



DETERMINANTS OF LENDING DECISION OF PRIVATE COMMERCIAL BANKS IN ETHIOPIA

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*A THESIS SUBMITTED TO
DEPARTMENT OF ACCOUNTING AND FINANCE OF
ADDISABABA UNIVERSITY*

*IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE IN ACCOUNTING AND FINANCE*

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ADDIS ABABA, ETHIOPIA

JUNE 19, 2021

Declaration

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously in its entirety or in part submitted at any university for a degree.

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ACKNOWLEDGMENTS

First and foremost, I would like to express my sincere thanks to the Almighty God who initiates me to begin and helps me to finalize the study .My Special thanks goes to my advisor Sewale Abate (PHD) for his unreserved assistance in giving me valuable comments throughout the study. Next, I would like to acknowledge all my friends for their unreserved and valuable advice for the study. Finally I would like to express my sincere and deepest gratitude to my family for their unlimited advisory as well as moral support from the beginning up to completion of the study.

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Abstract

The main objective of this study was to examine the determinants of lending decisions of private commercial banks in Ethiopia from year 2011 to 2020. The study used panel data of eight private commercial banks of Ethiopia selected purposively. The study applied explanatory research design and secondary data were analyzed through multiple linear regression models of the bank's lending decision; Loan and advance (LOA). Random effect regression model were applied to analyze the effect of asset quality, capital adequacy, liquidity, lending interest rate, money supply, return on equity and volume of deposit on lending decision of private commercial banks. The finding of the study indicates that volume of deposit, Liquidity, Capital adequacy, Money supply and asset quality have significant effect on lending decisions of private commercial banks in Ethiopia, Whereas, return on equity and Interest rate have insignificant effect on lending decisions of private commercial banks in Ethiopia.

Key words: lending decision, LOA

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List of Acronyms

AIB: Awash International Bank

BIB: Buna International Bank

BOA: Bank of Abyssinia

CAR - Capital Adequacy Ratio

CC: Correlation Coefficient

CLRM: Classical Linear Regression Model

DB: Dashen Bank

FE: Fixed Effect Model

GDP: Gross domestic Product

INF: General inflation rate

IR: Interest rate

LR: Liquidity ratio

LOA: Loan and advance

NBE: National Bank of Ethiopia

NIB: Nib international Bank

NPLR - Nonperforming loan ratio

OLS: Ordinary Least Square

RE: Random Effect

ROE - Return on Equity

UB: United Bank

VD: Volume of deposit

VIF: Variance inflation factor

WB: Wogagen Bank

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Banks are financial institutions with a mandate to use the deposits generated from the public for the purpose of granting loans and advances—especially to those business enterprises for need of funds for their operations and expansion. They play significant role in economic growth of developing nations. In bank dominated economies, the role of commercial banks are paramount in providing the much-needed funds to the public, as being the major and probably only source of funds in the absence of a well-developed capital market.

Commercial banks' lending activities can be expressed as the hearts of banking business act as an intermediary's role in the financial market by linking the excess and the deficit unit.

Commercial bank collect deposit from the general public, who has excess of fund, meanwhile uses the fund to lend out loans to the deficit unit in the financial market.

Malede (2014) Lending plays a significant role in commercial banks daily Banking business where loan and advance constitutes the largest components in the bank's asset portfolio and major source of income for the bank.

Commercial banks are the most important financial institution in mobilizing Deposit and allocating financial resources. Therefore, these roles enables them to become very paramount important in economic growth and development of a country, in order to Perform this role, it must be realized that banks have the potential, scope and prospects for mobilizing financial resources and allocating them to productive investments

Olokoyo (2011) in Ethiopia commercial banks perform several Business Activities such as collecting deposits and extending credit to Borrowers for increasing their investment productivity. Hence, commercial banks play a significant role in economic developments of country through maintaining the main working guiding principles of Liquidity, Solvency and profitability.

Therefore, Cash reserve requirements Becomes an alternative ways to maintain the liquidity of commercial banks.

In Ethiopia national banks set this requirement as mandatory precondition to maintain liquidity problems of all commercial banks. However, this requirement becomes at the center of an intense national dialogue.

Malede (2014) Lending Decisions of commercial banks are influenced by various factors such as volume of deposit, Capital adequacy, asset quality, inflation, gross domestic product and Investment

Olokoyo (2011) Commercial Banks Lending behaviors depends on size of bank, the deposit base, the capital base, and density of the deposit and the credit guidelines issued from time to time by the controlling authority and internal policies of the banks since loans and advances accounts for the highest percentage of the total assets of the banks. Although these factors or policies are internal, they, however, to a large extent mimic the general macroeconomic environment, such that the general loan behavior of banks will be a signals Reflection.

Ethiopia is a developing nation among the Next Eleven, after the BRICS. It would be interesting to know that Ethiopia performed consistently by registering sustained economic development in the recent decade as observed in (Kannan and Sudalaimuthu, 2015).

Ethiopia's banking industry is fast growing as evidenced by the number of banks started up in the last two decades, since liberalization in the country. Ethiopia opened the gates of banking to private natives only in 1994

According to National banks of Ethiopia, (2016, Annual report) the total numbers of banks operating in Ethiopia remained at eighteen of which sixteen were private and two government owned. There by raising the total number of bank branches to 6,040. Meanwhile, the total capital of the banking system amounted to Birr 103.2 billion, of which public banks accounted for 55.8 percent and private banks 44 percent. The claims on the private sector and 22.9 percent on public banks, meanwhile, the total outstanding loan advance extended the banking industry (excluding credit to government) increased to Birr 574 billion, showing a 28.1 percent annual growth. Out of

the total outstanding loans and advances of the private banks, 52.8 percent was claims on the private sector and 22.9 percent on public banks.

Loans and advance of commercial banks can be extended to prioritized sector of economy so as to enhance economic growth and development in a Country. In consideration of these regulations, Commercial banks issued credit guidelines, policy and procedures important to avoid failure and to increase maximum profitability in their banks' lending activities.

These generally depend on type of bank, the capital base, the deposit base and density of the deposit, the credit guidelines issued from time to time by the regulating authority and internal policies of the banks since loans and advances accounts for the highest percentage of the total assets of the banks.

Commercial Banks always want to grant loan and advance irrespective of where they get the money needed to carry out their banking Business. Nevertheless, Liquidity, solvency, and profitability are very important elements that directs banks in lending activities

Generally, According to various studies Commercial Banks' lending decision can be determined by internal and external factors, for example; volume of deposit, Capital adequacy, asset quality, Liquidity, interest rate inflation, gross domestic product and Investment.

Thus, this study becomes important because private commercial banks in Ethiopia need to understand how to manage these huge assets in terms of their loans and advances. For the banks to achieve their main objectives of liquidity, profitability and solvency, lending must be handled effectively and the banks must behave in a way that their potential customers are retained and attracted

Therefore, the study has been carried out to examine the determinants of lending decisions of private commercial banks in Ethiopia.

1.2 Statement of the problem

Lending is the major business activity for commercial banks (comptroller, 1998). The loan portfolio constitutes the largest asset and the banks' predominant sources of income. Hence it is crucial for Commercial banks to understand the factors that influence the banks' lending behavior in Order to maximize their productivity and performance.

According to Adedoyin and Sobodun (1991) lending Activities is the Principal banking business activities. Hence, it requires considerable skills and knowledge to administer lending activities to banks managements .Where as a bank is irrevocably committed to pay interest on deposits mobilized from different sources, the ability to articulate loan able avenues where deposit funds could be placed to generate reasonable income; maintain liquidity and ensure safety requires a high degree of pragmatic policy formulation and application.

Lending activities of commercial banks is influenced many internal and external factors. According to Olokoyo (2011); Olumuyiwa, (2012)and Malede(2014), internal factors of commercial banks' lending are under the control of bank management whereas external factors emanated from the regulatory body of central banks and other regulatory authorities in the financial sector of the economy and from the general macroeconomic factors. As such, investigating these major factors that influences the lending activities of commercial banks becomes the critical task of different Scholars.

Accordingly, several studies have been carried outto examine the determinants of lending decision of commercial banks indifferent countries of the world. For instance Amidu (2014) investigated that High portion of the NPL on the banks' financial statement would dissuade the banks from extending the loans and consequently reduce the volume of lending by the banks Imran and Nishat (2013) Revealed that Banks with high volume of deposits would have higher liquidity and more capacity to provide loans.

Commercial bank that holds High liquidity will reduce the banks capacity to extend loan and advance to customers (Rababah, 2015).

Mitku (2014), Olusanya et al (2012), Amano (2014), studied the determinants of Lending decision of commercial banks in Ethiopia who found a positive and significant effect of volume of deposit on lending decision of commercial banks.

Amano (2014), Zelalem (2017) and Aytenew (2016) found the negative relationship of lending interest rate and loan and advance. However, Malde (2014), Taye (2020), found positive significant relationship. Olokoyo (2011) who found Liquidity ratio do not impact negatively on banks' lending behavior and compliance with the rules and regulations that National Bank issues has a positive impact on commercial Banks. But Amano (2014),Taye (2020), Ajayi (2007) asserted that there exists a negative relationship between Loans and Advances and liquidity ratio. However, the results of those studies were inconsistent.

Besides, there has not been much research which is carried out to date on the determinants private commercial banks' Lending decision in Ethiopia except the study undertaken by Dereje (2017), and Taye (2020), studied the determinants commercial banks' Lending behaviors in Ethiopia. In those studies, variables return on equity and money supply were not included, though it is very important determinants lending decision of commercial banks.

In light of the above the research gaps, the objectives of this study was to examine the determinants of lending decision of private commercial banks in Ethiopia.

1.3. Objective of the study

1.3.1. General objective

The main objective of this study is to examine the determinants of private commercial banks' lending decision in Ethiopia.

1.3.2. The specific objectives of study are:

- To analyze the effect of volume of deposit on private commercial banks' lending decision
- To analyze the effect of Capital adequacy on private commercial banks' lending decision
- To analyze the effect of Lending interest rate on private commercial banks' lending decision
- To analyze the effect of Liquidity on private commercial banks' lending decision
- To analyze the effect of asset quality on private commercial banks' lending decision
- To analyze the effect of money supply on private commercial banks' lending decision
- To analyze the effect of return on equity on private commercial banks' lending decision

1.4 Research questions

This study sought to answer the following research questions;

- How volume of deposit affect private commercial banks' lending decision
- How Capital adequacy affect private commercial banks' lending decision
- How Lending interest rate affect private commercial banks' lending decision
- How Liquidity affect private commercial banks' lending decision
- How asset quality affect private commercial banks' lending decision
- How money supply affect private commercial banks' lending decision
- How return on equity affect private commercial banks' lending decision

1.5. Hypotheses of the study

To achieve the objectives of the study and to answer clearly research questions, the following null hypotheses have been developed to estimate the relationship between banks internal and external factor with banks' lending.

Based on the objectives of the study researcher develops the following arguments.

- **H 1:**Lending interest rate has negative and significant effect on bank's lending decision
- **H2:** Capital adequacy has positive and significant effect on bank's lending decision
- **H3:**Volume of deposit has positive and significant effect on bank's lending decision
- **H4:**Liquidity ratio has negative and significant effect on bank's lending decision
- **H5:**Return on equity has Negative and significant effect on bank's lending decision
- **H6:** Money Supply has positive and significant effect on bank's lending decision
- **H7**Asset Quality has positive and significant effect on bank's lending decision

1.6. Significant of the study

Banks are one of the most important financial institutions for country's economic development through lending money to investors and the business community.

Lending also has important function for commercial banks. Its significance to asset and income portfolio is very high in Commercial banks. So understanding the determinants of lending decision plays crucial role

- This study thus would help management of private commercial banks to make them aware and to give due attention about the key determinants of lending behaviors. The findings of this study will be important to understand the lending behavior of commercial banks in distributing loans and Advance to public.
- The study would also contribute to the existing body of knowledge in the area of determinants of lending decisions in private commercial banks in Ethiopia. This in turn contributes to the wellbeing of the banking sector of the economy in the country and the people as a whole. Hence, the Major beneficiaries from this study will be commercial banks, regulatory bodies, and the academic staff of the country and stockholders of commercial banks
- Finally, this study will also be used as a basis for any further research that will need to explore on some other concerns which was not covered by this research

1.7. Scope of the study

The scope of the study was limited to examining the determinants of commercial banks' lending in Ethiopia. Although, there are sixteen private commercial banks operating in Ethiopia, the study covered only eight purposely selected private commercial banks that have at least ten years of experience at the end of December 31, 2020 which the result may not represent the whole population. The study covered a span of ten years that was from 2011 -2020;

1.8. Limitation of the study

The study attempted to examine bank specific and macroeconomic determinants of private commercial banks' lending in Ethiopia. However, all variables that have effect on banks' loan and advance are not incorporated in this study. There have to be further study on the determinants of Ethiopian commercial banks' loan and advance by considering other industry specific variables and government regulations. In addition, the study only investigates on demand side .it is also recommended to investigate including the customer side that is investigating both the demand and supply side.

1.9. Organization of the study.

This research paper comprises five chapters. Chapter one provided the general introduction.

Chapter two described the review of related literatures. Chapter five contains research design and methodology Chapter four contains results and discussion and Chapter five gives conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter contains a review of literature presented by various authors and scholars based on the objectives of the study. The literature review provides an explanation of theoretical rationale of the problem being studied as well as what research has already been done and how the Findings relate to the problem at hand. The chapter discusses the Theoretical review, literature Review and empirical review

2.2. Theoretical Literature Review

2.2.1 Banking

Banks are financial institutions that accept deposits from the public and obtain money from such other sources as may be available to them in order to extended loans to those in need of the money.

Commercial banks serve as a financial intermediary by linking the surplus funds with those who are in needs of funds, thus ensuring the fund available to the industry (Goosen, 1999),

In so doing, Commercial banks earn income when they extend loan and advance to customers at higher interest rate than they pay interest for depositors for use of their fund.

A Bank's main source of income is interest. A bank pays a lower interest rate on deposits and receives a higher interest rate on loans.

The difference between these rates is the bank's net income. Banks and other financial institutions exist in order to earn a profit and to ensure that shareholders' Value is maximized.

Currently in most jurisdictions commercial banks are regulated by government entities such as central banks and require a special bank license to operate. The requirements for the issue of a bank license vary between jurisdictions but typically include: Minimum paid up capital

2.2.2 Role of Banks

The primary role of a bank is intermediation by way of collecting savings from depositors and making these savings available as loans to borrowers. In performing this function, banks are regulated often by the environment within which they operate. It is argued that banks cannot compensate an increased failure risk by charging higher interest rates (Stiglitz and Weiss, 1981). This therefore prompts any financial institution to request for collateral from the borrower to minimize losses that might occur from loan defaults.

However, there are challenges experienced for banks to experience growth. This is because of exposure to risks while performing their roles. By solving the problem of asymmetric information among agents and by diversifying risks, Banks manage to reduce costs that would be incurred on the exchange of financial funds. This therefore enables their efficient allocation of financial resources within the economy (King and Levine, 1993; Olusanya, 2012). Economic decisions related to consumptions and investments are thus made possible through the financial system since it is aimed at increasing productivity growth of the economy (Karimi, 2006).

As posited by different theories, bank's lending behavior is a culmination of a number of factors both external and internal to the bank. However, each theory addresses effects of a certain identical variables on lending behavior by banks (Ewert et al., 2000). For instance, bank lending channel theory only looks at the effects of reserve requirements while pro-concentration theory focuses on how bank capitalization affects the bank's lending behavior. Alternatively, Kashyap, et al., (1993) argues that bank lending reduces through monetary contraction as posited by the Keynesian theory. This implies credit available from the banks is reduced

The banking sector makes a meaningful contribution to the economic growth of country.

Commercial banks play significance roles by mobilizing resources and allocating these resources efficiently to the most productive investment areas in the real Economy.

Therefore, banks contribute to the growth and economic development of countries by availing credit facilities to borrowers

Bagehot (1873) Banks pool resources together for projects that are too large for individual shareholders to undertake. They are also considered the most important enabler of financial transactions in any country's economy and are the principal source of credit (Rose, 2002). Bank finance is the primary source of debt financing.

Saunders & Cornett (2003) Commercial banks extend loans and advances to different types of borrowers for many diverse purposes either for personal, business or corporate clients.

Commercial bank's role has expanded considerably and is no longer limited to the taking of deposits and providing credit. Banks also perform the following activities.

- Money creators: Commercial banks create money by way of deposit liabilities. In contrast to liabilities of other businesses, bank liabilities are generally accepted as a means of payment.
- Managers of the payment system: This refers to the payment of cheques through the Automatic Clearing Bureau (ABC). It also facilitates payments of credit and debit cards, internet and cell phone banking and automatic teller machines.
- Creators of indirect financial securities: Commercial banks hold assets that are subject to specific risks, while issuing claims against them in which these risks are largely eliminated through diversification.
- Information agents: Commercial banks developed sound databases of client information and the information is not publicly available (asymmetric information). The information is only shared with other banks by way of a bank code or a full general bank report.
- Financial 'spectrum fillers: The capital market cannot supply the full range of instruments required by borrowers.
- Dealers in foreign currency: Due to the globalization of the world's economies this has become a very important function. Commercial banks assist in the conversion of currencies, transfer of funds and negotiate foreign financing. (Weishong and Kuochung, 2006).

Notwithstanding all other activities, lending activities are considered as the basic functions of the commercial banking industry for utilization of funds.

Since, in banking industry a major portion of profit is gained from credit and administrations of loan portfolio seriously impacts the profitability of banks.

2.2.3. Development of Banking in Ethiopia

In Ethiopia Banking industry is relatively a new concept. The history of banking can be date back to the establishment of Bank of Abyssinia in March 1905.

It was organized and owned by The National Bank of Egypt, an affiliate of the Bank of England, which was given monopoly in banking industry with regard to other foreign banks and other privileges set up a bank.

On 1st January 1910 bank of Abyssinia's headquartering in a new building was established The bank was purchased by the order of the Emperor from the foreign company and was chartered on 29th August 1931 as Bank of Ethiopia.

During the Italian occupation branches of Bancodi'Italia, Bancodi'Roma, Bancodi'Napali and BancoNationale del Lavoro were established. Barclays Bank and Dominion colonial & overseas came to Ethiopia

In 1941 with the British troops and organized Banking services in Addis Ababa.

They withdraw in 1943 with the British troop. The same year Bancodi Indo China was established.

In 1942 National and commercial Bank proclamation was entrusted to the state Bank of Ethiopia for monitoring the issue of currency holding the foreign reserves of the country and acting as a fiscal agent of the government. Since the economy was highly under developed the monetary situation was quite confused and credit was practically non-existent. Agricultural bank was established in 1945 to help the rehabilitation of the agricultural sector. Four years later the same was changed as agricultural and commercial bank.

In 1951 with the recommendation and assistance of the World Bank (the IBRD), the bank was further converted into the development bank of Ethiopia.

In 1961 Imperial Savings and Home Ownership Public Association (ISHOPA) was established as a building society for encouraging thrift schemes in residential construction by the effective resource mobilization in Ethiopia.

In December 1963 the Banking Business was reorganized in Ethiopia. It splits the functions of national Banking and Commercial Banking activities, which until this time it was carried out by the State Bank of Ethiopia.

Commercial bank of Ethiopia was incorporated as Share Company with the following functions • Carrying out of all types of banking business and operations. • Attracting public deposits of all kinds including savings • Promoting the banking habit and facilitating business transactions.

On the same year, in 1963 Development bank of Ethiopia was reorganized as Agricultural and Commercial Bank of Ethiopia.

In 1963 Ethiopian Investment Corporation was established with the objectives of rendering services, which are beyond the scope of the exiting banking industry, and conducting all operations incidental to a general investment banking business.

In October 1964 Addis Ababa Share Company the first private domestic bank was established. Mortgage Company of Ethiopia was established In July 1965 to make available financial means and credit facilities for the construction of commercial, industrial and residential buildings against mortgage of immoveable properties.

In 1974, with the change in the government, all private banks were centralized and there were only three banks namely Commercial Bank of Ethiopia, Agricultural and Industrial Bank and Mortgage Bank of Ethiopia, were functioning. Again, after the fall of Dereg regime and with the opening of free market economy many private banks namely Wogagen Bank S.C. Nib International Bank, Dashen Bank S.C, Awash International Bank S.C United Bank S.C, Bank of Abyssinia S.C was established.

2.3 Definition and Concept

2.3.1 Overview of Loans and Advances

Lending is one of the most important functions of banks. It is one of the basic functions of a bank next to the function of accepting deposits. Basically, accepting deposits and advancing loans and advances are known as the main functions of the bank. Accepting deposits is to make loans available to borrowers. Therefore, they are supportive functions of a bank.

The bank creates loans and advances on funds from deposits accepted from the public in the form of savings; therefore, the bank is lending, in practice, not its own money, but the depositors' money. Therefore, the bank should take all the necessary precautions while lending money so as to insure the repayment of advanced money. Otherwise, it will be closed if the money is not available and a loan is not collected at its possession to honor a cheque issued by customers.

Hence, in order to avoid this problem, banks develop loan policies and procedures. This enables them to follow uniformity and minimizes the predicted errors while lending.

2.3.2 Meaning of Loans and Advances

Loans and advances are described with respective laws of different countries. In Ethiopia under Article 13 (FDRE 592/2008) and (NBE/2008) Article (4.5)

Loans and advances are described as any financial assets of a bank arising from a direct or indirect advance (i.e. unplanned overdrafts, participation in loan syndication, the purchase of a loan from another lender etc.) or commitment to grant funds by a bank to a borrower that are conditioned with the obligation to repay the funds, either on a specified period of time at a given interest rate. The term includes a contractual obligation of a bank to advance by the bank on behalf of a person. The term does not include accrued but uncollected interest or discounted interest.

Loans are funds granted by a creditor to a debtor with an interest rate to be paid in a future predetermined period of time.

To the debtor, loan implies getting the purchasing power now by promising to pay at fixed Period of time in future with a given interest rate. In a sense, the term credit, debt and loan are seems synonymous: credit or loan is the liability of the debtor and asset of the bank.

The word credit is derived from a Latin word 'credo' meaning "I believe". This means that loans are advanced on the bases of belief and trust. Provisions of loan are essentially based on the capital character, capacity, confidence, and collateral of the debtor.

Principles of Sound Lending and Investment

Typically bank uses most of its resources by advancing fund to commerce and industry as well as buying the Government securities.

Commercial bank invests some portion of its funds in discounting and purchasing Treasury bill bills.

Bank is guided by the three cardinal principles of liquidity, profitability and security while investing funds in some other assets;these will be discussed as follows.

Liquidity

Liquidity means the ability of the bank to pay its short term obligation such as cash withdraw of customer from their deposit.

The word Liquidity for which the bank uses to describe that its ability to fulfill the demand customers usually cash withdrawal.

The liquidity position of a bank said to be liquid when it is can be able to pay cash to its depositors whenever needed. Banks are advised to maintain a sufficient liquidity in its assets.

A large proportion of deposits collected by the bank is in the form of current deposits which are withdrawal able at any time on demand. Therefore, bank should hold adequate amount of funds every time to meet customer demand.

So, a bank can be able to convert its assets quickly into cash a without loss.

In short, the word liquidity has two attributes.

- Ability to convert into cash quickly
- Ability to convert into cash without any loss of value.

B. Solvency:

Solvency indicates the state of affairs of the bank for which a bank can be able to meet its debts obligations. Hence the value of asset must be greater than the value of its liabilities..

C. Profitability:

A bank is a financial institution. One of its objectives is to generate enough profit.

Banks must earn sufficient income from its assets so as to pay all its expenses and distributed a fair percentage of dividends to the shareholders.

Banks use its resources to generate income, pay interest rate to depositor, to pay expenses of administration, to pay dividend to shareholders and to build up reserve fund. The profits of the bank will be higher if income earned from the assets is greater.

The banks determine the portfolio in such a way that it is able to derive maximum income.

Banks invest its funds in those securities, which give higher income, so as to earn higher yield, liquidity of the assets of the bank will have to be maintained.

Liquidity and Profitability are complicated concepts which can be reconciled by the bank.

Liquidity can be obtained at the expense of profitability that is as the bank liquidity position increases, either investment or idle asset on low income securities will be increased.

Profitability can also be obtained at the expense of liquidity that is as the bank want increase its profitability, it has to increase loans and investments that has long duration and which yields higher income but are riskier. These long-term loans and investments attract more returns but they cannot be easily without loss and in short-term convertible into liquid asset. Besides these long-term loans and investments bear higher risk such as credit risk, liquidity risk interest rate risk

A bank can ensure perfect liquidity when it maintains all the deposits in cash. Consequently, profitability will be zero, because cash is an idle asset and does not earn any income if not is invested. But if banks lend out all the deposits to customers, it will earn high profit at the cost of liquidity. However it will not be able to pay the depositors whenever they needed. Because there is conflict between the concepts of liquidity and profitability,

Bank should always try to reconcile both liquidity and profitability. For this reason, a bank could maintain adequate cash to meet daily requirements of the depositors and to invest the balance in profit making assets. So, it required to maintain to have some assets which are highly liquid but less profitable and some other assets which are highly profitable but less liquid.

In such circumstance, bank should maintain sufficient cash to meet the demand or claim of it's depositors and will also earn enough income to do business and pay distribute dividend to shareholders.

Resource distribution is the secret of successful banking system it invest between various forms of assets so as to get a sound balance between liquidity and profitability. Hence, there is will be cash to meet the needs of the depositors and at the same time there is enough income from the assets to cover its expenses and distribute dividend to shareholders.

Security or safety:

A bank deals with the fund of the public. It accepts deposits from the customer in the form of savings and promises to repay whenever needed.

Therefore, a bank could not afford to invest its funds in risky adventures, even if it may earn high income from such investments.

A bank is in the nature of the trustee of fund belonging to customer. It can ensure the safety depositors fund.

Mostly banks invest their funds in Government securities and do not prefer securities like unsecured debentures and shares. Since Government securities are highly secured.

The existence of a bank depends on the safety of its investments. So, safety of funds should not be sacrificed to earn higher profits. If a bank forgets the consideration of security of funds, it will lead itself to a disaster.

The bank may lose its funds when borrowers unable to repay the loan on the due date. In such case, the bank may not be able to pay the depositors in full. This resulted the depositors in the banking industry to be shaken. Hence, a bank should be careful in doing investment in various assets. Caution is necessary for successful banking system. While bank extending loans and advances to its customers the bank should be making ensure about their credit worthiness of the borrowers. It shall also insist on adequate security against loans and advances.

Typically, banks to be earn more profit; it has to maintain a balanced portfolio. It should maintain sufficient liquidity to meet the demands of the depositors and some portion of the funds should also be invested in those other assets that are highly profitable. However bank should not forget the safety of investment for the depositor and the bank while choosing the assets for investment,.

In Ethiopia, banks are required to maintain minimum cash reserves requirements of 15% of fixed and saving deposit and 5% of demand deposits. NBE has been given power to monitor the required reserve ratio that individual commercial bank can maintain (NBE, 2015).

Liquidity, profitability and safety are the three guiding principles in determining the structure of assets or at the time of extending loans and advances.

2.4 Bank Lending

Investment is the most important parameter for enhancing the growth and developments of countries economy perspective. Hence formation of capital positively supports the functions investment. After the required level of capital is formed, Sound investment will be formed, the final leads to flow of capital on financial institutions in the future.

Mostly commercial banks do these functions through different systems such as loan and advance (Islam, 2009).

Lending is termed as granting of loan by one party to another, it presumes the fact that the second part doesn't repay immediately to first party rather adjust either to repay or return those resources at specified future date,

Commercial banks served as financial intermediaries, it accept fund from the public in the form of saving and supply to borrower in the form of credit.

McCarthy (2010) commercial banks collect deposits customer and use those funds to grant loans to customers or invest in other assets that will result higher return than the amount bank pays to depositor

In commercial bank Customers deposit is the primary source for loan and so, attracting more deposits directly has a positive effect on bank lending

Commercial banks extend to loan to different types of borrowers for many diverse purposes, either for personal, business or corporate clients (Saunders & Cornett, 2003).

Bank business is the primary source of debt funding. This intermediation functions benefit both the banks and the borrowers.

The primary objective of bank in allocating money is to earn income while serving the credit demands of the public (Reed and Gill, 1989).Lending is the heart of the banking business

Mac Donald and Koch (2006) Loans and advance are dominant in the Bank's asset portfolio and constitute 50-75 percent of assets in most banks, provide the largest share of operating income and constitute the banks greater risk exposure

2.5 Lending Behavior

Scholars have studied a lot of review regarding banks' lending related activities in various financial institutions. Some Scholars examined the determinants bank to grant loans and advance to different sectors of the economy, whereas others investigated to find out the effect of such loans and advance on the productivity and output of an economy.

Many of the research works concurred that commercial banks ought to have some basic lending canons and system that will act as a guide in their loan provision activities.

Olokoyo (2011) Deposit is the major source of in commercial banks' lending, however, it is the fractions of the aggregate deposit that bank lend out , while, some proportional balance will be kept as a reserve to maintain banks liquidity.

Credit provision is the main primary business activities of all most of banks. It can be deduced that loan portfolio represent the largest portion of financial assets and income of banks.

Comptroller (1998) Banks usually factor in very many elements in the process of determining the likelihood of a potential borrower honoring his loan obligations when making a credit decision which includes the ability and willingness to repay the extended facility.

The borrowers risk profile and client-bank relationship are the key elements that banks consider in loan provision.

Even if an individual or clients has good and long term relationship with the bank and is willing to repay back the loan sought but lacks the ability. The most important element is the risk,it may be impossible for the bank to get back their principal and the interest levied as they fall due.

Banks should therefore, seriously evaluate the risk profile of the clients, which is basically the ability to meet future loan repayments when they fall due, in their credit provision decisions.

The past relationship with the client is very important in helping the bank to get more private information about the client financial and business position that will eventually help the bank in making loan decisions.

Degryse, Masschelein and Mitchell (2004) banks can be able to get private information about their customers business and financial information through the bank client relationship. Hence, bank firm relationship factor are very important to evaluate the risk profile of the borrow

There are several theories with regard to commercial banks' lending behavior. In this study, the theories reviewed are summarized as follows:

2.5.1 Loan pricing theory

This asserts that banks cannot always set high interest rates. Therefore, in trying to earn maximum interest income banks should consider the problems of adverse selection and moral hazards since it is very difficult to forecast the borrower type at the start of the banking relationship (Stiglitz and Weiss, 1981) given the high credit market information asymmetry. If banks set interest rates too high, they may induce adverse selection problems because high risk borrowers are willing to accept these high rates. Once these borrowers receive the loans, they may develop moral hazard behavior since they are likely to take a highly risky projects or investments (Chodecal, 2004). It argued that at times it may be difficult to find interest rate set by bank which commensurate with the risk of the borrowers. This theory suggests that loans advanced to the public may or may not increase in the end.

2.5.2 Credit Market Theory

The neoclassical credit market model suggests that the terms of credits clear the market. In this model, the interest rate is the only price mechanism that can clear the credit market given that the loan collateral remains constant. With a growing demand for credit and a given loan and advances supply by the banks, the interest rate can only rise if the credit market is clear, and the reverse is true. The higher the default risks of the borrower, the higher the interest premium (Ewert et al., 2000) so as to compensate against any possible losses. The increase in demand for credit brought about by low interest rates eventually may lead to depreciation of currency. Central bank therefore must adjust the interest rate to increase the cost of borrowing. Commercial banks in their turn must increase their rates and therefore thus contracting their lending activities in the long run. Although, central bank requires banks to deposit a certain amount of money with them, increased cash requirement ratio also acts as a mechanism of

restricting credit available taking consideration of macro-economic environment (Vazakidis and Adamopoulos, 2009). According to Bolton and Freixas, (2001), this leaves commercial banks with close to no alternative other than lowering lending volumes.

2.5.3 Quality Uncertainty Theory

The idea of quality uncertainty in financial works was introduced by Leland and Peyle (2012) and Ramakrishnan and Takor (1984). According to their representations, they give evidence that quality uncertainty also occurs on financial markets and has an effect on the market partakers. There exists information asymmetry where the participants are unsure of the quality of the service or product being offered. According to a 1970 paper by Economist George Akerlof, he points out that information asymmetry between buyers and sellers may exist in the market leading to quality of goods traded in the market diminishing thus leaving low quality goods in the market. When there is existence of quality uncertainty, there is bound to be adverse selection leading to a situation where high quality performance or products in this case loans, to deteriorate due to comparably low pricing or lending levels. Kienner (1990) points out that provision of quality loans by financial institutions may decline due to comparably low rating or lending levels.

2.5.4 Moral Hazard Theory

Moral hazard occurs when a contract is executed among two parties. The two types of moral hazard are hidden information and hidden action (Arrow, 1985). Hidden information occurs when one contract party does not unveil the full range of his or her options and the consequent risk factors. Hidden action occurs when one contract party chooses options that are not in the interest of the counterparty and cannot be observed and managed thus moral hazard may arise .In relation to credit markets and analyzing the lender-borrower relationship in more detail, the financial institutions may not have the capacity to ensure that the borrower invests the borrowed loan in productive investments and as a result of this information asymmetry, the borrower may decide to invest in risky projects leading to defaulting. (Diamond, 1984; Breuer, 1995)

2.6 Determinants of Banks' Lending Behavior

Determinants of banks' lending Decision refer to the factors affecting the credit provision of commercial banks.

Banks always consider many factors in determining the lending decision which relates to the sector of economy to lend out, the type of firms to take risks and the amount to be granted. These factors Includes volume deposit, capital adequacy, GDP, interest rates, liquidity and asset quality.

Investments are most important determinants be considered by banks in the process of loan provision. Banks cannot impose interest rate that are too low which will not be enough to compensate the cost of deposit paid to depositors, general expenses and revenue loss from non-performing loan (Stiglitz and Weiss,2011)

According to the Neoclassical Credit Market Model, the credit terms placed by banks determines the market dynamics. Assuming that collateral and other covenants attached to loans are remains constant, the only price mechanism becomes the interest rate. The model therefore concludes that an increase in demand for loan and advance will lead to high interest rates and vice versa.

The higher the interest premium on loan and advance will lead the higher degree of failure by the borrower to honor debt obligation (Ewert,Szczesmy and Schenk, 2000).

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The cost of borrowing is reduced by low interest rate, which in turn drives the investment activities and high consumer durables purchase

Banks may ease loan policy given an expectation that economic activities will strengthen, thereby boosting spending power by businesses and households. Low interest rate may leads more investment in stocks, raising household's financial assets. The impact of this might be increased consumer spending, making firms' investment projects more attractive.

The main concern for the empirical analysis arises from the fact that banks heterogeneously react to changes in monetary policy. This varied response by commercial banks emanates from their diverse balance sheet dynamics. There are therefore other mechanisms that play an important

role in influencing bank's lending activities despite change of policy on interest rate such as liquidity levels and bank size (Diamond and Rajan, 2006)

According to Kenneth and Collins (2011) the proportion of return on investment to the associated cost of deposits or borrowed money is refereed as interest rate. It is determined by the demand and supply of fund.

Long term interest rate on loan and advance granted on long term period to borrower on sound financial position..Whereas, short-term interest rates are depend on rates charged on treasury bills. The short-term rates have higher fluctuations, however at the same time averages lower compared to the long-term rates.

Liquidity

It is a bank's ability to meet current obligation to depositors, whenever they are in need of their deposits.

There are three types of liquidity:

First is the Current Ratio which used to measure the correlation between the current assets and the current liabilities. It indicates whether an institution has immediate ability to pay off the current obligations as they mature and whether it can face unforeseen reverse by the strength of its liquid position.

Secondly, is Quick Ratio or Liquid Ratio; which used to measures the relationship between quick assets and the current liabilities, where $\text{Quick Assets} = (\text{Current Assets} - \text{Closing Stock})$.

Finally, Acid Test Ratio, which used to measures the relationship between current liabilities and very quick.

None performing loan refers to the relationship between credit provisions and the total loans. The credit provision is an expense to the profit and loss statements and therefore needs to be appropriately mitigated. It evaluates the efficiency of a bank management in generating revenues by providing loans and advances. The lending efficiency here refers to the relationship between non-performing loans to the total loan in the book of accounts.

Lending carries with it risks in that the loan repayments is not secured at all the time and largely based on other factors which are within the borrower's control. Therefore managing loans in an

appropriate way has positive effect on both bank and borrower performance and the economy of a country at large.

Poor management of loan will definitely lead to soaring levels of non-performing loans. This will have a multiplier effect on bank on the performance of and economy as a whole.

The quality of loan in the loan portfolio of a bank is presented by the level of non-performing loans. This indicates the level of the bank's profitability. Nonperforming loan may lead to provision of either writing-off the entire loans or part of the nonperforming loans.

Written off loans are treated as losses that are incurred in the bank's books of accounts which affect their equity capital, so, the unwillingness by the bank to take fresh risks and extend new loans. This situation may lead to a credit crunch. Low asset quality triggers the bank to re-evaluate their risk appetite.

According to Amidu and Hinson (2006), lending portfolio portrays the bank loans quality which in turn shows the relationship between credit risk and bank lending. The banks' capital serves as a protection of the banks depositors' funds. The capital size compared to deposits determines the risk level that a bank can take. Banks with bigger capital structures can extend loans that have longer maturities and relatively high risk.

Banks with Large capital base can advance loans that have longer maturities and relatively high risk.

Furlong (1992) Revealed that in the 1990s bank regulations on capital were perceived as more stiff.

In England the growth interest rate rates on bank were positively impact capital to asset ratios. Hence, regulation on capital affected heavily Commercial banks' lending.

Cumming and Nel (2000) have explored commercial banks' lending behaviors behavior using trend analysis in South Africa. The finding of the study indicated that the 1988 Basel Accord implementation led to increased capital adequacy ratio meaning additional capital was injected to address the implementation of the new accord. This had an effect on reducing banks' lending activities, thus leading to economic recession.

Kishan and Opilela, (2000) conclude that bank size and its capital had negative relation to the bank's ability to extend fund to borrowers and continues growth in loan portfolio during economic recession period. Capital adequacy ratio illustrates the potential of a bank's capital with other financial and economic variation.

Gambacorta et Mistrulli (2004) after the coming of Basel Capital Accord came into effect, a lot has been reviewed on the effect of a bank's capital on commercial banks' lending but empirical literature Western Countries in this area have not been much exhaustive to find.

Ehraman (2003) indicated that tightening monetary policy has a serious negative impact on the lending activities of banks which are undercapitalized. Basically banks health is measured by the level of non- performing loans (NPL) and capital adequacy maintained. Low capital adequacy ratio and high non performing have a negative impact on lending behaviors of commercial banks..

According to Fukuda et al. (2006), Capital adequacy and non-performing loan negatively affects the bank's lending activities in Japan. Therefore, it can be concluded that there exists a mix relationship between the capital adequacy and Commercial banks' lending behaviors.

Berrospide and Edge (2010) conclude the relationship between lending activities and financial conditions is largely affected by the bank's capital using the regression analysis,.

2.7 Empirical Literature Review

Various studies have been conducted on determinants of commercial bank lending in many countries around the world.

Most of the studies consider internal and external factors of commercial banks' lending by focusing on demand side.

For instance Olokoyo (2011) studied the determinants of commercial banks' lending in Nigeria for the period 1980 - 2005. The study applied fixed effects regression model.

From the study, it was found that a strong relationship between banks' lending and volume of deposits, liquidity ratio, interest rate; cash reserve requirement, investment portfolio, foreign exchange and GDP.

According to Chodechai (2004) has examined the effects of interest rates, lending and collateral requirement in the loan decision making. From the study it has been observed that commercial banks have to give strong attention to their loan pricing strategy since they cannot charge price too low since low interest rates may not be sufficient to cover the cost of deposits, administrative expenses and losses arising from NPL.

Besides, charging very high lending interest rate might also lead to the problem of adverse selection and moral hazard.

Abdkariml (2011) while exploring the effect of interest rates on credit provision by Malaysian banks also observed that there exist a negative relationship between interest rate and banks' lending

Tomak(2013) in his study observed that the banks size, GDP, asset quality, NPL ,inflation rate, affects lending volume of banks and credit creation activities in Turkey

Djiogap and Ngomsi (2012) examine factors affecting the banks long term credit in thirty five banks from six African countries. and concluded that the bank's capital , availability of long term maturing liabilities, GDP growth and its size affect the ability of commercial banks to advance loans. These results recognized the value of a banks liquidity position in loan provision.

Chernykh and Theodossiou (2011) postulated that the only determinant of commercial banks' lending is its size, which simply refers to the banks capitalization and its assets.

Chodechai (2004) has studied factors that influence interest rates, collateral requirement and loan decisions by banks and observed that loan pricing decisions have to be taken with a lot of consideration by banks. He also concluded that charging too low interest rates on loans may not compensate the cost of interest on deposits, administrative expense, other associated expenses and loss due to NPL. While, charging too high interest rates may lead to the problem of moral hazard and adverse selection.

Abdkariml, Mohd and Adziz (2007) explored that tightening monetary policy instruments in Malaysia. For instance interest rate had negative relationship with lending decisions on all the sectors. Besides, they also noted out that interest rate exhibited a positive relationship with the Islamic banking but inverse relation with the conventional banking. According to Wilcox (2012), Cash reserve requirement has statistically insignificant effect on lending decisions of commercial banks.

Takats (2010) while exploring commercial banks' lending behaviors on twenty developing countries. The result of the study indicated that bank lending activities is negatively affected by both the supply and demand factors thereby slowing down lending across border during financial crisis in developing countries. There is also evidence linking the bank's strength to its lending behavior. A very tough regulatory measure which restricts new entrants of banks by demanding that they have high regulatory capital has an influence on the bank's lending behavior.

Ngomsi and Djiogap (2012) investigated the determinants of commercial banks long-term lending behavior and Monetary Community in Central African Economic using Ordinary Least Square (OLS). The results of the study revealed that ownership of a bank determines loan advances granted by the bank. The study also indicated that foreign banks have higher long-term loan ratios compared to the government owned.

Olumuyiwa (2012) have studied the effect of volume deposits and lending extended by commercial banks using OLS. The results of the study indicated that volume of deposit has a positive effect on commercial banks' lending activities.

Malede (2014) has studied the determinants of commercial banks' lending in the Ethiopian using panel data of eight banks. The finding of the study indicate that banks size, credit risk, GDP growth and liquidity ratios have a significant effect on commercial banks' lending. Whereas, volume of deposit, investments portfolios, cash reserve requirements and interest rates has insignificant effect on commercial banks' lending activities.

Amano (2014) studied the determinants of commercial banks' lending behavior in the Ethiopian Using panel data regression analysis. The study aimed to test the determinants of commercial banks' lending behavior and how it affects the lending behavior of commercial banks in Ethiopia. The results of the study indicate that bank size, volume of deposit, cash reserve requirement and Inflation rate had positive and significant effect on commercial banks' lending. Whereas interest rate and Liquidity ratio had significant effect on commercial banks' lending negatively.

Berhanu(2016) has explored the determinants of lending decision of private commercial banks in Ethiopia using panel data regression analysis. The results of the study indicate that Capital adequacy ratio, Liquidity ratio, Inflation rate and GDP growth had positive and statistically significant effect on banks' lending. Whereas, Cash reserve requirement, Nonperforming loans and lending interest rate had negative and statistically significant effect on banks' lending. On the other hands Volume of deposit had positive but insignificant effect on commercial banks' lending.

Zelalem (2019) has investigated the determinants of commercial banks' lending in the Ethiopian. The results of the study indicate that, commercial banks' lending in Ethiopian is positively influenced by bank size, volume of deposit and GDP growth, whereas cash reserve requirement and liquidity ratio affects negatively. On the other hand, Average lending interest rate, credit risk, and inflation do not significantly effect on Ethiopian commercial banks' lending

Dereje (2018) has investigated the determinants of commercial banks' lending in the private commercial banks in Ethiopia. The regression result concluded that bank size, investment portfolio, volume of deposit, liquidity ratio, GDP, inflation rate and exchange rate were significant in determining lending decision of private commercial banks Ethiopian, on the other hand asset quality and cash reserve requirement ratio was not significant at all.

Taye (2020) studied the determinants of private commercial banks' lending and conclude that capital adequacy ratio, volume of deposit and return on asset has positive and significant effect on the bank's lending, on the other hand, lending interest rate has positive but insignificant effect on banks' lending. Whereas, credit risk, cash reserve requirement rate and liquidity ratio has. Negative and significant effect on the lending decision, besides Liquidity ratio found to have negative and significant relationship with the lending of private commercial banks in Ethiopia

2.8 Summary and Literature Gap

Various studies have been conducted relating to this study of Determinants of commercial banks' lending decision in developed countries of the world. However, there is a very little literature available in Ethiopian commercial banking financial system about this context.

Mitku (2014), Olusanya et al (2012), Amano (2014), studied the determinants of Lending decision of commercial banks in Ethiopia who found a positive significant relationship between volume of deposit and commercial banks' lending.

Amano (2014)Zelalem (2017) and Aytenew(2016) found the negative relationship of lending interest rate and loan and advance. However, Malde (2014), Taye (2020), found positive significant relationship.

Olokoyo (2011) Liquidity ratio do not impact negatively on banks' lending behavior and compliance with the rules and regulations that National Bank issues has a positive impact on commercial Banks. But Amano (2014)Taye (2020), Ajayi (2007) asserted that there exists a negative relationship between Loans and Advances and liquidity ratio. However, the results of those studies were inconsistent

Besides, there has not been much research which is carried out on determinants of Lending decision of private commercial banks in Ethiopia except the study conducted by Dereje (2017), and Taye (2020), studied the determinants commercial banks' Lending behaviors in Ethiopia.

In those studies variable return on equity and money supply were not included though it is very important determinants of commercial banks' lending decision. Therefore, this study has designed to address this knowledge gap.

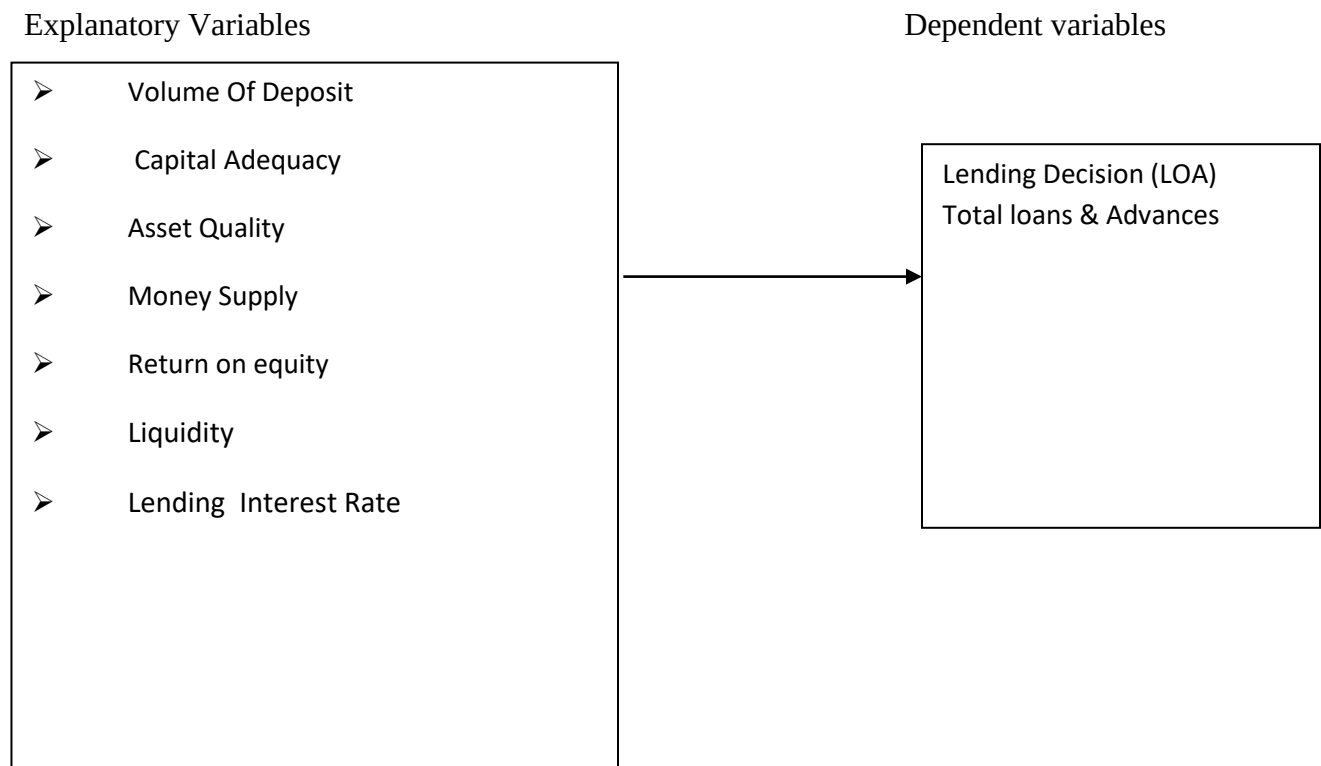
2.9 Conceptual Framework

Both Empirical and theoretical literatures reviews indicates that most of the studies on commercial banks' lending have been conducted in the developed financial markets.

Olokonyo (2011); Olumuyiwa (2012) and Malede (2014) have been used the total loan and advance as dependant variables, while, Volume of deposits, capital adequacy ratio, investment portfolio. Interest rate, GDP, cash reserve ratio and liquidity ratio as explanatory variables.

Based on the literature review a conceptual framework for this study has been developed by establishing the relationship between the dependent variable of commercial banks 'Lending(Loan and advance) and Explanatory Variables of volume of deposit, capital adequacy, liquidity ratio, asset quality, money supply, Return on equity and Lending interest rate.

Figure 2.1 Conceptual frameworks of lending Decisions (loan and advance)



Source, own Computation

CHAPTER THREE

RESEARCH METHODOLOGY

3. 1 Introduction

This chapter deals with the research design, Population, sample size determination and sampling technique. Besides, the chapter outlines the approach to data collection instrument and data analysis techniques

3.2. Research Design

The main objective of this study was to examine the determinants of lending decision on private commercial banks in Ethiopia.

The main objective of this study was to examine the determinants of lending decision on private commercial banks in Ethiopia

Hence, study used explanatory research design using panel research design so as to achieve stated objectives of study. The reason of selecting panel data is that the data consists both time and cross sectional data for which single time series and cross sectional data cannot provide ,Besides, it controls for individual heterogeneity effect, less co linearity variables and tracks trends in the data.

According to Brooks (2014), Panel of data provides both time and space

Most Importantly, a panel keeps the same individuals or objects (entities) and measures some quantity about them over time. Ordinary Least Square (OLS) of method of estimation of a multiple regression model has been chosen to undertake the study.

3.3. Sampling design

The population of this study included all private commercial banks that engage in commercial activities and registered by National Bank of Ethiopia to act.

In our country 16 private Commercial Banks are operating. Hence the sample consist eight (8) commercial banks were selected for the study based on data available for consecutive ten years.

Purposive sampling techniques were employed. Because the study was applied for panel data set and the length of time in this study was 10 years from (2011-2020)

Table 3:1 List of sample Private commercial bank of Ethiopia included in the study.

No	Name of the bank	Years of establishment
1	Awash International Bank	1994
2	Bank of Abyssinia	1996
3	Buna Bank	1997
4	Dashen Bank	2003
5	Nib International Bank	1999
6	United Bank	1998
7	Wegagaen Bank	1997
8	Zemen Bank	2009

Source:-[Website of the National Bank of Ethiopia](#)

3.4 Type and source of data

The study used fully secondary data. Secondary data were collected from annual reports of National Bank of Ethiopia and audited financial statements of sampled private commercial of Ethiopia.

3.5. Methods of Data Analysis

The study used secondary data of audited financial statements of sampled private banks ten consecutive years which has been collected from National Bank of Ethiopia and website of the sampled private banks. After the data are edited in the appropriate form the study were run by using STATA package¹⁴ software to be able to interpret and analyze. The data used panel from 2011-2020 which contains both a cross sectional and time series. Different diagnostic tests like, hetroscedasticity, multicollinearity, normality and autocorrelation has been carried out for the purpose of the adopted model

3.6. Model Specification

In order to test the hypotheses of the study multiple regression models was formulated. The model was modified Olumuyiwa(2012) and Malede, 2014).As it is Mentioned previously, the dependent variable of the study is loan and advances whereas explanatory variables are Asset quality ratio, Capital adequacy, Lending interest rate, liquidity ratio, return on equity, Money Supply and volume of deposit.

The study applied Ordinary Least Square (OLS) to estimate regression coefficients or parameters.

$$LOA=f(CAR, VD, LIR, ROE, LQR, M2, AQR).....(1)$$

The model applied for this study becomes

$$LOA_{it} = \alpha_0 + \beta_1 CAR_{it} + \beta_2 VD_{it} + \beta_3 LIR_{it} + \beta_4 ROE_{it} + \beta_5 LQR_{it} + \beta_6 M2_{it} + \beta_7 AQR_{it} + \mu..... (2)$$

Where;

α = Intercept of the regression line $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ = are coefficient of each explanatory variables. μ = error term

LOA_{it} : Loans and advance of bank i at time t

CAR_{it} : Capital Adequacy ratio of bank i at time t

VD_{it} : Volume of Deposit of bank i at time t

LIR_{it} : Lending Interest Rate of bank i at time t

LQR_{it} : Liquidity Ratio of bank of i at time t

ROE_{it} : Return on equity of bank i at time t

$M2_{it}$: Money supply of bank i at time t

AQR_{it} : Asset Quality Ratio of bank i at time t

3.7 Description and variables measurements

Dependent variables

Loan and advance

The natural logarithm of loan and advance is used as measurement for dependent variable. This is obtained from assets side of the balance sheet of respective banks. Some previous studies that were used loan and advance as proxy for the lending behavior Amano (2014), Zelalem (2017) and Aytenew (2016), Costant and Ngomsa (2012), Tomak 2013) used the total loan and advances advanced to Borrowers to measure lending decisions of commercial banks

Independent Variables

Capital Adequacy Ratio

Capital adequacy is the level of capital banks are required to maintain so as to protect them from credit, market and operational risk exposures .It is used to protect them from potential losses resulted from daily business activities and protect debtors of the bank

H1: Capital adequacy has positive and significant effect on lending behavior of commercial banks.

Liquidity (LIQ)

According to MacDonald & Koch (2006) liquidity is the ability of the bank to easily convert its asset to cash with at a minimum losses.

The proportion of liquid assets and total assets has been used for the proxy of liquidity for determining the determinants of Lending behaviors. These variables can be used to measures effect of liquidity which is maintained by the bank against commercial bank lending decisions

Commercial banks are required to maintain adequate liquidity at all time in order to meet their short term obligations such as withdrawals of deposits by customers (Rose & Hudgins, 2013).

A negative coefficient with the LQR is expected due to the high portion of liquid assets held by the commercial banks, the lower the funds are available for commercial bank to extend loan to the public. Therefore, the higher the LQR, the lower will be the negative coefficient of liquidity ratio

indicates the availability of higher liquid asset and the lower the fund exist to grant loan to borrowers.

H1: liquidity has negative and significant effect on lending behavior of commercial banks.

Lending Rate (LR)

Many of researchers used average interest rate as a proxy to Measure the relationship between Interest rate and lending behaviors of commercial banks in Ethiopia

Malede (2014 used the average lending interest rate (LIR) as the proxy of variables to measures the relationship between average lending interest rate and commercial banks' lending decisions (LOA). Average annual interest rate of commercial banks is calculated by the average annual Base Lending Rate which the rate is set by national bank of Ethiopia.

Loan pricing of Commercial banks in Ethiopia based on the regulation of nation bank .national bank set the regulation in order to reduce stiff competition with in commercial banks in the country.

Basically lending interest rate with a negative coefficient indicates a negative relationship with commercial banks' lending decisions. This is due to high lending interest rate will incur high financial cost for the borrower; since it will reduce the needs of the public to borrow money from the commercial banks in order to do business or investment. Consequently, there are fewer opportunities for the commercial banks to extend credit to the public and this will result to decreases t commercial bank lending.

H1: Lending interest rate has negative and significant effect on lending behavior of commercial banks.

Asset Quality Ratio

According to the studies of Malede (2014), Aytenew (2016) and Tsegaye (2020) asset quality ratio (AQR) is used to measure asset quality of in loan portfolio of a bank.

According to Rose & Hudgins (2013 non-performing loan refers to the loan which its scheduled loan repayment is overdue and it is no longer accrues any interest income for the bank.

Basically, non-performing will have a negative relationship with the commercial bank lending

Commercial banks with high non-performing loan tend have riskier lending portfolio where the banks have to allocate more loan loss provision to reduce the default risk (Chernykh and Theodossiou, 2011).

Amidu (2014) stated that commercial banks with high non-performing loan will affects its loan delivery and reduce lending activities.

H1: Asset Quality has negative and significant effect on lending behavior **of** commercial banks.

Volume of Deposit (VD)

Previous studies of Aytenew (2016) employ the sum of all total (DEP) as a proxy of the volume of deposit to explore its relationship with the commercial bank lending.

Similar research approach has been used in present study to explore the relationship between volume of deposit and commercial banks' lending in Ethiopia.

Typically, volume of deposit will have positive relationship with commercial banks' lending,

Imran & Nishat (2013) banks with high volume of deposits will to tend increase liquidity and enable them to extend more loans to the public

H1: Volume of Deposit has positive and significant effect on lending behavior of commercial banks

Money Supply

The sum of narrow money plus quasi money is used to measure the relationship between money Supply and commercial banks' lending decisions

H1: Money supply has positive and significant effect on lending behavior **of** commercial banks

Return on Equity (ROE)

Return on Equity is a financial ratio can be used to calculate how much profit a company gained compared to the total amount of stockholder equity invested or found on the balance sheet.

Return on equity is what the stockholder look in return for their investment.

A business that has a high return on equity is more likely to be one that is capable of generating cash internally. Thus, the higher the ROE the better the company is in terms of profit generation..

Return on equity Indicates how the managements of a bank effectively using stockholders Equity. Thus, it can be conclude from the above declaration that the Better the Return on equity the more effective the management in utilizing the stockholders equity.

Previous studies of Aymen (2016) used Ratio of net income to total equity a proxy of the return on equity to measures its relationship with the commercial bank lending behaviors

H1: Return on equity has negative and significant effect on lending behavior of commercial banks.

Table3.2 summarizes the measurements and expected sign of variables

Variables		Definition	Measurement	Expected Sign
Dependent Variable				
LOA	Loan and Advance	It is the total outstanding loan extended to borrowers.	Natural Logarithm of total loan and Advance	
Independent Variables				
VD	Volume of deposit	All demand and saving deposit.	Natural logarithm all types of deposits	+
LQR	Liquidity Ratio	The ability of the bank to easily convert its asset to cash with a minimum losses.	Liquid assets to total Deposit	-
CAR	Capital Adequacy Ratio	Capital Adequacy is capital required to maintain by banks to protect them during adverse risk exposures	Total capital to total asset	+
ROE	Return on Equity	Return on Equity is a profit earned by shareholders for the total amount of equity invested.	Net income to total equity	-
Asset Quality	AQR	It is the asset quality of in loan portfolio of a bank.	Nonperforming loan to total loan	-
Money supply	M2	Broad money defined as the sum of narrow money plus quasi money	Broad money supply	+
ALR	Real Lending rate	Average lending rate is a rate at which interest is paid by borrowers..	Average annual lending interest of banks	-

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

This chapter deals with the results of study which include descriptive statistics of variables, correlation results for dependent and explanatory variables, diagnosis test for the regression models, and regression analysis for Lending decision(Loan and advance) and discussion of results.

4.1. Descriptive statistics of variables

This section deals with the descriptive statistics of dependent and explanatory variables employed in the study for the sampled private commercial banks in Ethiopia. The dependent variable is loan and advance and the independent variables are AQR, VD, CAR, LR, LQR and ROE. The total observation for each dependent and independent variables was 80

Table 4.1 Descriptive statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
loa	80	22.88825	.7986648	21.15	24.7
aqr	80	3.84575	1.509458	2.18	11
vd	80	23.5535	.7263297	22.25	25.03
car	80	15.63062	2.726034	11.7	32
lqr	80	20.68525	2.774484	16	29
m2	80	26.917	1.01225	25.67	29.18
lir	80	12.465	.6441361	11.88	13.5
roe	80	17.21125	2.847222	13.02	25.24

Source computed from the financial statement of sampled commercial banks in Ethiopia by STATA 14.0

Table 4.1 Descriptive statistics of all variables used in this study. The result indicates that the mean value loan and advance of private commercial bank in Ethiopia (LOA) is 22.8. %.This indicates that private commercial banks in Ethiopia allocate on average 22.8. % of their assets to grant credit to the public during the study period from year 2011-2021

Table 4.1 also represents the descriptive analysis of the volume of deposits (VD) of the selected commercial banks from 2011 to 2020. Accordingly, the volume of deposits (VD) for the selected commercial banks has an aggregate mean score of 23.55. This shows that private commercial banks has given less amount of loan compared to total deposit

The average asset quality ratio (AQR) is 3.8%. This implies that 3.8% of the loan portfolio of private commercial bank held by the non-performing loan. In the study periods Moreover, the liquidity (LQR) has recorded a mean value of 20.68%. This implies that the Private commercial banks in Ethiopia put approximately 20.68% of their total assets in the form of liquid assets in order to meet short-term obligations, such as cash withdrawals by the depositors. .As for macroeconomic determinants, Money supply (has a mean value of 26.9 %.)

The average lending interest rate was 12.46% with the minimum value and maximum value of 11.88% and 13.55% respectively.

Capital adequacy ratio of sampled private commercial banks in study period were 15.63.this presents on average the capital of the selects commercial banks covers 15.63% their assets size

4. 2 Correlation analysis

Correlation matrix analysis is used to examine how explanatory variables are correlated with each other

It can be used to measures the correlation coefficient of variables between 1 and -1. This further shows presence or absence of multi co linearity which is considered to exist when there is perfect linear relationship between the explanatory variables under the study.

The correlation matrix analysis was employed in the study to examine if any pair of explanatory variables collinear through the magnitude of the correlation coefficient of the pairs of variables

established. This bias arises when one or more pairs of explanatory variables are perfectly correlated to each other.

As it is depicted in table 4.2 below, the variables are both positively and negatively correlated with each other.

Table 4.2. Correlation Matrix of Dependent and Independent Variables

E (V)	aqr	vd	car	lqr	m2	lir	roe	_cons

Aqr	1.0000							
VD	-0.2021	1.0000						
Car	-0.0180	0.2735	1.0000					
Lqr	-0.0780	-0.2562	-0.0892	1.0000				
m2	0.1024	-0.1391	-0.0567	-0.1836	1.0000			
Lir	0.0827	-0.2395	-0.1011	0.3699	-0.8377	1.0000		
Roe	0.0790	-0.1345	-0.0724	-0.1141	0.0587	-0.0374	1.0000	
_cons	-0.1258	-0.5316	-0.2021	-0.0667	-0.4400	0.3346	-0.0282	1.0000

Source: Sampled private commercial banks and researcher's computation

4.3 Tests for the Classical Linear Regression Model (CLRM) Assumptions

Data analysis of any data set gives appropriate results if the data set used for data analysis holds true the assumptions applicable for the method adopted. This study used CLRM method for data analysis. Thus before performing data analysis and making conclusions based on the result derived from the data analysis, it is the responsibility of the data analyst to ensure that the assumptions that are applicable for CLRM hold true. This section presents major diagnostic tests of CLRM that includes tests for Multicollinearity, Heteroskedasticity and Normality

4.3.1 Testing for Multicollinearity Test

The diagnostic test for multicollinearity problem is to check whether there exists close perfect correlation or not between explanatory variables using variance inflation factor (VIF) or correlation command among explanatory variables. These two tests are applied in this data set to make sure that there is no multicollinearity problem between predictor variables. The result of VIF and correlation commands between independent variables is shown in the following two tables respectively

Overall, the diagnostic test results denote that the empirical results of this study are robust and reliable for prediction

Table 4.3 Multicollinearity test

Variable	VIF	1/VIF
lir	7.31	0.136726
m2	6.57	0.152132
vd	1.87	0.534293
lqr	1.31	0.760778
aqr	1.18	0.845563
car	1.11	0.900151
roe	1.05	0.951964
Mean VIF	2.92	

Source: sampled private commercial banks and researcher's computation

The threshold value for VIF is 10. As presented in table 4.3 above, there is no explanatory variable that has VIF value more than 10. VIF result less than 10 indicates that there is no multicollinearity problem between explanatory variables.

4.3.2 Heteroscedasticity

The Breusch-Pagan test is used to identify any linear form of heteroscedasticity. The study used Breusch-Pagan test to check whether there is any problem of heteroscedasticity or not.

The Breusch-Pagan test was developed in 1979 by Trevor Breusch and Adrian Pagan. It is used to test for heteroscedasticity in multiple regression models. It is a Chi-squared test. It tests the null hypothesis of heteroscedasticity. If the chi-squared value is significant with a p-value below the appropriate threshold ($p < 0.05$) then the null hypothesis of heteroscedasticity is rejected and heteroscedasticity will be assumed.

As it observed from table 4.4 the Breusch-Pagan test results of the model LOA was found P-value of 0.7880.

Therefore, there was no evidence for the presence of heteroscedasticity problems and so the hypothesis cannot be rejected. This indicates that there is no significant evidence for the presence of heteroscedasticity at 5%.

Table: 4.4. Heteroscedasticity Test

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance Variables: fitted values of LOA

chi2(1) = 1.42

Prob>chi2 = 0.2327

Source: sampled private commercial banks and researcher's computation

4.3.3 Normality Test

The normality of the variables employed in the model was tested By Using Skewness/Kurtosis tests.

In Skewness /Kurtosis tests significance value greater than 0.05 indicates that there is data normality distributed.

Table: 4.5 Skewness/Kurtosis tests for Normality

Variables	Obs	Pr(Skewness)	Pr(Kurtosis)	chi2(2)
roe	80	0.0181	0.9292	5.42
	Prob>chi2	0.0667		

Source: sampled private commercial banks and researcher's computation

4.4 Model Selection; Random Effect versus Fixed Effect Models

The results of the study presented so far satisfies the assumptions of all classical regression linear models (CRLM), therefore, the ordinary least square regression Model can be safely applied.. But, the study uses a panel data, so, either fixed effects models (FEM) or random effects models of panel data estimation approaches that can be used.

Fixed effects models can allow the intercept in the regression model to differentiate cross-sectional but not over time, while all of the slope estimates are fixed both cross-sectional and over time (Brooks, 2008).

The random effects model approach proposes different intercept terms for each entity and again these intercepts are constant over time, with the relationships between the explanatory and explained variables assumed to be the same both cross-sectional and temporally (Brooks, 2008).

Hausman specification test was conducted to differentiate whether fixed or random effect to be used,

If the result of the Hausman test is null hypothesis, hence random effect model is appropriate, whereas as. If the null hypothesis is rejected then we use Fixed Effects model

The Hausman test hypothesis is:

H0: Random effect model is appropriate

H1: Fixed effect model is appropriate

Table: 4.6. Hausman Specification Test for model selection

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fe	(B) re		
aqr	-.0437427	-.0417943	-.0019484	.
vd	.4152383	.4454347	-.0301964	.0273702
car	.0217796	.0203444	.0014353	.
lqr	-.0314463	-.0299246	-.0015218	.
m2	.2634078	.2545856	.0088223	.0038781
lir	.1704508	.1677105	.0027403	.
roe	.017725	.0201909	-.0024659	.0011215

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

```

chi2(7) = (b-B)'[(V_b-V_B)^(-1)](b-B)
          = 5.05
Prob>chi2 = 0.6536
(V_b-V_B is not positive definite)

```

The result as presented in Table 4.6, the P-value of a model is 0.6536, which is above 5% significance level. So, the alternative hypothesis of the fixed effect model is rejected at 5 percent of significant level. This implying that, random effect model is more appropriate than fixed effect model.

4.4.1 Regression Results and discussions model LOA

Table 4.7: Regression Result Random effect regression model of LOA

loa	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
aqr	-.0417943	.017421	-2.40	0.016	-.0759389	-.0076498
vd	.4454347	.0850787	5.24	0.000	.2786835	.6121859
car	.0203444	.0097725	2.08	0.037	.0011907	.039498
lqr	-.0299246	.0097771	-3.06	0.002	-.0490873	-.0107619
m2	.2545856	.0605258	4.21	0.000	.1359571	.373214
lir	.1677105	.097485	1.72	0.085	-.0233566	.3587777
roe	.0201909	.0106152	1.90	0.057	-.0006145	.0409963
_cons	3.567734	1.340071	2.66	0.008	.9412441	6.194225

Number of observations = 80 R-Squared = 0.7371

Number of groups= 8 Prob> chi2 = 0.0000

The R squared was 73.71% implying the variables employed in the model explained lending behavior of firms for over 71% while other omitted variables accounted for the remaining proportion. Similarly, the overall p value was highly significant indicating that both bank and external characteristics were jointly significant in explaining total loans advanced by private commercial banks in Ethiopia

Capital adequacy ratio

The Capital adequacy ratio is used measure to assess a bank's capital strength, or in other words the extent to which banks relies on its equity as a source of accumulating asset. The ratio showed up a positive coefficient (.0097725) and it is statistically insignificant variable (P-value of 0.037). This implies that for the study period (2011-2020) there was insignificant correlation between capital adequacy ratio and lending decision measurement of LOA private commercial banks in Ethiopia.

Therefore, based on the regression result from the study, the study had failed to reject the null hypothesis was namely there is significant relationship between capital adequacy and Lending decision as it measured by LOA of Ethiopian private commercial banks, which was formulated to show the presence of a significant relationship between capital adequacy and Lending decisions of Ethiopian private commercial banks. So, the alternative hypothesis which was named as insignificant relationship between capital adequacy and Lending decision as it measures in terms of Loan and advance (LOA) had failed to accept. Hence the result is consistent with Taye (2020), Aytenew (2016)

Liquidity ratio

The result of random effect model table 4.7 indicated that the bank liquidity as measured by loan to deposit had negative relationship with lending measurement variable (LOA) and statistically significant (p-value = 0.002) at level of 5%. Hence the null hypothesis which states there is positive significant relationship between Liquidity and commercial banks' lending as it measured in terms of Loan and advance (LOA) was failed to reject, while the alternative hypothesis namely there is insignificant relationship between bank specific control variable, liquidity and Lending decision as it measures in terms of Loan and advance (LOA) was rejected.

According to the finding, 1% increment of the commercial bank's liquidity will cause commercial banks' lending will reduce by 0.028%. The result implies that the more liquid assets maintained by commercial banks, the lower the credit that will be granted to the borrowers.

Hence, a negative coefficient of liquidity ratio shows the presence a very high portion of liquid assets held by the commercial banks and the lower the funds available for commercial bank to grant loan to the customers. Therefore, the higher the LIQ, the lower will be the Loan advance to be granted to the customers.

This result also showed that an increase in amount of loan advances to customers from deposit financing has a negative impact on lending decision (LOA) of private commercial banks in Ethiopia under the study period. However, statistically there is significant effect between liquidity and Lending decision (LOA).

Hence, this result is consistent with the studies of Taye (2020), Tsegaye (2020) (2015

Volume of deposit (VD)

Volume of deposit (DEP) has positive and significant effects on private commercial bank lending (Loan and advance).

The coefficient of volume of deposit (VD) indicates that the 1% increment of the volume of deposit will cause the private commercial bank lending tend to increase by 44.5%. Hence, it means that the higher the capability of private commercial banks to collect more deposits from their customers, the higher the capacity of private commercial banks to grant credit to the public.

This finding consistent with Amano (2014), Dereje (2017), and Aytenew (2016)

4.4 Average Lending Rate (ALR)

Average lending rate as indicated in the above regression table 4.7, ALR has a statistically insignificant Positive relationship with the dependent variable at 5% level of significance. A one unit increase in ALR leads to a 0.1616846 unit increase in the amount of total loans and advances and the result has been found inconsistent with the findings of Aytenew (2016) Olusanya et al (2012), Olokoyo (2011) and Ajayi (2007)

However, it is consistence with the results of Malede(2014) as positively statically insignificant relationship with commercial banks 'lending. Thus the researcher failed to accept the null hypothesis states that there is significant relationship between Average lending interest rate and Lending decision as it measured by LOA of Ethiopian private commercial

Therefore, the alternative hypothesis which states that insignificant relationship between Average lending rate ratio and Lending decision as it measures in terms of Loan and advance (LOA) had failed to reject.

Hence private commercial banks in Ethiopia do not influenced by lending interest rate. This might be due to change in demand of borrower.

Asset Quality

Asset Quality ratio used to assess a bank's capital strength, or in other words the extent to which banks relies on its equity as a source of accumulating asset. The ratio showed up a positive coefficient (-.0417943) and it is statistically significant variable with P-value of (0.016).

This implies that for the study period (2011-2020) there was significant correlation between Asset Quality ratio and lending decision measurement of LOA private commercial banks in Ethiopia.

Therefore, based on the regression result from the study, the study had failed to reject the null hypothesis was namely there is significant relationship between return on equity and Lending decision as it measured by LOA of Ethiopian private commercial banks, which was formulated to show the presence of a significant relationship between asset Quality and Lending decisions of

Ethiopian private commercial banks.

So, the alternative hypothesis which was named as insignificant relationship between Asset Quality ratio and Lending decision as it measures in terms of Loan and advance (LOA) had failed to accept. This result is consistent with the studies of Amano (2014), Dereje (2017), Aytenew (2016), and Tsegaye (2020). Hence Private commercial bank in Ethiopia affected by asset quality.

Return on equity

Return on equity used to assess a bank's capital strength, or in other words the extent to which banks relies on its equity as a source of accumulating asset. The ratio showed up a positive coefficient (.0201909) and it is statistically in significant variable with (P-value of 0.057). This implies that for the study period (2011-2020) there was insignificant correlation between return on equity and lending decision measurement of LOA private commercial banks in Ethiopia.

Therefore, based on the regression result from the study, the study had failed to reject the null hypothesis was namely there is insignificant relationship between return on equity and Lending decision as it measured by LOA of Ethiopian private commercial banks, which was formulated to show the presence of a significant relationship between money supply and Lending decisions of Ethiopian private commercial banks.

So, the alternative hypothesis which was named as significant relationship between return on equity and Lending decision as it measures in terms of Loan and advance (LOA) had failed to accept. This result is consistent with the studies of Aymen (2016). Hence private commercial bank in Ethiopia not affected by ROE

Money supply

Money supply indicates a positive coefficient (0.2545856) and it is statistically significant variable with (P-value of 0.000). This implies that for the study period (2011-2021) there was significant correlation between money supply and lending decision measurement of LOA private commercial banks in Ethiopia.

Therefore, based on the regression result from the study, the study had failed to reject the null hypothesis was namely there is significant relationship between money supply and Lending decision as it measured by LOA of Ethiopian private commercial banks, which was formulated to show the presence of a significant relationship between money supply and Lending decisions of Ethiopian private commercial banks.

Hence, the alternative hypothesis which was named as insignificant relationship between money supply and Lending decision as it measures in terms of Loan and advance (LOA) had failed to accept. Hence private commercial bank in Ethiopia affected by money supply

Table 4.9 Summary of Regression result

Explanator y Variables	Expected effect on Lending decision (LOA)	Actual effect on Lending decision (LOA)
AQR	Negative & Significant	Negative & significant
VD	Positive & significant	Positive & significant
CAR	positive & Significant	Positive and significant
LQR	Negative & Significant	Negative & significant
M2	Positive & Significant	Positive & significant
LIR	Negative & Significant	Positive & insignificant
ROE	Negative& significant	Positive & insignificant

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

This section presents the conclusion and recommendation of the most significant findings from the results and discussion

5. 1 Conclusion

The main objective of this study was to examine the determinant of lending decisions of private commercial banks in Ethiopia.

As part of this study ten years' data of eight private commercial were selected which comprises panel data of 80 observations from 2011 to 2020 and finally analyzed using multiple linear regressions model of REM.

The empirical findings of this study reveal that volume of deposit, Capital adequacy ratio. Money supply, Asset quality ratio and Liquidity ratio have significant effect on aggregate loans and advances of Private commercial banks in Ethiopia .However, return on asset and lending interest rate has insignificant effect on private commercial bank lending.

Liquidity has a negative coefficient. This implies the high portion of liquid assets held by the commercial banks, the lower the funds are available for commercial bank to grant loan to the public. Therefore, the higher the LQR, the lower will be the LOA.

Volume of deposit is found to having the most significant variable that affects total loans. This implies that increases in Volume of deposit causes an increase aggregate loans and advances of Private commercial banks in Ethiopia

Asset quality ratio has significant negative effect on aggregate loan and advance of private commercial banks in Ethiopia. An increase in asset quality ratio will result reduction of loan advance. Banks with high Asset quality ratio will affects its loan delivery and reduces lending activities.

Capital adequacy has positive significant effect on loan and advance of private bank. Bank with maintain adequate capital enables to extend credit to borrowers.

Money Supply has positive and significant effect on loan and advance of Private commercial banks. As the NBE increases money supply in the economy, this causes aggregate loans and advances of Private commercial banks in Ethiopia to increase.

5.2 Recommendations

Based on the finding of the study the following recommendation were forwarded

- The empirical results provide evidence that lending behavior or loans and advances of private commercial banks Ethiopian are determined by bank-specific factors which are under the control of bank management and industry-specific variable that are not the direct result of a bank 'Managerial decisions. So, in order to perform the major banks business Which is extending loans, bank managers should give high concern to properly manage bank-specific determinants that is volume of deposit, Liquidity ,asset quality ,capital adequacy
- Commercial banks operating in Ethiopia are advised to mobilize deposits or perform deposit Mobilization in order to further improve their lending Performance by expanding branch expansion ,digital banking agency banking and price linked saving strategy and new product developments
- Banks with high NPL ratio will erode a bank capital adequacy and affect its profitability and ultimately affects its business activities .Hence, private commercial banks in Ethiopia should issue applicable credit policies, procedure and guidelines and critically Evaluate the creditworthiness of borrower.
- Liquidity has negative and significant impact on private commercial banks in Ethiopia. Hence, private commercial Banks in Ethiopia are required to maintain adequate liquidity at all time in order to meet their short term obligations such as withdrawals of deposits by customers as well as to increase lending capacity.

- National bank of Ethiopia should implement expansionary monetary policy within an economy. Because, an expansionary monetary policy through the bank lending channel increases bank deposits and reserves, causing an increase in availability of bank loans to boost investment and consumer spending.

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Appendices

Appendix -1- Normality test for LOA

Skewness/Kurtosis tests for Normality

----- joint -----					
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2

roe	80	0.0181	0.9292	5.42	0.0667

Appendix – 2 Heteroscedasticity

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

Ho: Constant variance

Variables: fitted values of loa

chi2(1) = 1.42

Prob>chi2 = 0.2327

Appendix 3: Multiple Regression Test using Variance Inflation Factor

Variable	VIF	1/VIF

lir	7.31	0.136726
m2	6.57	0.152132
vd	1.87	0.534293
lqr	1.31	0.760778
aqr	1.18	0.845563
car	1.11	0.900151
roe	1.05	0.951964

Mean VIF | 2.92-----

Appendix 4: Hausman Test for Model Specification

---- Coefficients ----

	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fe	re	Difference	S.E.
-----+-----				
aqr	-.0437427	-.0417943	-.0019484	.
vd	.4152383	.4454347	-.0301964	.0273702
car	.0217796	.0203444	.0014353	.
lqr	-.0314463	-.0299246	-.0015218	
m2	.2634078	.2545856	.0088223	.0038781
lir	.1704508	.1677105	.0027403	.
roe	.017725	.0201909	-.0024659	.0011215

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

$$\chi^2(7) = (b-B)'[(V_b-V_B)^{-1}](b-B)$$

$$= 5.05$$

$$\text{Prob} > \chi^2 = 0.6536 \quad (V_b-V_B \text{ is not positive definite})$$

Appendix - 5 Random effect regressions out put

loa	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
aqr	-.0417943	.017421	-2.40	0.016	-.0759389	-.0076498
vd	.4454347	.0850787	5.24	0.000	.2786835	.6121859
car	.0203444	.0097725	2.08	0.037	.0011907	.039498
lqr	-.0299246	.0097771	-3.06	0.002	-.0490873	-.0107619
m2	.2545856	.0605258	4.21	0.000	.1359571	.373214
lir	.1677105	.097485	1.72	0.085	-.0233566	.3587777
roe	.0201909	.0106152	1.90	0.057	-.0006145	.0409963
_cons	3.567734	1.340071	2.66	0.008	.9412441	6.194225

Number of observations = 80

R-Squared = 0.7371

Number of groups = 8

Prob> chi2 = 0.0000

Appendix- 6 Correlation matrixes

e(V) | aqrvdcar lqrm2 lirroe _cons

aqr | 1.0000

vd | -0.2021 1.0000

car | -0.0180 0.2735 1.0000

lqr | -0.0780 -0.2562 -0.0892 1.0000

m2 | 0.1024 -0.1391 -0.0567 -0.1836 1.0000

lir | 0.0827 -0.2395 -0.1011 0.3699 -0.8377 1.0000

roe | 0.0790 -0.1345 -0.0724 -0.1141 0.0587 -0.0374 1.0000

_cons | -0.1258 -0.5316 -0.2021 -0.0667 -0.4400 0.3346 -0.0282 1.0000

Appendix 7; panel data used in the study

Banks	Year	LOA	AQR	VD	CAR	LQR	M2	LIR	ROE
AIB	2011	23.14	4.20	23.31	13.00	16.80	25.67	11.88	17.25
AIB	2012	23.22	3.60	23.45	15.00	18.25	25.96	11.88	19.50
AIB	2013	23.30	6.36	23.79	11.70	20.50	26.18	11.88	19.25
AIB	2014	23.41	3.95	24.08	13.20	25.23	26.41	11.88	20.20
AIB	2015	23.50	3.36	24.23	14.20	26.50	26.63	11.88	20.26
AIB	2016	23.62	10.20	24.48	15.20	22.50	26.82	12.75	16.17
AIB	2017	23.84	11.00	24.58	16.40	21.00	26.99	12.75	18.49
AIB	2018	24.17	2.91	24.79	17.00	23.90	27.16	12.75	22.98
AIB	2019	24.58	3.20	24.86	13.00	28.20	28.17	13.50	25.24
AIB	2020	24.70	3.10	25.03	17.00	29.00	29.18	13.50	14.33
BOA	2011	21.88	4.20	23.77	13.00	24.00	25.67	11.88	13.25
BOA	2012	21.89	3.60	23.86	17.00	25.00	25.96	11.88	15.25
BOA	2013	21.91	6.36	23.95	14.20	23.00	26.18	11.88	14.32
BOA	2014	22.25	3.95	24.04	17.00	20.50	26.41	11.88	14.89
BOA	2015	22.50	3.36	24.13	15.00	21.50	26.63	11.88	16.38
BOA	2016	22.80	2.18	24.34	16.00	18.85	26.82	12.75	15.90
BOA	2017	23.36	3.68	24.76	16.20	19.00	26.99	12.75	17.64
BOA	2018	23.60	2.91	24.97	14.20	18.50	27.16	12.75	18.41
BOA	2019	23.62	3.20	24.98	16.40	17.50	28.17	13.50	13.26
BOA	2020	23.79	3.10	24.99	17.00	20.00	29.18	13.50	15.70
BIB	2011	21.15	4.20	22.66	13.00	23.00	25.67	11.88	13.02
BIB	2012	21.33	3.60	22.76	19.00	22.00	25.96	11.88	14.20
BIB	2013	21.48	6.36	22.83	14.00	21.00	26.18	11.88	13.87
BIB	2014	21.66	3.95	22.89	15.00	20.00	26.41	11.88	13.26
BIB	2015	21.90	3.36	22.25	18.00	19.00	26.63	11.88	15.70
BIB	2016	22.24	2.18	22.38	19.00	18.00	26.82	12.75	19.85
BIB	2017	22.37	3.68	22.56	32.00	20.00	26.99	12.75	20.10

BIB	2018	22.65	2.91	22.74	17.00	21.00	27.16	12.75	17.44
BIB	2019	22.82	3.20	23.08	16.00	17.00	28.17	13.50	15.90
BIB	2020	23.15	3.10	23.35	17.00	20.00	29.18	13.50	17.96
DB	2011	22.56	4.20	23.41	13.00	20.00	25.67	11.88	18.32
DB	2012	22.80	3.60	23.37	17.00	23.00	25.96	11.88	19.50
DB	2013	22.88	6.36	23.49	16.20	22.00	26.18	11.88	23.38
DB	2014	22.97	3.95	23.60	14.50	21.00	26.41	11.88	22.03
DB	2015	23.15	3.36	23.71	14.20	22.00	26.63	11.88	20.00
DB	2016	23.25	2.18	23.85	15.20	22.00	26.82	12.75	24.94
DB	2017	23.60	3.68	24.05	16.40	23.00	26.99	12.75	16.03
DB	2018	23.86	2.91	24.31	12.00	20.00	27.16	12.75	15.58
DB	2019	24.20	3.20	24.52	13.00	19.00	28.17	13.50	15.84
DB	2020	24.46	3.10	24.70	17.00	21.00	29.18	13.50	14.85
NIB	2011	21.69	4.20	22.65	12.00	23.00	25.67	11.88	14.23
NIB	2012	21.86	3.60	22.73	13.00	22.00	25.96	11.88	14.33
NIB	2013	22.22	6.36	22.82	14.00	21.00	26.18	11.88	13.67
NIB	2014	22.36	3.95	22.82	14.50	19.00	26.41	11.88	15.48
NIB	2015	22.53	3.36	22.91	13.00	18.00	26.63	11.88	13.13
NIB	2016	22.75	2.18	23.25	12.50	18.00	26.82	12.75	15.48
NIB	2017	23.09	3.68	23.62	17.00	17.00	26.99	12.75	14.17
NIB	2018	23.33	2.91	23.80	15.90	18.00	27.16	12.75	17.48
NIB	2019	23.68	3.20	23.84	17.00	19.00	28.17	13.50	15.23
NIB	2020	23.78	3.10	24.13	14.00	20.00	29.18	13.50	16.34
UB	2011	21.91	4.20	22.53	13.00	24.00	25.67	11.88	16.25
UB	2012	22.13	3.60	22.63	16.00	23.00	25.96	11.88	17.03
UB	2013	22.25	6.36	22.76	15.00	22.00	26.18	11.88	18.03
UB	2014	22.33	3.95	22.91	17.00	21.00	26.41	11.88	19.02
UB	2015	22.65	3.36	23.19	16.00	23.00	26.63	11.88	20.09
UB	2016	22.86	2.18	23.33	19.00	16.00	26.82	12.75	16.68

UB	2017	23.22	3.68	23.51	18.00	17.00	26.99	12.75	16.69
UB	2018	23.44	2.91	23.86	20.00	18.00	27.16	12.75	15.65
UB	2019	23.80	3.20	24.12	18.40	19.00	28.17	13.50	19.42
UB	2020	24.04	3.10	24.27	19.23	20.00	29.18	13.50	19.49
WB	2011	21.71	4.20	22.53	16.59	25.00	25.67	11.88	14.35
WB	2012	21.98	3.60	22.63	19.22	24.00	25.96	11.88	14.25
WB	2013	22.45	6.36	22.76	17.61	22.00	26.18	11.88	15.20
WB	2014	22.91	3.95	22.91	18.60	21.00	26.41	11.88	14.59
WB	2015	23.11	3.36	23.19	16.50	23.00	26.63	11.88	14.60
WB	2016	23.22	2.18	23.33	15.37	19.16	26.82	12.75	14.03
WB	2017	23.37	3.68	23.51	13.97	18.68	26.99	12.75	16.57
WB	2018	23.50	2.91	23.86	14.42	16.00	27.16	12.75	20.74
WB	2019	23.56	3.20	24.12	13.24	17.00	28.17	13.50	14.46
WB	2020	23.62	3.10	24.27	14.43	18.00	29.18	13.50	15.25
ZB	2011	21.73	4.20	22.60	14.91	19.00	25.67	11.88	18.97
ZB	2012	21.86	3.60	22.83	11.72	17.00	25.96	11.88	19.78
ZB	2013	22.22	6.36	23.93	15.19	21.00	26.18	11.88	19.80
ZB	2014	22.34	3.95	23.04	16.74	25.00	26.41	11.88	19.27
ZB	2015	22.54	3.36	23.18	15.69	24.00	26.63	11.88	20.97
ZB	2016	22.81	2.18	23.26	13.91	21.00	26.82	12.75	19.57
ZB	2017	22.90	3.68	23.34	13.84	20.00	26.99	12.75	19.71
ZB	2018	22.99	2.91	23.37	13.64	17.00	27.16	12.75	15.97
ZB	2019	23.26	3.20	23.47	15.88	17.00	28.17	13.50	20.74
ZB	2020	23.50	3.10	23.57	14.25	18.25	29.18	13.50	19.75

