

**FACTORS DETERMINING OF PROFITABILITY OF  
COMMERCIAL BANKS IN NEPAL**

**A Dissertations submitted to the office of the Dean, Faculty of Management in  
partial fulfilment of the requirement for the Master's Degree**

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### **Certifications of Authorship**

I hereby corroborate that I have researched and submitted the final draft of dissertation entitled: Determinants of profitability of Commercial Banks: The work of this dissertation has not been submitted previously for the proposal of content of any degrees nor has it been proposed and presented as part of requirements for any other academic purposes. The assistance and cooperation that I have received during this research work has been acknowledged. In addition, I declare that all information source and literature used are cited in the reference section of the dissertation.

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June, 2023

**RECOMMENDATION**

This is to certify that the dissertation

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**Factors Determining of Profitability of Commercial Banks in Nepal**

has been prepared as approved by this department in the prescribed format of the faculty of management. This dissertation is forward for examination.

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### Approval Sheet

We have examined the dissertation entitled “**Factors Determining of Profitability of Commercial Banks in Nepal**” presented by Laxmi Gurung, a candidate for the degree of Master of Business Studies (MBS) and conducted the viva voce examination of the candidate. We hereby certify that the thesis is worthy of acceptance.

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## **ABSTRACT**

High revenue generation and wholesome growth of the banks are the utmost aim of a commercial bank which come with careful insight of the prevailing situation and prognosis of the upcoming hurdles. There are certain core factors that govern these and this study was conducted with the objective to analyze the bank specific factors that affect the profitability of commercial banks in Nepal.

Out of prevailing 21 commercial banks, secondary data of six commercial banks from year 2017/18 to 2021/22 were considered to analyze the factors that affects profitability and tested the existing relationship between explanatory variables (capital adequacy, loan to total assets, deposit to total assets) and profitability measurement: Return on Assets and Return on Equity by using correlation analysis.

The study used descriptive and analytical research approach to analyze factors that affect profitability and the significance was tested at 5% level of significance. SPSS and Excel software were used to analyze the data. Multiple regression models were used to investigate the impact of explanatory variables on bank profitability.

The correlation analysis revealed that return on assets (ROA) had negative correlation with explanatory variables capital adequacy ratio (CAR), deposit to total assets (DTAR), Loan to total assets (LTAR) whereas it had positive correlation with ROA. Among these explanatory variables capital adequacy ratio (CAR) had significant positive relation with ROE where as DTAR and LTAR showed negative relationship with ROE.

The empirical result revealed that capital adequacy, loan to total assets, deposit to total assets had insignificant negative impact on ROA whereas capital adequacy ratio, loan to total assets had negative impact on ROE whereas Deposit to total assets had significant positive impact on ROE.

**ABBREVIATIONS**

BOK	:	Bank of Kathmandu Limited.
CAR	:	Capital adequacy Ratio
DTAR	:	Deposit to total assets
EBL	:	Everest Bank Limited
HBL	:	Himalayan Bank Limited
LBL	:	Laxmi Bank Limited
LTAR	:	Loan to total assets
MBL	:	Machhhapuchre Bank Limited
NBL	:	Nepal Bank Limited
NIC	:	Nic Asia Bank Limited
ROA	:	Return on Assets
ROE	:	Return on Equity
SBI	:	Nepal SBI Bank Limited

## **CHAPTER I**

### **INTRODUCTION**

#### **1.1 Background of the Study**

Banks are the backbone of the global economy, providing capital for innovation, infrastructure, job creation and overall prosperity. Banks also play an integral role in society, affecting not only spending by individual consumers, but also the growth of entire industries. As financial intermediaries, banks play an important role in the operation of an economy. Profitability is reflected in the firm's return on investment, return on assets, value added. It also helps us to evaluate how well a bank is using its resources to make a profit. Common examples of financial performance include operating income, earnings before interest and taxes, and net asset value. Financial performance is a subjective measure of how well a bank can use assets from its primary mode of business and generate revenues. The banking industry is a vital part of the financial system in any country. Thus, its successes or failure strongly affect the health of the economy. Secondary, it is interesting to study the determinants of financial performance, as it is extremely useful for managers in improving organizational performance and it also help the policy-making bodies create, if needed, an appropriate regulatory environment. (Ahmed, 2011). (Bam, Bhandari, Shakya, and Malla)

Due to their intermediary function between lenders and borrowers, banks have an important role for all economies. On one side, savers can have a chance to gain interest income with their excess funds. On the other side, thanks to the money creation function of the banks, not only can investors reach the money they need for their business activities, but also consumers are able to spend their future income. In other words, banks contribute investment and consumption amounts in a country. These functions of the banks help to accelerate economic activity. In addition to the benefits above, the banking sector helps to reduce unemployment in a country by employing many people in their branches. In short, the banking sector plays an essential role for economies (Yuksel et al. 2015).

Keeping a nation's savings in deposit accounts, and lending more of them, thanks to the money creation process, allows banks to make high profits. However, especially after globalization, banks had to manage different types of risks, such as credit risk, liquidity

risk, interest rate risk, and currency risk. In the last 20 years, there have been many banking crises in the world since these risks could not be managed, accurately.

These crises caused significant losses for the economies affected. As a result of these crises, many people lost their jobs and a lot of companies went bankrupt. Therefore, banks should manage their risks and assets well in order to be profitable and for economies to be stable (Dincer et al. 2016).

The studies on bank profitability are very important for identifying problems and avoiding economic risks. Starting from the early studies, bank profitability has become one of the most popular topics in the banking literature. While most of the studies in this subject are related to persistency, convergence and efficiency, the aspect of profitability has a special importance in the literature. For this reason, especially after the late 1970s, many international studies have been carried out regarding the determinants of profitability. With the development of contemporary econometric analysis methods, studies after 1990 conducted experimental analysis and mainly focused on sets of countries (Tunay and Mukhtarov 2016, p. 689).

Bank profitability refers to the difference between the profit amount obtained from the assets and expense of the liabilities. In the literature, bank profitability is stated as a function of both micro and macro determinants. Micro variables consist of the accounts in the balance sheet and income statement. Therefore, they are also named as bank-specific variables. On the other hand, macro variables are not related to the internal process of the banks, but they affect profitability in a significant way. Size, capital, risk management, expense management, marketable securities and non-performing loans are generally considered micro variables (Güngör 2007, pp. 42–43).

Inflation, interest rate, GDP growth and tax rate are used as macro variables. The Union of Soviet Socialist Republics (USSR), which was founded in 1922, was the largest country in the world with respect to its surface area. Additionally, more than 293 million people lived in the Union. However, this country collapsed in 1991 due to economic, social and political reasons. After the collapse, the Soviet Union divided up into 15 separate and independent countries (Borjas and Doran 2012).

Each of these countries tried to develop their economic system after collapse. Within this context, they aimed to implement a free market economy instead of having a command economy. Because it was impossible to make this change with the regulations from communist system, they sped up the implementation of new legal regulations. Additionally, these countries immediately implemented some serious regulations on banking systems and central banking, which constitute amongst the most important steps towards transition to a free market economy. Thus, central banks in the first step and commercial banks in the second step formed a two-step banking system, together. This paper contributes to the current literature in different ways.

First, it investigates one of the hot topics in the literature: “the influencing factors of bank profitability”. Second, there is a lack of studies in the literature that examines post-Soviet countries regarding this topic. This study helps to fill this gap in the literature by investigating bank profitability in the case of post-Soviet countries. Third, it is the first study that investigates the bank profitability of post-Soviet countries by employing fixed effect panel regression and the Generalized Method of Moments (GMM). Using such advanced methods and robust standard errors, the results of this study present one important recommendation to banks of the post- Soviet countries to increase their profitability. In addition, the findings of this study can be used by policymakers as a tool for policy measurement purposes. (Article Determinants of Profitability in the Banking Sector: An Analysis of Post-Soviet Countries) Yüksel, Mukhtarov, Mammadov, & Özsarı, (2018).

As profitability is an accounting theory that shows surplus of profit over expense for a specified period of time that represent earning of banks for the sake of which they perform various activities in growing economy. Profitability is a silent feature and main pillar of discussion as experienced of a business entity. As in a study of commercial banks profitability analysis discovered that the reliability of the institution for shareholders, long term creditors and for management is essential, in this way it helps to know about the financial soundness of the bank or the organization. Profitability shows the relationship of the absolute amount of revenue that indicate the ability of a bank to raise its loans to its customers and boost their profit. In the science of business Profitability is the life blood of a business as acting a bridge by providing loans to the business firms in running their long- and short-term projects day by day. As profit ability is efficiency improvement indicator

but there are number of factors that can affect the profitability of bank, some of them will be independent and some are dependent but still physical, we will see their impact on profitability in our study (International Journal of Accounting and Financial Reporting ISSN 2162-3082 2014, Vol. 4, No. 2) Amandeep (1999)

## **1.2 Problem Statement**

Banking is a rapidly growing industry and Nepalese banking has experienced drastic and comprehensive reforms. The reform has achieved phased success, while challenges remain. Apparently, there is need for an in-depth and comprehensive study to provide performance and efficiency assessment of the Nepalese commercial banking industry (Jha, 2014). Bank performance is the capacity of the bank to generate sustainable profitability. Profitability is very important for a bank in term of the capacity to hold on going activities and to obtain good return for its investor. There is internal external factor that affect profitability of commercial bank.

Murerwa (2015) observed that several factors affect profitability of banks. The profitability performance and changes in profitability of a bank, regardless of its ownership are determined by internal variables and external variables. The internal variables are related to the bank itself and they are influenced by the working and performance of management. The external variables are the result of the macroeconomic environment in which the bank is operating. What are the exact factors that influence the performance in terms of profitability of commercial banks in Nepal?

The internal factors are those which can be controlled by management if timely and proper decisions are done. The factors on the other hands means those factors which are out of control of management and can never be avoided but in fact have to adjust its own activities so that business can cope with them. Internal factor such as capital adequacy, Loan to total assets, Deposit to total assets, that are affect the bank profitability. But actually, what are the factors that really affects the bank's profitability in case of Nepal was the subject matter of study. Followings are the Research Questions of the study:

- i. What is the impact of capital adequacy on profitability of Nepalese commercial banks?

- ii. How does Loan to total assets ratio affect the profitability of Nepalese commercial banks?
- iii. How does Deposit to total assets ratio affect the profitability of Nepalese commercial banks?

### **1.3 Objective of the Study**

The main objective of this study is to identify the major determinants of profitability of commercial bank in Nepal. The specific objectives are as follows.

- i. To evaluate the impact of capital adequacy on profitability of Nepalese commercial banks.
- ii. To examine the effects of Loan to total assets on the profitability of Nepalese commercial banks.
- iii. To investigate impact of Deposit to total assets ratio on profitability of commercial banks in Nepal.

### **1.4 Research Hypothesis**

H1: There is a positive relationship between CAR and ROE, meaning that banks with higher CAR tend to have higher ROE.

H2: There is a positive relationship between CAR and ROA, meaning that banks with higher CAR tend to have higher ROA.

H3: There is a negative relationship between LTAR and ROE, meaning that banks with higher LTAR tend to have lower ROE.

H4: There is a negative relationship between LTAR and ROA, meaning that banks with higher LTAR tend to have lower ROA.

H5: There is a positive relationship between DTAR and ROE, meaning that banks with higher DTAR tend to have higher ROE.

H6: There is a positive relationship between DTAR and ROA, meaning that banks with higher DTAR tend to have higher ROA.

### **1.5 Rationale of Study**

This study deals with the determinants of profitability performance of commercial banks in Nepal. The study is beneficial for different stakeholders such as for the Government, investor, customer, banks managers and executives and for other researchers.

The financial performance of banks is determined by the internal and external factors. Internal determinants rise from the financial statements of commercial banks like balance sheet and income statements; hence these can be termed as bank specific factors of profitability (Wahdan and Leithy, 2017). Commercial banks are one of the major core components of the modern economy. They give greater contribution to Country economy. On the other hand, bank and financial institutions are in tight competition with one another within the industries as well. In this situation, the commercial banks should be more competitive. They should become financially healthy and must have growth potentiality. In addition, they have to shape their plans and strategies accordingly.

The study is significant for providing an improved understanding of the determinants of commercial banks profitability and their precise effect on overall performance. Financial performance of a firm affects the interest of its stakeholders. The stakeholders refer to trade creditors, bondholders, investor and management and other users of financial statements. Trade creditors are interested in the liquidity of the firm, bondholders are interested in the cash flow ability of the firm, investors are interested in present and expected future earnings as well as stability of these earnings and management is interested in internal control, better financial condition and better performance of the firm (Rai, 2019).

The financial performance of bank is the function of internal and external factors. The internal factors are the bank specific factors which are originated from the activity of bank and reflected in the balance sheets and profit and loss accounts. The external factors are not originated from the activity of bank but reflect the overall economic environment which affects the financial performance of banking sector. Thus, the financial performance of bank basically depends on its own activities (internal factors) and the overall performance of the economy (external factors) (Shrestha, 2020).

Therefore, the conclusions drawn from this study are beneficial and valuable for commercial banks in formulating the right operational policies that enable them to generate sustainable profitability, which is essential for them to maintain ongoing activity. The conclusions are also crucial for the investors by improving their understanding of how to take the right investment decision that enables them to obtain fair returns. Finally, it is also useful for researchers and academicians in the field of finance, economics and banking for carrying out further studies in the area.

### **1.6 Limitations of Study**

This study included internal factors to identify the elements that affect profitability of Nepalese commercial banks, but the study still has its own restrictions which are as follows:

- i. There are many variables that affects the profitability of the Nepalese bank but the study only covers some internal variables such as capital adequacy, loan total assets, deposit to total assets, and extended of the internal as well as external variable.
- ii. There were many variables that used to measure the profitability of banks but this study was covers ROA (Return on Asset) and ROE (Return on equity) as study measure.
- iii. This study was based on secondary data; reliability of the result is based on the data available from the annual report of sample banks.
- iv. This study focuses on analyzing data from Nepalese commercial banks for a period of seven years, specifically from 2016 to 2022. The scope of the study is limited to this time frame and the data obtained from these sources.
- v. The study of findings can be applied to other populations, contexts, or situations beyond the one being studied.

## **CHAPTER II**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

There have been a number of research papers on determinants of profitability of Nepalese commercial banks. Some studies were county specific and few of them considered panel of countries for reviewing the determinants of profitability. All these studies propose that the determinants of profitability for bank can be divided into two groups; internal and external factors. Internal and external factor play an important role on banks profitability. Therefore, various researchers have identified different internal (bank specific) and external (macroeconomic) factors and analyzed their effects on banks profitability in varying dimensions. Therefore, this chapter deals with the theoretical as well as empirical review of major studies related to the determinants of profitability of Nepalese commercial banks.

#### **2.2 Theoretical Review**

In theoretical review, several issues are discussed concerning determinants of banks profitability performance. The conceptual review contributes to a better understanding of the concept and meaning of major profitability performance determinants in Nepalese commercial banks and its impact on profitability performance of commercial banks. Concept and meaning about these factors from different sources are linked together to formulate a meaningful and magnificent material in this section.

##### **2.2.1 Determinants of Profitability**

Profitability is the ability of a business to earn a profit. Profit is what is left of the revenue a business generates after it pays all expenses directly related to the generation of the revenue. Profitability determines whether a business stays in business.

Like all business, for banks profit is earning money than what they pay in expenses. The major portion of a bank's profit comes from the fees that it charges for its services and the interest that it earns on its assets. Its major expense is interest paid on its liabilities.

The major assets of bank of a bank are its loans to individuals, businesses, and other organizations and the securities that it holds, while its major liabilities are its deposits and the money that it borrows, either from other banks or by selling commercial paper in the money market.

Banks increase profit by using leverage, which helped precipitate the credit crisis that occurred in 2007 to 2009. Profit can be measured as a return on assets and return on equity. Because of leverage, banks earn a much larger return on equity than they do on assets.

The variables which influence on profitability achievement of business are the determinants of profitability. From the related literature reviews it is known that there are bank specific variables, industrial based variables and macroeconomic variables effecting on achieving the profit goal of banks which are also known as internal and external variables.

Internal factors are individual bank characteristics which affects the banks performance. These factors are basically influenced by internal decisions of management and the board. The external factors are sector-wide or country -wide factors which are beyond the control of the organization and affect the profitability of banks. The overall profitability performance of the banks in Nepal in the last two decade has been improving. However, this doesn't mean that all banks are profitable, there are banks declaring losses. Studies have shown that bank specific and macroeconomic factors affect the performance of commercial banks.

### **Capital Adequacy Ratio**

Capital Adequacy is important for a bank to maintain depositors' confidence and preventing the bank from going bankrupt. Capital is seen as a cushion to protect depositors and promote the stability and efficiency of financial system around the world. Capital Adequacy reflects the overall financial condition of the banks and also the ability of the management to meet the need for additional capital. It also indicates whether the bank has

enough capital to absorb unexpected losses. Capital Adequacy ratios act as indicators of banks' leverage Chishty (2011).

Capital adequacy is one of the bank specific factors that influence the level of bank profitability. Capital is the amount of own fund available to support the bank's business and act as a buffer in case of adverse situation (Athanasoglou et al. 2005). Banks capital creates liquidity for the bank due to the fact that deposits are most fragile and prone to bank runs. Moreover, greater bank capital reduces the chance of distress. Capital Adequacy Ratio (CAR) shows the banks' ability to maintain sufficient capital. The main activity of the bank is to collect funds and channel them back in the form of loans. If a bank has enough capital or meet the requirements, it can operate to create profit. In addition, the bank can provide large loans and it has enough assets as collateral for third party funds deposited in the bank so that it will increase public trust. The higher the CAR betters the performance of a bank. This is supported by Saeed (2014).

The researchers like Ongore & Kosa (2013), Muhmad & Hushim (2015) has profound the relationship between capital adequacy and profitability of banks in their researches which reveal that capital adequacy is the determinants of profitability. Capital that can be considered for the purpose of judging capital adequacy is divided into three categories based on its quality act as a risk cushion for the depositors to the bank. These categories are tier I, tier II, and tier III capital. Tier I capital comprise the core capital and consist of instruments that are of high quality. Tier II capital is supplementary capital and consists of instruments that are of a lower quality those in tier I. Tier III capital has limited use in the capital adequacy calculation but bank in India is not allowed to raise tier III capital so the capital adequacy ratio is as follows:

$$\text{CapitalAdequacyRatio} = \frac{\text{TierI} + \text{TierIICapital}}{\text{RiskWeightedAssets}}$$

Where,

Tier I= Core Capital

Tier II= Supplementary Capital

Risk Weighted Assets= Tier 1 Capital + Tier 2 Capital / Capital Adequacy Ratio

### **Loan**

The loan was one of the determinants of profitability of banks in the study of Guru, Staunton & Shanmugam (2020), Alpher&Anbar (2011), Maharjan (2014). They have established relation between loan and profitability in their analysis which aid loan to be a determinant of profitability.

### **Deposit**

In the study of Maharjan (2014), Karimzadeh et al. (2013) loan was found to be the determinants of profitability as it showed relationship with profitability of bank.

### **Return on Asset (ROA)**

The ROA reflects the ability of a bank's management to generate profits from the bank's assets. It shows the profits earned per birr of assets and indicates how effectively the bank's assets are managed to generate revenues, although it might be biased due to off-balance sheet activities. This is probably the most important single ratio in comparing the efficiency and operating performance of banks as it indicates the returns generated from the assets that bank owns (Tan et al. 2012). It measures the ability of the bank management to generate income by utilizing company assets at their disposal. In other words, it shows how efficiently the resources of the company are used to generate the income. It further indicates the efficiency of the management of a company in generating net income from all the resources of the institution (Khravish, 2011). Wen (2010), state that a higher ROA shows that the company is more efficient in using its resources.

Return on assets (ROA) is the ratio of Net Income after Taxes divided by Total Assets. The ROA signifies managerial efficiency in other words it depicts how effective and efficient the management of banks has been as they seek to transform assets into earnings. And the higher ratio indicates the higher performance of the banks. It is a useful tool for comparing profitability of one bank with other or the whole commercial banking system (Molyneux & Thornton, 1992).

### **Return on Equity (ROE)**

Return on equity is the return to shareholders on their equity. This means that, return on equity reflects the capability of a bank in utilizing its equity to generate profits (Tan et al. 2012). According to Dietrich et al. (2009), banks with a lower leverage ratio (higher equity) report a higher ROA, but a lower ROE. However, the ROE disregards the higher risk that is associated with a higher leverage. Even if ROE is commonly used in different studies, it is not the best measure of profitability (Ghazouani et al. 2013). ROE is a financial ratio that refers to how much profit a company earned compared to the total amount of shareholder equity invested or found on the balance sheet. ROE is what the shareholders look in return for their investment. A business that has a high return on equity is more likely to be one that is capable of generating cash internally. Thus, the higher the ROE the better the company is in terms of profit generation. It is further explained by Khrawish (2011) that ROE is the ratio of Net Income after Taxes divided by Total Equity Capital. It represents the rate of return earned on the funds invested in the bank by its stockholders. ROE reflects how effectively a bank management is using shareholder's funds. Thus, it can be deduced from the above statement that the better the ROE the more effective the management in utilizing the shareholders capital.

The ROE is said to measure the rate of return on the bank's shareholders equity and it is calculated by dividing banks net income after tax by total equity capital which includes common and preferred stock, surplus, undivided profits, and capital reserve (Molyneux & Thornton, 1992).

These measures of profitability give an indication of what the banks earns on the shareholder's investment (Rasiah, 2010). According to Anthony Karkrah and Amwyaw (2010) many researchers have presented ROA as an appropriate measure of bank profitability. Among them are Rivard and Thomas (1997), who argued that bank profitability is best measured by ROA in the sense that, ROA cannot be distorted by high equity multiplier. However, Hassan and Bashir (2003) also claim that ROA tend to be lower for financial intermediaries, most banks heavily utilized financial leverage to increase their ROE to competitive levels.

### **2.2.2 Review of Theoretical Model**

The theories that can describe philosophy related to research and which help the finding link between theoretical know how and practical applications are the theoretical models. Some of the related theories for this thesis are presented below in brief.

#### **Efficient Structure (ES) Theory**

The efficiency theory was formulated by Demsetz (1973) as an alternative to the market power theory. The efficiency theory presupposes that better management and scale efficiency results to higher concentration thus greater and higher profits. Accordingly, the theory posits that management efficiency not only increases profits, but also results to larger market share gains and improved market concentration (Athanasoglou, Brissimis & Delis, 2005).

The ES hypothesis, on the other hand posits that banks earn high profits because they are more efficient than others. There are also two distinct approaches within the ES; the X-efficiency and Scale-efficiency hypothesis. According to the X-efficiency approach, more efficient firms are more profitable because of their lower costs. Such firms tend to gain larger market shares, which may manifest in higher levels on market concentration, but without any causal relationship from concentration to profitability (Athanasoglou et al, 2006). The scale approach emphasizes economies of scale rather than differences in management or production technology. Larger firms can obtain lower unit cost and 9 higher profits through economies of scale. This enables large firms to acquire market shares, which may manifest in higher concentration and then profitability.

Siudek (2008) stated those banks that are efficient may lead to increase in bank's profitability. The performance in banking sector will accelerate only when the banks are able to manage their capital and debt wisely. This theory is similar to the theory named as allocative efficiency which means optimal allocation of the resources.

#### **Balanced Portfolio Theory**

The portfolio theory approach is the most relevant and plays an important role in bank performance studies (Nzongang and Atemnkeng, 2006). According to the Portfolio balance

model of asset diversification, the optimum holding of each asset in a wealth holder's portfolio is a function of policy decisions determined by a number of factors such as the vector of rates of return on all assets held in the portfolio, a vector of risks associated with the ownership of each financial assets and the size of the portfolio.

It implies portfolio diversification and the desired portfolio composition of commercial banks are results of decisions taken by the bank management. Further, the ability to obtain maximum profits depends on the feasible set of assets and liabilities determined by the management and the unit costs incurred by the bank for producing each component of assets (Nzongang and Atemnkeng, 2006).

### **Regulatory Theory (1987)**

The regulatory theory 1987, defines the relationship of capital adequacy on banks performance to be negative. The Basel Accord had clear provisions that each and every bank should hold minimum capital adequacy ratio which somewhat ensure that banks are in sound position. Therefore, following it the central bank of the nation publish the directives on which the minimum capital adequacy ratio that a bank has to maintain is written and that is to be maintained by each and every bank existing in the nation.

## **2.3 Empirical Review**

### **Panel Data Regression Model**

This model has been used a lot in studying determinants of profitability. The wellknown types of panel data regression model are fixed effects model, random effects model and pooled ordinary least square method. The researcher like Dawood (2014) had used ordinary least square method in his research, Kosmidou (2008) had used fixed effect model. Similarly, Onuonga (2014), and Roman & Danuletiu (2013) also had used panel data regression model in their research.

#### **2.3.1 Review of Journal Articles**

The issue of bank profitability and performance efficiency has been widely discussed in the scientific literature, it has also been considered in a number of theoretical and empirical

researches of different kind. However, return on assets (ROA) and return on equity (ROE) have always been mentioned among the main indicators characterizing bank performance.

Bhattarai and Thapa (2023) “The Impact of Digital Banking Services on Profitability: A Study of Nepalese Commercial Banks”. This study examines the impact of digital banking services on the profitability of Nepalese commercial banks using data from 14 banks over a period of five years (2015-2019). The authors find that the adoption of digital banking services has a positive impact on bank profitability, particularly through the reduction of operational costs and the improvement of customer satisfaction. Overall, these studies suggest that bank size, capital adequacy ratio, loan-to-deposit ratio, non-performing loan ratio, liquidity, cost efficiency, GDP growth, and digital banking services are important determinants of profitability for Nepalese commercial banks.

Factors affecting commercial banks’ performance according to profitability are broadly categorized into two; internal and external factors, Internal factors are mainly influenced by a bank's management decisions and policy objectives, whereas external factors focus on industry- related and macroeconomic variables reflected in the economic and legal environment where banks operate (Sehrish et al., 2011).

Deger Alper and Adem Anbar (2011) examined the bank-specific and macroeconomic determinants of the bank’s profitability in Turkey over the time period from 2002 to 2010. The bank profitability is measured by return on assets (ROA) and return on equity (ROE) as a function of bank-specific and macroeconomic determinants. The results show that asset size and non-interest income have a positive and significant effect on bank profitability. However, size of credit portfolio and loans under follow-up have a negative and significant impact on bank profitability. With regard to macroeconomic variables, only the real interest rate affects the performance of bank positively. These results suggest that banks can improve their profitability through increasing bank size and non-interest income, decreasing credit/asset ratio. In addition, higher real interest can lead to higher bank profitability.

Gul, Irshad, and Zaman (2011) analyzed the relationship of bank specific and macroeconomics factors with the profitability of banks in Pakistan and showed that both these factors have a strong relationship with banks profitability.

Sthapit and Maharjan (2012) found that there significant impact of liquidity on profitability in Standard Chartered Bank Nepal Ltd., but not in NICA Bank, as they studied the issue in lending Nepali foreign joint venture banks. The study also discovered profitability position of the Standard Chartered Bank Nepal Ltd. as more consistent than that of NICA Bank.

Masood and Ashraf (2012) undertook study on the determinants of Islamic banks profitability in case of different countries by taking 25 banks out of 12 countries for the period of 2005-2010. The objective of their study was to inspect whether bankspecific and macro-economic determinants influence Islamic banks' profitability in the selected countries of different regions by using the balanced panel data regression model. They used ROA and ROE as profitability measure and considered both micro and macro variables as determinants of profitability. The micro determinants include asset size, capital adequacy, asset quality, liquidity, deposits, Assets Management, operating efficiency, Gearing Ratio, Financial Risk and macro factors included GDP growth and inflation rate. Their study results reveals that, banks with larger assets size and with efficient management lead to greater return on assets and also their result shows that management efficiency regarding operating expenses positively and significantly affects the banks' profitability.

Rasool, Aamir, Hussain, and Attique (2012) examines the impact of bank specific and macroeconomics variables on profitability of commercial banks in Pakistan by taken ROA, ROE and NIM as profitability measures. Study found that banks should enhance their assets quality, operational efficiency and capital adequacy to increase their profitability.

Dore (2013) determined the bank specific and macroeconomic factors of commercial banks profitability in Ghana. The study concluded that profitability of commercial banks in Ghana is positively related with bank specific variables i.e., Capital adequacy and liquidity of banks and macroeconomic variables i.e., GDP and inflation are negatively associated with profitability.

Bilal (2013) in their study analyze the effect of bank specific i.e., deposit to asset, bank size, capital ratio, net interest margin and non-performing loans to total advances and macroeconomic factors i.e., inflation, real GDP and industry production growth rate on profitability measures (ROA and ROE) of all commercial banks. Results shows that bank specific factors (bank size, net interest margin, industry production growth rate and non-

performing loans to total advances) are significant and positively affect ROA and ROE except NPL that shows negative relation with both profitability measures. Capital ratio is also found significant and positively related in relation with Return on Equity (ROE) only. Among macroeconomic factors only real GDP has significant positive relation with Return on Assets (ROA).

Ezra (2013) undertake study on the determinants of commercial banks profitability in sub-Saharan Africa using an unbalanced panel of 216 commercial banks drawn from 42 countries in SSA for the period 1999 to 2006. He employed the random effect panel methods to estimate bank profitability. Growth in bank asset, growth in bank deposit, capital adequacy, operational efficiency, liquidity ratio, growth in GDP and inflation are an explanatory variable. The findings show that the bank level variables such as capital adequacy and growth in bank deposits have positive influence on bank profitability. According to the study, Positive growth of in these indicators could be results of banking sector liberalization that has been implemented in most of SSA countries since 1980s and 1990s. on the other hand, growth in bank assets, operational efficiency and bank liquidity indicators have negative effect on bank profitability. The negative effect of these indicators could be explained by disproportionate accumulation of assets through merger and acquisitions of foreign based banks at high costs that has occurred in SSA in the last two decades. On the other hand, negative effect of bank liquidity can be explained by low bank lending. For macro-economic variables, Francis M.E found that both growth in GDP and inflation had a negative effect on bank profitability.

Roman and Danuletiu (2013) seek to see the determinants of banks profitability in Romania. They had used 15 banks and data was derived from between 2003-2011. The balanced panel dataset was used and furthermore multiple regression model was conducted for analysis purpose. The empirical result revealed that the ratio of nonperforming loans, management quality, and ratio of liquid assets to total assets has significant impact of banking profitability. The capital, ratio of loan to total assets, funding cost has no significant impact upon profitability of a bank whereas GDP has significant impact on profitability.

Weersainghe and Ravinda (2013) examined the impact of bank specific such as Bank Size, Liquidity Risk, and Operating Cost, Capital adequacy, Credit Risk and macroeconomic

determinants like GDP growth rate and Interest Rate on the profitability of commercial banks in Sri Lanka by using quarterly data relating to the bank specific and macroeconomic indicators during the period 2001-2011 and carrying out a multiple panel regression. Moreover, they used ROA and ROE as profitability indicator. According to the empirical results, it was observed that the large banks are recorded more profits due to economic of scale than the banks which are well sound with a higher regulatory capital ratio. Further, the results from the panel regression suggest that the liquidity and operating cost efficiency banks were negatively related to the commercial banks profitability in Sri Lankan. In addition, interest rate found to be having a significant impact on the bank profitability with a negative relationship between the Return on Assets of the bank.

Lipunga (2014) evaluated the determinants of profitability of listed banks in Malawi for a period of 5 years from 2009 and 2012 using external (market) and internal measures of profitability. The study employed multivariate regression and correlation analysis where Earning Yield (EY) and return on assets (ROA) were used to determine the internal and external determinants of profitability. Regression analysis results established that size of the bank, management efficiency and liquidity had a statistically significant effect on return on assets whereas capital adequacy had insignificant impact. Additionally, the research established that earnings yield significantly influences by size of the banks, management efficiency and capital adequacy while liquidity had an insignificant impact on earnings yield.

Hong and Razak (2015) intended to characterize impact of inflation and GDP on financial performance that ROA and ROE during the year 2007 to 2011. The 10 islamic banks were taken as sample and basic linear regression were used for the analysis purpose. It concluded the nominal GDP has significant and positive impact on ROA and inflation rate has negative correlation with profitability ratio.

Frederick (2015) concluded the study on factors affecting performance of commercial banks in Uganda using linear multiple regression analysis over the period 2000-2011. The study uses ROA and ROE as the dependent variables. It showed that capital adequacy has a negative impact on performance of domestic commercial banks in Uganda. Similarly, loan loss provision to total loan has a significant negative impact on ROA.

Alshatti (2016) “*Determinants of banks profitability –the case of Jordan*” this study is to investigate the critical determinants that affected the profitability of the commercial banks in Jordan. It seeks to identify the significant bank-specific variables, by comprising 130 observations of thirteen banks over the year (2005-2014). A measurement of banks profitability is the return on assets (ROA) and the return on equity (ROE). The results indicate that the variables of capital adequacy, capital and leverage positively effect on the banks profitability and the variable of assets quality negatively effects on the banks profitability. The result also indicate that rising banks profitability in Jordan is associated with well-capitalized banks, accompanied by high capital adequacy.

Maharjan (2016) concludes in his research that capital adequacy and liquidity position are the major determinants of profitability of Nepalese commercial banks. He has conducted the research to examine the impact of bank specific and macroeconomic variables on profitability of Nepalese commercial banks. The bank’s profitability performance was measured by return on assets return on equity and net interest margin. Capital adequacy, credit risk, liquidity position and bank size are used as bank specific variables and macroeconomic variables include inflation and gross domestic product growth rate. The study was based on secondary data of 19 banks with 114 observations for the period of 2009 to 2014. The result shows that return on assets, return on equity and net interest margin are positively related with capital adequacy, credit risk and bank size. Likewise, inflation and gross domestic product have positive relationship with bank profitability measure return on assets and return on equity but negative relationship with net interest margin.

Pradhan (2016) assess the bank specific and macroeconomic determinants of bank profitability by considering 22 banks for the period of 2005/06-2011/12. The pooled cross-sectional data analysis has been done for the result and casual comparative research design was adopted. Descriptive statistics, correlation and regression analysis has been performed which had concluded that inflation, liquidity and non-performing loans are negatively related to ROA and ROE. Likewise, there is positive impact of credit to total deposit ratio, market share, and GDP on the profitability of bank. The credit to total deposit ratio and liquidity was concluded to be the major determinants of profitability in case of Nepal by this study.

Pradhan and Shrestha (2016) examined the impact of bank specific and macroeconomic variables on the performance of commercial banks in Nepal. The study has sample of 15 commercial banks for the period of 2006/07-2012/13 and has undertaken pooled cross-sectional analysis. The results were capital adequacy and management efficiency was positively related to ROA. The variable asset quality and credit risk seems to have negative effect on ROA. The explanatory variables, management efficiency, size of bank are positively related to ROE while capital adequacy, liquidity, employee expenses, credit risk and other operating expenses inversely impact on ROE. Likewise, capital adequacy, management efficiency and size of bank have positive effect on NIM on contrary operating expenses has inverse impact on NIM. The study had revealed that all the bank specific factors are significant factors in case of Nepal.

Yee (2016) studied the bank specific and macroeconomic factors that affect domestic commercial bank performance in Malaysia, ROA represent the performance and for knowing what factors affect it, the study retrieved data from 2005 to 2014 and further analysis is done with the use of panel data regression model. The factors capital adequacy and leverage are significant and has negative correlation with bank performance. The real effective exchange rate is significant and positively correlated with ROA whereas real interest rate shows insignificant relation with ROA.

Maiti and jana (2017), Study aims to find the determinants of five major bank groups in India namely, State Bank of India & its Associates, Nationalized Banks, New Private Sector Banks, Old Private Sector Banks and Foreign Banks, consisting a total of 75 banks. Banks in India have been undergoing major challenges in the dynamic environment over the past few years. In order to resist negative shock and maintain financial stability, it is important to trace the determinants that most influence the overall performance of the banks in India. This paper uses panel data regression method to investigate the impact of various internal factors on profitability of banks. The empirical results have found strong evidence that profit per employee, net interest margin, net non-performing assets ratio and non-interest income have a significant impact on the profitability for all bank groups.

Serwadda, (2018) aimed to find out whether bank-specific (internal) factors impact on the profitability of commercial banks in Hungary for 16 a year period ranging from 2000–2015. The study employs a sample of twenty-six commercial banks with four hundred sixteen

observations. The study employs return on average assets (ROAA) as a proxy for bank profitability, and it also considers bank-specific (internal) factors as independent variables. These include asset quality (non-performing loans), overhead costs, bank size, net interest margin, and liquidity risk plus capital adequacy ratio. The study uses panel regressions, descriptive statistics and correlation analysis for the investigations. The panel regression models are to estimate the impact of bank-specific (internal) factors on bank profitability. The Hausman specification test was conducted on the panel regression models in order to identify the best and appropriate model for the study. The empirical findings reveal that non-performing loans, overhead costs and liquidity had a significant negative impact on bank profitability as bank size had a significant positive impact on profitability. However, net interest margin and capital adequacy ratio had no impact on bank profitability. The study concludes that bank size and asset quality are bank-specific factors that have the biggest impact on commercial banks' profitability in Hungary for the period under investigation. The study recommends that commercial banks should end ever to manage and reduce overhead costs to be able to earn more profits since overhead costs adversely affect bank profitability. More so, commercial banks' managers should regularly monitor credit and liquidity risk indicators as well as pursuing diversification policies of income sources while upholding optimization of operational costs.

Abate and Mesfin (2019) examined the bank specific, industry-specific and macroeconomic factors that affect bank profitability of nine commercial banks in Ethiopia, during the period of 2007-2016. The regression model were run to analyze the raw data collected through audited financial statement. The finding of the study show that capital adequacy, leverage, liquidity and ownership have statistically significant and positive relationship with banks profitability. On the other hand, operational efficiency GDP, inflation and interest rate have a negative and statistically significant relationship with banks profitability. However, the relationship between bank size and number of branches is found to be statistically insignificant. Therefore, Ethiopian commercial banks should not only be worried about internal structures and rules, but they have to give attention for both the internal and macroeconomic variables together in fashioning out plans to pick up their performance.

Islam and Rana, (2019) investigated the impact of different bank specific and macroeconomic variables on bank profitability by considering 23 commercial banks of Bangladesh based on data availability during the period 2013-17. Data were collected from the individual banks annual reports, Bangladesh Bureau of Statistics (BBS) and a variety of publications of the Bangladesh Bank. The fixed effect model for panel data has been applied to operate the regression analysis among the variables. In the study, three identical measures of profitability namely return on Asset (ROA),

Return on Equity (ROE) and Net Interest Margin (NIM) are used. In the model for ROA, the result indicated that earning variable (TIN, NII), and asset structure (DPST) have a significant positive relationship with ROA, and asset quality (NPL) has significant negative impact on ROA. For ROE, earning (TIN and NII) and capital strength (CAP) have a significant positive relationship of the entire explanatory variable with ROE. Only asset quality (NPL) has significant negative impact on ROE. For NIM, earning variables (TIN), capital strength (CAP) and liquidity (LTA) have a significant positive relationship with NIM. This study found that there is no significant impact of the macroeconomic factors namely growth rate of GDP and rate inflation and rate of interest included in the models on profitability. For decision making and developing the performance of financial organization in the future the findings of this study can assist the investors, policymakers, management body and other stakeholders.

Neupane (2020), the studies classified the determinants of banking profitability as internal factors and external factors ROA and ROE reflects how well bank management uses the bank's real investment resources, the NIM focuses on the profit earned on interest activities. Study revealed that earning indicators Capital Strength and Liquidity are statistically significant variables whereas management efficiency, asset structure, asset quality and economic proxies are insignificant variables to describe bank profitability measured by NIM.

Poudel and Sapkota (2021) study "Determinants of Bank Profitability: Empirical Evidence from Nepalese Commercial Banks". This study examines the factors that determine the profitability of Nepalese commercial banks using data from 14 banks over a period of five years (2014-2018). The authors find that bank size, loan-to-deposit ratio, non-performing loan ratio, and liquidity are significant determinants of profitability.

Bhattacharai and Thapa (2022) “Bank-Specific and Macroeconomic Determinants of Commercial Bank Profitability in Nepal”. This study investigates the determinants of commercial bank profitability in Nepal using data from 14 banks for the period of 2012-2019. The authors find that bank size, capital adequacy ratio, loan-to-deposit ratio, cost efficiency, and GDP growth are significant determinants of profitability.

### **2.2.2 Review of Previous Theses**

Thapa (2009) had completed a thesis entitled “*A financial performance of five banks in Nepal*” (SCBL, NICA, EBL, EBL & NIBL) with the objective of analyzing and comparing liquidity, profitability, stability and market value position among top five commercial banks and to examine show the performance position of commercial banks in Nepal. In the study, he found that expect SCBNL, all remaining bank had been maintaining lower capital adequacy ratio as per the directive of central bank. SCBNL is successful to generate cheaper fund, which has helped SCBNL to perform better. Moreover, NICA and SCBNL having higher Capital Adequacy Ratio has managed to produce higher ROA.

Nakarmi (2010) conducted thesis research on the topic “*non-performing assets and profitability of commercial banks in Nepal.*” He found that the correlation coefficient between NPA and ROA mostly came out to be negative. This shows that increase in profitability is affected by the amount on Non-Performing Assets. These finding supports the theory that, higher the NPA lower will be the ROA and vice-versa. Maharjan (2010) completed the study entitled “*A comparative study of financial performance of commercial banks*” (with reference to EBL, NIBL and EBL) an unpublished master level thesis submitted to Shanker Dev Campus, Faculty of Management, T.U.

Nyanga (2012) studied about determinants of financial performance of commercial banks. For the study purpose 8 banks were taken as sample out of total 43 listed banks for the period 2001-2010. The profitability was measured by ROA, ROE on the study.

The result indicated that capital adequacy and exchange rates were negatively correlated with ROE while liquidity, operating cost efficiency, size, risk, GDP, and inflation had a positive influence on ROE. Overall, the independent variables accounted for 95.3% of the variance in ROE. Further, the results revealed that exchange rate was negatively related

with ROA while capital adequacy, liquidity, operating cost efficiency, size, risk, GDP, and inflation had positive effects on ROA. It was noted that the independent variables accounted for 95.6% of the variance in ROA. However, none of these effects were significant at 5% level of confidence. None of the models was also significant at 5%.

Abebe (2014) study examined the determinants of financial performance of commercial banks in Ethiopia over the period 2002-2013. Thus, panel data for eight banks for twelve years was used for the analysis purpose. The profitability is measured by ROA, and NIM on the study, both capital structure and operating cost negatively and significantly affect performance measured by ROA and NIM. While income diversification significantly affects NIM, it has insignificant impact on ROA. Similarly, tax rate affect ROA negatively and significantly but related with NIM negatively and insignificantly. Moreover, inflation affect both ROA and NIM positively but insignificantly while GDP has insignificant effect on both ROA and NIM it is positively related with ROA but have negative impact on NIM. Furthermore, bank size has positive and significant impact on ROA and NIM.

Maharjan (2014) conducted study on the determinants of commercial bank profitability in context of top ten commercial banks of Nepal showed that there exist relationship between total assets and bank profitability. Total deposit total equity had inverse relationship with bank profitability. Loan has negative contribution in bank profitability. ROE had negative relationship with size, capital, loan and deposit but net interest margin had positive relation with respect to size capital while negative relation with loan and deposit.

Murerwa (2015) conducted thesis research on the topic “*Determinants of banks financial performance in developing economies: Evidence from Keyan commercial banks, Nepal* is also one of the developing countries like Kenya, the findings of the African developing country cab be relatable to Nepalese banking industry. Main objective of his thesis was to evaluate the macroeconomic factors which influence the financial performance of the commercial banks in Kenya. On the basis of his study, he concluded that industry specific factors are regarded as a critical pointer of the financial performance of the Kenyan commercial banks. External market structure indeed affects the financial performance of the Kenyan banks. Moreover, he argues that the impact posed macroeconomic factors on the financial performance is minimal.

Alemu (2015) studies about what factors effects on profitability of banks. For the study purpose survey research has been used and 8 banks were taken as sample for the period 2002-2013. The profitability was measured by only ROA on the study. The result indicated that the size of bank is positive and significant to profitability; capital adequacy is positive and significant at 1% significant level; liquidity risk and operational efficiency are negative and significant at 1% significance level; management efficiency is positive and was not statistically significant even at 10% significance level; employee efficiency is negative and was not statistically significant even at 10% significance level; funding cost is negative at 10% significance level; GDP is highly statistical significant and positive impact on ROA at 10% significance level; inflation and foreign exchange rate are positive but were not statistically significant.

Rai et al. (2015) studied entitled "*Determinants of financial performance in Nepalese financial institutions*" taking return on asset (ROA), return on equity (ROE) and net interest margin (NIM) as the dependent variables with capital adequacy ratio, assets quality, management efficiency, liquidity management, GDP growth rate and inflation were chosen as independent variables with the data of 2005 to 2014. They found the result that higher the capital adequacy ratio, management efficiency and liquidity management, higher would be the return on equity and return on assets. Likewise higher the GDP growth rate and inflation rate, higher would be the return on equity and return on assets. The study also indicates that higher the asset quality lower would be the return on equity and return on assets. The study also revealed that larger the capital adequacy ratio and assets quality, higher would be the net interest margin. It also shows that higher the management efficiency, liquidity management, GDP growth rate and inflation rate, higher would be the net interest margin.

Macharia (2016) studied the determinants of profitability performance of 43 registered commercial banks in Kenya. ROA represent the performance and for knowing what factors affect it, the study retrieved data from 2011 to 2016 and further analysis is done with the use of panel data regression model. The factors capital adequacy, and credit risk are significant and has negative correlation with bank profitability performance. The size of bank and operational efficiency negatively impact on bank profitability. The impact of liquidity is significant on profitability.

Dahal (2018) had completed a thesis entitled “*Impact of capital adequacy on the financial performance of commercial banks in Nepal*” (reference of NICA and NIB) his project analyses the impact of capital on the financial performance of the commercial banks by taking the reference of NICA and NIBL. This study provides evidence that supports the central banks give high consideration toward the minimum capital requirement of the commercial banks and to tightly monitor their operations while at the same time remaining profitable. It therefore shows what impact capital adequacy has on the profitability of the banks. This study also focused on whether commercial banks able to protect depositor or not. Total capital adequacy ratio and supplementary capital is major independent variable and ROA is dependent variable in this study. Through the regression analysis this study concludes that there is negative relationship between total capital adequacy ratio and ROA.

### Summary of related Articles and Thesis

<b>Author</b>	<b>Independent variable</b>	<b>Dependent variable</b>	<b>Sample size/method</b>	<b>Finding</b>
Masood and Sharf, 2012	Capital adequacy, Assets, Liquidity, Deposits	ROA, ROE	Balanced panel data regression model, 25 banks	Banks with large asset size lead to a greater return on assets.

Bentum, 2012	Determinants of profitability of commercial banks	Profitability	Statistical services annual report	All internal variables influence profitability of commercial banks.
Dore, 2013	Capital adequacy, Liquidity	Profitability	Unbalanced panel	Commercial banks are positively related with bank-specific variables.
Bilal, 2013	Deposit to asset, Capital ratio	ROA, ROE	Multiple Regression	Capital ratio has a significant positive relationship with ROE only.
Roman and Danuletiu, 2013	Ratio of liquid assets to total assets	Profitability	Balanced panel data multiple regression model, 15 banks	The capital ratio of loan to total assets has no significant impact upon profitability.
Ezra, 2013	Determinants of commercial banks profitability in sub-Saharan Africa	Profitability	Unbalanced panel	The bank's level of variables such as capital adequacy and growth in bank deposits have an influence on bank profitability.
Lipunga, 2014	Capital adequacy, Liquidity	ROA	Multivariate regression and correlation analysis, size of the bank	Size of the bank and capital adequacy, liquidity had a significant impact.
Frederick, 2015	Capital adequacy	ROA, ROE	Linear multiple regression analysis	Capital adequacy has a negative impact on the performance of

				domestic commercial banks.
Alemu, 2015	Bank size	Profitability	Multiple Regression	The size of the bank is positively and significantly related to profitability.
Pradhan and Shrestha, 2016	Capital adequacy, Credit risk, Size of bank	ROA, ROE	Cross-sectional analysis, 15 commercial banks	Capital adequacy was positively related to ROA. All bank-specific factors are significant factors in the case of Nepal.
Maharjan, 2016	Capital adequacy, Credit risk, Liquidity	ROA, ROE, Net interest	Secondary database, 19 banks	ROA and ROE are positively related to capital adequacy.
Maiti and Jana, 2017	Business per employee, Profit per employee, Net interest margin	ROA, ROE	Panel regression, 5 commercial banks	Capital to risk-weighted assets ratio (CRAR) has a significant relationship with ROA. Net non-performing assets ratio (NNPAR) has a significant negative relationship with ROA for all banks.
Serwadda, 2018	Capital adequacy ratio, liquidity risk, net interest margin, bank	Profitability	Panel regression model, 26 commercial banks	The bank size and asset quality are bank-specific factors that have the biggest impact on commercial banks' profitability in Hungary

	size, overhead costs and non-performing loans			for the period under investigation.
Islam and Rana, 2019	Earnings management efficiency, Asset's structure, Asset's equity, Capital structure, Liquidity	ROA, ROE, NIM	Panel data, 23 commercial banks	Earning variables (TIN, NII) and asset structure (DPST) have a significant positive relationship with ROA, and asset quality (NPL) has significant negative impact on ROA. For ROE, earning (TIN and NII) and capital strength.
Neupane 2020	Bank size Capital adequacy Loan Deposit	ROA, ROE	Panel data regression, 20 commercial banks	ROA for Nepalese commercial banks is significantly affected by external factors, including concentration ratio, banking sector development, GDP growth, inflation, and exchange rate. NIM is influenced by capital adequacy, branches, and inflation.
Poudel and Sapkota (2021)	Bank size, Loan-to-Deposit Ratio, Non-Performing	Profitability	Ordinary Least Squares. 14 Nepalese commercial banks, 5-year	Bank size, Loan-to-Deposit Ratio, Non-Performing Loan Ratio, and Liquidity are

	Loan Ratio, Liquidity		period (2014-2018)	significant determinants of profitability.
Bhattarai and Thapa (2022)	Bank size, Capital Adequacy Ratio, Loan-to-Deposit Ratio, Cost Efficiency, GDP Growth	Profitability	Panel data regression, 14 Nepalese commercial banks, 8-year period (2012-2019)	Bank size, Capital Adequacy Ratio, Loan-to-Deposit Ratio, Cost Efficiency, and GDP Growth are significant determinants of profitability.
Bhattarai and Thapa (2023)	Adoption of Digital Banking Services	Profitability	14 Nepalese commercial banks, 5-year period (2015-2022), Ordinary Least Squares	Adoption of Digital Banking Services has a positive impact on bank profitability, particularly through the reduction of operational costs and the improvement of customer satisfaction.

## 2.4 Research Gap

The review of literature has revealed that bank profitability performance can be influenced by bank-specific factors and external factors. Correspondingly, in the literature, the bank profitability is usually expressed as a function of internal and external determinants. Various studies have been made in different countries regarding these variables. The most important internal determinant that are affecting performance include capital adequacy, bank size, loan loss provision, liquidity, cost per loan, loan and advance and cash reserve ratio.

Banks strength plays an important role in the stability and growth of economy. And the stability of banks depends on the profitability of banks. A study of previous research

relating the profitability of banks has made us aware of lacking conclusion of relationship between bank specific as well as external economic indicators and profitability of commercial banks.

Thus, the research tried to examine the impact of these internal and external factors on the profitability performance of commercial banks on Nepal. It identifies the relationship between the capital adequacy, non-performing loan, operational efficiency and external factor GDP with banks profitability indicators return on asset (ROA), return on equity (ROE). The research fills the gaps below that exist in the banking industry in Nepal.

Academic (literature) gap, the studies made in the Nepal rarely consider variable like GDP in relation with performance of the banks, however done well in different countries. In the previous studies on determinants of profitability performance of Nepalese commercial banks does not use ROE as a performance indicator. This study examines the impact of these indicator on both profitability indicator ROA and ROE. Therefore, the research serves as additional complement as reflecting the Nepalese commercial banking industry context.

### **CHAPTER III**

## **RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter provides a detailed overview of the research methodology which refers to the research process and the procedures used by the researcher to collect and analyses the data collected from the field in the study. This chapter includes research design, target population, sampling method used, data collection instrument and procedure and analysis, interpretation and presentation.

### **3.2 Research Design**

The research study conducted in Nepal to investigate the determinants of commercial bank profitability used both descriptive research design, which helped gather detailed and accurate information on the phenomena under investigation, and correlational and causal comparative research design, which helped establish relationships between different factors affecting profitability. Descriptive research design was particularly useful in drawing valid and general conclusions from the data collected. Overall, the study aimed to identify the key factors that influence the profitability of commercial banks in Nepal.

### **3.3 Population and Sample**

On the basis of non-merger and acquisition only 6 top ten banks were selected based on convenience sampling. The list of six commercial banks that was selected for the study purpose were in the table.

**Table 3.1 List of selected six commercial banks of Nepal**

<b>S. No.</b>	<b>Name of Bank</b>
1.	Everest Bank Limited
2.	Nepal SBI Bank Limited
3.	Nepal Bank Limited
4.	Nic Asia Bank Limited
5.	Laxmi Bank Limited
6.	Machhapuchchhre Bank Limited

### **3.4 Data Collection Procedure**

This research examined determinants of profitability of commercial banks. For this purpose, secondary data were used, based on the information collected from the financial statement of the selected banks over the period 2016 to 2022.

### **3.5 Data Variables**

This study used internal variables which may affect the profitability of the Nepalese commercial bank. A brief note on those used variables was as follows.

#### **3.5.1 Capital Adequacy**

Capital adequacy is one of the elements that indicate the measurement of financial strength of a bank. It is the capital position of the bank which somewhat assure depositors that they will be compensated if any failure occurs. The capital adequacy ratio here is extracted from annual report which is calculated as the ratio of regulatory capital (tier I+tier II) to total risk weighted assets. The formula for the calculation is as bellow.

$$CAR = \frac{(TierI + TierII)Capital}{TotalRiskWeightedAssets}$$

#### **3.5.2 Loan**

Kagan (2020), the term loan refers to a type of credit vehicle in which a sum of money is lent to another party in exchange for future repayment of the value or principal amount. In many cases, the lender also adds interest and/or finance charges to the principal value which the borrower must repay in addition to the principal balance. Loans may be for a specific, one-time amount, or they may be available as an open-ended line of credit up to a specified limit. Loans come in many different forms including secured, unsecured, commercial, and personal loans.

Loan is the main income source of a bank. Loan here is considered as the ratio of total loan to total assets as such data could be easily available from the balance sheet of a bank.

### **3.5.3 Deposit**

Reviewed by Kharit (2020), deposit is a financial term that means money held at a bank. A deposit is a transaction involving a transfer of money to another party for safekeeping. However, a deposit can refer to a portion of money used as security or collateral for the delivery of a good.

The deposit is considered as the liability for a bank. For this study purpose deposit is calculated as the ratio of total deposit to total assets. This deposit figure is extracted from balance sheet.

### **3.5.6 Return on Assets**

James (2021), Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives a manager, investor, or analyst an idea as to how efficient a company's management is at using its assets to generate earnings. Return on assets is displayed as a percentage; the higher the ROA the better.

It is the ratio of net income to total assets. It reveals the management efficiency of a bank in transforming assets into earnings. It measures profitability of a bank therefore; it is important measure for this study.

### **3.5.7 Return on Equity**

Fernando (2020) Return on equity (ROE) is a measure of financial performance calculated by dividing net income by shareholders' equity. Because shareholders' equity is equal to a company's assets minus its debt, ROE is considered the return on net assets. ROE is considered a measure of the profitability of a corporation in relation to stockholders' equity.

It is the ratio of net income to shareholder equity. It shows the management efficiency in using shareholder's money.

## **3.6 Data Analysis Tools and Techniques**

The financial and statistical tools were applied in order to examine and compare the impact of independent variable on the depend variables. MS-excel and SPSS software were used

for data calculation and analysis. The regression model was used to examine the data. The Pearson correlation coefficient was used to examine the correlation between the study variables at 5% level of confidence.

### 3.6.1 Financial Tools

Ratios are the most commonly used financial tools which will be used in this study as well. These ratios help in simplifying the annual reports data into more understanding view point which aid in predicting the future and knowing the present. The ratios that will be used on this study are below in the table.

**Table 3.2 Financial tools**

<b>Bank-Specific</b>	<b>Variable</b>	<b>Measure</b>
Dependent Variable	Profitability	ROA=Net income/Total Assets
		ROE= Net Income/Shareholder equity
Independent Variable	Capital Adequacy	CAR= TierI + Tier II/Total Risk Weighted assets
	Loan	LTAR= Total Loan/Total Assets
	Deposit	DTAR= Total Deposit/Total Assets

### 3.6.2 Statistical Tools

- i. Mean
- ii. Standard deviation
- iii. Coefficient of variation
- iv. Correlation
- v. Regression

#### **Arithmetic Mean**

An arithmetic mean is the value, which represents the group of values and gives an idea about the central part of the distribution. An average gives us a point which is most

representative of the data. It is sum of all the observations divided by the number of observations.

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

Where,

$\bar{X}$  = Mean,

$\sum X$  = Sum of all observations, N = Number of observations

Mean implies average and it is the sum of a set of data divided by the number of data. Mean can prove to be an effective tool when comparing different sets of data. It is an important measure because it incorporates the score from every subject in the research study

### **Standard Deviation**

Standard deviation is a statistical measure of the variability of a distribution of return around its mean. It is the square root of the variance and measure the unsystematic risk. A small standard deviation means a high degree of uniformity of the observation.

It is denoted by Greek letter called sigma( $\sigma$ ).

$$\text{Standard deviation}(\sigma) = \sqrt{\frac{\sum(X-\bar{X})^2}{N-1}}$$

Where,

$\sigma$  = Standard deviation,

$\bar{X}$  = Mean

N = Number of observations

## Correlation Coefficient

Correlation coefficient is a relative measure of co-movements between variables. It is the measurement of linear relationship between two or more variables. It values linear relationship between two or more variables. It values lie between -1 to +1.

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

r = coefficient of correlation

$\sum XY$  = Sum of two variables

$\sum X^2$  = Sum of squared of X variables  $\sum Y^2$  = Sum of squared of Y variables n = Sample size

## Regression

The statistical technique which studies the average relationship between two or more variables in terms of original unit of data is called regression analysis. The simple regression analysis describes the average relationship between only two variables. It measures per unit change. The multiple regressions are a logical extension of the simple linear regression analysis. Instead of single independent variable, two or more independent variables are used to estimate the unknown values of a dependent variable.

The regression model is used in the analysis. The economic model for this study is given as:

$$Y = b_0 + bX_{it} + E_{it}$$

Where,

Y is dependent variable,  $b_0$  is the constant, b the coefficient of explanatory variables,  $X_{it}$  is the explanatory variable and  $E_{it}$  is error term.

By using the prescribed economic model, the impact of these internal indicators and external economic factors on performance of commercial banks will be estimated with the following regression equation.

$$ROA_{it} = b_0 + b_1 CAR_{it} + b_2 LTAR_{it} + b_3 DTAR_{it} + e_{it}$$

$$ROE_{it} = b_0 + b_1 CAR_{it} + b_2 LTAR_{it} + b_3 DTAR_{it} + e_{it}$$

Subscript I refers to firm I, subscript t refers to time/ year

Where,

$ROA_{it}$  = Return on assets

$ROE_{it}$  = Return on equity

$CAR_{it}$  = Capital adequacy ratio

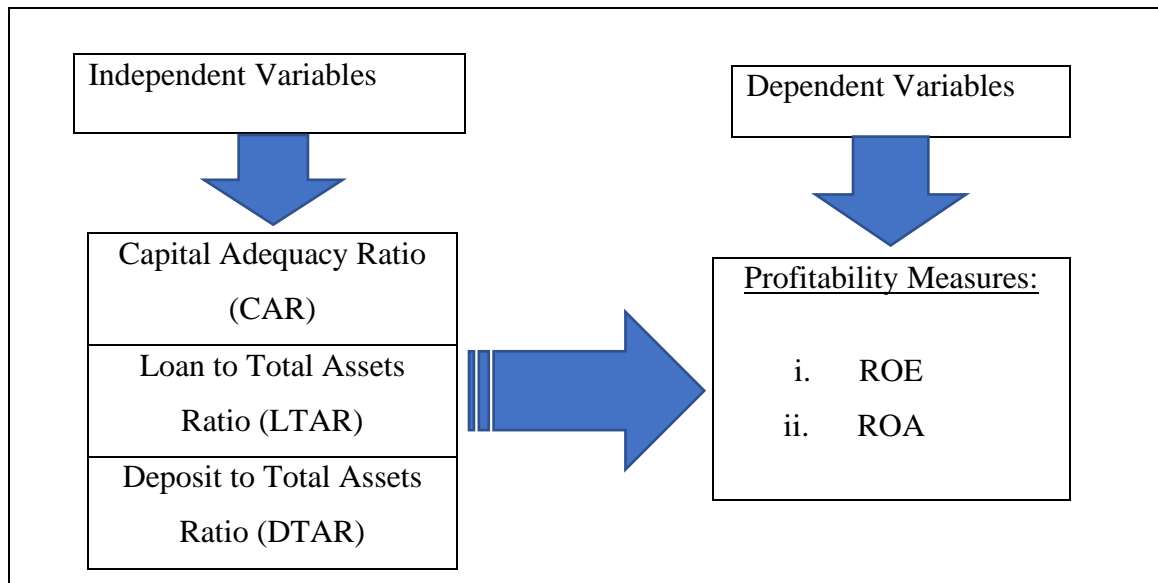
$LTAR_{it}$  = Loan to total assets ratio

$DTAR_{it}$  = Deposit to total assets ratio

$b_1, b_2, b_3, b_4, b_5$  = the slope which represent the degree with which bank performance changes by one unit variable.

### 3.7 Conceptual Framework

This portion of the thesis displays the relationship among the variables presented in the framework are selected after studying and having depth knowledge on the determinants of profitability performance of commercial banks through various related literature reviews. The study have been though mostly had used bank specific and macroeconomic variable for study purpose. The most common variable among those study were capital adequacy, non-performing loan and operational efficiency. Beside these there were GDP and many more. The environment and economy in which the banks are being growing mostly help to determine what factor influence on profitability performance of a bank. The conceptual framework diagram for this study is represented in the following figure.



**3.7.1 Fig: Conceptual framework**

### **Operational Definition of Variables:**

#### **Capital Adequacy**

Capital adequacy is regarded as one of the financial structures; it portrays how the banks' assets are funded and the ability of a bank to cover its assets (Hassan and Bashir, 2003). The capital adequacy ratio (CAR) is a measure of a bank's capital. It is expressed as a percentage of a bank's risk weighted credit exposures. Capital is one of the bank specific factors that influence the level of bank profitability. The primary purpose of bank capital adequacy requirements is to build a buffer against any risk (Fonseca and Gonzalez 2010). Over the last two decades, capital requirements have replaced reserve requirements as the main constraint on banks in order to prevent any systematic crisis and for depositors to monitor banks. Chami and Cosimano (2001) noted a decline in required reserves by the Federal Reserve in the US since 1990. Sellon and Weiner (1996) indicated a similar pattern in Germany, France, and Japan. There are no reserve requirements in Canada, Denmark, Sweden, Belgium, UK, and New Zealand (Wang 2005).

#### **Loan to Total Assets Ratio (LTAR)**

Loan to total assets ratio (LtAR) as an indicator of liquidity that reflects credit and shows the percentage of bank assets to total debt in a year (Sufian & Habibullah, 2010; Sufian,

2011). Loan to total assets ratio (LTAR) is ratio that used for measure the level of bank liquidity that shows the ability of banks to meet the demand for credit with total assets owned (Martono, 2004: 82). According to Rivai (2007), loan to total assets ratio (LTAR) is the ratio used to demonstrate the ability of banks to meet the demand for loans by using the total assets owned by banks. The higher this ratio the better the credit performance level because the greater the loan component given in the total structure of the assets. However, it has a negative effect on liquidity, because the higher this ratio means that existing funds are widely used for credit allocation and less for short- term liabilities. Loan to total asset s ratio (LTAR) can improve the quality of assets that have sufficient provisions against potential losses, or avoid the concentration of assets in one economic sector (Hassan & Bashir, 2002). According to Chronopoulos et al. (2013). Similarly, according to Saeed (2014) loan to total assets ratio (LTAR) is one source of income generated by the bank by dividing the total loan on total assets. LTAR is used to measure the ability of banks in the meet the demand for credit through the guarantee of a number of assets owned (Abdullah, 2003). Loan to total assets ratio (LTAR) is a comparison of how big credit which are given banks compared to the total assets owned by banks. The larger the credit is, the lower the credit risk that may be faced by credit that channelled funded with asset that owned. LTAR could be calculated by the following formula (Dendawijaya, 2005):

### **Deposit to Total Assets (DTAR)**

The findings of the study prove that there is no significant impact from deposits to total assets on profitability of commercial banks. This outcome contradicts with the research findings of Arif & Nauman Anees (2012) and Diamond & Rajan (2001), who conclude that there is a positive significant relationship between deposits and profitability of the banks.

### **Return on Assets (ROA)**

ROA shows the profits generated by asset values and decides how banks use investment resources throughout the year to generate profits (Sheeba, 2011). The performance of banks with ROA approach aims to show the level of efficiency of asset management performed by the bank concerned. ROA is an indicator of the ability of banks to earn a profit on a number of assets owned by banks (Frianto, 2012: 71). ROA measures the ability of bank management to generate revenue by utilizing the assets of the companies they have. In other

words, it shows how efficiently the company's resources are used to generate revenue which further indicates the efficiency of managing a company in generating net income from all institutional resources (Khrawish, 2011). According to Horne and Wachowicz (2005: 235) ROA measures the overall effectiveness in generating profits through available assets and the power to generate profits from invested capital. According to Ang and Robert (2007: 29) ROA is a ratio that measures the ability of the company over the overall funds invested in the activities used for the company's operating activities with the aim of generating profits by utilizing the assets they have. Munawir (2002: 269), return on assets (ROA) reflects how many companies have obtained the results of the financial resources invested in the company. Bank Indonesia Circular Letter no. 6/23 / DPNP Year 2004 Rating earnings (earnings) is measured by using return on asset ratio (ROA).

### **Return on Equity (ROE)**

ROE is one of the all-time favourites and perhaps most widely used overall measure of corporate financial performance (Rappaport 1986:31). This was confirmed by Monteiro (2006:3) who stated that ROE is perhaps the most important ratio an investor should consider. The fact that ROE represents the end result of structured financial ratio analysis, also called Du Pont analysis (Stowe, Robinson, Pinto & McLeavy, 2002:85; Correia, Flynn, Uliana & Wormald, 2003:5-19; Firer, Ross, Westerfield & Jordan, 2004:67) contributes towards its popularity among analysts, financial managers and shareholders alike.