratio has significant negative impact on ROE of the banks which is consistent with the findings of Budhathoki et al. (2020) which observed that capital adequacy ratio has negative impact on ROE of the banks.

CHAPTER - V

SUMMARY AND CONCLUSION

This is the final chapter of the study. This chapter briefly explains the summary of the study i.e. bank specific factors of profitability of development banks in Nepal tries to fetch out effect of comparative profitability of five development banks. This chapter also offer conclusion from the data analysis and provided the major implications from the study to different stakeholders.

5.1 Summary

Bank's profitability is measured by ratios such as (firm's returns on asset, return on equity, and net interest margin) that summarize large quantities of financial data and to make qualitative judgment about the firm's profitability. The affecting factor of profitability are size, capital, risk management, expense management, marketable securities and non-performing loans are generally taken as micro or bank specific variables whereas inflation, interest rate, GDP growth and tax rate are used as macro variables. In this study the bank specific variables such as bank size, capital adequacy ratio, liquidity ratio, credit deposit ratio and non-performing loan ratio are considered as the bank specific factors of profitability (i.e. ROA and ROE) of the banks.

The main objective of this study is to evaluate the bank specific factors profitability of development banks in Nepal. The other specific objectives are to analyze the comparative position of development banks in term of cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio and profitability in term of return on assets and return on equity, to examine the relationship between bank specific factors (i.e. cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio) and profitability (i.e. return on assets and return on equity) of Nepalese development banks and to examine the impact of development bank specific factors (i.e. cash reserve ratio, liquid assets to total assets ratio, loan to deposit ratio and capital adequacy ratio) on the profitability (i.e. return on assets and return on equity) in Nepalese development banks. To achieve the specific objective of the study, descriptive and causal comparative research design has been carried out. Descriptive design is used to analyze

the pattern and status of profitability and liquidity. Causal comparative design is used to measure the impact of liquidity on profitability of development banks in Nepal. Currently, there are 16 development banks in Nepal. In this study, all the development banks are population of the study among them five development banks have been selected as sample because these banks are top four in terms of profitability in last couple of years. The sample banks of the study are Jyoti Bikash Bank Limited, Muktinath Bikas Bank Limited, Garima Bikas Bank Limited, Kamana Sewa Bikas Bank Limited and Shangri-La Development Bank Limited. To conduct this study, secondary data are taken from annual reports of related office and their websites. In order to analyze the liquidity variables and its impact on profitability, computed ratios for four sample banks for ten consecutive years i.e. from 2012/13 to 2021/22 were collected from an audited financial report of sample development banks were collected for the same years.

This study found that there is strong position of development banks in term of cash reserve ratio, liquid assets to total assets ratio and loan to deposit ratio. The profitability ratios (ROA and ROE) are main indicators to analyzing the profitability of sample development banks. In this study, sample banks have efficiently utilized its assets through mobilizing its deposit because they have high ratios. The correlation analysis shows that cash reserve ratio has positive correlation with ROA and ROE. Similarly, liquid assets to total assets ratio has significant positive correlation with ROA but insignificant positive relationship with ROE.

5.2 Conclusion

This study concluded that sample banks have strong liquidity position in form of cash reserve ratio, liquid assets to total assets ratio and loan to deposit ratio. The profitability ratios (ROA and ROE) are main indicators to analyzing the profitability of sample development banks. In this study, sample banks have efficiently utilized its assets through mobilizing its deposit because they have high ratios.

Correlation analysis concluded that cash reserve ratio has positive correlation with ROA and ROE. Similarly, liquid assets to total assets ratio has significant positive correlation with ROA but insignificant positive relationship with ROE. The correlation analysis also shows that there is positive relationship between loan to deposit ratio

(LDR) and ROA and ROE of the banks. At the same time, capital adequacy ratio (CAR) has significant positive correlation with ROA but it has insignificant negative relation with ROE.

The regression analysis concluded that cash reserve ratio has no significant positive impact on profitability (ROA and ROE) of the banks. At the meantime, liquid assets to total assets ratio has significant positive impact on ROA and ROE. Similarly, loan to deposit ratio has significant positive impact on ROA ROE. Moreover, capital adequacy ratio has insignificant negative impact on ROA and it has significant negative impact on ROE of the development banks.

5.3 Implications

Based on the findings of the research the following implications were given:

- As per analysis, there is significant impact of liquidity in terms of cash reserve ratio, loan to deposit ratio and capital adequacy ratio on profitability. Thus, this findings and information gives signal to the management of the banks and policy makers or regulators to take useful action.
- From the study, taking the various variables of banks liquidity into consideration, and how liquidity impacts banks' profitability, an efficient management of it would not only inure to the benefit of bankrupt also to individuals and business entities and thus the whole economy at large. This in turn contributes to the well-being of the financial sector of the economy and the society as a whole.
- The importance of this study is that it touches the most significant financial risks that Nepalese banks face during their operational and long-term cycles. Moreover, the study can provide insights to policy and decision makers in financial sector in Nepal toward managing aforementioned risks.
- This research is able to deliver some of the present issues, latest information and data regarding liquidity. Hence this study is significant to bankers, shareholders, depositors and further researchers and students. This study makes implications that are helpful for further researchers and investors. This study also useful for further researcher as a source.

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