**ASSETS AND LIABILITY MANAGEMENT AND ITS EFFECT ON COMMERCIAL BANKS PROFITABILITY**

**A Thesis**

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*In partial fulfillment of the requirement for the degree of*
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# RECOMMENDATION

This is to certify that the thesis

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**ASSETS AND LIABILITY MANAGEMENT AND ITS EFFECT ON**
**COMMERCIAL BANKS PROFITABILITY**

*has been prepared as approved by this Department in the prescribed format of the Faculty of Management. This thesis is forwarded for examination.*

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# VIVA-VOCE SHEET

We have conducted the viva – voce of the thesis presented

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*And found the thesis to be the original work of the student and written according to the prescribed format. We recommend the thesis to be accepted as partial fulfillment of the requirement for the degree of*

Master of Business Studies (M.B.S.).

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# DECLARATION

I hereby declare that this thesis work entitled "Assets and Liability Management and Its Effect on Commercial Banks Profitability*"* submitted to Office of the Dean, Faculty Management, Tribhuvan University, is my original work done in the form in partial fulfillment of the requirement for the degree of Master of Business Studies which is prepared under the supervision of respected supervisor Sagar Ranjit, of Public Youth Campus.

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# ACKNOWLEDGEMENTS

# TABLE OF CONTENTS

## CHAPTER I INTRODUCTION

## CHAPTER II REVIEW OF LITERATURE

## CHAPTER III RESEARCH METHODOLOGY

## CHAPTER IV DATA PRESENTATION AND ANALYSIS

## CHAPTER V SUMMARY, CONCLUSION AND RECOMMENDATIONS

# LIST OF TABLES

# LIST OF FIGURES

# ABBREVIATIONS

AGM        : Annual General Meeting

ALM        : Assets and Liability Management

BFI         : Bank and Financial Institution

B.S         : Bikram Sambat

EBL        : Everest Bank Limited

FA         : Fixed Assets

Fig.        : Figure

i.e.        : That is

HBL        : Himalayan Bank Limited

LA         : Loan and Advance

Ltd.        : Limited

MBS        : Master of Business Studies

NABIL     : Nabil Bank Limited

NII         : Net Interest Income

NRB        : Nepal Rastra Bank

OA         : Other Assets

OL         : Other Liabilities

SPSS      : Statistical Package for Social Sciences

TD         : Total Deposits

# CHAPTER I

# INTRODUCTION

## 1.1 Background of the Study

Managing risks associated with mismatches between assets and liabilities (also known as asset and liability management or ALM) is a process that is often abbreviated as ALM. The process is at a crossroads between risk management and strategic planning, and it is undergoing revision (Crockford, 1986). In addition to providing solutions to minimize or hedge the risks originating from the interplay of assets and liabilities, it is concerned with the long-term outlook: success in the process of maximizing assets to fulfil complicated obligations may result in increased profitability. Traditional ALM programmes have a strong emphasis on interest rate risk and liquidity risk since they are the most significant risks impacting an organization's financial position (as they require coordination between assets and liabilities).

Zawalinska, (1999) states asset and liability management (ALM) refers to the dynamic process of planning, organizing, coordinating, and regulating assets and liabilities, as well as their mixes, volumes, maturities, yields, and costs, in order to reach a defined net interest income (NII). In other words, it is concerned with the best allocation of assets in order to satisfy present objectives while also anticipating future obligations. It has to do with the management of risks connected with liquidity mismatches, interest rates, and fluctuations in foreign currency. Consequently, ALM is concerned with trying to match assets and liabilities in terms of maturity and interest rate sensitivity in order to reduce interest rate and liquidity risks. Fabozzi & Kanishi, (1991), state that institutions (banks, finance companies, leasing companies, insurance companies, and others) focus on asset-liability management when they face financial risks of different types. Asset liability management includes not only a formalization of this understanding, but also a way to quantify and manage these risks. Further, even in the absence of a formal asset liability management program, the understanding of these concepts is of value to an institution as it provides a truer picture of the risk/reward trade-off in which the institution is engaged.

Asset-liability management, in its most basic definition, refers to the process by which an organization maintains its balance sheet in order to accommodate different interest

rate and liquidity situations. Financial institutions such as banks and other financial institutions offer services that expose them to a variety of hazards including credit risk, interest rate risk, and liquidity risk. Asset-Liability Management (ALM) is the process of controlling the risks inherent in a corporation as a result of mismatches between assets and liabilities. Asset-liability management (ALM) is a strategy that provides institutions with the protection they need to make such risks acceptable to them. The asset-liability management approach is thus suited for institutions such as banks, financing companies, leasing firms, insurance firms, and others when they are confronted with financial risks of various forms, as is the case for most businesses. Asset-liability management encompasses not only a formalization of this concept, but also a method of quantifying and managing risks, which ultimately leads to improved returns and profits for the organization. Furthermore, even in the absence of a formal asset-liability management program, an institution's comprehension of these ideas is beneficial because it offers a realistic picture of the risk/reward trade-off in which the institution is involved.

The objective of ALM is to maintain a match in the terms of rate sensitive assets (those assets that will move in search of the most competitive interest rates) with their funding sources (savings, deposits, equity, and external credit) in order to reduce interest rate risk while maximizing profitability. Interest rate risk is defined as the risk that changes in the current market interest rates will adversely impact the institution's financial performance. For example, due to changes in the market a bank is forced to adjust the interest rate on deposits upward to remain competitive, but its earning assets are concentrated in long term, fixed-rate loans, and investments. Financial performance will be impaired because the institution cannot adjust its income earned on loans upward as fast as the cost of funds is increasing. Interest rate risk to some degree is unavoidable, but it is manageable. ALM allows for the quantifiable assessment and effective management of various risk categories. Even in the absence of a formal ALM program, the understanding of these concepts provides a picture of the risk/reward trade-off in which the financial institutions are engaged. The second step or requirement for the implementation of ALM is the development of an information system. The set of data alone is likely to provide valuable information about the degree of financial risk affecting the institution. The third step involves a design and

implementation of the ALM decision making process. The Asset Liability Committee (ALCO) usually carries out this process.

A healthy, progressive, and dynamic financial system is a necessary but not sufficient condition for economic growth. Economic growth and prosperity are supported by the tertiary sector of an economy, which includes commercial banks, which operate as a catalyst in the process of development. Commercial banks are a critical component of the financial sector. The money that have been raised are put to use for constructive objectives in agriculture, industry, and commerce (Vossen, 2010). Since the Great inflation of the 1930s and the 1940s, financial performance monitoring of commercial banks has piqued the attention of academic researchers.

Asset liability management helps the organization balance its assets and liabilities. This reduces financial risks and increases profitability. The firm's asset liability management drives investment decisions. Because the company can allocate adequate money for investment due to optimal liquidity management methods (Uyemura & Van Deventer, 2003). According to Uyemura (2003), companies that maintain a correct balance sheet structure are more profitable than those that do not. Since no risk can be removed, it is the job of risk managers to determine their risk levels and know which level can be managed or accepted. Good asset liability management techniques help financial organizations to better allocate assets and identify financial opportunities and risks. Asset liability management is important for any organization that invests to satisfy future cash flow and capital demands.

The basic purpose of asset-liability management is to provide a high quality, steady, sizable, and rising source of net interest income. These four aims are attained by reaching the highest mix and degree of assets, obligations and financial risk. Asset Liability Management demands for the awareness of the interplay between the different forms of risks to guarantee that they are not assessed in isolation. The basic purpose of asset-liability management is to provide a high quality, steady, sizable, and rising source of net interest income. This aim is attained by reaching the highest mix and degree of assets, obligations and financial risk. Asset Liability Management demands for the awareness of the interplay between the different forms of risks to guarantee that they are not assessed in isolation.

## 1.2 Statement of Problems

The issue of jointly managing assets and liabilities arises in a number of industries, such as banking, insurance, and pension funds, as well as at the level of individual households. The definitions of assets, liabilities, and risks are specific to each institution, but, very generally, assets may be viewed as expected cash inflows, and liabilities as expected cash outflows. Although short-term risks arising from the possibility that an institution's assets will not cover its short-term obligations are important to assess and quantify, ALM is usually conducted from a long-term perspective. It therefore suffices to say that, ALM is considered a strategic discipline that influences the financial performance as opposed to a tactical one to take market position (Choudhry, 2007).

In so far as the importance of the above discourse is concerned, ALM is an integral as it is a significant component/determinant of financial performance of any financial institution especially the commercial banks. ALM has its pros and cons that cannot go unmentioned if a balanced and scholarly approach is to be achieved in this research. He says that some of the challenges of ALM include but are not limited to; Firstly, each client has their particular objectives, risk tolerances, and constraints, and it would be difficult to devise an optimization algorithm that would realistically account for these specific characteristics when evaluating portfolio allocation decisions. Secondly, long term strategic decisions depend on factors whose forecasts may not be readily available to the bank. Thirdly, risk preferences and their changes over time must be translated into mathematical language, which is far from trivial (Romanyuk, 2010).

Deloof (2003) investigated the relationship between asset liability management and the profitability of Belgian services organizations in this research. A significant relationship was discovered between asset liability management and profitability, according to the findings of the study. Chakraborty (2008) looked at the link between asset liability and profitability in Indian pharmaceutical enterprises. The data showed that there was a statistically significant positive association between the asset liability and the profitability of the pharmaceutical companies involved. Belete (2013) investigated the link between asset liability management and the profitability of commercial banks in Ethiopia. As a consequence of the findings, commercial banks'

assets were shown to have a positive relationship with their profitability. In a similar vein, it was discovered that liabilities had a statistically significant negative association with the profitability of the bank.

Finally, a reasonable ALM model must put all of its different components (assets, liabilities, goals, institutional and policy constraints, etc.) together in a meaningful manner, which is difficult. Conversely, ALM has benefits whose real value far outweighs any of the aforementioned challenges. Firstly, an understanding of the company's overall position in terms of its obligations; comprehensive strategic management and investment in view of liabilities; the ability to quantify risks and risk preferences in the ALM process; better preparation for future uncertainties; and, ideally, gains in efficiency and performance from the integration of asset and liability management. If an ALM framework is well done and implemented, banks would make great and sustainable profitability and growth trends going by the value of the aforementioned benefits. It suffices to authoritatively say that proper formulation and implementation of ALM concept would spur profitability. The present study attempts to evaluate the changing perspectives of the Nepalese commercial banks in identifying and facing the risk and maintaining asset quality so as to ensure profitability with the help of the Asset Liability Management techniques. This study also tries to assess the effectiveness of Asset Liability Management as a strategy vital to the progress and development of Nepalese commercial banks. Mainly the following questions were raised:

- What is the present situations of deposits, other liabilities, loan and advance, fixed assets, other assets and ROA of sample commercial banks?
- What is the relationship between deposits, other liabilities, loan and advance, fixed assets, other assets and ROA of sample commercial banks?
- What is the effect of deposits, other liabilities, loan and advance, fixed assets, other assets and ROA of sample commercial banks?

## 1.3 Objective of the study

The main objective of the present study is to examine the effect of assets and liability management on profitability of sample commercial Banks. The other specific objectives of the study were as follows.

- To access the present position of a deposits, other liabilities, loan and advance, fixed assets, other assets and ROA of sample commercial banks.
- To examine the relationship between deposits, other liabilities, loan and advance, fixed assets, other assets and ROA of sample commercial banks.
- To analyze the effect of deposits, other liabilities, loan and advance, fixed assets, other assets on ROA of sample commercial banks.

## 1.4 Significance of the study

A better knowledge of the best practices in risk management in the banking sector and economic climate is gained via this research. This research will also benefit other financial institutions by providing them with insights on how to manage risks by maintaining a correct balance between assets and liabilities. The findings of this research are likely to assist banks in better understanding the idea of asset liability management and in determining the degree to which it has been used as a risk management tool. Because of the liberalization of the interest rate regime, asset liability management has become more crucial for the banking sector in the current environment. It aids in the assessment of hazards and the management of risks via the implementation of suitable measures. As a result, this subject has been chosen in order to better understand the Asset Liability Management process and the numerous tactics that may be used by banks to control their liquidity risk. So, it would be useful to expand my understanding of the Asset Liability Management method, functions, and impact on the liquidity risk in commercial banks, which would be beneficial.

## 1.5 Limitations of the study

This study confines only the effect of assets and liability management on profitability of Himalayan Bank Limited, Everest Bank Limited and Nabil Bank Limited. So, the limitations of the study are as:

- The study focused on the effect of assets and liability management of HBL, EBL and NABIL Bank.
- The study covered the related data of the banks of ten accounting period only from the FY 2011/12 to 2020/21.
- The study was based on secondary sources of data.
- Only few financial and statistical tools were used in the analysis.

## 1.6 Organization of the study

This study has been divided into five chapters, which are as follows.

**Chapter I:** Introduction it includes general introduction, statement of the problem, objective of the study, scope of the study, limitation and organization of the study itself.

**Chapter II:** Review of literature: It includes review of books, articles, research papers, previous research works and research gap.

**Chapter III:** It covers on research design, population and sample, source of data, methods of analysis.

**Chapter IV:** This chapter attempts to analyze and evaluate data with the help of analytical tools procedure and interprets the result obtained. This chapter will highlight the major finding of the study work.

**Chapter V:** It sums up the results obtained through analysis summary, conclusion and recommendations. At last bibliography and appendix are also included.

# CHAPTER II
# REVIEW OF LITERATURE

A review of the literature serves as the foundation for research by assisting in the selection of the most appropriate research methodology for the research topic. Researchers, as well as you, the reader, and we, as authors, must first establish a concrete frame of reference before proceeding on their search journey. Through the identification of essential topics in asset and liability management as well as relevant ideas in asset and liability management, the literature evaluation aids in the development of a framework for the research. As a result, this part includes numerous sections, including a definition and idea of asset and liability management, a theoretical examination of asset and liability management, and empirical research on the impact of asset and liability management on profitability.

## 2.1 Conceptual Review

When it comes to the United States, the origins of asset and liability management may be traced back to the high interest rate years of 1975-76, as well as the late 1970s and early 1980s in Europe (Van & Mesler, 2004). With the rise in interest rate volatility, inflation, and a severe recession that affected several economies in the mid-1970s, banks began to place greater emphasis on the management of both sides of the balance sheet, which has continued to this day. ALM is defined as the process by which a financial institution maintains its balance sheet in order to accommodate different interest rate and liquidity situations. A bank's risk management practice is concerned with the management of risks that arise as a result of mismatches between the bank's assets and liabilities. Managing assets and liabilities is a strategy that equips organizations with the tools they need to manage risk in a reasonable manner. While the short-term goal of asset liability management in a commercial bank is to ensure liquidity while protecting earnings, the long-term goal is to maximize the economic value of a commercial bank, which is defined as the present value of the commercial bank's expected net cash flows, which is defined as the expected cash flows on assets minus the expected cash flows on liabilities plus the expected net cash flows on off balance sheet (OBS) positions (Basel Committee on Banking Supervision, 2006). In addition to maximizing profitability, ensuring structural liquidity, minimizing capital requirements, and ensuring robustness in market risk management.

### 2.1.1 Concept of Assets Liability Management

The management of assets and liabilities may be described as the strategic management of the balance sheet for the risk optimization of obligations and assets while taking into consideration all market risks, according to Angelopoulos et al. (2001). Asset liability management (ALM) is a comprehensive and dynamic framework that is used to assess, monitor, and manage the market risk of a financial institution (such as a bank or credit union). A balance sheet structure that is managed in such a way that the net profits from interest are maximized within the overall risk-preference of the company is known as interest rate risk management. The management of assets and liabilities aims to optimize profits after adjusting for risk, in order to maximize returns for long-term investors. The asset-liability management function, according to Uyemura (2003), is a cost profit function that takes into consideration the bank's expected risk, level of profits, and liquidity. In addition to serving as a risk management approach, asset and liability management is also significant because it allows for the achievement of a sufficient return while preserving a comfortable excess of assets over and above the obligations. It is sometimes referred to as excess management since it takes into account factors such as interest rates, earning capacity, and the degree to which a person is ready to take on debt.

Because banks mainly function as a channel for bridging the gap between surplus and deficit units in an economy, they are very important entities that aid in the achievement of socioeconomic activities conducted by people, businesses, and even sovereign nations (Kamoyo et al., 2012). The relevance of bank financial performance may be assessed at both the micro and macroeconomic levels of the economy, depending on the circumstances. Profit is the most important precondition for a competitive financial organization and the most cost-effective source of money at the microeconomic level. An economically viable and profitable banking sector is better equipped to resist negative shocks and contribute to the stability of the financial system at the macroeconomic level (Aburime,2008). One of the most essential variables impacting a country's constant economic growth is the effectiveness and dependability of its banking system (Miletic,2009).

According to Oguzsoy and Guven (1997), risk management is concerned with supporting banks in achieving a balance between risks and profitability; this is accomplished by a correct match between assets and liabilities. The company is in a position to satisfy its short-term commitments on time and to engage in successful enterprises as well. The purpose of ALM is not just to defend the organization from risk. The increased security provided by ALM also opens the door to new chances for increasing net worth. Interest rate risk (IRR) is a significant source of concern for a bank's net interest revenue and, therefore, its profitability. If there is a considerable mismatch between the asset and liability interest rate reset dates, changes in interest rates may have a major impact on a bank's net interest income (NII), which can be significant. Changes in interest rates have an impact on the market value of a bank's equity as well as its debt. Asset liability management will be assessed using credit risk, which is calculated by dividing loan loss reserve by the total amount of assets and liabilities at risk (Moore, 2006). The management of assets and liabilities can be defined as the strategic management of the balance sheet for risk optimization of liabilities and assets taking into account all market risks. Asset liability management is comprehensive and dynamic framework used to measure, monitor and manage the market risk of a bank. It is the management of structure of balance sheet in such a manner that the net earnings from interest is maximized within the overall risk-preference of the firm (Angelopoulos, et.al., 2001).

The management of assets and liabilities seeks to maximize earnings, adjusted for risk, given the long-term shareholders. Asset-liability management is a cost profit function which takes into account the assumed risk, level of earnings and liquidity of the bank (Uyemura, 2003). The management of asset and liabilities is important because it acts as a risk management technique designed to earn an adequate return while maintaining a comfortable surplus of assets beyond liabilities. It takes into consideration interest rates, earning power, and degree of willingness to take on debt and hence is also known as surplus management. The management of risk aims at assisting the banks to achieve a balance between risks and profitability; this is realized through a proper match of assets and liabilities. The firm is able to meet its short-term obligations when due and also invest in profitable ventures.

The short-term objective of ALM in a commercial bank is to ensure liquidity while protecting the earnings and the long-term goal is to maximize the economic value of the bank i.e., "the present value of commercial bank's expected net cash flows, defined as the expected cash flows on assets minus the expected cash flows on liabilities plus the expected net cash flows on off balance sheet (OBS) positions. (Basel Committee on Banking Supervision, 2006). Other objectives of ALM are maximizing profitability, ensuring structural liquidity, minimizing of capital and ensuring robustness in market risk management. ALM is based on 3 basic pillars. ALM is defined as managing both assets and liabilities simultaneously for the purpose of minimizing the adverse impact of interest rate movement, providing liquidity and enhancing the market value of equity. It is also defined as "planning procedure which accounts for all assets and liabilities of a bank by rate, amount and maturity. Generally, asset liability management is managing the asset liability mix to minimize the risk. (Singh, 2013).

### 2.1.2 Assets Liability Management Process

When it comes to financial asset and liability management (ALM), it is the process of determining the quantities of assets and liabilities as well as their maturities, rates, and yields in order to reduce interest rate risk and maintain a reasonable level of profitability. ALM is, to put it another way, another kind of planning. Management may be proactive and anticipate change rather than being reactive to unforeseen change as a result of using this tool. Given the critical role that market and credit risk play in a financial institution's main business, the success of the institution depends on its ability to detect, analyze, monitor, and manage these risks in a sound and competent manner" (Rowe, et.al., 2004). ALM is a systematic method that seeks to give some level of protection against the risk emerging from a mismatch between an organization's assets and liabilities.

### 2.1.3 Assets Liability Management Organization

In any company, the Board of Directors would be in charge of overall responsibility for ALM and would be responsible for establishing the business's philosophy in this regard. The Asset Liability Committee (ALCO) is in charge of deciding on business strategies that are compatible with the rules in place and putting such plans into action. ALCO is typically comprised of the company's senior management, which includes the Chief Executive Officer (Satishchandra & Pralhad, 2006). The Asset-Liability Committee

(ALCO), which should be comprised of the bank's senior management, including the CEO, should be responsible for adhering to the limits established by the board of directors as well as for determining the bank's business strategy in accordance with the bank's budget and previously established risk management goals. It is the ALCO's decision-making unit that is responsible for balance sheet planning from a risk-return perspective, which includes interest and liquidity risk management on a strategic level. For example, consider the process of approving a loan. When a borrower approaches a bank, the credit department evaluates the borrower based on a variety of factors, including industry prospects, operational efficiency, financial efficiency, management evaluation, and other factors that have an impact on the client company's operations and performance. The borrower is charged a set rate of interest in order to cover the credit risk based on the results of this assessment. It goes without saying that there will be a particular credit assessment cut-off point beyond which the bank would not lend. The ALCO meetings are where the parameters for the loan sanctioning system are defined, as well as the aims and goals that have been established.

### 2.1.4 Need for ALM in Banking

The Changes in the financial markets as a result of international players gaining access to the local market, as well as the risks connected with the activities of banks, have grown more complicated. Now, in order to run banks effectively, management must use strategic management techniques. As a result of increasing competition after the entrance of foreign banks, which has resulted in more variable interest rates and currency rates, banks are under pressure to structure their asset liability portfolios in such a manner that the risk in the portfolio is reduced. Banks' management must maintain a healthy balance between the gap, profitability, and stability of the institution. The management of market liquidity risk and interest rate risk are the most critical tasks for bank executives. As a result, banks need a framework that allows them to battle these risks while also assisting them in optimizing the performance of their institutions. In this situation, ALM is a highly useful and beneficial instrument for analyzing the performance of financial institutions (Kumar & Dhar, 2014).

The Basel Committee on Banking Supervision is a group of banking regulators in Switzerland (2001) which proposed and created a wide supervisory framework, as well as specified necessary requirements for incorporating best practices into the banking

system's oversight mechanism. With this initiative, the goal was to promote global convergence toward uniform methods and standards for the financial system. This group also recommended the establishment of stringent risk and capital management rules in order to provide an appropriate capital reserve for the numerous risks that may be exposed throughout the course of lending and borrowing activities. It implies that banks must hold a higher level of capital to compensate for their increased risk exposure. This will secure the solvency and stability of the system. The Basel II rules (2004) established a worldwide standard for the amount of capital that banks should hold as a precaution against the different risks that they may encounter when doing business in the banking industry. According to Basel II, strict risk and capital management rules should be established in order to guarantee that a bank maintains capital reserves that are proportional to the level of risk that the bank exposes itself to via its lending and investing operations. Thus, the bigger the amount of risk to which a financial institution is subjected, the greater the quantity of capital the financial institution must maintain to secure its solvency and long-term stability (Singh, 2013).

### 2.1.5 The Evolution of ALM

The origins of asset and liability management may be traced back to the high interest rate years of 1975-76, as well as the late 1970s and early 1980s in Europe (Van Deventer, et.al., 2004). With the rise in interest rate volatility, inflation, and a severe recession that affected various countries in the mid-1970s, banks began to place more emphasis on the management of both sides of the balance sheet, which has continued to this day. It was during the 1980s that a coordinated method to managing the complete balance sheet of commercial banks, rather than a piecemeal one, was created. Product growth, globalization of the money and capital markets, and changes in legislation made the management of assets and obligations even more difficult in the 1990s, as shown by the following: ALM began as a simple method of gap management to close the gap between interest-sensitive assets and liabilities, as well as the gap between market value of assets and liabilities. Over time, it evolved into a duration model that took into account the emergence of derivatives activities and asset securitization within its framework. After starting with the simple concept of matching assets and liabilities based on their maturities over different time horizons, asset liability management has evolved to include more sophisticated concepts such as duration matching and variable rate pricing, as well as the use of both static and dynamic simulation.

ALM was first used by financial institutions in the United States, but it has now extended to other parts of the world. During the 1940s and 1950s, commercial banks had an oversupply of cash in the form of demand and savings accounts, which helped the economy to grow. Because of the cheap cost of deposits, commercial banks were forced to devise procedures that would allow them to make more effective use of these money. As a result, the emphasis was mostly on asset management at the time. During the 1960s and early 1970s, the demand for loans had grown significantly, and the supply of low-cost capital had begun to dwindle. As a result, the emphasis of bank management operations shifted to liability management. To put it simply, liability management refers to the activity of purchasing money in order to finance successful lending possibilities (Gardner & Mills, 1994).

### 2.1.6 Monitoring the ALM in Banking

Managers of financial institutions must have effective liquidity management plans in place in order to successfully monitor the ALM position of their organizations. Identifying the core or stable deposit base of the institution and matching it with longer-term assets is critical for managers who want to decrease interest rate risk in their institutions. Investment securities such as stocks and bonds, certificates of deposit with early withdrawal penalties, retirement savings, savings for a specific purpose, and regular savings accounts with small balances are all examples of stable deposits. Managers must establish the amount or percentage of money in each form of savings account that may be used to support longer-term loans within each type of savings account. In order to cover financial expenditures, operational expenses, and contributions to capital, managers must be able to determine the bare minimum net margin (gross revenue less cost of funds). Everything mentioned above will be possible only if the institution has the following: (1) an effective management information system either manual or computerized that provides the necessary data; (2) formal, written liquidity and asset liability management policies; (3) tools in place to monitor liquidity, the institution's gap position, core deposits, and net margin; and (4) a commitment by both officials and managers to change both deposit and loan interest rates as demanded by the local market (Belty, 1994).

## 2.1.7 ALM Policy in Financial Institutions

Like other operational areas, ALM must be led by a clear policy, which must have been established and written by officials with the aid of senior management. Officials should evaluate the policy at least once a year and make any necessary revisions. ALM and liquidity policies may be implemented as two independent policies or as a single integrated policy. However, since choices on lending, investments, liabilities, and equity are all intertwined, it is impossible to write the ALM and liquidity rules in isolation. The ALM policy should address issues such as who is accountable for monitoring the institution's ALM posture and how the policy should be communicated. What tools will be used to monitor ALM will be discussed. What technologies will be used to keep track of ALM? (Belty, 1994). Liquidity management, which involves ensuring that the institution has enough cash and liquid assets on hand to satisfy withdrawal and disbursement requests as well as pay expenditures, is critical in the savings mobilization process. Another important component of savings mobilization is asset and liability management (ALM), which is the process of planning, organizing, and controlling asset and liability volumes, maturities, rates, and yields in order to minimize interest rate risk and maintain an acceptable profitability level. This is an extremely tight relationship between the two. An efficient liquidity and asset-liability management system is required by a savings institution in order to guarantee that low-cost funds are always accessible for depositors when they demand repayment of the cash they have placed.

## 2.1.8 Theories Related to ALM and Profitability

This section reviews the theories that support the relationship between asset-liability management and the profitability of firms.

### 2.1.8.1 The Portfolio Theory

It is possible that this theory will play a role in investing in a portfolio model of asset diversification to alleviate financial loss, because a clear portfolio will prevent the firm from financial loss because the risk is minimized by portfolio assets. However, this theory may have an impact on the liquidity position of a financial institution. A well-defined portfolio, on the other hand, avoids the business from suffering a complete loss since the risks are limited by the portfolio of assets in which the firm has invested. According to Black and colleagues (1972), the portfolio diversification and intended

portfolio composition of commercial banks are the outcome of choices made by the bank's management. To maximize profits, the bank's management must first determine a feasible set of assets and liabilities. Then it must determine how much it will have to spend on unit costs to produce each component of assets. This means that the bank can improve performance by limiting the volatility of its portfolio by spreading the risks among different types of securities that do not always behave in the same way.

In the opinion of Canner et al. (1997), the importance of this theory is that the company should maintain a suitable balance of assets and liabilities in order to satisfy its short-term and long-term financial obligations, respectively. It is necessary for the company to diversify its portfolios in order to reduce risks that might result in financial losses and have a negative influence on the liquidity position of a financial institution in order to preserve this balance. Important because each asset class has a distinct pattern of performance over time as a result of the specific balance of risk and reward associated with it. Historically, equities have provided a higher rate of return while simultaneously posing a greater risk. Bonds and cash are both generally considered to be lower-risk investments, and as a result, they offer more modest returns.

Modigliani and Miller (1958) argued that frequent rebalancing of a portfolio has been shown to greatly reduce the risk of the portfolio. A company that wants to reduce its risks should work toward putting up a portfolio of strategies to deal with the different threats. In order to avoid confusion, it is necessary to understand that investments in a portfolio may experience value changes as a result of changes in the external environment. This might have a detrimental impact on the overall balance of the asset portfolio allocation mix. Rebalancing should be done on a regular basis by the company in order to keep a suitable balance of your portfolio that can withstand fluctuations in the market. This implies that the company should consider selling the percentage of its assets that have amassed significant value in the meantime. Those funds may then be sued in order to acquire an underperforming portfolio of assets while keeping the original asset allocation mix in place.

### 2.1.8.2 The Assets-Liability Management Theory

Liability-management theory (LMT) has been in existence since the early 1960s, and it has had considerable impact on the loan portfolios of commercial banks. LMT is an

16

abbreviation for liability-management theory. This is one of the most prominent asset liability management ideas, and it asserts that it is no longer necessary to adhere to traditional ALM practices such as keeping liquid assets, liquid investments, and so on. Banks have been concentrating their efforts recently on the liabilities side of the balance sheet. Theoretically, banks may meet their ALM requirements by borrowing money and capital from the money and capital markets. It was this theory's key contribution to banking that it began to take into account both sides of a bank's balance sheet (Emmanuel, 1997). Banks now employ both assets and liabilities to satisfy their ALM requirements. The Asset and liability management committee of a bank analyzes the sources of ALM that are available and compares them to the bank's anticipated requirements (ALCO). Maintaining excellent asset quality and a robust capital base are important factors because they both lower the need for asset liability management and increase a bank's ability to obtain funds at a low cost. Between ALM and profitability, there is a short-term trade-off to be made. If management is effective in controlling ALM over the long term, long-term profitability will outperform those of rival banks, as would the capital (Koch & McDonald, 2003).

### 2.1.8.3 Capital Assets Pricing Model

The CAPM demonstrates that investors require high levels of expected returns to compensate for high levels of expected risk. However, it is now commonly acknowledged that, in the context of informational asymmetries and contract enforcement issues, the financial system will not always allocate resources to projects or enterprises with the best returns. Based on empirical data from mean-variance portfolio selection, simulation analysis, and out-of-sample portfolio performance, correcting for estimating error, especially in the means, may significantly enhance investment performance (Jobson et al, 1979). The model recommends that investors diversify their portfolios and anticipates that investors would hold a portion of the market portfolio. Furthermore, one key conclusion of the CAPM, often known as the efficient market's hypothesis, is that individuals without specialized financial expertise would be wise to purchase and keep diverse portfolios (Black, 1971).

### 2.1.8.4 Efficiency Hypothesis

The efficiency-structure (ES) hypothesis, which arose in response to criticism of the CPM hypothesis, is an alternative theory. According to the efficiency hypothesis, the

link between market structure and company performance is described by the firm's efficiency. Companies with better management or manufacturing technology have lower expenses and hence bigger profits. Within the ES, there are two separate approaches: the X-efficiency hypothesis and the Scale efficiency hypothesis. More efficient organizations are more profitable, according to the X-efficiency method, since they have lower expenses. Such enterprises tend to obtain bigger market shares, which may result in higher levels of market concentration, but there is no direct link between concentration and profitability. The scale approach stresses scale savings above differences in management or manufacturing technologies. Through economies of scale, larger enterprises may achieve lower unit costs and bigger profits. This allows huge enterprises to obtain market shares, which may result in greater concentration and, ultimately, profitability (Athanasoglou et al, 2006).

**2.1.8.5 Commercial Loan Theory**

According to the commercial loan or real bills doctrine hypothesis, which developed in England during the 18th century, a commercial bank should only provide short-term self-liquidating productive loans to businesses. This is because, because they acquire liquidity, they can automatically liquidate themselves, and because they mature in the short run and are for productive ambitions, there is no risk of them running to bad debts, and such loans are high on productivity and earn income for banks. Self-liquidating loans are those used to fund the production and development of commodities through the many stages of manufacturing, storage, transportation, and distribution (Emmanuel, 1997). Certain flaws exist in the commercial loan theory. First, if a bank refuses to offer a loan until the previous debt is returned, the dejected borrower will be forced to reduce output, which will have a negative impact on economic activity. If all banks follow the same rule, the money supply and costs in the community may be reduced. As a consequence, current debtors are unable to return their debts on time. This theory, on the other hand, holds that loans are self-liquidating under normal economic conditions. However, if there is a depression, production and trade suffer, and the debtor is unable to repay the debt at maturity. Furthermore, this approach ignores the reality that a bank's liquidity is dependent on the salability of its liquid assets rather than on actual trade bills. It guarantees security, liquidity, and profitability. In times of distress, the bank does not need to rely on maturities. Finally, one of the theory's major flaws is that no

loan is self-liquidating. If the things bought are not sold to customers and remain with the shop, the loan is not self-liquidating. (Guthua,2013).

### 2.1.8.6 Liquidity Preference Theory

Keynes initially developed liquidity preference theory, often known as liquidity preference hypothesis (1989). According to this theory, investors require higher interest rates on securities with long maturities because they would rather hold cash, which is less risky. When an investment is more liquid, it is easier to sell or convert to cash with minimal risk; additionally, the demand for money rises and falls in response to changes in interest rates; when interest rates fall, people demand more money to hold until interest rates rise, and vice versa. The implication of this theory is that firms should maintain a high level of liquidity in order to not miss out on opportunities that promise higher returns in the future, and firms should strive for balance through proper asset and liability management in order to meet capital requirements and future higher return investments. This idea is relevant because enterprises should maintain an optimum amount of liquidity. This is due to the firm's ability to seize chances that offer bigger profits. Pasinetti (1997) underlines that the business should strive for balance via good financial management in order to fulfill future cash flow and capital requirements. As a result, it is critical for the company to invest in monitoring and coordinating its assets and obligations. This will allow the company to establish stability and hence absorb risks and shocks more readily. Asset liability management is a critical component in attaining bank efficiency and development.

## 2.2 Empirical Review

Obari (2015), did a descriptive study on the effects of asset and liability management on profitability of commercial banks in Kenya for the year 2010 to 2014 by using secondary data from published financial statement of 44 commercial banks in Kenya. Author measures dependent variable which is profitability by ROA and uses as independent variables namely bank size, capital structure and asset and liability management position having these variable he reached a conclusion that there is a statistically significant positive relationship between bank size and profitability and a statistically significant negative relationship between capital structure and profitability.

But the main finding of obari that differ from others is asset and liability position has an inverse relationship with profitability of commercial banks.

Shrestha, (2015) examined the effect of ALM on commercial banks' profitability in Nepal. ALM deals with the optimal investment of assets in view of meeting current goals and future liabilities. The pooled OLS regression analysis result showed that all assets, including fixed assets, mainly loans and advances as well as other assets affect profitability positively, while all liabilities, mainly deposits, and other liabilities have negative effect on commercial banks profitability. With regard to macroeconomic variables, GDP and Inflation rate has negative effect on commercial banks profitability. As a result, the study recommended that commercial banks should focus on increasing public awareness to mobilize more saving and fixed deposits and this will enhance their performance in provision of loans and advance to customers.

Ajibola, (2016) identified the best possible strategy to manage the composition of financial institutions', assets and liability management by controlling the various types of business strategies to maximize profitability and increase performance. Annual statistical bulletin and audited financial statement of selected Nigerian Deposit Money Banks were used for the analysis which consist of time-series and cross-sectional data were analyzed using descriptive statistics and a panel data regression analysis were used to explore the relationship between AML and Financial performance, $R^2$, and t-statistics were computed. Findings showed that loans and advances are positively related to return on equity especially when profitability is measured as proxy of financial performance, while the liability variables are negatively related to the measure of bank performance adopted in this study. It was concluded that asset management has significant effect on financial performance of Nigerian deposit money banks.

Evans (2017) examined the asset liability management and the profitability of Listed Banks in Ghana. For the purpose of determining the impact of asset liability management on profitability, a random effect model was used. It was decided to utilize the return on asset as the dependent variable, while valuing everything else as an independent variable, including the value of all assets and liabilities, as well as macroeconomic variables such as GDP and interest rate. Finally, the findings show that total assets have a positive impact on bank profitability, whereas total liabilities,

primarily savings and fixed time deposits, have a negative impact on profitability. However, the macroeconomic variable, interest rate, has no significant impact on bank profitability.

Tee, (2017) assessed the impact of asset and liability management on the profitability of listed banks in Ghana. Multiple linear regression has been applied by taking ROA as the dependent variable, and TAS (the total asset) and TLT (the total liability) representing the asset and liability mix of the banks as the independent variables together with gross domestic product and interest rates also representing the economic factors. The model used in this study hypothesized that the rate of return on earning assets is positive, and the rate of cost on liabilities is negative. The robust panel regression analysis with random effect result showed that total assets affect profitability positively, while total liabilities mainly saving and fixed deposits and other liabilities and credit balances have significant and negative effect on commercial banks profitability. With regard to the macroeconomic variables, interest rate had no significant effect on commercial banks profitability. As a result, the study recommends that commercial banks should focus on increasing public awareness to mobilize more savings and fixed deposits and this will enhance their performance in their provision of loans and advances to customers.

Kumari & Rasika, (2018) explored the impact of the Assets and Liability Management on Financial Performance of Licensed Commercial Banks in Sri Lanka. Return on Assets, Return on Equity and Net Profit Ratio were used to measure the financial performance. Under AML that effect financial performance was based on the CAMEL approach which includes Capital Adequacy, Asset Quality, Management Efficiency, Liquidity and Operational Efficiency. The findings reveal that Capital Adequacy, Liquid Asset Ratio and Earnings have a significant positive impact on the financial performance whereas Assets Quality and Management Efficiency have a negative significant impact on the financial performance. It can be concluded that Assets and Liability Management has a statistically significant effect on the financial performance of the commercial banks. It is recommended to follow the policies that would encourage revenue diversification, reduce operational costs, minimize credit risk and encourage banks to minimize their liquidity holdings.

Darshan & Yogashree, (2019) examined the effect of ALM on financial performance of AXIS Bank. The key objective of this study is to know the risk management strategies and effect of asset-liability mix on financial performance of the bank. The data is collected from secondary source and analytical research methodology is used for this study. The correlation and regression analysis tools were taken on to set up the relationship and outcome of the ALM on the financial performance of AXIS Bank. The study found that the bank is exposed to changing interest rates, facing liquidity problem for short term. It also found that the quality of assets affects the financial performance of banks.

Owusu & Alhassan, (2020) looked at the link between profit and the Asset-Liability Management (ALM) structure of 27 Ghanaian banks over the period 2007–2015. According to the results, the primary premise of the SCA model is supported, and proof that profitability is connected to balance sheet items in Ghana has been provided. The report also provides evidence that local banks have generated a greater rate of return on assets than foreign banks during the course of the study's duration. In addition, high profit banks were shown to have a greater rate of return on assets as well as a higher rate of cost on liabilities than low profit banks, according to the findings. When it comes to bank management, these results are particularly valuable since they enable them to identify the assets items that give the best return on bank profitability.

Rahman & Kolawole, (2020) examined the impact of Asset Liability Management (ALM) on the financial performance of Nigerian deposit money banks using time series annual data from 2005 to 2018. Asset liability management data were proxied by loan and advance, non-performing loan, demand deposit, and borrowing, while performance was proxied by return on asset and return on investment. The research discovered that asset liability management has an impact on both the return on asset and the return on investment of Nigeria's listed deposit money banks. It was also shown that loan and advance, as well as bank size, have a favorable influence on return on asset, but nonperforming loans have a negative effect on return on asset of Nigerian deposit money institutions. The research also discovered that demand deposit, borrowing, and bank size all have a favorable influence on deposit money bank return on investment in Nigeria, however increasing bank size has a negative effect on deposit money bank return on investment. The research finds that deposit money banks in Nigeria must pay

close attention to loan and advance, non-performing loan, demand deposit, and borrowings in order to facilitate and ensure better asset liability management.

Al-Ahmadi & Shaheen, (2021) investigated the difficulties to guarantee that commercial banks in Saudi Arabia provide the finest services possible The ALM procedures and liquidity risk of a Saudi commercial bank were investigated. For the five-year period from 2013 to 2017, eight banks listed on the Saudi Arabia Stock Exchange were utilized as examples. This study was completed using a quantitative manner. Return on asset (ROA), total assets, total debt, inflation, and interest rate were the factors studied. Based on observations of eight banks listed on the Saudi Arabia Stock Exchange from 2014 to 2017, findings revealed that liabilities had a negative impact on bank profitability. Furthermore, the observation of eight banks listed on the Saudi Arabia Stock Exchange from 2014 to 2017 revealed that liabilities had a negative impact on bank profitability. Thus, the examination of the banks revealed that the institutions' results were adequate, and the ALM process is handled with solid strategy. Traditional perception on such financial intermediaries shows a simple logic that a bank accept deposits with short term maturities from a large number of individuals and grants loans with long term maturities to a small number of borrowers. These transformation activities expose a bank to credit, interest rate, and liquidity risks.

Rahmi & Sumirat, (2021) analyzed the bank's financial performance during Covid-19 pandemic and to examine the relationship between ALMA and profitability of Commercial Banks in Indonesia as the short-term impact of COVID-19 in 2020. The study focuses on commercial Bank based on Group of Business Activities (BUKU). The methodology of this research is a quantitative and qualitative approach. The result of the study indicates a statistically significant relationship for most asset and liability management primary variables, such as Capital Adequacy Ratio (CAR), Cost to Income Ratio (BOPO) and Loan to Deposit Ratio (LDR). Net Interest Margin (NIM) does not have a significant relationship toward Return on Asset (ROA). This study will contribute as an empirical analysis to highlight the relationship of capital adequacy, operational efficiency, and liquidity management with profitability of commercial Bank Indonesia.

## 2.3 Research Gap

The above-mentioned studies offer limited findings, more extensive testing, and adjustment of necessary variables are needed in ordered to be more conclusive about the assets-liability management and its effect on financial performance of commercial banks in Nepal. Previous studies were directed to find the effect of the financial performance analysis of different commercial banks. Presently, this study aims to attempt to study about assets and liability management and its effect on profitability of Nepalese commercial banks. The previous relevant literature related to banking business has just reviewed to support the study. This study tries to fulfill the weakness from previous studies related to this topic.

# CHAPTER III
# RESEARCH METHODOLOGY

## 3.1 Research Design

A research design refers to plan that guide a researcher on how to organize the research activities. A research design presents a framework or arrangement of action for a study. A descriptive research design was adopted which provides a comprehensive picture of a circumstance or a situation. The first purpose of research design is to enable the researcher to answer research questions as validity, objectively, accurately and economically as possible. Similarly, the second purpose of research design is to control variance among sets up the instructions to the test of the relationship among variables. It is a set of instructions to the researcher to collect and analyze the data in a systematic manner. It suggests the researcher for what observations to make, how to make and how to analyze the quantitative information that is gathered. So, to meet the objectives of the study descriptive and explanatory research design was carried out.

## 3.2 Population and sample

The population refers to the industries of the same nature and its services and product in general. A sample design refers to a plan to be used in obtaining a sample from a population. It is a technique or procedure which a researcher adopts when selecting sample items. Under the study constitutes the 27 commercial banks among them three commercial banks i.e. HBL, EBL and NABIL, are selected using convinence sampling method for the study as per the highest percentage of foreign investment to lowest percentage.

## 3.3 Nature and sources of data

The study used the secondary data. Most of data required for the study were gathered through the banks. The main sources of data for this study were the published financial statement of banks last ten years data were collected. The study was mainly based on the secondary data. Due to lack of personal access, the study was mainly depended upon financial statement & balance sheet of sample commercial banks. The study employs secondary data. The annual reports of relevant banks are collected from the respective

website, along with published Banking & financial statistics of Nepal Rastra Bank. Data are collected for the period from 2011/12 to 2020/21.

## 3.4 Tools of Data Analysis

For analyzing the data, different kinds of tools were used. The analysis is done according to the nature and quality of the available data. Some simple financial tools were used and this study was based on the analysis of secondary data with the help of different statistical tools like Statistical Package for the Social Science (SPSS). Therefore, the data were collected accordingly and managed, analyzed and presented in suitable tables, formats, diagrams, graphs and charts.

## 3.5 Framework for the Study

In order to meet the objective of the study, the proxies of independent variables are total deposits, other liabilities, loan and advance, fixed assets, other assets and inflation. Similarly, the dependent variable will return on assets (ROA) as profitability indicators. The framework for the study was more clearly from the figure 3.1 below:

**Figure 3.1**

**Framework for the Study**
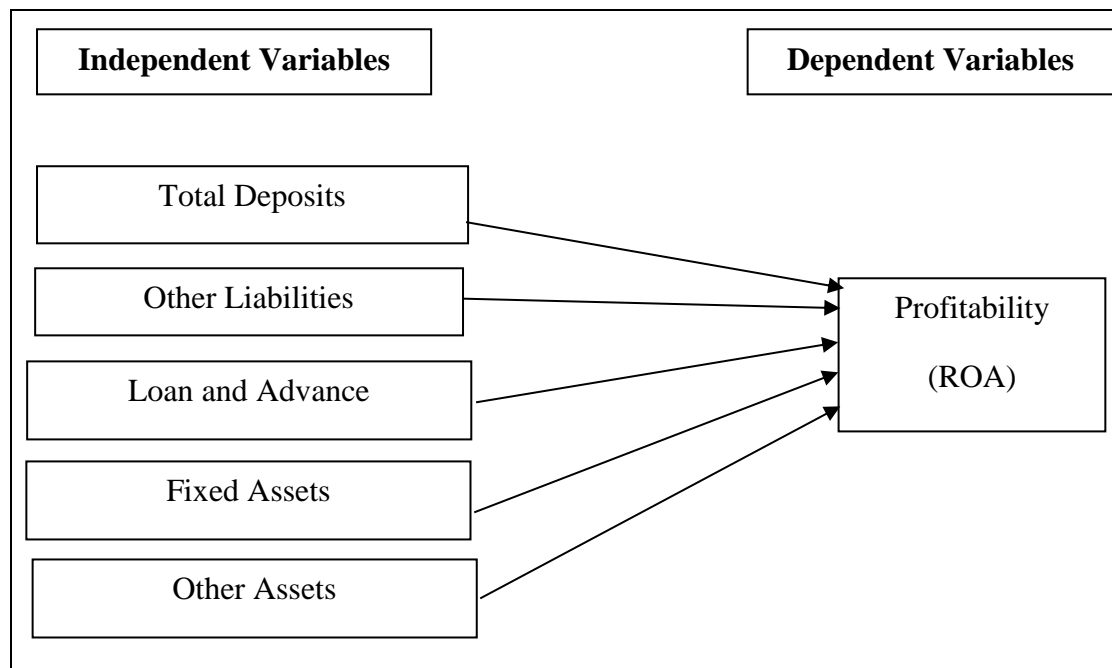
## 3.6 Analytical Model

The following model was used to study the effect of assets and liability management on profitability of commercial banks. According to this model, effect of assets and liability management on profitability is a function of total deposits, other liabilities, loan and advances, fixed assts and other assets. Hence, the modes take the following form:

$$ROA = \beta o + \beta 1\ TD + \beta 2\ OL + \beta 3 LA + \beta 4 FA + \beta 4 OA + e$$

Where,

ROA= Performance by the bank expressed as return on Assets

TD= Total Deposits

OL= Other Liabilities

LA= Loan and Advance

FA= Fixed Assets

OA= Other Assets

e = error terms

# CHAPTER IV
# DATA PRESENTATION AND ANALYSIS

Presentation and analysis of data is very important stage of research study. Presentation is the process of organizing the data in tabular form and placing the available data in reasonable form. Analysis is done to portrait the financial figures in tabular or in graphical form so that recommendation can be given for the remedial measure. Present chapter will discuss the various aspects of assets and liability management and its effect on profitability and their actual output so that recommendation can be given for remedial purposes. For analysis balance sheet and income statement of financial year 2011/12 to 2020/21 has presented.

## 4.1 Financial Analysis

Financial analysis involves the methods of calculating and interpreting financial position in terms of assets and liability management. The basic input to assets and liabilities is the firm's income and expenditure statement and balance sheet for the periods to be examined. The study consists of the following headings to analyze the assets and liability management of the Himalayan Bank Limited, Everest Bank Limited and Nabil Bank Limited.

### 4.1.1 Total Deposit HBL, EBL and NABIL

Bank deposits are sums of money that have been put in financial institutions for protection. These deposits are placed into deposit accounts, such as savings accounts, checking accounts, and money market accounts, among other types of accounts. According to the terms and circumstances regulating the account agreement, the account holder has the right to withdraw any monies that have been placed into the account. It is important to note that the deposit itself is considered a responsibility owing to the depositor by the bank. Bank deposits are defined as a liability rather than as the real monies that have been put in a bank account. When someone establishes a bank account and makes a cash deposit, he relinquishes his legal ownership of the money, which becomes an asset of the bank in exchange for the money. As a result, the account is considered a liability by the bank. Table 4.1 shows the total deposit for HBL, EBL, and NABIL during the 10 years of the study period.

Table: 4.1

*Total Deposits of HBL, EBL and NABIL*

*Rs in Million*

| Fiscal Year | HBL | EBL | NABIL |
|---|---|---|---|
| 2011/12 | 47,731 | 50,006 | 55,024 |
| 2012/13 | 53,072 | 57,720 | 63,610 |
| 2013/14 | 64,675 | 62,108 | 75,389 |
| 2014/15 | 73,538 | 83,094 | 104,238 |
| 2015/16 | 87,336 | 93,735 | 110,267 |
| 2016/17 | 92,891 | 95,094 | 118,684 |
| 2017/18 | 98,989 | 115,512 | 135,979 |
| 2018/19 | 109,387 | 129,568 | 162,954 |
| 2019/20 | 125,264 | 143,545 | 190,806 |
| 2020/21 | 141,021 | 160,220 | 223,474 |
| Mean | 89,390 | 99,060 | 124,043 |
| S. D | 28944.41 | 35637.91 | 52339.35 |
| C.V | 32.38% | 35.98% | 42.19% |

*(Source: Appendix i, ii, iii and Annual Reports of Respective Banks)*

Table 4.1 is also presented in Figure 4.1 to show the total deposit during the ten years of the study period.
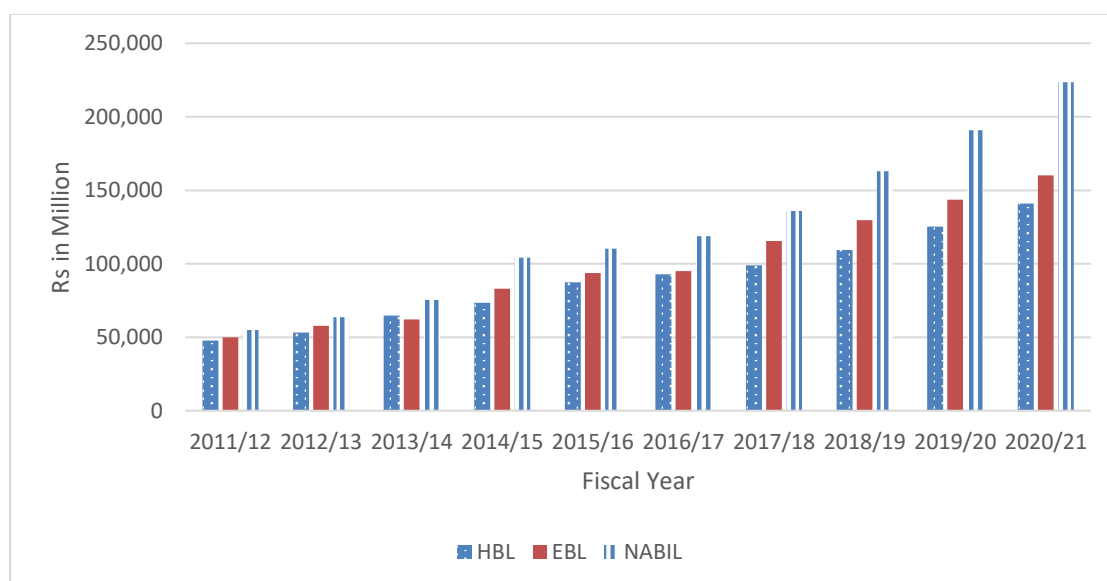


Figure: 4.1 *Total Deposits of HBL, EBL and NABIL*

Table 4.1 and Figure 4.1 represents the total deposits of sample banks for ten years of study period. Total deposit of all three sample banks is in increasing trend during the ten years of the study period. The average deposit for sample banks is 89,390 million, 99,060 million and 124,043 million respectively for HBL, EBL and NABIL. On the basis of average, NABIL hold the first position with highest average while HBL hold the last position with lowest average. CV shows the consistency deposit growth of

sample commercial banks. HBL deposit growth is more consistent with lower CV i.e., 32.38% than EBL i.e., 35.98% and NABIL i.e., 42.19%.

**4.1.2 Other Liabilities of HBL, EBL and NABIL**

Liabilities are obligations that a firm must meet but that are too little to be recorded individually in the balance sheet. Other liabilities, on the other hand, are all of the various commitments that a firm group together on its financial accounts. Other obligations are tiny and negligible in comparison to the total amount of assets. In order to simplify financial reporting, businesses often group modest obligations together into a single category rather than stating each responsibility individually. Table 4.2 presents the other liabilities of sample commercial banks during the ten years of the study period.

Table: 4.2

*Other Liabilities of HBL, EBL and NABIL*

*Rs. In Million*

| Fiscal Year | HBL | EBL | NABIL |
|---|---|---|---|
| 2011/12 | 1,160 | 897 | 1,072 |
| 2012/13 | 1,259 | 1,084 | 1,071 |
| 2013/14 | 1,403 | 1,119 | 2,357 |
| 2014/15 | 1,372 | 7,609 | 1,468 |
| 2015/16 | 1,528 | 9,092 | 2,233 |
| 2016/17 | 1,861 | 8,206 | 2,552 |
| 2017/18 | 1,814 | 11,076 | 3,256 |
| 2018/19 | 2,777 | 18,460 | 4,302 |
| 2019/20 | 3,541 | 20,428 | 4,497 |
| 2020/21 | 3,091 | 27,048 | 6,703 |
| Mean | 1,981 | 10,502 | 2,951 |
| S. D | 802.94 | 8488.70 | 1693.45 |
| C.V | 40.54% | 80.83% | 57.38% |

*(Source: Appendix i, ii, iii and Annual Reports of Respective Banks)*

Table 4.2 is also presented in Figure 4.2 to show the other liabilities of sample commercial banks during the ten years of the study period.
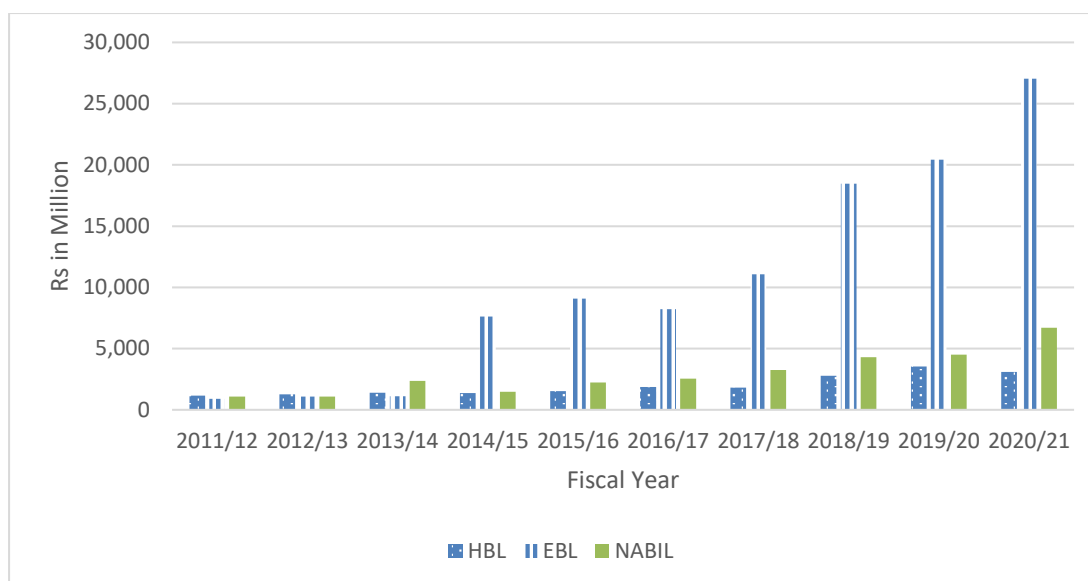
Figure: 4.2 *Other Liabilities of HBL, EBL and NABIL*

Table 4.2 and Figure 4.2 depict that, the highest and lowest other liabilities of HBL is 1,160 million and 3,541 million for fiscal year 2011/12 and 2019/20. The highest and lowest other liabilities for EBL is of 897 million and 27,048 million for fiscal year 2011/12 and 2020/21 respectively. The highest and lowest other liabilities for NABIL is 1,071 million and 6,703 million for fiscal year 2012/13 and 2020/21 respectively. The average other liabilities for HBL, EBL and NABIL, is 1,981 million, 10,502 million and 2,951 respectively during ten years of the study period. The result indicates all banks other liabilities is in fluctuating trend during the study period. Similarly, CV shows the consistency of other liabilities of sample commercial banks. HBL is more consistent in other liabilities with lower CV i.e., 40.54% than EBL i.e., 80.83% and NABIL i.e., 57.38%. In order to simplify financial reporting, businesses often group modest obligations together into a single category rather than stating each responsibility individually. So, EBL has more tiny liabilities which is grouped in other liabilities during the ten years of the study period.

### 4.1.3 Loan and Advances of HBL, EBL and NABIL

Loans and advances are generic descriptions of debt obligations that businesses owe and that must be shown on their balance sheet as a component of total liabilities in order to be considered debt obligations. In most cases, formal negotiated loans are documented as "notes due" on a balance sheet, while advances or purchases made on credit are reported as "accounts payable." Table 4.3 presents the loan and advance of sample commercial banks during ten years of the study period.

Table: 4.3

*Loan and Advances of HBL, EBL and NABIL*

*Rs. In Million*

| Fiscal Year | HBL | EBL | NABIL |
|---|---|---|---|
| 2011/12 | 35,968 | 36,617 | 41,606 |
| 2012/13 | 41,057 | 44,198 | 46,370 |
| 2013/14 | 45,320 | 47,572 | 54,692 |
| 2014/15 | 53,476 | 54,482 | 65,502 |
| 2015/16 | 67,746 | 67,955 | 76,106 |
| 2016/17 | 76,394 | 77,288 | 89,877 |
| 2017/18 | 86,160 | 94,182 | 115,415 |
| 2018/19 | 99,530 | 112,007 | 133,558 |
| 2019/20 | 109,092 | 119,068 | 153,890 |
| 2020/21 | 132,094 | 135,173 | 206,622 |
| Mean | 74,684 | 78,854 | 98,364 |
| S. D | 30367.13 | 32866.19 | 50805.25 |
| C.V | 40.66% | 41.68% | 51.65% |

*(Source: Appendix i, ii, iii and Annual Reports of Respective Banks)*

Table 4.3 is also presented in Figure 4.3 to show the loan and advance during the ten years of the study period.
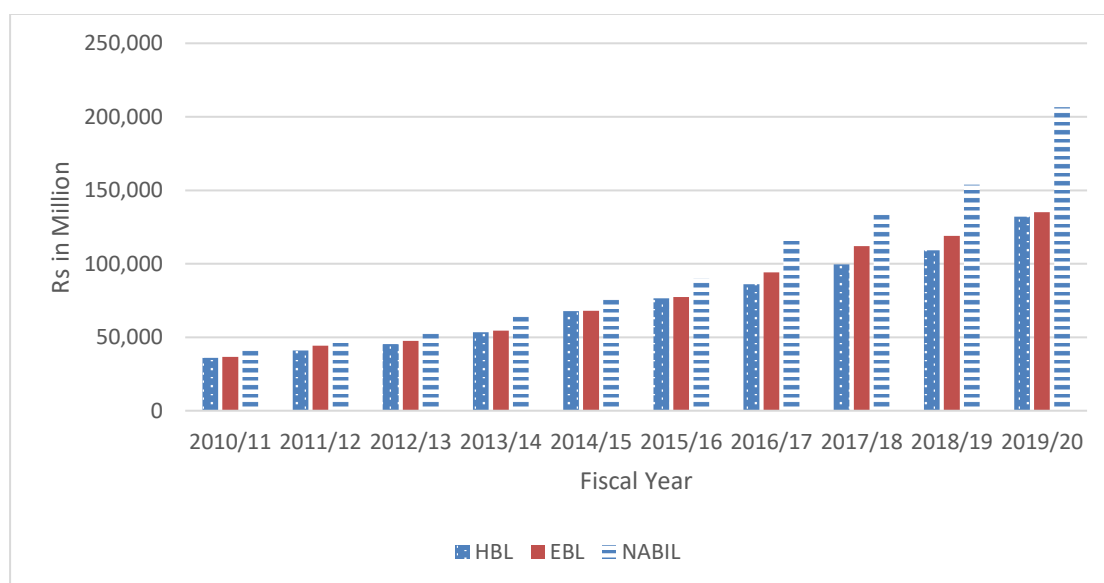


Figure: 4.3 *Loan and Advances of HBL, EBL and NABIL*

Table 4.3 and Figure 4.3 show the total loan and advance of selected commercial banks over the ten-year study period. All three sample commercial banks loan and advance is in increasing trend during the ten years of the study period. HBL has loan and advance amount of 35,968 million in fiscal year 2011/12 and reach 132,094 million in fiscal year 2020/21. EBL has loan and advance amount of 36,617 million in fiscal year 2011/12 and reach 135,173 million in fiscal year 2020/21. NABIL has loan and advance amount of 41,606 million in fiscal year 2011/12 and reach 206,622 million in fiscal

year 2020/21. This result show that after increasing the total deposit of the bank loan and advance of the bank is also increased which can balance the total assets and liabilities of the bank. The average loan and advance of the HBL is 74,684 million during the ten years of the study period while EBL has 78,854 million and NABIL has 98,364 million. CV shows the consistency of loan and advance growth of the bank. Here HBL has consistent growth of loan and advance with lower CV i.e., 40.66% than EBL with CV of 41.68% and NABIL with CV of 51.65%.

### 4.1.4 Fixed Assets of HBL, EBL and NABIL

In finance, a fixed asset is a long-term physical piece of property or equipment that a company owns and employs in its operations in order to create money. The conventional assumption concerning fixed assets is that they are anticipated to endure for at least one year before being consumed or turned into cash, unless otherwise stated. Consequently, businesses are allowed to depreciate the value of these assets to account for normal wear and use. Property, plant, and equipment are the most frequent types of fixed assets that show on a balance sheet (PP&E). Table 4.4 shows the fixed assets of a sample of commercial banks during the course of the study's ten-year period of investigation.

Table: 4.4

*Fixed Assets of HBL, EBL and NABIL*

| Fiscal Year | HBL | EBL | NABIL |
|---|---|---|---|
| 2011/12 | 1,305 | 548 | 888 |
| 2012/13 | 1,309 | 631 | 872 |
| 2013/14 | 1,323 | 606 | 843 |
| 2014/15 | 1,321 | 630 | 812 |
| 2015/16 | 1,923 | 679 | 770 |
| 2016/17 | 2,176 | 728 | 791 |
| 2017/18 | 2,223 | 1,862 | 986 |
| 2018/19 | 2,392 | 2,116 | 1,052 |
| 2019/20 | 2,412 | 2,151 | 1,318 |
| 2020/21 | 2,519 | 2,768 | 1,693 |
| Mean | 1,890 | 1,272 | 1,003 |
| S. D | 493.86 | 806.81 | 277.44 |
| C.V | 26.13% | 63.43% | 27.67% |

*(Source: Appendix i, ii, iii and Annual Reports of Respective Banks)*

Table 4.4 is also presented in Figure 4.4 to show the fixed assets of sample commercial banks during the ten years of the study period.

Figure: 4.4 *Fixed Assets of HBL, EBL and NABIL*

Table 4.4 and Figure 4.4 shows the fixed assets of sample commercial banks over the ten-year study period. Fixed assets of HBL is in increasing trend for each fiscal year during the study period while EBL is fixed assets is in increasing trend except fiscal year 2013/14. For NABIL fixed assets is in increasing trend except fiscal year 2013/14 2014/15 and 2015/16. HBL has fixed assets of 1,305 million in fiscal year 2011/12 and reach 2,519 million in fiscal year 2020/21. EBL has fixed assets of 548 million in fiscal year 2011/12 and reach 2,768 million in fiscal year 2020/21. Similarly, NABIL has a fixed assets of 888 million in fiscal year 2011/12 and reach 1,693 million in fiscal year 2020/21. Average fixed assets during the ten years of the study period for HBL is 1,890 million while average fixed assets for EBL is 1,272 million during the ten years of the study period. Similarly, NABIL average fixed assets during the ten years of the study period is 1,003 million. Results shows that all sample commercial banks purchase fixed assets in each fiscal year. CV indicate consistency growth of fixed assets during the study period. HBL fixed assets growth is more consistent with lower CV i.e., 26.13% than EBL i.e., 63.43% and NABIL i.e., 27.67%.

**4.1.5 Other Assets of HBL, EBL and NABIL**

Other assets are a collection of accounts that are displayed as a distinct line item in the assets area of the balance sheet, in addition to the accounts stated in the current assets section. Listed under this category are small assets that do not readily fall into any of the major asset categories, such as current assets or fixed assets, but are

still important. Table 4.5 shows the other assets of sample commercial banks during the course of the study's ten-year period of investigation.

Table: 4.5

*Other Assets of HBL, EBL and NABIL*

| Fiscal Year | HBL | EBL | NABIL |
|:---:|:---:|:---:|:---:|
| 2011/12 | 1,435 | 1,127 | 1,549 |
| 2012/13 | 1,418 | 1,237 | 2,150 |
| 2013/14 | 1,366 | 2,590 | 2,732 |
| 2014/15 | 1,439 | 3,821 | 2,372 |
| 2015/16 | 1,531 | 3,935 | 3,243 |
| 2016/17 | 1,841 | 5,146 | 3,979 |
| 2017/18 | 1,063 | 893 | 2,071 |
| 2018/19 | 1,075 | 973 | 2,591 |
| 2019/20 | 1,129 | 1,557 | 2,428 |
| 2020/21 | 1,718 | 1,154 | 3,535 |
| Mean | 1,402 | 2,243 | 2,665 |
| S. D | 246.90 | 1457.74 | 695.20 |
| C.V | 17.62% | 64.98% | 26.09% |

*(Source: Appendix i, ii, iii and Annual Reports of Respective Banks)*

Table 4.5 is also presented in Figure 4.5 to show the other assets of sample commercial banks during the ten years of the study period.
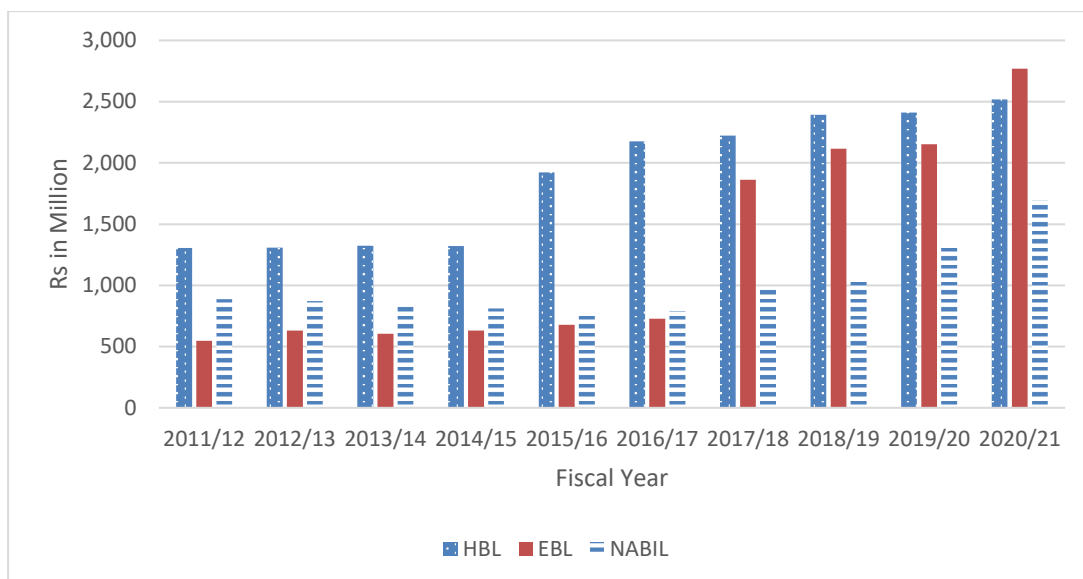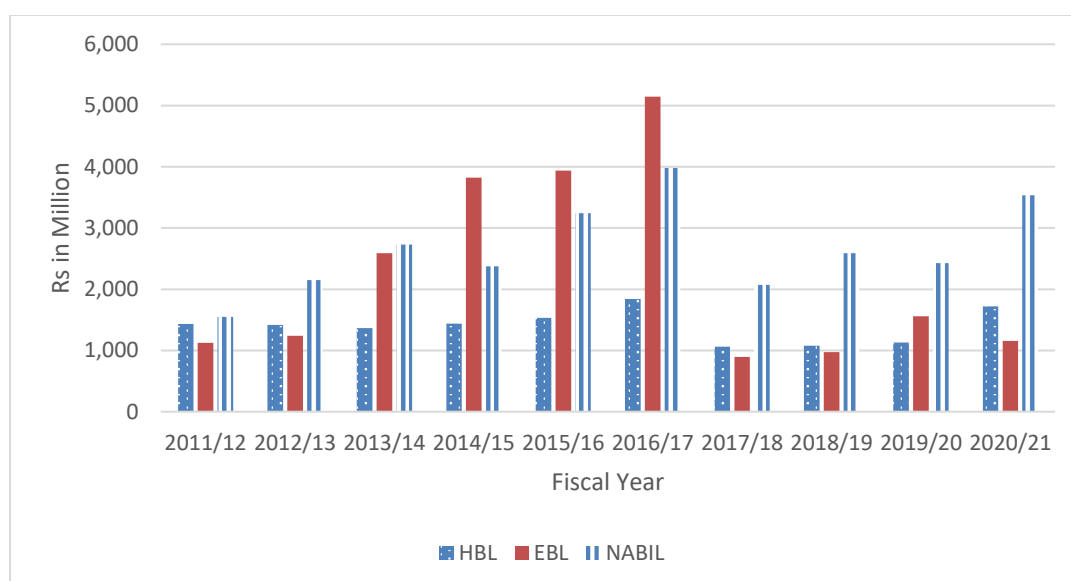


Figure: 4.5 *Other Assets of HBL, EBL and NABIL*

Table 4.5 and Figure 4.5 presents the other assets of HBL, EBL and NABIL during the last ten fiscal years. Other assets of all three commercial banks is in fluctuating trend during the study period. The average other assets of HBL is 1,402 million during the study period while EBL has 2,243 million other assets during the study period. NABIL

has 2,665 million other assets during the study period. The other assets is consistent for HBL with lower CV i.e., 17.62% than EBL i.e., 64.98% and NABIL i.e., 26.09%.

## 4.1.6 Return on Assets of HBL, EBL and NABIL

Profitability ratio is one of the main indicators to analyzing the financial performance of a firm. It calculates to measure the earning performance and operational efficiency of the bank. A bank should be able to produce adequate profit on each rupee of investment, if investments do not generate sufficient profits, it would be very difficult for the bank to cover operating expenses and interest charges. The profitability of the bank should also be evaluated in term of its investment in assets and in term of capital contributed by creditors. If the bank is unable to earn satisfactory return of investment, its survival is threatened. This ratio is related to net profit after tax (NPAT) and total assets. How efficiently are the assets of a firm able to generate more profit are measured by this ratio is calculated by dividing NPAT by Total Assets. This ratio provides the foundation necessary for a company to deliver a good return on equity. Return on total assets ratio of sample commercial banks for the period of 2010/11 to 2019/20 is presented in the Table 4.6.

Table: 4.6

*Return on Assets of HBL, EBL and NABIL*

| Fiscal Year | HBL | EBL | NABIL |
|---|---|---|---|
| 2011/12 | 1.73 | 1.95 | 2.69 |
| 2012/13 | 1.51 | 2.24 | 3.03 |
| 2013/14 | 1.30 | 2.20 | 2.66 |
| 2014/15 | 1.34 | 1.59 | 1.81 |
| 2015/16 | 1.94 | 1.52 | 2.21 |
| 2016/17 | 2.03 | 1.72 | 2.59 |
| 2017/18 | 1.61 | 1.78 | 2.47 |
| 2018/19 | 2.04 | 1.80 | 2.11 |
| 2019/20 | 1.63 | 1.36 | 1.46 |
| 2020/21 | 1.68 | 0.84 | 1.56 |
| Mean | 1.68 | 1.70 | 2.26 |
| S. D | 0.25 | 0.39 | 0.49 |
| C.V | 14.79% | 22.94% | 21.90% |

*(Source: Appendix i, ii, iii and Annual Reports of Respective Banks)*

Table 4.6 is also presented in Figure 4.6 to show the trend of return on assets of three sample commercial banks during the ten years of the study period.
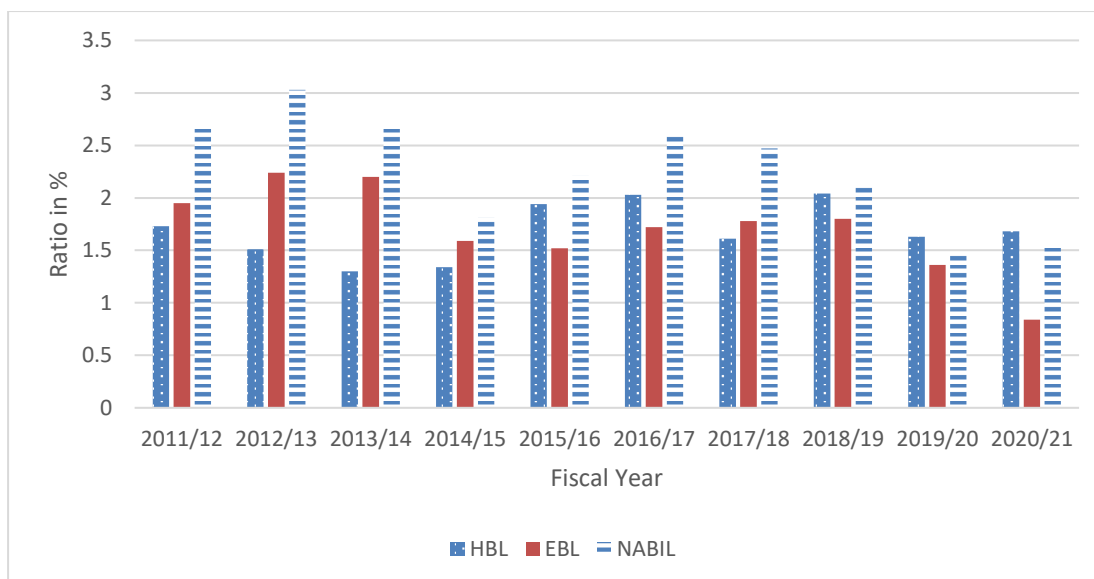
Figure: 4.6 *Return on Assets of HBL, EBL and NABIL*

Table 4.6 and Figure 4.6 shows the result of financial surplus to assets ratio or return on assets of the sample banks during the ten years of the study period. The average ratio for return on assets is 1.68%, 1.70% and 2.26% for HBL, EBL and NABIL respectively. This indicates that the return on assets for the bank is satisfactory. Likewise, Standard deviation for the HBL, EBL and NABIL are 0.25%, 0.39% and 0.49% respectively. Coefficient of variation indicates the fluctuating trend or measuring the uniformity of the banks which is 14.79%, 22.94% and 21.90% for HBL, EBL and NABIL respectively. From the ten years' analysis i.e., fiscal year 2011/12 to 2020/21 return on assets is greater for NABIL which is 2.26% than of HBL which is 1.68% and EBL which is 1.70% among the three sample banks. In same way, financial surplus to assets ratio for sample banks are fluctuating trend. EBL is riskier that is higher CV 22.94% than HBL which is 14.79% and NABIL which is 21.90%.

## 4.2 Statistical Tools

### 4.2.1 Descriptive Statistics

Table 4.7 presents a summary of the descriptive statistics of the dependent and independent variables for three commercial banks during a ten-year period from 2011/12 to 2020/21, with a total of 30 observations. The data is based on a total of 30 observations. There are mean, standard deviation, number of observations, minimum and maximum values for the independent and dependent variables in the model, as well as other information. Total deposit, other liabilities, loan and advance, fixed assets and

other assets are the measure of banks' assets and liabilities management are independent variables under this study while return on assets was a dependent variable. The statistics are from pooled data of 30 valid observations. N is the number of observations. There are average indicators of variables calculated from the financial accounts, which are shown below.

Table: 4.7

*Descriptive Statistics*

| Variables | N | Minimum | Maximum | Mean | SD |
|-----------|-----|---------|---------|----------|-------------|
| Total Deposit | 30 | 47731.00 | 223474.00 | 104164.36 | 43496.76713 |
| Other Liabilities | 30 | 897.00 | 27048.00 | 5144.5333 | 6408.33049 |
| Loan and Advance | 30 | 35968.00 | 206622.00 | 83967.233 | 41118.46243 |
| Fixed Assets | 30 | 548.00 | 2768.00 | 1388.2333 | 691.37672 |
| Other Assets | 30 | 893.00 | 5146.00 | 2103.2667 | 1098.10432 |
| Return on Assets | 30 | .84 | 3.03 | 1.8800 | .48223 |

*(Source: SPSS Output)*

The mean of total deposit was 104,164.36 million and standard deviation 43,496.77 million. This means, sample commercial banks in Nepal, under the period of study, the average deposit is 104,164.36 million with minimum 47,731 million and maximum of 223,474 million. Regarding the standard deviation, it means the value of deposit can deviate from its mean to both sides by 43,496.77 million. The average other liabilities were 5,144.53 million. The maximum value of other liabilities for the study year was 27,048 million whereas the minimum value was 897 million. Also, the standard deviation was 6,408.33 million which indicate there was average variation from the mean. Likewise, the loan and advance have a minimum value of 35,968 million and a maximum of 206,622 million with a mean of 83,967.23 million. The average value of the fixed assets variable as proxied was 1,388.23 million. The maximum value of other assets for the study period was 5,146 million and a minimum value of 893 million. The standard deviation was 1,098.10 million. The average profitability was 1.89%. This means, on the average, for each one-rupee investment in the asset of commercial banks there was 0.019 return. The maximum value of ROA for the year was 3.03 whereas the minimum value was 0.84. Also, the standard deviation was 0.48 which indicate there was low variation from the mean.

### 4.2.2 Coefficient of Correlation

Correlation is the statically tool, which measure the relationship between two or more variables of a population or a sample. In other words, it describes the degree to which one variable is linearly related to another. The coefficient of correlation measures the degree of relationship between two sets of figures. Among the various methods of finding out coefficient of correlation, Karl Pearson's method is applied in the study. The result of coefficient of correlation is always between +1 and -1 when r is +1, it means there is perfect relationship between two variables and vice versa. When r is 0 it means there is no relationship between two of them.

Table: 4.8

*Correlation Analysis (N=30)*

|  |  | ROA | TD | OL | LA | FA | OA |
|---|---|---|---|---|---|---|---|
| ROA | Pearson Correlation | 1 |  |  |  |  |  |
|  | Sig. (2-tailed) |  |  |  |  |  |  |
| TD | Pearson Correlation | -.312 | 1 |  |  |  |  |
|  | Sig. (2-tailed) | .093 |  |  |  |  |  |
| OL | Pearson Correlation | -.507** | .469** | 1 |  |  |  |
|  | Sig. (2-tailed) | .004 | .009 |  |  |  |  |
| LA | Pearson Correlation | -.311 | .984** | .457* | 1 |  |  |
|  | Sig. (2-tailed) | .094 | .000 | .011 |  |  |  |
| FA | Pearson Correlation | -.477** | .436* | .449* | .516** | 1 |  |
|  | Sig. (2-tailed) | .008 | .016 | .013 | .003 |  |  |
| OA | Pearson Correlation | .156 | .174 | -.050 | .102 | -.549** | 1 |
|  | Sig. (2-tailed) | .409 | .359 | .791 | .593 | .002 |  |

\*\*. Correlation is significant at the 0.01 level (2-tailed).
\*. Correlation is significant at the 0.05 level (2-tailed).

Table 4.8 shows the correlation relationship between profitability with total deposit, other liabilities, loan and advance, fixed assets and other assets. The correlation between profitability and total deposit was negatively correlated (-0.312) in opposite direction which is negative degree of correlation. Negative correlation coefficients indicate a reverse relationship, indicating that as increasing in total deposit result to decreased in profitability of the bank. Similarly, the correlation between profitability and other liabilities is negatively correlate i.e. (-0.507) which indicates that the increase in other liabilities will decrease the profitability of sample commercial banks. Correlation between profitability and loan and advance was negatively correlate i.e. (-0.311) which the result can consider loan and advance and profitability are in opposite direction, which means the increase in loan and advance, the profitability of the bank

was decreased. Profitability and fixed assets have a negative correlation (-0.477). It means it should consider about profitability and fixed assets of the bank are simultaneously decreased. Correlation between profitability and other assets was positively correlate i.e. (0.156) which the result can consider other assets and profitability are in same direction, which means the increase in other assets, the profitability of the bank was increased. The Sig. (2-Tailed) value in Table 4.8 for total deposit, loan and advance and other assets are more than .05. Because of this, it can conclude that there is a statistically insignificant correlation between profitability of the bank and total deposit, loan and advance and other assets. But in case of other liabilities and fixed assets, it can be concluded that the p value for other liabilities and fixed assets is lower than 0.05. So, it is statistically significant relationship with profitability.

### 4.2.3 Regression Analysis

When we take two or more independent variables and predict the value of dependent variable through the appropriate regression time then the analysis is known as multiple regression analysis. An attempt has been done to examine the relationship of profitability with other key variables i.e., total deposit, other liabilities, loan and advance, fixed assets and other assets.

Table 4.9

*Model Summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|------|----------|-------------------|----------------------------|
| 1 | .599[a] | .359 | .226 | .42432 |

a. Predictors: (Constant), OA, OL, LA, FA, TD

Table 4.9 shows that the R square is 0.359 i.e., 35.9%. The regression result from R square indicates that 35.9 percent of the variation in profitability is determined by these independent variables i.e., total deposit, other liabilities, loan and advance, fixed assets and other assets. This shows that dependent variable (Profitability) on commercial banks, 35.9 percent explained by the independent variables used in this study and rests 64.1 percent are explained by other variables which were not included in this study.

Table 4.10

*ANOVA*[a]

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 2.423 | 5 | .485 | 2.691 | .046[b] |
| | Residual | 4.321 | 24 | .180 | | |
| | Total | 6.744 | 29 | | | |

a. Dependent Variable: ROA
b. Predictors: (Constant), OA, OL, LA, FA, TD

Table 4.10 depict those 30 observations are used in the model and dependent variable is profitability of commercial banks and independent variables are total deposit, other liabilities, loan and advance, fixed assets and other assets. The f-static i.e., 2.691 is significant at the level of 5 percent because p value is lower than 0.05 i.e., 0.046<0.05 which means that the independent variables were able to explain the dependent variable

Table 4.11

*Coefficients*[a]

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 2.628 | .426 | | 6.174 | .000 |
| | TD | -1.075E-5 | .000 | -.970 | -.867 | .395 |
| | OL | -2.356E-5 | .000 | -.313 | -1.550 | .134 |
| | LA | 1.227E-5 | .000 | 1.047 | .909 | .372 |
| | FA | .000 | .000 | -.491 | -1.629 | .116 |
| | OA | -2.940E-5 | .000 | -.067 | -.285 | .778 |

a. Dependent Variable: ROA

Table 4.11 shows that total deposit has negative effect on dependent variable profitability (ROA) and indicates statistically insignificant because p value for this variable is higher than 0.05 i.e., 0.395>0.05. In the same way other liabilities has the negative effect on profitability and also it is statistically insignificant because its significance value is higher than 0.134>0.05. In the same way loan and advance has the positive effect on profitability and it is statistically insignificant because its significance value is higher than 0.05 i.e., 0.372>0.05. Fixed assets have no effect profitability because its beta value is 0 and it is statistically insignificant because p value for this variable is higher than 0.05. Finally, other assets have negative effect on profitability of sample commercial banks and also it is insignificant at 5% level of significance because its p value is higher than 0.05 i.e., 0.778>0.05.

## 4.3 Major Findings of the Study

- The average deposit for sample banks is 89,390 million, 99,060 million and 124,043 million respectively for HBL, EBL and NABIL. On the basis of average, NABIL hold the first position with highest average while HBL hold the last position with lowest average. CV shows the consistency deposit growth of sample commercial banks. HBL deposit growth is more consistent with lower CV i.e., 32.38% than EBL i.e., 35.98% and NABIL i.e., 42.19%.

- The average other liabilities for HBL, EBL and NABIL, is 1,981 million, 10,502 million and 2,951 respectively during ten years of the study period. The result indicates all banks other liabilities is in fluctuating trend during the study period. Similarly, CV shows the consistency of other liabilities of sample commercial banks. HBL is more consistent in other liabilities with lower CV i.e., 40.54% than EBL i.e., 80.83% and NABIL i.e., 57.38%.

- The average loan and advance of the HBL is 74,684 million during the ten years of the study period while EBL has 78,854 million and NABIL has 98,364 million. CV shows the consistency of loan and advance growth of the bank. Here HBL has consistent growth of loan and advance with lower CV i.e., 40.66% than EBL with CV of 41.68% and NABIL with CV of 51.65%.

- Average fixed assets during the ten years of the study period for HBL is 1,890 million while average fixed assets for EBL is 1,272 million during the ten years of the study period. Similarly, NABIL average fixed assets during the ten years of the study period is 1,003 million. Results shows that all sample commercial banks purchase fixed assets in each fiscal year. CV indicate consistency growth of fixed assets during the study period. HBL fixed assets growth is more consistent with lower CV i.e., 26.13% than EBL i.e., 63.43% and NABIL i.e., 27.67%.

- The average other assets of HBL is 1,402 million during the study period while EBL has 2,243 million other assets during the study period. NABIL has 2,665 million other assets during the study period. The other assets is consistent for HBL with lower CV i.e., 17.62% than EBL i.e., 64.98% and NABIL i.e., 26.09%.

- The average ratio for return on assets is 1.68%, 1.70% and 2.26% for HBL, EBL and NABIL respectively. This indicates that the return on assets for the bank is satisfactory. Likewise, Standard deviation for the HBL, EBL and NABIL are 0.25%, 0.39% and 0.49% respectively. Coefficient of variation indicates the fluctuating trend or measuring the uniformity of the banks which is 14.79%, 22.94% and 21.90% for HBL, EBL and NABIL respectively.

- The mean of total deposit was 104,164.36 million and standard deviation 43,496.77 million. This means, sample commercial banks in Nepal, under the period of study, the average deposit is 104,164.36 million with minimum 47,731 million and maximum of 223,474 million.

- The average other liabilities were 5,144.53 million. The maximum value of other liabilities for the study year was 27,048 million whereas the minimum value was 897 million. Also, the standard deviation was 6,408.33 million which indicate there was average variation from the mean.

- The loan and advance have a minimum value of 35,968 million and a maximum of 206,622 million with a mean of 83,967.23 million. The average value of the fixed assets variable as proxied was 1,388.23 million.

- The maximum value of other assets for the study period was 5,146 million and a minimum value of 893 million. The standard deviation was 1,098.10 million.

- The average profitability was 1.89%. This means, on the average, for each one-rupee investment in the asset of commercial banks there was 0.019 return. The maximum value of ROA for the year was 3.03 whereas the minimum value was 0.84. Also, the standard deviation was 0.48 which indicate there was low variation from the mean.

- The correlation between profitability and total deposit was negatively correlated (-0.312) in opposite direction which is negative degree of correlation. Negative correlation coefficients indicate a reverse relationship, indicating that as increasing in total deposit result to decreased in profitability of the bank.

- The correlation between profitability and other liabilities is negatively correlate i.e. (-0.507) which indicates that the increase in other liabilities will decrease the profitability of sample commercial banks.

- Correlation between profitability and loan and advance was negatively correlate i.e. (-0.311) which the result can consider loan and advance and profitability are

in opposite direction, which means the increase in loan and advance, the profitability of the bank was decreased.

- Profitability and fixed assets have a negative correlation (-0.477). It means it should consider about profitability and fixed assets of the bank are simultaneously decreased.

- Correlation between profitability and other assets was positively correlate i.e. (0.156) which the result can consider other assets and profitability are in same direction, which means the increase in other assets, the profitability of the bank was increased.

- The Sig. (2-Tailed) value in Table 4.8 for total deposit, loan and advance and other assets are more than .05. Because of this, it can conclude that there is a statistically insignificant correlation between profitability of the bank and total deposit, loan and advance and other assets. But in case of other liabilities and fixed assets, it can be concluded that the p value for other liabilities and fixed assets is lower than 0.05. So, it is statistically significant relationship with profitability.

- The regression result from R square indicates that dependent variable (Profitability) on commercial banks, 35.9 percent explained by the independent variables used in this study and rests 64.1 percent are explained by other variables which were not included in this study.

- The f-static i.e., 2.691 is significant at the level of 5 percent because p value is lower than 0.05 i.e., 0.046<0.05 which means that the independent variables were able to explain the dependent variable

- Total deposit has negative effect on dependent variable profitability (ROA) and indicates statistically insignificant because p value for this variable is higher than 0.05 i.e., 0.395>0.05. This indicates that when the total deposit of sample commercial banks was increased then the profitability will be decreased.

-  Other liabilities have the negative effect on profitability and also it is statistically insignificant because its significance value is higher than 0.134>0.05.

- Loan and advance have the positive effect on profitability and it is statistically insignificant because its significance value is higher than 0.05 i.e., 0.372>0.05.

- Fixed assets have no effect profitability because its beta value is 0 and it is statistically insignificant because p value for this variable is higher than 0.05.
- Other assets have negative effect on profitability of sample commercial banks and also it is insignificant at 5% level of significance because its p value is higher than 0.05 i.e., 0.778>0.05.

# CHAPTER V
# SUMMARY, CONCLUSION & RECOMMENDATION

## 5.1 Summary

When it comes to the formation and operation of any business or not-for-profit organization, the source of financing is the most important factor to consider. Profit-oriented entities often get these sources via ownership capital, public capital through the issuance of shares, and through financial institutions such as banks, which provide loans, overdrafts, and other associated services in exchange for their capital contributions. Banks are important entities in the financial industry. Customers' needs are taken into consideration as the bank participates in the process of gathering dispersed money and assisting in its mobilization in various areas. Individuals' saving habits are encouraged by the bank, which in turn encourages other people to invest in their businesses. A banking loan may be used to fund investments in the industrial sector, the commercial sector, the manufacturing sector, and trade and commerce. The bank also contributes to the development of international commerce by acting as a middleman in the export and import of goods. Banks contribute to the strengthening of the national economy in this manner.

In the last two decades, the financial scenario of Nepal has dramatically changed. The vast development industrial sector or due to the presence of different kinds of risk in the economy brings so many banking institutions from private as well as public sector in Nepal. The present study is a conclusion-oriented study of effect of assets and liability management on profitability HBL, EBL and NABIL. The study had been undertaken to examine and evaluate the effect of assets and liability management on profitability of HBL, EBL and NABIL. The researcher had used the financial tools to make this study more effective and informative. This study has covered ten years' data from 2011/12 to 2020/21 of HBL, EBL and NABIL. Return on asset was taken as dependent variable to measure profitability and five independent variables are used these are total deposit, other liabilities, loan and advance, fixed assets and other assets. Random effect model was used to show the variables which are affect profitability of private commercial banks in Nepal weather positively or negatively. In this section, the researcher has tried to summarize the

effect of assets and liability management on profitability of sample commercial banks.

Assets and liability management analysis is the key tools for financial decision and starting for making plan before using sophisticated forecasting and budgeting. The study has used different financial indicators namely total deposit, other liabilities, loan and advance, fixed assets and other assets and statistical tools namely, correlation of coefficient, determination, t –test for the study of the sample banks.

With regard to the relationship between the selected variable to profitability measures of Return on Asset (ROA) total deposit, other liabilities, loan and advance and fixed assets had negative relation with the return on asset of banks and positive relation with other assets. These indicate that total deposit, other liabilities, loan and advance and fixed assets had inverse relation with the ROA. But other assets had direct relation with ROA. Fixed assets and other assets was significant at 5%. As to the explanatory power of the regression output 35.9% of the change in the return on asset can be explained by the selected variable. Generally, the study finds that all factors related to ALM significantly affect Nepalese private banks profitability for the last 10 years

## 5.2 Conclusion

On the basis of entire research study some conclusions have been deduced. This study particularly deals about the assets and liability management and its effect on profitability of commercial banks in Nepal. Certain conclusion has been derived after the financial as well as statistical tools have been measured on behalf of different aspect of the s and liability management and its effect on profitability of the concerned bank under study. After conducting the s and liability management and its effect on profitability of HBL, EBL and NABIL, covering the study period of 2011/12 to 2020/21, the conclusions have been drawn from the study.

Based on the findings, following conclusions have drawn as the concluding framework of the study on s and liability management and its effect on profitability analysis. Profitability and total deposit were inversely associated in the opposite direction, indicating a negative degree of association. Negative correlation coefficients imply a

reversal of the connection, suggesting that as total deposits increase, the bank's profitability decreases. Similarly, the connection between profitability and other liabilities is inverse, implying that a rise in other liabilities would reduce the profitability of the sample commercial banks. The correlation between profitability and loan and advance was negative, indicating that loan and advance and profitability are inversely related, implying that as loan and advance increased, the bank's profitability declined. Profitability and fixed assets have an inverse relationship. It indicates that the bank's profitability and fixed assets should be considered at the same time. The correlation between profitability and other assets was positive, indicating that other assets and profitability are moving in the same direction, implying that as other assets grow, so does the bank's profitability. The total deposit, loan, and advance, as well as other assets, exceeds.05. As a result, it is possible to conclude that there is a statistically insignificant correlation between the bank's profitability and total deposit, loan and advance, and other assets. However, in the case of other obligations and fixed assets, it is possible to infer that the p value is less than 0.05. As a result, there is a statistically significant association between profitability and this factor.

According to the regression results, the dependent variable (Profitability) on commercial banks is explained in 35.9 percent by the independent factors utilized in this research, and the remaining 64.1 percent is explained by other variables not included in this study. Total deposit has a negative influence on the dependent variable profitability (ROA), although this effect is statistically negligible. This suggests that increasing the total deposit of the sample commercial banks reduces profitability. Similarly, other liabilities have a negative impact on profitability and are statistically negligible. Similarly, loan and advance have a beneficial influence on profitability that is statistically negligible. Fixed assets have no influence on profitability since their beta value is zero, and they are statistically insignificant because their p value is greater than 0.05. Finally, other assets have a negative impact on the profitability of the sample commercial banks, although the impact is minor.

## 5.3 Recommendations

Based on the major finding and conclusion of the study of assets and liability management and its effect on profitability of concerned sample bank some suggestions made. To following points are highlighted to put forward for the further improvement of all commercial banks.

- Total deposit of sample commercial banks is in increasing trend during the study period. So, it is recommended that all sample banks should maintain the increasing trend to maintain the liquidity which is directly related to profitability of commercial banks.

- Other liabilities of EBL is too high as compare to HBL and NABIL. So, it is recommended to EBL to maintain the tiny liabilities properly which comes into the group of other liabilities.

- Loan and advance of all sample commercial banks is in increasing trend. So, all banks are recommended to maintain the trend to increase the profitability of commercial banks.

- The earning quality ratios of banks like ROA are in increasing trend. So, all banks recommended that to increase more profit of the bank should minimized its operating cost by increasing the operating efficiency of its employees.

- Finally, this study is the impact of asset liability management on profitability (RoA) of private commercial banks in Nepal Therefore; the researcher would like to recommend future researchers to include the impact of macroeconomic factors variables such as GDP, inflation related, government regulation and policy in order to obtain reliable results.

# REFERENCES

Ajibola, J.O. (2016). The effects of assets and liability management on financial performance of some selected Nigerian banks. *Journal of Accounting and Financial Management, 2*(2), 44-63.

Angelopoulos, P. & Mourdoukoutas, P. (2001). *Banking risk management in a globalizing economy*. Greenwood Publishing Group, Westport, CT

Basel Committee. (2006). International convergence of capital measurement and capital standards: A revised framework-comprehensive version. *Basel Committee on Banking Supervision*

Belete, T. (2013). Asset liability management and commercial banks profitability in Ethiopia. *Journal of Finance and Accounting, 4*(10), 2222-2235.

Choudhry, M. (2007). *Bank asset and liability management: strategy, trading, analysis*. United Kingdom: Jhon Wiley and Sons Ltd.

Darshan, N.M. & Yogashree, C. (2019). A Study on effect of asset liability management on financial performance of Axis Bank. *International Journal of Research in Engineering Science and Management, 2*(6), 654-659.

Deloof, M. (2003). Asset liability management affect profitability of Belgian firms. *Journal of Business Finance and Accounting, 3*(4), 573-587.

Koch, T. W. & McDonald (2003). *Bank management. 3rd ed*. Sydney: Thomson Publication.

Chakraborty, T. (2008). Asset liability and profitability: An empirical analysis of their relationship with reference to selected companies in the Indian pharmaceutical industry. *Journal of Management Research, 3*(4),1-2

Crockford, N. (1986). *Introduction to risk management*. Cambridge: Woodhead-Faulkner.

Emmanuel, N.R, (1997), *Commercial banking in an era of deregulation*. Westport: Greenwood Publishing Group.

Evans, T. (2017). Asset liability management and the profitability of listed banks in Ghana. *IOSR. Journal of Economics and Finance (IOSR-JEF), 8*(3), 09-14

Fabozzi, F.J., & Konishi, A. (1995). *Asset-liability management*. New Delhi: S Chand & Co.

Flamini, C., Valentina C., McDonald, G. & Liliana, S. (2009). The determinants of commercial bank profitability in Sub-Saharan Africa. *IMF Working Paper.*

Gautam, R (2018). The industry effects regarding the probability of takeovers. *The Financial Review, 34*(3), 1-17.

Kumari & Rasika, (2018) conducted a research study on Impact of the assets and liability management on financial performance; evidence from listed commercial banks in Colombo stock exchange. *Conference Paper, Colombo, 19-25.*

Nzongang, T. & Atemnkeng, J. (2006). Market structure and profitability performance in the banking industry of CFA countries: The case of commercial banks in Cameroon. *International Business and Management Journal, 18*(1), 189-196.

Obari, L. A (2015). *The effect of asset liability management on profitability of commercial banks in Kenya*. University of Nairobi.

Ouzsoy, C. & Güven, S. (1997). Assets and liability management in commercial banks. *Applied Economics, 35*(1), 959-971.

Owusu, F. & Alhassan, A.L. (2020). Asset-Liability management and bank profitability: Statistical cost accounting analysis from an emerging market. *International Journal of Finance & Economics, 26*(1). 10-23.

Rahman, O.A. & Kolawole, A. (2020). A study on asset liability management and performance of listed deposit money Banks in Nigeria. *Asian Journal of Economics, Finance and Management, 2*(4), 40-58.

Romanyuk, Y. (2010). Asset-liability management: An overview. *Discussion Papers 10-10, Bank of Canada.*

Rowe, D. Jovic, D. & Reeves, R. (2004). The continuing saga - Basel II developments: bank capital management in the light of Basel II - how to manage capital in financial institutions. *Balance Sheet, 12*(3), 15-21.

Shrestha, (2015). Asset liability management and commercial banks' profitability in Nepal. *Academic Voices, A Multidisciplinary Journal, 5*(1), 40-47.

Singh, K. (2013). Asset liability management in banks. AIMA *Journal of Management & Research, 7*(1), 61-76.

Tee, E. (2017). Asset liability management and the profitability of listed banks in Ghana. *IOSR Journal of Economics and Finance, 8*(3), 9-14.

Uyemura, D. G. (2003). *Financial risk management in banking: The theory & application of asset & liability management*. New York: Bankers Publication.

Uyemura, D.G. & Van Deventer, D.R. (2003). *Financial risk management in banking*. McGraw-Hill, New York, NY.

Van D., & Mesler, I. (2004). *Advanced financial risk management: tools & techniques for integrated credit risk and interest rate risk managements*. Singapore: John Wiley.

Vossen, B. (2010). A study on bank liquidity management. *University at Albany, State University of New York.*

Zawalinska, K. (1999). Asset and liability management. the institutional approach to ALM by commercial banks in Poland: *A Special Focus on Risk Management, CASE-Center for Social Science Research, Warsaw.*

## For HBL

| Fiscal Year | Total Deposit | | Other Liabilities | | Loan and Advance | |
|---|---|---|---|---|---|---|
| | X | $(X-\bar{X})^2$ | X | $(X-\bar{X})^2$ | X | $(X-\bar{X})^2$ |
| 2011/12 | 47,731 | 1735472281 | 1,160 | 674041 | 35,968 | 1498928656 |
| 2012/13 | 53,072 | 1318997124 | 1,259 | 521284 | 41,057 | 1130775129 |
| 2013/14 | 64,675 | 610831225 | 1,403 | 334084 | 45,320 | 862244496 |
| `2014/15 | 73,538 | 251285904 | 1,372 | 370881 | 53,476 | 449779264 |
| 2015/16 | 87,336 | 4218916 | 1,528 | 205209 | 67,746 | 48135844 |
| 2016/17 | 92,891 | 12257001 | 1,861 | 14400 | 76,394 | 2924100 |
| 2017/18 | 98,989 | 92140801 | 1,814 | 27889 | 86,160 | 131698576 |
| 2018/19 | 109,387 | 399880009 | 2,777 | 633616 | 99,530 | 617323716 |
| 2019/20 | 125,264 | 1286943876 | 3,541 | 2433600 | 109,092 | 1183910464 |
| 2020/21 | 141,021 | 2665760161 | 3,091 | 1232100 | 132,094 | 3295908100 |
| Total | 893,904 | 8377787298 | 19,806 | 6447104 | 746,837 | 9221628345 |
| Mean | 89,390 | | 1,981 | | 74,684 | |
| S.D. | 28944.41 | | 802.94 | | 30367.13 | |
| C.V. | 32.38% | | 40.54% | | 40.66% | |

| Fiscal Year | Fixed Assets | | Other Assets | | Return on Assets | |
|---|---|---|---|---|---|---|
| | X | $(X-\bar{X})^2$ | X | $(X-\bar{X})^2$ | X | $(X-\bar{X})^2$ |
| 2011/12 | 1,305 | 342225 | 1,435 | 1089 | 1.73 | 0.0025 |
| 2012/13 | 1,309 | 337561 | 1,418 | 256 | 1.51 | 0.0289 |
| 2013/14 | 1,323 | 321489 | 1,366 | 1296 | 1.3 | 0.1444 |
| 2014/15 | 1,321 | 323761 | 1,439 | 1369 | 1.34 | 0.1156 |
| 2015/16 | 1,923 | 1089 | 1,531 | 16641 | 1.94 | 0.0676 |
| 2016/17 | 2,176 | 81796 | 1,841 | 192721 | 2.03 | 0.1225 |
| 2017/18 | 2,223 | 110889 | 1,063 | 114921 | 1.61 | 0.0049 |
| 2018/19 | 2,392 | 252004 | 1,075 | 106929 | 2.04 | 0.1296 |
| 2019/20 | 2,412 | 272484 | 1,129 | 74529 | 1.63 | 0.0025 |
| 2020/21 | 2,519 | 395641 | 1,718 | 99856 | 1.68 | 0 |
| Total | 18,903 | 2438939 | 14,015 | 609607 | 16.81 | 0.6185 |
| Mean | 1,890 | | 1,402 | | 1.68 | |
| S.D. | 493.86 | | 246.90 | | 0.25 | |
| C.V. | 26.13% | | 17.62% | | 14.79% | |

| Fiscal Year | Total Deposit | | Other Liabilities | | Loan and Advance | |
|---|---|---|---|---|---|---|
| | X | $(X-\bar{X})^2$ | X | $(X-\bar{X})^2$ | X | $(X-\bar{X})^2$ |
| 2011/12 | 50,006 | 2406294916 | 897 | 92256025 | 36,617 | 1783964169 |
| 2012/13 | 57,720 | 1708995600 | 1,084 | 88698724 | 44,198 | 1201038336 |
| 2013/14 | 62,108 | 1365450304 | 1,119 | 88040689 | 47,572 | 978563524 |
| 2014/15 | 83,094 | 254913156 | 7,609 | 8369449 | 54,482 | 593994384 |
| 2015/16 | 93,735 | 28355625 | 9,092 | 1988100 | 67,955 | 118788201 |
| 2016/17 | 95,094 | 15729156 | 8,206 | 5271616 | 77,288 | 2452356 |
| 2017/18 | 115,512 | 270668304 | 11,076 | 329476 | 94,182 | 234947584 |
| 2018/19 | 129,568 | 930738064 | 18,460 | 63329764 | 112,007 | 1099121409 |
| 2019/20 | 143,545 | 1978915225 | 20,428 | 98525476 | 119,068 | 1617165796 |
| 2020/21 | 160,220 | 3740545600 | 27,048 | 273770116 | 135,173 | 3171829761 |
| Total | 990,602 | 12700605950 | 105019 | 720579435 | 788,542 | 10801865520 |
| Mean | 99,060 | | 10,502 | | 78,854 | |
| S.D. | 35637.91 | | 8488.70 | | 32866.19 | |
| C.V. | 35.98% | | 80.83% | | 41.68% | |

| Fiscal Year | Fixed Assets | | Other Assets | | Return on Assets | |
|---|---|---|---|---|---|---|
| | X | $(X-\bar{X})^2$ | X | $(X-\bar{X})^2$ | X | $(X-\bar{X})^2$ |
| 2011/12 | 548 | 524176 | 1,127 | 1245456 | 1.95 | 0.0625 |
| 2012/13 | 631 | 410881 | 1,237 | 1012036 | 2.24 | 0.2916 |
| 2013/14 | 606 | 443556 | 2,590 | 120409 | 2.2 | 0.25 |
| 2014/15 | 630 | 412164 | 3,821 | 2490084 | 1.59 | 0.0121 |
| 2015/16 | 679 | 351649 | 3,935 | 2862864 | 1.52 | 0.0324 |
| 2016/17 | 728 | 295936 | 5,146 | 8427409 | 1.72 | 0.0004 |
| 2017/18 | 1,862 | 348100 | 893 | 1822500 | 1.78 | 0.0064 |
| 2018/19 | 2,116 | 712336 | 973 | 1612900 | 1.8 | 0.01 |
| 2019/20 | 2,151 | 772641 | 1,557 | 470596 | 1.36 | 0.1156 |
| 2020/21 | 2,768 | 2238016 | 1,154 | 1185921 | 0.84 | 0.7396 |
| Total | 12719 | 6509455 | 22,433 | 21250175 | 17 | 1.5206 |
| Mean | 1,272 | | 2,243 | | 1.70 | |
| S.D. | 806.81 | | 1457.74 | | 0.39 | |
| C.V. | 63.43% | | 64.98% | | 22.94% | |

| Fiscal Year | Total Deposit | | Other Liabilities | | Loan and Advance | |
|---|---|---|---|---|---|---|
| | X | $(X -\bar{X})^2$ | X | $(X -\bar{X})^2$ | X | $(X -\bar{X})^2$ |
| 2011/12 | 55,024 | 4763622361 | 1,072 | 3530641 | 41,606 | 3221470564 |
| 2012/13 | 63,610 | 3652147489 | 1,071 | 3534400 | 46,370 | 2703376036 |
| 2013/14 | 75,389 | 2367211716 | 2,357 | 352836 | 54,692 | 1907243584 |
| 2014/15 | 104,238 | 392238025 | 1,468 | 2199289 | 65,502 | 1079911044 |
| 2015/16 | 110,267 | 189778176 | 2,233 | 515524 | 76,106 | 495418564 |
| 2016/17 | 118,684 | 28718881 | 2,552 | 159201 | 89,877 | 72029169 |
| 2017/18 | 135,979 | 142468096 | 3,256 | 93025 | 115,415 | 290736601 |
| 2018/19 | 162,954 | 1514065921 | 4,302 | 1825201 | 133,558 | 1238617636 |
| 2019/20 | 190,806 | 4457298169 | 4,497 | 2390116 | 153,890 | 3083136676 |
| 2020/21 | 223,474 | 9886523761 | 6,703 | 14077504 | 206,622 | 11719794564 |
| Total | 1,240,425 | 27394072595 | 29,511 | 28677737 | 983,638 | 25811734438 |
| Mean | 124,043 | | 2,951 | | 98,364 | |
| S.D. | 52339.35 | | 1693.45 | | 50805.25 | |
| C.V. | 42.19% | | 57.38% | | 51.65% | |

| Fiscal Year | Fixed Assets | | Other Assets | | Return on Assets | |
|---|---|---|---|---|---|---|
| | X | $(X -\bar{X})^2$ | X | $(X -\bar{X})^2$ | X | $(X -\bar{X})^2$ |
| 2011/12 | 888 | 13225 | 1,549 | 1245456 | 2.69 | 0.1849 |
| 2012/13 | 872 | 17161 | 2,150 | 265225 | 3.03 | 0.5929 |
| 2013/14 | 843 | 25600 | 2,732 | 4489 | 2.66 | 0.16 |
| 2014/15 | 812 | 36481 | 2,372 | 85849 | 1.81 | 0.2025 |
| 2015/16 | 770 | 54289 | 3,243 | 334084 | 2.21 | 0.0025 |
| 2016/17 | 791 | 44944 | 3,979 | 1726596 | 2.59 | 0.1089 |
| 2017/18 | 986 | 289 | 2,071 | 352836 | 2.47 | 0.0441 |
| 2018/19 | 1,052 | 2401 | 2,591 | 5476 | 2.11 | 0.0225 |
| 2019/20 | 1,318 | 99225 | 2,428 | 56169 | 1.46 | 0.64 |
| 2020/21 | 1,693 | 476100 | 3,535 | 756900 | 1.56 | 0.49 |
| Total | 10025 | 769715 | 26,650 | 4833080 | 22.59 | 2.4483 |
| Mean | 1,003 | | 2,665 | | 2.26 | |
| S.D. | 277.44 | | 695.20 | | 0.49 | |
| C.V. | 27.67% | | 26.09% | | 21.90% | |