



COLLEGE OF BUSINESS AND ECONOMICS

**DETERMINANTS OF LENDING INTEREST RATE IN
ETHIOPIAN PRIVATE BANKS**

**A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY, IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
MASTER OF BUSINESS ADMINISTRATION IN FINANCIAL
SERVICES BANKING STREAM (EXTENSION)**

**BY
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Banks**

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Fulfillment of the Requirements for Master of Business
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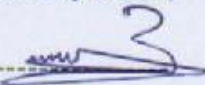
January, 2024

DECLARATION

I, Zenebe Ayalew Abebe, declare that the research project entitled "Determinants of Lending Interest Rate in Ethiopian Private Banks" is my original work that is done under the guidance and advice of my advisor Takele F. (PhD). This research project is done as partial fulfillment for Masters of Arts Degree in Master of Business Administration in Financial Services Banking Stream (Extension). This research has not been done before and all sources of materials used for the study have been appropriately acknowledged.

Zenebe Ayalew Abebe

Date: 16/02/2024

Signature: 

CERTIFICATION

This is to certify that Zenebe Ayalew Abebe has done the study on the topic **“Determinants of Lending Interest Rate in Ethiopian Private Banks”** This study is authentic and has not been done before by any other researcher on the same topic.

APPROVED BY BOARD OF EXAMINERS

ACKNOWLEDGMENTS

Advisor's Name -Takele Fufa, PhD--Date----13/01/2023--Signature---

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External Examiner -----Date-----Signature-----

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List of Acronyms

NBE	National Bank of Ethiopia
GDP	Gross Domestic Product
APR	Annual Percentage Rate
APY	Annual Percentage Yield
CD	Credit Union
S.C	Share Company
lr	Lending Rate
Lqr	Liquidity ratio
if	Inflation rate
bz	Bank size
dr	Deposit rate
pr	Profitability ratio

Abstract

The aim of the study was to investigate the determinants of lending interest rate in Ethiopian private commercial banks by taking their audited financial times series data from 2010 to 2021. To meet the purpose of the study the researcher has been used an explanatory research design ,and quantitative research approach is employed to determine the effect of each independent variable on the dependant variable. To conduct analysis SPPSS (Version 26) and Stata version 17 statistical software were used in this study. The study's dependant variable is lending interest rate, and the independent variables are Bank Size, profitability ratio, liquidity ratio, Deposit rate and inflation rate. The classical linear regression analysis result revealed that Bank Size, profitability ratio, and liquidity ratio are the significant independent variables to explain the dependant variable and these variables are inversely related with lending interest rate. On the other hand, Deposit rate and inflation rate are directly related with lending interest rate. Here, Deposit rate and inflation rate are statically significant in explaining the dependent variable. The study recommends, private commercial banks have to consider lending interest rate determinants in their lending rate determination while improving their internal inefficiencies. And also the central bank has to makes policies that encourage competition among the private commercial banks.

Key Words: Lending Interest Rate, Determinants, Private Commercial Banks

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

In the financial system and the economy, commercial banks play a critical role. Banks, as a critical component of the financial system, efficiently allocate cash from savers to borrowers by collecting cash in the form of deposit. Taye Kidanea (2019) point out that the banking sector is critical to economic growth since it is responsible for moving cash from lenders to borrowers. Efficient financial intermediation is a critical component of economic development because it affects the successful mobilization of investible resources. As a result, the banking sector's efficiency has a considerable impact on the economy.

Wolfe, M. A. (2012) explained that the role of credit is often seen as crucial to economic growth and financial stability. The total amount of money granted by commercial banks to individuals, businesses, and governments is referred to as credit. Commercial banks engage in financial intermediation by collecting money in the form of deposits from the surplus sector and lending it to various sectors of the economy. And the interest rate in Ethiopia is expected to be 7.00 percent by the end of quarter, according to Trading Economics global macro models and analysts' expectations. In the long-term, the Ethiopia Interest Rate is projected to trend around 7.00 percent in 2022.

The majority of an institution's assets are usually in the form of credit, with interest on credit serving as the principal source of revenue. Loans are high-risk investments with substantial consequences for the bank's profitability, liquidity, and solvency. The credit quality of a bank reflects its financial soundness and stability, as well as the risk taken on by depositors and creditors. Poor loan portfolio management is to blame for liquidity issues and bank failures all around the world (Yuga, R. (2015).

Higher lending rates and lower deposit rates can help commercial banks boost their profit margins. Banks do not offer excessively low loan rates because the interest income will not be sufficient to cover the cost of deposits, general expenses, and the revenue loss from the non-performing loan portfolio. On the other hand, they cannot charge excessively high loan rates

because they will be unable to maintain banking relationships with borrowers if they do (Bhattarai, 2015). Lending interest rate of commercial banks influenced by a number of factors such as specific to the banking sector/industry, individual bank-specific factors and macroeconomic factors (Bhattarai, 2015).

The fluctuation in lending rates is a source of concern for all of the economy's major stakeholders. Commercial banks' high lending rates have recently aroused major concern among policymakers. The loan rate is the cost of borrowing money from a bank for business purposes, and it is thus critical for a country's economic development. While the loan rate is obviously crucial for the growth and development of all types of entrepreneurial operations, the most important thing is to distinguish the elements that influence the lending rate in a well-established and integrated banking sector supervised by a central bank (Aliet al., 2016).

According to directive of NBE (2010), each bank is free to set its own lending interest rates each year. Commercial banks were also given much too much latitude in quoting their own bank lending rates, which were calculated using a standardized formula that took into account the funding cost. To ensure that it moves in lockstep with market conditions, the bank lending rate is matched to the standardized formula. The bank lending rate also has the advantage of reflecting both cost of funds and lending rate variations. Ethiopian National Bank 2021 report revealed that lending interest rates in Ethiopia are not constant, fluctuating based on the average bank lending rate.

1.2 Statements of the Problem

According to Habtamu A., (2021) the banking business in Ethiopia is an important part of the financial system, as it facilitates capital accumulation and economic operations. In order to reduce financial costs, banks mobilize funds from surplus spending units. The cost of borrowing for persons who take out loans from banks is the lending interest rate, whereas the incentive or gain for depositors for lending money is the deposit rate. Banks set both of these rates. Banks do not offer excessively low loan rates because the interest income will not be sufficient to cover the cost of deposits, general expenses, and the revenue loss from the non-performing loan portfolio (Anwar A., 2021). On the other hand, they cannot charge too high loan rates because they will not be able to keep the banking relationship with the borrowers with high lending interest rate.

Thus, determination of the appropriate lending interest rates usually becomes a major issue in banking industry.

Bhattarai (2015) the determinants of bank lending rates in Ghana. The findings of this study revealed that bank size, market competition have a positive relationship with lending rate is inconsistent with Georgievska et al.(2010) the determinants of lending interest rates in the commercial banking sector in Greece. The findings of this study, shows that bank size and a market competition have a negative effect with lending interest rate.

Cihak (2004) study sought to investigate the factors influencing lending interest rates in Croatia from 1999 to 2003. The result of the study indicated that deposit rates has a positive effect on lending interest rates is inconsistent with Ali et al., (2016) the study examines potential inner factors of the lending interest rate in the commercial banking sector in Pakistan. The findings of this study revealed that deposit rate has a significant and negatively relationship with lending interest rate. Bhattarai (2015) investigate the determinants of lending interest rates in the universal banks inGhana.

In Ethiopia, Tadiyos Y., (2018) show that bank size; operating cost and deposit rate have a positive and significant impact on bank lending rate. Credit risk, bank concentration and GDP have a negative and significant effect on lending rate. However, reserve requirement and inflation is not significant for the determinant of lending rate but Taye K., (2019) reveal that the liquidity ratio, profitability ratio and bank size had significant and negative effect on lending interest rate. Deposit rate, operating cost to total asset ratio, market concentration has positive and statistically significant effect on lending interest rate. Inflation rate has positive and statistically insignificant effect on lending interest rate of Ethiopian private commercial banks.

Scholars (Abdul,F., 2018, Adoah,L.2015, Aliduu,Z. 2017, Berhanu,B.,(2015) point out different variables as determinant factor of lending interest rate. Such as Operating cost, Bank Size, Credit Risk, Bank Concentration, Reserve Requirement and Saving interest rate, Inflation and GDP, Market competition, Liquidity ratio and Profitability ratio, but most literatures were identified only five variables as determinate factor thus are liquidity ratio, inflation rate, bank size, deposit interest rate and profitability ratio and this research apply these variables only. The rational behind selecting those variables is there impact on lending interest rate as mentioned by

most literatures. In addition to this ZigijuYeshiwas(2021) point out that bank size, volume of deposit, liquidity ratio and credit risk industry specific factors (cash reserve requirement and lending rate) and macroeconomic factors (gross domestic product and money supply) as an explanatory variables.

Therefore, the paradox that banks do not offer excessively low lending rate and charge excessively high lending rate; and lack of consensus on the determinate factor among researchers initiates the researcher to investigate the determinants of lending interest rate by using the following variables such as liquidity ratio, inflation rate, bank size, deposit rate and profitability ratio as a determinant of lending interest rate.

1.3 Research Questions

Based on the above stated problem and identified variable the researcher articulates the following research question.

1. How bank specific factors (liquidity ratio, bank size, deposit rate and profitability ratio) affect lending interest rate?
2. How macroeconomic factor (inflation rate) affects lending interest rate?

1.4 Objectives of the Study

1.4.1 General objective

The main objective of the study is to investigate the determinants of lending interest rates in Ethiopian private banks.

1.4.2. Specific objectives

The researcher address the following specific research objectives

1. To examine the effect of liquidity ratio on Banks' lending interest rate.
2. To determine the impact of inflation rate on Banks' lending interest rate.
3. To examine the effect of bank size on Banks' lending interest rate.
4. To examine the effect of deposit rate on Banks' lending interest rate.
5. To identify the impact of profitability ratio on Banks' lending interest rate.

1.5 Research Hypothesis

The researcher develops the following alternative hypothesis

- H_1: There is statistically significant effect of liquidity ratio on the lending interest rate of Ethiopian private banks;
- H_2: There is statistically significant effect of profitability ratio on the lending interest rate of Ethiopian private banks;
- H_3: There is statistically significant effect of bank size on the lending interest rate of Ethiopian private banks;
- H_4: There is statistically significant effect of deposit interest rate on the lending interest rate of Ethiopian private banks;
- H_5: There is statistically significant effect of inflation on the lending interest rate of Ethiopian private banks;

1.6 Scope of the Study

This study is focused on investigating determinants of private commercial banks lending interest rate in Ethiopia which start their official operation before 2013. Though, Currently there are 27 privately owned commercial banks in Ethiopia including the 11 new emerging private commercial banks. Among those private commercial banks only 16 were taken by the researcher in this investigation and these are Awash Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, Hibret Bank, Nib Bank, Cooperative Bank of Oromia, Lion Bank, Oromia Bank, Bunna Bank, Zemen Bank, Abay Bank S.C., Berhan Bank, Addis Bank, Debub Global Bank and Enat Bank.

To investigate the effect of explanatory variables on lending interest rate time series data from 2010 to 2021 is used, and the data is collected from NBE. Even if, there are lots of variables that affect lending interest rate liquidity ratio, profitability ratio, bank size, deposit rate and inflation rate are analyzed to determine each factors impact on lending interest rate.

1.7 Significance of the Study

The study provides various advantages for different stakeholders. The findings of the study are helpful to policymakers to make better judgments by resolving different operational and planning issues in the banking industry. Besides the article, help bank managers in their decision making. Banks are among the major contributors to a country's economic growth through lending money to investors and businesses. In the banking business, lending makes a significant contribution to the asset and income portfolio. As a result, understanding the factors that influence lending rate assist managers in improving the bank's performance. And lastly for academicians, the findings of the study help to make further investigation in the area to add a body of knowledge.

1.8 Limitation of the Study

The study was undergone only on sixteen private commercial banks in Ethiopia which have atleast twelve years operation experience. And due to the non-availability of data other private commercial banks did not include in this study. It will be more productive, comprehensive result and better findings and solutions if the study includes all commercial banks operating in Ethiopia.

1.9 Organization of the Study

The study is divided into five chapters, the first of which contains the study's background, statement of the problem, research question, and objective, as well as the study's importance and scope. Chapter two covers, a review of related literatures while chapter three covers methodology and the chapter four covers data analysis and chapter five covers the conclusion and recommendation.

CHAPTER TWO

2. LITERATURE REVIEWS

2.1 THEORETICAL LITERATURES REVIEWS

2.1.1 Concept of Lending Interest

According to Aloha, I. (2015) explanation the monetary payment for the privilege of borrowing money is known as interest, and it is usually stated as an annual percentage rate (APR). The amount of money a lender or financial organization earns for lending out money is known as interest. Interest can also refer to a stockholder's share of ownership in a firm, which is commonly expressed as a percentage. The monetary fee for borrowing money, expressed as a percentage, such as an annual percentage rate, is known as interest (APR). Inflation, the length of time money is borrowed, liquidity, and the danger of default are all important elements that influence interest rates.

According to Afzal,A. (2011) ownership in a firm can also be expressed through interest. The interest rate is a percentage of the principal, or the amount borrowed, that a lender charges a borrower. The annual percentage rate (APR) is the term used to describe the interest rate on a loan (APR). An interest rate can also be applied to money earned via a savings account or a certificate of deposit at a bank or credit union (CD). The income generated on these deposit accounts is referred to as the annual percentage yield (APY).

2.1.2 The Concept Banks' Lending Behavior

According toAhokpossi, C. (2011) explanation to function as a check on their lending activity, banks must have certain basic lending rules or considerations. Because there have been several research on commercial bank lending behavior, it is critical to analyze some factors that economists and professionals have proposed as being virtually crucial in explaining the drivers of commercial bank lending behavior.

According to Alidu, U. (2012) explanation, credit is usually the greatest single income-generating asset in a bank's portfolio. This explains why banks devote significant resources to

estimating, monitoring, and managing credit quality and quantity, which has a significant impact on bank lending behavior. Lending must be handled successfully in order for banks to balance their key objectives of liquidity, profitability, and solvency, and banks must operate in such a way that these potential clients are attracted and retained.

According to Amidu, M., & Wolfe, S. (2012) commercial banks' lending habits may be divided into two categories: internal and external influences. Internal determinants of profitability, which are under the control of bank management, can be divided into two categories: financial statement variables and non-financial statement variables.

According to Amoako, I. S. (2014) the financial statement variables refer to the balance sheet and income statement items, while the non-financial variables have no direct reference to the financial statement. External factors, on the other hand, are those that are beyond the control of bank management, such as competition, regulation, market share, ownership, money supply, and inflation. Banks utilize a variety of ways to assess credit, and it is critical that they follow these guidelines when making loan decisions.

This is because commercial banks are wary of information obtained from shady borrowers who may default. According to current study, the banking crisis, in addition to the political and environmental crises, is a major stumbling block to countries' economic growth. Implementing or establishing tight rules and regulations to oversee banks' lending activity is one strategy to combat this problem. This approach not only lowers the cost of a society's crises, but it also allows banks to increase their profits and boost economic growth.

2.2. Theory of Lending in Private Banks

2.2.1. Theory of Multiple- Lending

According to Ngugi, (2001) Loan syndication is a way to put the multiple-lending idea into practice. Loan syndication is a financial arrangement in which institutions pool their resources to fund loan applications. When the loan amount is greater than and surpasses the banks' individual lending capability, it is usually advantageous. Loan syndication aids banks in increasing their lending capacity.

2.2.2. Theory of Interest Rate

The loanable funds idea affects bankers, savers, and borrowers. This group should be well compensated at equilibrium, according to this theory. The interest rate on a loan should be structured in such a way that both parties are satisfied. The main determinant of interest rates, according to this theory, is the availability and demand of loanable money or surplus bank reserves. Interest rates will rise in favor of banks and to the detriment of borrowers in instances where demand for loans exceeds supply of loans. This theory extends the classical interest rate theory by acknowledging that the money supply has a substantial impact on saving and investment. The market interest rate (cost of credit) is the rate at which the supply of loans is equal to the demand for loans (Anisa, U., 2015).

2.2.3 Loan Pricing Theory

According to loan pricing theory, banks always set high lending rates. Given the substantial credit market knowledge asymmetry, Ruth (2016) suggests that commercial banks should address moral hazards and adverse selection concerns in the loan market while optimizing interest income. When banks set high loan rates, the market suffers from adverse selection, as hazardous borrowers gladly accept high rates.

Borrowers may develop moral hazard behavior after receiving loans and advances because they are more likely to engage on high-risk ventures or investments. As a result of this argument, we should expect to find that the bank's interest rate is not always proportionate with the borrowers' risk, as Ruth claims.

The cost of cost, both direct and indirect costs of a bank's activities, the risk associated in lending, and the period of the loan are the primary parameters in this theory. This theory is pertinent to this study because commercial banks change the pricing determinants of the loans they lend to the public by adjusting interest rates, hence affecting the overall cost of the loanable funds. This has an impact on borrowers' willingness to take out loans, which in turn has an impact on banks' lending activity.

2.2.4 The Rational Expectations Theory of Interest Rate

This is founded on the notion that consumers build expectations based on all available information in the market. According to rational expectation theory, the current spot rate is the best estimate for future interest rates, and interest rate movements are primarily due to unanticipated information or changes in economic fundamentals. To properly analyze the available knowledge inside the economy, the rational expectations theory can be combined with the loanable funds theory (Aregu, A., 2014).

According to the difficulty in acquiring information and understanding how the public utilizes its information to build expectations are the main limiting issues of rational expectation theory, according to Bashir, H. M. (2003). People will avoid borrowing if they expect interest rates to rise, which will damage bank performance due to lower interest rate earnings. However, if people expect interest rates to fall, they will be ready to borrow, which will boost bank performance due to higher interest rate earnings

2.2.5 Liquidity Preference Theory

According to Bawumia, M., Belnye, F. & Ofori, M. E. (2005) Investors will always favor short-term securities to long-term securities, according to this idea. Long-term bonds should pay greater interest rates than short-term bonds to encourage them to hold them. As a result, the yield curve will always be slanted upward. Investors demand a premium for bearing interest rate risk, according to a theory concerning interest rate term structure (the link between interest rates and term to maturity). The size of the premium grows with the period to maturity, although at a slower rate. The diminishing rate of growth is due to the fact that duration, a measure of a bond's price sensitivity to interest rate movements, decreases with term to maturity and that long term interest rates are normally lower.

Commercial banks set the interest rate in the credit market by marking up the central bank's base rate and then providing loans to those borrowers that they deem creditworthy at this rate. Within the boundaries set by credit worthiness, banks are thus price makers and quantity takers. Again, enterprises and families' willingness to pay the interest rate established by banks in the credit market is a necessary, but not sufficient, condition for obtaining credit, and there will always be some form of 'credit rationing' for those who cannot supply requisite collateral. The mark-up on

the base rate that commercial banks charge is dictated by their risk and liquidity concerns, as well as the level of competition in the market.

Liquidity preference, rather than interest rate level, influences the structure of interest rates in this method. The liquidity preference of commercial banks influences the mark-up and thus the disparity between the base and market rates of interest. The central bank's interest rate setting in the base money market also affects the market rate of interest in the credit market if private banks' liquidity preferences and risk concerns, and hence their markups, stay constant. Changes in the base rate and the credit market rate of interest are caused by changes in the monetary policy stance in certain circumstances. Changes in the central bank's base rate will alter credit demand and supply through shifting the credit supply curve.

However, monetary policy may not be able to directly influence the credit market rate of interest if commercial banks' liquidity and risk considerations, or the degree of competition, and hence their mark-ups, vary in response to a changing base rate of interest. There may be an asymmetry here: Because commercial banks must recoup refinancing costs and make (minimum) profits, a higher base rate of interest will always result in an increasing credit market rate.

However, Fridah, (2011) remarked that if commercial banks' liquidity and risk premium increase owing to rising uncertainty, or if banks' profit expectations increase, a falling base rate may not be followed immediately by a falling credit market rate. Finally, the horizontality viewpoint does not mean that monetary policy can set the interest rate at any level it wants, regardless of economic realities. Modern central banks, on the other hand, have utilized interest rates to control inflation and/or the exchange rate, depending on the exchange rate regime

2.2.6 Credit Market Theory

According to this idea, credit terms clear the credit market. Because the loan securities remain unaltered, the interest rate is the only price mechanism that can clear the credit market. The interest rate can only grow if the credit market is clear, and vice versa, with rising demand for credit at a given loan and advances supply by banks. As a result, it is thought that the higher the borrower's interest premium, the higher the chance of default Belay, G. (2015) to compensate for any potential losses.

As a result of the increased demand for credit, particularly as a result of low interest rates, currency depreciation may occur. As a result, the central bank must adjust the interest rate in order to keep the strong demand for loans in check and discourage borrowing. As a result, commercial banks will respond in the long run by raising interest rates on low-demand loans. The bank income and loan interest rate are the two most important elements in credit market theory.

Ho and Saunders (1981) proposed a dealership model in which banks are supposed to be risk-averse utility-maximizing intermediaries for collecting deposits and making loans over a single period. Transaction uncertainty resulting from the asymmetry between deposit supply and demand for loans, as well as market power, was regarded two important variables driving interest margins. Ho and Saunders (1981) used a two-step approach to empirically estimate the model for US banks. A regression model was used to explain bank interest margin in terms of bank-specific parameters such implicit interest rate, opportunity cost of reserves, default premium, operating costs, and capital-asset ratio in the first phase.

Maudos and de Guevara (2004) offered an intriguing contribution to the theoretical model by incorporating the role of operating costs, market power (Lerner index), and a full description of the risk-margin relationship. Their approach distinguished market risk and credit risk as separate elements determining the margin, as well as their interaction. The model was then empirically calculated for the major European banking sectors from 1992 to 2000.

Branko, K. (2014) explanation the yield on government securities investment is used to approximate the opportunity cost variable. This variable is included in the profitability equation to indicate the substitution effect among different bank assets, and to quantify the impact of changing compensation circumstances of substitutable assets for traditional bank loans (the assets for which banks are price-takers). The projected effect of this variable on bank net margin is uncertain and is dependent on the bank's position in the money market (net lender or borrower).

2.2.7 The Classical Theory of Interest Rates

In real terms, interest is the incentive for the productive use of capital, which is equivalent to the physical capital's marginal productivity. In a money economy, however, because physical capital

is purchased with monetary funds, the annual rate of return on money capital invested in physical capital assets is considered as the rate of interest.

The actual classical theory of interest rate, according to Keynes, is the savings investment theory. Essentially, the theory states that the rate of interest is determined by the intersection of the demand for and supply of capital, based on the general equilibrium theory. According to (Branko, K. (2014) an equilibrium rate of interest is determined when the demand for capital equals the supply.

As a result, the investment demand schedule represents the need for capital, whereas the supply of capital is derived from community savings. As a result, the savings schedule represents the capital supply. As a result, the two real factors determining the rate of interest are savings and investment (Brooks, C. (2008).

The theory's implication is that different banks have different liquidates; if the theory is correct, a high liquid bank should charge low interest rates on funds borrowed to attract more borrowers, and low interest rates on savings to discourage savings, or if it charges the same rate as other banks on money borrowed, interest rates on savings should remain very low. If this is the case, highly liquid banks should have a higher interest rate spread than less liquid banks. The financial performance of a high-liquid bank should be better than that of a low-liquid bank.

2.2.8 The Capital Asset Pricing Theory

The Capital Asset Pricing Model (CAPM) of William Sharpe (1964) and John Lintner (1965) marks the birth of asset pricing theory (resulting in a Nobel Prize for Sharpe in 1990). Four decades later, the CAPM is still widely used in applications, such as estimating the cost of capital for firms and evaluating the performance of managed portfolios. It describes the relationship between systematic risk, or the general perils of investing, and expected return for assets. The Capital Asset Pricing Model (CAPM) model is based on the relationship between an asset's beta, the risk-free rate (typically the Treasury bill rate), and the equity risk premium, or the expected return on the market minus the risk-free rate. It also a financial theory based on the idea that investors who are willing to hold stocks that have higher systematic risk should be

rewarded more for taking on this market risk. The CAPM focuses on systematic risk, rather than a stock's individual risk, because firm-specific risk can be eliminated through diversification.

2.3 Factors That Determine Lending

Determinate factors are those that have something to do with internal efficiencies and management decisions. Determinants such as deposit interest rate, bank size, liquidity, operating cost to total assets ratio, profitability ratio, and other macroeconomic variables are examples of such factors.

2.3.1 Bank size

The size of a bank is determined by the log of its total assets. Some studies have found that bank size has a negative impact on credit risk. Large banks are justified in their ability to deal with credit risk by establishing a sound and effective credit risk management system, introducing modern risk management instruments and technology, as well as a better portfolio diversification opportunity, and taking advantage of economies of scale. As a result, large banks send loans to their customers with low lending rates (Atakelt, 2015).

Bank size was also found to be a significant factor of commercial bank lending rates, since larger banks were unable to offer lower lending rates because their interest spread was lower than that of smaller banks. According to Adoah (2015), large banks have the advantage of offering a wide range of financial services to their consumers, which allows them to mobilize more capital, allowing them to provide their customers with cheap loan rates.

2.3.2 Deposit Interest Rate

According to Atakelt (2015) the word Deposit Rate refers to the amount of money a bank or financial organization pays out in interest on cash deposits. On savings and other investment accounts, banks provide deposit rates. Financial institutions pay deposit accountholders interest on their deposits. Certificates of deposit, savings accounts, and self-directed deposit retirement accounts are all types of deposit accounts. The impact of a high deposit rate on credit risk is many.

For starters, offering a high deposit rate has a direct impact on the loan rate. The lending rate, in turn, has a variety of effects on a borrower's ability to repay a loan, particularly when a high-risk premium is charged for hazardous borrowers. As a result, it improves loan quality because a high interest rate equals higher borrowing costs, which increases loan burden. Second, a high deposit rate attracts depositors or increases deposit mobilization, resulting in an excess loanable fund. Because the deposit is not free of charge, the money should not be left idle. As a result, the bank is compelled to increase its loan volume, hence increasing credit risk. Deposit growth generates a surplus of loanable funds, prompting the bank to take credit risks or extend credit to more risky borrowers.

Nasrin et al. (2015) identified the elements that have the greatest impact on lending rates. Short-term rises in deposit interest rates raise the banks' costs of funding, resulting in higher loan interest rates. To do so, a collection of macro and bank-specific factors are utilized to see if lending rates change in response to changes in deposit rates.

2.3.3 Profitability Ratio

A profitability ratio is a metric for assessing a company's profitability. Profitability is simply the ability to produce a profit, and profit is the amount of money left over after all costs and expenses associated with obtaining the money have been eliminated. The formulas you are about to learn can be used to assess a company's performance and compare it to that of other companies in comparable situations. This is typically regarded as a good indication for evaluating a bank's asset profitability in contrast to that of other banks in the banking industry.

Mbao et al. (2014) discovered a negative relationship between loan rates and profitability. They said that rising bank costs are passed on to borrowers in the form of higher lending rates, and that variables that help banks earn more money also help consumers by lowering interest rates. The interest rate on loans is projected to have a negative association with profitability.

Windmeijer (2005) discovered that during an economic growth, lending demand is strong and business profitability is high, leading in more lucrative loans, more bank capital, and an expanding credit environment in which banks compete for business by lending more at cheaper rates.

2.3.4 Liquidity Ratios

The ratio of liquid assets to total current liabilities is used to determine liquidity. Cash and deposit balances in other banks, as well as the reserve requirement at the National Bank, are considered liquid assets because of the opportunity cost associated with excess liquidity, excess liquidity is an implicit tax for banks. The bank liquidity ratio and the lending interest rate have a positive association (Adoah, 2015). This demonstrates that when bank liquid assets rise, so do bank lending interest rates, as they must be compensated for holding more liquid assets.

According to Abdul et al. (2011), the poor return on highly liquid assets explains this link. The danger that a bank will not be able to satisfy or complete its short-term debt obligations or short-term financial needs properly and on schedule is known as liquidity risk (Samad, 2004). When a bank is unable to convert a security or an illiquid asset to cash without incurring a significant loss of income or capital, they are exposed to this risk. Commercial banks' liquidity is regarded as their lifeblood. Funding and time risks are two common liquidity issues that banks encounter.

Banks can assess their liquidity risk using any of the following ratios, according to Emeri (2016): loans/total assets, purchase funds/total assets, and loans/core deposits. The liquid asset/total assets liquidity ratio was employed in this investigation. Banks are frequently faced with liquidity risk, and they are hesitant to make loans if they cannot convert an illiquid asset to cash without incurring a significant loss of capital.

2.3.5 Inflation Rate

The Consumer Price Index is used to measure inflation, which is defined as a loss of buying power of a currency that results in a general and continuous increase in prices (CPI). This variable is a measure of how much it costs to do business in a given economy. Inflation is defined as an increase in the overall level of prices represented as a percentage rate of change over a year. Money loses its worth as a result of inflation. When inflation rises, banks raise their cost of credit to keep up, resulting in a higher lending rate in the country (Banda, 2010).

When inflation rises above a certain threshold, bank lending decreases, several economists have found that nations with high inflation rates have inefficient banking sectors. This negative implies that inflation reduces bank lending to the private sector, which is in line with the theory

that a sufficiently high rate of inflation causes banks to ration credit. It has been suggested that as inflation rises, the amount of credit that universal banks lend to their consumers decreases. This variable is predicted to have a positive relationship with the loan rate.

2.4 Empirical Reviews

Assefa (2014) looked at the short- and long-term effects of bank specific, monetary policy, and macroeconomic variables on bank credit to Ethiopia's private sector. Bank credit to the private sector is a dependent variable in the study, with domestic deposits, foreign liabilities, lending interest rates, and reserve requirements, broad money as a proportion of NGDP, RGDP, and inflation serving as key explanatory variables. Domestic deposits, foreign liabilities, real lending interest rate, M2 as a proportion of NGDP, GDP, and inflation, according to the findings, have a considerable long-run impact on bank credit to the private sector. The reserve requirement, on the other hand, has little effect on commercial banks' credit to the private sector in the long or near term. Bank specific factors such as bank specific risk, bank size, and efficiency), bank industry characteristics market structure), regulatory factors (capital adequacy ratio and reserve requirement), and macroeconomic factors.

According to Mensah and Abor (2014), can all affect bank lending rates (inflation volatility of interest rates and exchange rate). Larger banks, as opposed to smaller banks, are able to offer lower lending rates due to economies of scale, and as a result, they are more likely to offer lower loan rates and higher deposit rates.

According to Chirwa and Mlachila (2004), macroeconomic variables that are commonly used to determine interest rates include inflation, output growth, money market, and real interest. They also discovered that macroeconomic volatility and the policy environment had a significant impact on the universal bank loan pricing behavior. They pointed out that interest rate uncertainty, universal bank exchange rates, and public sector loans are all important determinants of interest rates.

Malede (2014) conducted a study titled Determinants of commercial banks' lending behavior during a seven-year period from 2005 to 2011. Bank size, credit risk, GDP, and liquidity ratio all have a positive and statistically significant link with Ethiopian commercial banks' lending,

according to the study. Cash reserve ratio, commercial bank lending rate, and investment portfolio, on the other hand, have a positive but statistically insignificant relationship with Ethiopian bank lending. During the study period, there was a positive but statistically insignificant relationship between deposit volume and bank lending behavior. It could be because most deposits are current or demand deposits, which are repayable to depositors on demand, as the author suggests.

According to Mensah (2005), the quality of bank management has an impact on profitability. They emphasize once again that a rise in this variable has a negative impact on interest rates since an increase in the ratio implies a drop in efficiency, resulting in a decrease in net interest rate.

According to Bawumia et al. (2005), the constant rise in intermediation spreads in developing nations is mostly driven by increases in operational costs. As a bank's operating costs rise, it passes the expense on to customers in the form of higher lending rates and, if wise, reduced deposit rates. Thus, they make customers bear the burden of the internal inefficiency, and this is not justifiable.

According to Bawumia et al. (2005), the incidence of fraud, the ease with which negative credit risks survive due diligence, and the status of corporate governance within banks all have the potential to increase asset deterioration, operational expenses, and interest rates.

Ayitenew Temesgen (2015) investigated the main determinants of commercial banks' lending behavior in Ethiopia and found that, with the exception of the liquidity ratio and lending rate, which are significant at the 5% level of significance, all bank-specific factors are significant at the 1% level of significance. As a result, they have an impact on commercial banks' lending behavior in Ethiopia. Macroeconomic variables (GDP and annual birr-to-dollar exchange rate) and the cash reserve requirement ratio, on the other hand, have no impact on Ethiopian commercial banks' lending behavior.

Tsegay Gebremedhin Berhe (2021) investigated the factors of commercial banks' lending behavior for a sample of Ethiopian commercial banks. The correlation results indicate that deposit volumes, interest/credit rates, liquidity ratios, asset quality (AQ), and capital adequacy ratio (CAR) have a linear relationship with lending behavior of the selected commercial banks.

Furthermore, the regression results revealed that the parameters Liquidity Ratio (LR), Credit Rate (CR), and Asset Quality have a considerable impact on lending behavior, although two other factors, Capital Adequacy Ratio and Volume of Deposits, have a negligible impact. Finally, the researcher proposed that commercial banks and regulatory bodies work together more closely to ensure that regulatory measures have the desired effect.

TadiyosYimam (2018) investigated the drivers of lending rate in the Ethiopian private commercial banking sector, and the findings revealed that bank size, operational costs, and deposit rate all have a positive and significant impact on bank lending rate. The impact of credit risk, bank concentration, and GDP on lending rates is negative and considerable. Reserve requirements and inflation, on the other hand, have no bearing on the determinant of lending rates. Banks should increase operational efficiency.

Taye Kidane (2019) studies the factors of lending interest rates in Ethiopian private commercial banks. The findings show that the liquidity ratio, profitability ratio, and bank size all have a significant negative impact on the lending interest rate. The deposit rate, operating cost to total asset ratio, and market concentration all has a statistically significant positive effect on the lending interest rate. The rate of inflation affects the lending interest rate of Ethiopian private commercial banks in a positive but statistically negligible way.

2.7 Research Gaps

Three general categories can be drawn from empirical studies that examine the factors influencing bank lending rate variables such as Factors unique to each bank, such as operating or administrative costs, non-performing loans, return on assets, bank capital, bank size, and bank liquidity, Factors unique to the banking sector/industry, such as level of competition or market concentration; and Factors unique to the banking sector/industry, such as capital requirements. However, because countries differ in their economic, financial, regulatory, and operating situations, there are no widely recognized results for the causes of loan rate.

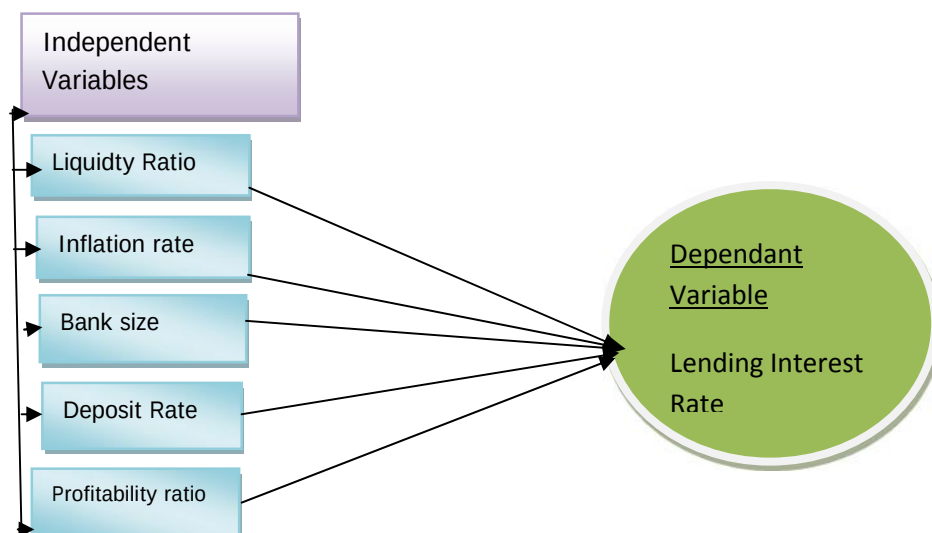
For example, Malede (2014) found that operating costs have no impact on the determinant of lending rate in the Macedonian commercial banking sector, whereas Yuga (2015) found that operating costs have a positive and significant impact on the determinant of lending rate in

Nepalese commercial banks, and Alidu (2012) found that GDP has a positive and significant impact on lending rate in the Ghanaian commercial banking sector, i.e. As a result, utilizing a more recent dataset and a quantitative research approach, more empirical evidence could provide new insight into the determinants of lending rate, and it requires further exploration. There were only a few studies undertaken in Ethiopia on the subject of loan rates, the results of which are shown below. Furthermore, to the best of the researcher's knowledge, no study has been conducted in Ethiopia on the determinants of lending rate; rather, Aregu (2014) and Meshesha (2016) titles focused on the determinants of interest spread and determinants of interest margin in Ethiopian banking sectors, respectively. The impact of deposit interest rates and bank size on interest spread and net interest margin was not examined in this study. As a result, some significant variables that have a considerable effect on the determinant of lending rate, such as bank size and deposit interest rate, were included in this study.

2.6 Conceptual Framework

Based on the above literature review the following conceptual framework is developed from to show the relationship of explanatory and explained variables. In the conceptual framework, liquidity ratio, inflation rate, bank size, deposit rate and profitability ratio are explanatory variables while performance of lending interest rate is explained variable.

Figure 2.1 Conceptual Framework



Source: Researcher Update from Different Literatures, 2022

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Research Design

A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. The function of research design is to provide for the collection of relevant evidence with minimal expenditure of effort, time and money (Kothari, 2004).

The researcher used explanatory research design and this design was employed to realize objectives of the study due to its appropriateness because explanatory research was conducted for a problem that was not well researched before demands priorities generates operational definitions and provides a better-researched model. It is actually a type of research design that focuses on explaining the aspects of the study in a detailed manner.

3.2 Research Approach

This study was used quantitative research approach to investigate the determinants of lending interest rate in Ethiopian private banks, and to address the objectives the study quantitative data was collected from secondary sources.

3.3 Population and Sample Size Design

3.3.1 Population of the Study

According to Kothari (2004), a population is defined as a big group of subjects with similar features (where "N" represents the population size) from whom a sample is taken. The population of the study are the 30 commercial private banks which were posted on the NBE official website. Those are Awash International Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, Hibret Bank, Nib International Bank, Cooperative Bank of Oromia, Lion International Bank, Oromia International Bank, Bunna International Bank, Zemen Bank, Abay Bank S.C, Berhan International Bank, Addis International Bank, Debub Global Bank, Enat Bank, ZamZam Bank S.C, Hijira Bank S.C, Goh Betoch Bank S.C, Shabelle Bank S.C, Siinqee Bank

S.C, Amhara Bank S.C, Sidama Bank S.C, Ahadu Bank S.C, Tsehay Bank S.C, Tsedey Bank S.C, Gadaa Bank S.C, Omo Bank S.C., Rammis Bank S.C and Siket Bank S.C.

3.3.2 Sample Size Design

The Researcher used judgmental sampling to select the sixteen Ethiopian private banks which were important for the study. Those, were Awash Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, Hibret Bank, Nib Bank, Cooperative Bank of Oromia, Lion Bank, Oromia Bank, Bunna Bank, Zemen Bank, Abay Bank S.C., Berhan Bank, Addis Bank, Debub Global Bank, and Enat Bank, The rationale for selecting these banks is the availability of ten years data or the availability financial statements that has ten years' time period. The remaining banks such as ZamZam Bank S.C, Hijira Bank S.C, Goh Betoeh Bank S.C, Shabelle Bank S.C, Siinqee Bank S.C, Amhara Bank S.C, Sidama Bank S.C, Ahadu Bank S.C, Tsehay Bank S.C, Tsedey Bank S.C, Gadaa Bank S.C, Omo Bank S.C, Rammis Bank S.C and Siket Bank S.C were nearly established banks and they didn't have any financial statement for the last 12 years.

3.4. Type and Source of Data

The secondary data was collected in order to complete the research task and to achieve the research objectives. The study has been used time-series data from 2010 to 2021 for conducting the study. The researcher has collected the secondary data from the National Bank of Ethiopia.

3.5 Data Collection Method

For the purpose of the study, audited financial statements (balance sheet and income statement) of private commercial banks was obtained from the Ethiopian National Bank for a twelve-year period from 2010 to 2021. And also the inflation rate data is collected from national Bank of Ethiopia.

3.6 Data Analysis

Data must be examined in accordance with the research plan's aim, according to (Kothari, 2004). The relative importance of each independent variable in influencing the loan rate was determined using a multiple linear regression model. To test the casual relationship between the banks'

lending rate and determinants; and to verify the most significant and influential explanatory variables affecting the lending rate of Ethiopian private banks the multiple linear regressions model was conducted, and Ordinary Least Square (OLS) is applied by using SPSS and Stata software package. As previously stated, OLS was used in this investigation. As a result, Classical Linear Regression Model (CLRM) assumptions test was conducted before running the regression .

3.8 Reliability and Validity Test

Reliability refers to how dependably or consistently a test measures a characteristic. If a person takes the test again, will he or she get a similar test score, or a much different score? A test that yields similar scores for a person who repeats the test is said to measure a characteristic reliability. Test reliability and validity are two technical properties of a test that indicate the quality and usefulness of the test. Here under is the result of reliability in this study. Regarding validity the identified variables were discussed with other variables.

alpha <u>lbl</u> <u>lir</u> <u>lbs</u> <u>ldr</u> <u>lpr</u> <u>llp</u>	
Test Scale= Mean (Unstandardized items)	
Average <u>interitem</u> covariance:	0.7540346
Number of items in the scale:	6
Scale reliability coefficient:	0.9957

Source: Surevy Result, 2022

3.8 Model Specification

Ho and Saunders (1981) proposed a dealership model in which banks are supposed to be risk adverse utility-maximizing intermediaries for collecting deposits and making loans over a single

period. Empirical research has used a number of econometric models, drawing inspiration from the theoretical literature. Multiple linear regressions and the ordinary least square (OLS) estimate method was employed by the researcher. Time serious data was used in the modeling that covers time period of from 2010 to 2021.

$$L_{rit} = \alpha + \beta_1 l_{qrit} + \beta_2 i_{fit} + \beta_3 b_{zit} + \beta_4 d_{rit} + \beta_5 p_{rit} + \varepsilon_{it}$$

Where:

$\beta_1, \beta_2, \beta_3, \dots, \beta_5$ = Represent coefficient of variables

α = Constant Term

i = Represent Bank

t = Represent Time

L_r = lending rate

l_{qr} = liquidity ratio

i_f = inflation rate

b_z = bank size

d_r = deposit rate

p_r = profitability ratio

ε_{it} = error term or the residual

3.9 Definition of Variables and there Measurement

- **Lending rate** is the interest rate that banks charge the borrowers for the amount of money granted. It is expressed as an annual percentage rate.
- **Liquidity ratios** are a class of financial metrics used to determine a debtor's ability to pay off current debt obligations without raising external capital.

$$\text{Liquidity Ratio} = \frac{\text{Current Asset}}{\text{Current Liability}}$$

- **Inflation** is the rate of increase in prices over a given period of time. Inflation is typically a broad measure, such as the overall increase in prices or the increase in the cost of living in a country.
- **Bank size** is measured as the natural logarithm of the value of total assets. Capital ratio is measured using Tier 1 ratio, which is the ratio of tier-1 capital to total risk- weighted assets
- **The deposit rate** is the interest rate paid by commercial banks or financial institutions on cash deposits of account holders. It is the ratio of total interest paid to account holders and the total deposits.

$$\text{Deposit Rate} = \text{Total Interest paid} / \text{Total Deposits}$$

- **Profitability ratios** are financial metrics used by analysts and investors to measure and evaluate the ability of a company to generate income (profit) relative to revenue, balance sheet assets, operating costs, and shareholders' equity during a specific period of time. They show how well a company utilizes its assets to produce profit and value to shareholders.

Table 3.1 Measure of variables

No	Name of variables	Measurement	Type of data	Expected sign	Symbol
1	Lending Rate	Annual Percentage rate	Time Serious		Lr
2	Liquidity Ratio	Current Asset/Current Liability	Time Serious	Positive	Lqr
3	Inflation Rate	Percentage Increase in Prices	Time Serious	Positive	Ifr
4	Bank Size	Natural logarithm of the value of total assets	Time Serious	Positive	bs
5	Deposit Rate	Total Interest Paid/ Total Deposits	Time Serious	Positive	dr
6	Profitability Ratio	Net Income/ Total Assets	Time Serious	Positive	pr

3.10 Ethical Consideration

During data collection, bank experts were informed as to why they discussed with the lending interest rate and informed about the objectives of the study. After the delivery of their financial statement, the privacy of banks have been kept safe. Finally, any work of scholar would acknowledge at reference part.

CHAPTER FOUR

4. DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 INTRODUCTION

As discussed in previous chapters, this study attempted to assess Determinants of Lending Interest Rate in Ethiopian Private Banks. Therefore, the findings of the study were presented and discussed in this chapter. Secondary data of Ethiopian private banks was collected from NBE. In order to analyse the determinates of Lending Interest Rate in Ethiopian Private Banks the collected data were presented and analysed using SPSS (version 26) and stata version 17 statistical softwares.

As was made evident in the earlier chapter, descriptive statistics were utilized in this study to calculate the minimum, maximum, mean, and standard deviation. For a period of twelve years, from 2010 to 2021, the descriptive statistics of the dependent and independent variables from Ethiopian private commercial banks were summarized in table 4.1 below. This was created to provide an overview of the data that was utilized in the model.

Regarding inferential analysis, the study conducted diagnostic tests of the data, regression and correlation analysis, specifically Pearson correlation to measure the degree of association between different variables under consideration. Regression Analysis was also used to test the effect of independent variables on dependent variable.

4.2 Descriptive Analysis

A study done by Mbao et al. (2014) remarked that the factors include liquidity, profitability (ROA), bank size, operating cost ratio, deposit interest rate and inflation rate. The fixed effect model was performed as suggested by Hausman test. The results of the fixed effect model show that ROA and bank size had negative significant impacts on lending interest rates. Liquidity had a negative insignificant impact. The results also show that deposit interest rate and inflation had a positive significant impact on lending interest rate of Jordanian commercial banks. Operating cost ratio also had a positive insignificant impact. Thus, the results indicate that ROA, bank size,

deposit interest rate and inflation were good determinants of the lending interest rates of Jordanian listed commercial banks. The study suggests that banks should use profitability and the size of the bank as tools to reduce the lending interest rate, as it is one of the factors that can cause a further decrease in the lending interest rates.

Table 4.1 Descriptive Analysis

Statistics							
		Liquidity Ratio	Inflation Rate	Bank Size	Deposit Rate	Profitability Ratio	Lending Rate
N	Valid	12	12	12	12	12	12
	Missing	1	1	1	1	1	1
Mean		6.6017	8.0477	6.7498	9.0129	10.2955	7.0696
Std. Deviation		3.86479	2.75048	3.27951	4.02742	0.91173	3.51335
Minimum		3.00	4.00	3.00	2.00	8.98	3.00
Maximum		13.62	11.22	14.02	12.80	11.81	11.81

Source: Survey Result, 2022

Over the study period, Lending interest rate performance which is the dependent variable ranged between maximum values of 11.8% and a minimum value of 3%, with the mean of 7.0%. This indicates that, from the sampled Ethiopian private commercial banks, on average lending rate was 7.0% meaning that Ethiopian private commercial banks charge, on average 7%.. The most profitable large bank lending rate 11.8% of charged from loan. On the other hand, the least profitable smaller bank of the sampled bank lending rate 3.0% of charged from lending loan.

The standard deviation statistics for lending interest rate was (3.5), which indicates that the lending rate variation between the selected banks during sample period was 35%. Among the bank specific independent variables bank Size was highly dispersed from its mean value of 3.2, liquidity ratio, 3.8 and deposit 4.0 with the standard deviation.

Regarding deposit rate the maximum and minimum values were 12.00 and 2.0 respectively. This shows that the existence of large deposit in the bank or large size bank has the advantage of

providing a large menu of financial service to their customers and thereby mobilizes more funds which will lead to serving their customers with low lending rate. The maximum value indicating the large private commercial bank in Ethiopia and the minimum value was some of small privately commercial banks in Ethiopia.

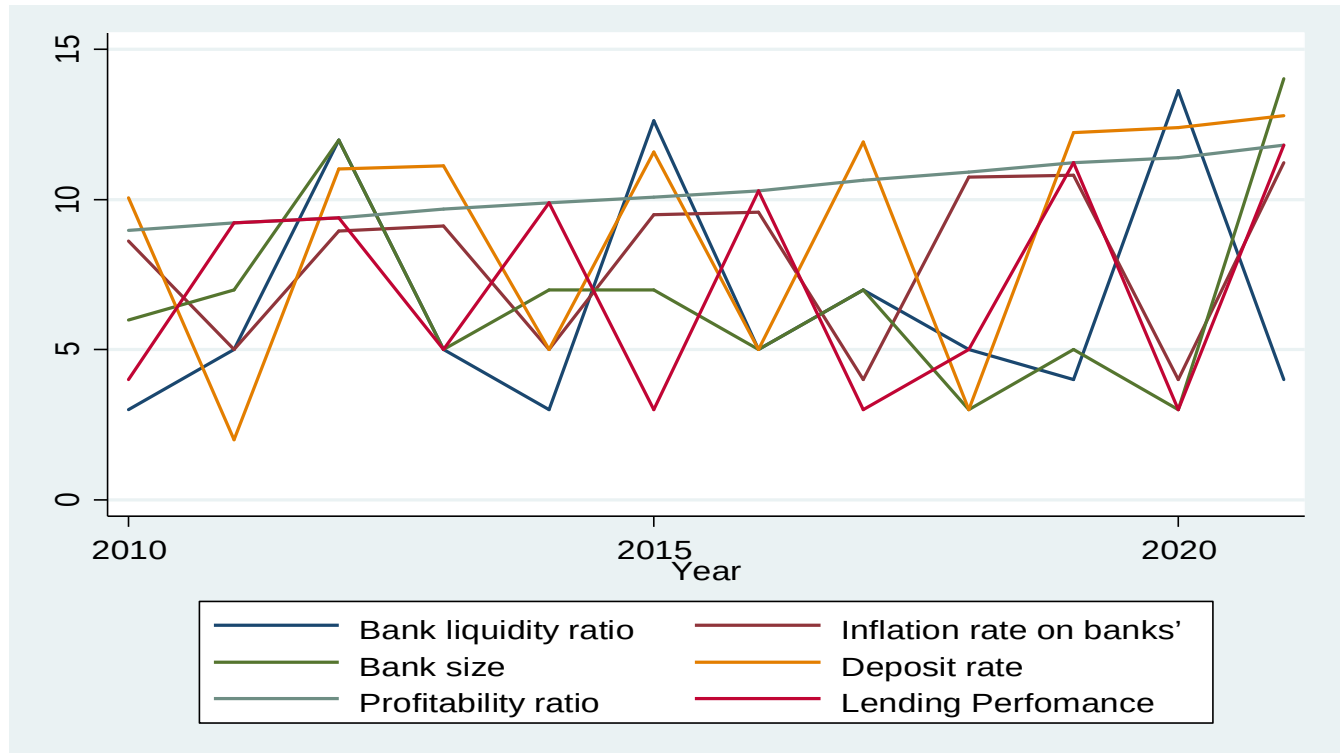
In case of liquidity ratio, it had an average of 6.6017 and minimum and maximum rate 3.00 and 13.62 respectively. Bank total asset increase, bank lending rate moves upwards and low return of highly liquid asset. The mean of profitability is 10.2955, which shows the high profitability position of Ethiopia private commercial banks. However, the standard deviation of the profitability is 0.91173. The standard deviation looks in this study and it indicates the substantial variation of profitability between selected Private Banks' during sample periods.

The maximum inflation was recorded in the year 8.0477 which is greater than average lending rate of 7.0%. And the minimum was recorded in the year 4.00. This indicates that inflation rate increase lead to lending interest rate increase. The rate of inflation was highly over the periods under study towards its mean with standard deviation of 2.75048 which indicating highly variation between the selected banks during sample period.

4.2.1 Graphical Description of Independent Variables

Figure 4.1 Time series Graph of

Ivs



Source: Researcher Survey, 2022

Inflation rate (IFL); Inflation rate is proxy by the Consumer Price Index (CPI). This variable is an indicator of the cost of doing business in an economy. Inflation is an increase in the general price level and is typically expressed as an annual percentage rate of change. Inflation depreciates the value of money.

When inflation increases, banks also increase their cost of credit to keep the space with inflation, which will result in increased lending rate in the country. Gupta, (2010) who carried out a study on the impact of inflation on homes loans, notes that inflation is a major cause of fluctuating interest rates and increase in homes loans interest rates. This means that a rising inflation rate tends to increase the rates on loans and therefore the cost to the bank go up which eventually results to an increase in home loan interest rates, among other loans rates.

Profitability ratio is measured as net income divided by total assets. Bank Profitability indicator profitable banks have the capacity to implement modern Credit risk management system, technology and hiring trained man power or experts as well as having credit information access so that it contributes for low lending rate (Atakelt, 2015). Mbao, et al.(2014), found that negative association between lending rates and profitability (return on assets). They asserted that increases in bank costs tend to be passed on to borrowers in the form of higher lending rates, and that factors that help improve bank income also tend to benefit borrowers by lowering the interest rates they pay. A negative relationship is expected between lending interest rate and profitability ratio. It is hypothesized that return on average assets influences banks' lending rates and also banks with high return on average assets offer lower interest rates on loans. Bhattarai (2015) found significantly and positively associated with lending rate using pooled OLS model in Nepalese commercial banks.

Liquidity ratio is measured as a ratio of liquid assets to total liability. Liquid assets refer to cash and deposit balances in banks including the reserve requirement in the National bank (Kuiptui 2014). Liquidity risk is the risk that a bank is not able to meet up or fulfil its short-term debt obligation or its short-term financial needs effectively and on time (Samad, 2004). Banks are normally faced with this risk when they are unable to convert a security or an illiquid asset to cash without a substantial loss of income or capital. Liquidity is considered to be the life and blood of commercial banks. According to Emeri, (2016), banks can measure their liquidity risk using any of the following ratios; a loans/total asset, purchase funds/total assets, loans/core deposits. Banks' are usually faced with liquidity risk and are unwilling to give out loans when they are unable to convert an illiquid asset to cash without a substantial loss of capital. Loutskina (2011) and Emeri (2016) exhibited a negative relationship between liquidity and lending and it was significant. Thus, a negative relationship is expected between liquidity and bank lending rate decision or behaviour.

Bank Size was measured by the natural log level of total assets of the bank. Bank size was also established to be a great determinant of lending rate of commercial banks as larger banks lacked the ability to offer lower lending rates as the interest spread maintained was lower compared to that of the smaller banks (Uchida et al.,2007) and (Obamuyi,2013). This shows that larger banks have the ability to attract less expensive deposits and also free interest deposits and thus

favourable lending rates. The large size bank has the advantage of providing a large menu of financial service to their customers and thereby mobilizes more funds which will lead to serving their customers with low lending rate. While small banks are forced to offer higher interest rates to attract fixed deposits thus resulting to high lending rates on advance.

Deposit interest rate is measured as the Average interest rate on deposits on retail deposits at each bank (in percent) (Bhattarai, 2015). Deposit interest Rate refers to the amount of money paid out in interest by a bank or financial institution on cash deposits. The deposit interest rate is paid by bank to deposit account holders. The interest paid on customer deposits depends on deposit interest rates. Deposit interest rate can increase with increasing Lending interest rate. As indicated by Kaymaz and Kaymaz (2011) have obtained strong evidence of one-way causality between loan interest rates and deposit interest rates. They found significant positive correlation between loan interest rates and deposit interest rates. And also they found investigated that the positive relationship is expected between lending rates and deposit interest rate. High deposit rate directly influence the lending rate. Lending rate in turn, especially charging high-risk premium for risky borrowers, have multiple effect on borrower's loan repayment capacity. Therefore, it has positive impact on loan quality since charging high interest rate means raising borrowing costs, which increase loan burden. In other way high deposit rate encourage depositors or improve the level of deposit mobilization and create an Excess loanable fund. The Deposited money should not be kept idle since the deposit is not free of cost. As a result, it enforces the bank to increase its lending rate (Atakelt, 2015).

4.3 Testing Assumptions

In this study as mentioned in chapter three diagnostic tests were carried out to ensure that the data fits the basic assumptions of classical linear regression model. Consequently, the results for the model assumptions test are presented as follows:

According to Brooks (2014), if a constant term is included in the regression equation, this assumption will never be violated. Thus, since the regression model used in this study included a constant term, this assumption is not violating.

4.3.1. Test for Heteroskedasticity

The classical assumption required for the OLS estimator to be an effective state that, the variance of error term has to be constant and the same for all observers. This is referred to as a homoskedastic error term.

When that assumption is violated and the variance is different for different observation we refer to this as Heteroskedasticity, if the assumption of constant variance is violated, the standard errors could be wrong and hence any inferences made could be misleading. In general, the OLS standard errors will be too large for the intercept when the errors are heteroscedastic. In order to test the following hypothesis White's (1980) general test for heteroscedasticity was applied. As the following figures showed that heteroscedasticity is not a problem.

Table 4.3 Heteroskedasticity Test: White summary


<code>.estat het test</code>
<u>Breusch-Pagan/Cook-Weisberg test for heteroskedasticity</u>
Ho: Constant variance
Variables: fitted values of <u>llp</u>
Chi2(1) = 1.30
<u>Prob > chi2</u> = 0.2533

Source: Researcher Survey, 2022

<pre>. reg uhat2 lbl lir lbs lpr llp</pre> Note: lbs omitted because of collinearity Note: llp omitted because of collinearity					
Source	ss	df	Ms	Number of obs	- 12
				F (3, 8)	- 0.00
Model	2.8455e-22	3	9.4850e-23	Prob > F	- 1.0000
Residual	2.4540e-09	8	3.0675e-10	R-Square	- 0.0000
				Adj r-Square	- -0.3750
Total	2.4540e-09	11	2.2309e-10	Root MSE	- 1.8e-05

uhat2	Coef.	Std.err	T	P> t	[95% Conf. Interval]	
lbl	4.18e-11	.0000434	0.00	1.000	-.0001001	.0001001
lir	3.36e-12	.0000245	0.00	1.000	-.00000566	.00000566
lbs	0	(Omitted)				
lpr	-4.18e-11	.0000502	-0.00	1.000	-.0001158	.0001158
llp	0	(omitted)				
cons	-1.34e-10	.0001515	-0.00	1.000	-.0003493	.0003493

As shown in the above table, all versions of the white test statistic (F-statistic, Chi-Square and Scaled explained SS) gave the same conclusion that there was no evidence for the presence of heteroscedasticity, since the p-values of 0.25, 8.29% and 1.3%, for F-statistic, Chi-Square and Scaled explained SS respectively were in excess of 5 percent level of significant, so the null hypothesis does not be rejected. This implies that there is no significant evidence for the presence of heteroskedasticity at 2.5%, in this research model. Generally hetrosacdistiy is not a problem.

4.3.2. Test for Autocorrelation

It is assumed that the error terms are uncorrelated with one another. If the errors are not uncorrelated (correlated) with one another, it would be stated that they are “auto correlated” or that they are “serially correlated”. The consequences of ignoring autocorrelation when it is present are similar to those of ignoring heteroskedasticity. The coefficient estimates derived by using OLS are still unbiased, but they are inefficient, meaning that the standard errors are biased. Furthermore, the R square is likely to be inflated (Brooks C., 2014). Breusch– Godfrey tests allow examination of the relationship between error term and several of its lagged values at the same time. Therefore, to check the presence of autocorrelation in this study the researcher used the popular Breusch–Godfrey test.

Table 4.4 Autocorrelation Result

<u>.estat bgodfrey, lag(1)</u>			
<u>Breusch-Godfrey LM for autocorrelation</u>			
Lags	chi2	<u>df</u>	<u>Prob>chi2</u>
1	0.007	1	0.9318
Ho: no serial correlation			

Source: Researcher Survey, 2022

On the above table autocorrelation test, stata offer chi2-version, and the table presents the estimates from the auxiliary regression. The result enables to conclude from both versions of the test result in this case is do not reject the null hypothesis of no autocorrelation. Since the p-values of both F-version and a chi2 version 0.007 and 0.9318 respectively were greater than significance level of 0.05. Thus, it can be concluded that there is no autocorrelation problem in the model.

4.3.4 Normality Test

A statistical procedure known as a "normality test" is used to examine if a sample or any collection of data fits a typical normal distribution. You can run a normality test mathematically or visually. In order to establish if a data collection is adequately described by a normal distribution and to estimate the likelihood that a random variable underlying the data set is normally distributed, normality tests are utilized. Depending on how one understands probability, the tests, which are a type of model selection, can be interpreted in a variety of ways:

Multiple regressions assume that variables have normal distributions (Darlington, 1968). This implies that errors are normally distributed, and that a plot of the values of the residuals will approximate a normal curve (Keith, 2006). This assumption can be tested by looking at the P-P plot for the model together with above histogram of the standardized residuals. The closer the dots lie to the diagonal line, the closer to normal the residuals are distributed.

A measure of symmetry, or more specifically, the absence of symmetry, is called skewness. If a distribution or data set appears the same to the left and right of the center point, it is said to be symmetrical. Kurtosis is a metric that indicates how heavy-tailed or light-tailed the data are in comparison to a normal distribution. In other words, data sets with a high kurtosis tend to have large outliers or heavy tails. Data sets with low kurtosis frequently lack outliers and have light tails. The worst-case scenario would be a uniform distribution.

Table 4.5 Normality Result

Statistics							
		Liquidity Ratio	Inflation Rate	Bank Size	Deposit Rate	Profitability Ratio	Lending Rate
N	Valid	12	12	12	12	12	12
	Missing	0	0	0	0	0	0
Skewness		1.158	.737	1.158	1.089	1.373	1.373
Std. Error Of Skewness		.637	.637	.637	.637	.637	.637
Kurtosis		1.066	-.865	1.066	1.209	1.401	1.401
Std. Error Of Kurtosis		1.232	1.232	1.232	1.232	1.232	1.232

Source: Researcher Survey, 2022

It is believed that values between +1.96 and -1.96 are acceptable. Data that deviates from these boundaries can be referred to as skewed (Hair, 2010), and according to Bryne (2010), data is considered normal if the skewness and kurtosis values are between 2 and +2 and 7 and +7, respectively. According to general principles, the researcher's data is usually distributed.

4.4.4 Multicollinearity Test

Multicollinearity means a state of very high inter-correlation or inter-associations among the independent variables. It is therefore a type of disturbance in the data, and if present in the data the statistical inferences made about the data may not be reliable. Multicollinearity generally occurs when there are high correlations between two or more predictor variables. In other words, one predictor variable can be used to predict the other. This creates redundant information (Kothari, 2004) Strong relationship between explanatory variables is a problem of multicollinearity and not acceptable for ordinary least square regression analyses.

Table 4.6 Multicollinearity Test

Coefficients ^a			
Model		Collinearity Statistics	
		Tolerance	VIF
1	inflation rate	.012	81.653
	bank size	.000	6312.126
	deposit rate	.000	2023.557
	profitability ratio	.001	770.915
a. Dependent Variable: Lending rate			

CollinearityDiagnostics ^a								
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	inflation rate	bank size	deposit rate	profitability ratio
1	1	4.644	1.000	.01	.00	.00	.00	.00
	2	.323	3.789	.40	.00	.00	.00	.00
	3	.027	13.008	.01	.13	.00	.00	.00
	4	.005	29.260	.56	.00	.00	.01	.06
	5	3.867E-5	346.534	.03	.87	1.00	.99	.94
a. Dependent Variable: Lending rate								

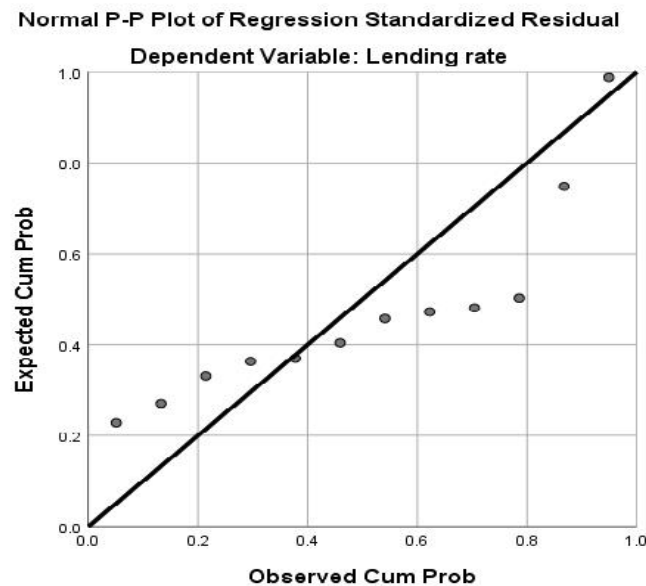
Source: Researcher Survey, 2022

Additionally, the variance-inflation factor (VIF) was examined, and lesser values were discovered, supporting the conclusion that multicollinearity is not a concern. In this study, all VIF with fewer than 10 were accepted in accordance with. Additionally, tolerance statistics in regression analysis assist in the identification of co-linearity issues. Values closer to 1 indicate there are no problems with multicollinearity; the tolerance value ranges from 0 to 1. Since all tolerances in this study are higher than 0.8, additional factors cannot account for the variance in that construct? According to the results of the two tests, there is no multicollinearity issue. The allowable amount of VIF and the tolerance level were displayed in the above table.

4.3.5 Homoscedasticity Test

Homoscedasticity means that the variance around the regression line is the same for all values of the predictor variable (X). The plot shows a violation of this assumption. For the lower values on the X-axis, the points are all very near the regression line. For the higher values on the X-axis, there is much more variability around the regression line. This assumption requires even distribution of residual terms or homogeneity of error terms throughout the data. Homoscedasticity can be checked by visual examination of a plot of the standardized residuals by the regression standardized predicted value (Osborn & Waters, 2002). If the error terms are distributed randomly with no certain pattern then the problem is not detrimental for analyses. The following Figures below shows that the standardized residuals in this research are distributed evenly indicating heteroscedasticity are not a serious problem for this data.

Figure 4.2 Data Distribution of Dependent Variable



Source: Researcher Survey, 2022

4.3.6 Autocorrelation Test

Autocorrelation is a mathematical representation of the degree of similarity between a given time series and a lagged version of itself over successive time intervals. It is the same as calculating the correlation between two different time series, except autocorrelation uses the same time series twice: once in its original form and once lagged one or more time periods (Kothari, 2004). Autocorrelation or independence of errors refers to the assumption that errors are independent of one another, implying that subjects are responding independently (Stevens, 2009). Durbin-Watson statistic can be used to test the assumption that our residuals are independent (or uncorrelated). This statistic can vary from 0 to 4. For this assumption to be met, the DW value needs to be close to 2. Values below 1 and above 3 are problematic and causes for concern.

Table 4.7 Autocorrelation Test

Model Summary ^b	
Model	Durbin-Watson
	2.156
a. Predictors: (Constant), profitability ratio , inflation rate , deposit rate , bank size	
b. Dependent Variable: Lending rate	

Source: Researcher Survey, 2022

4.4 Correlation Analysis

Correlation analysis was applied to test the “interdependency” of the variables. In this section, the direction and degree of the strength of the relationship among the variables were determined. The Pearson’s product movement correlation coefficient was computed to determine the relationships between liquidity ratio, profitability ratio, inflation rate, deposit rate, bank size and Lending rate in private banks

Correlation analysis is useful way of exploiting relation (association) among variables. The value of the coefficient (r) ranges from -1 up to +1. The value of coefficient of correlation (r) indicates both the strength and direction of the relationship. If $r = -1$ there is perfectly negative correlation between the variable. If $r = 0$ there is no relationship between the variable and if $r = +1$ there is perfectly positive relationship between the variables. For values of r between +1 and 0 or between 0 and -1, different scholars have proposed different interpretation with slight difference.

For this study decision rule given by Bartz (1999) was used to describe the strength of association among the variables as follows.

Table 4.8 correlation coefficient

Measure of Association	Descriptive Adjectives
>0.00 to 0.20; <-0.00 to -0.20	Very weak or very low
>0.20 to 0.40; <-0.20 to -0.40	Weak or low
>0.40 to 0.60; <-0.40 to -0.60	Moderate
>0.60 to 0.80; <-0.60 to -0.80	Strong or High
>0.80 to 1.0; <-0.80 to -1.0	Very high or Very Strong

Source: Bartz (1999)

Table 4.9 Correlation Result

Correlations Reuslt Table							
		liquidity ratio	inflation rate	bank size	deposit rate	profitability ratio	Lending rate
liquidity ratio	Pearson Correlation	1	.959**	1.000**	.997**	.994**	.994**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	12	12	12	12	12	12
inflation rate	Pearson Correlation	.959**	1	.959**	.943**	.950**	.950**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	12	12	12	12	12	12
bank size	Pearson Correlation	1.000**	.959**	1	.997**	.994**	.994**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	12	12	12	12	12	12
deposit rate	Pearson Correlation	.997**	.943**	.997**	1	.985**	.985**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	12	12	12	12	12	12
profitability ratio	Pearson Correlation	.994**	.950**	.994**	.985**	1	1.000**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	12	12	12	12	12	12
Lending rate	Pearson Correlation	.994**	.950**	.994**	.985**	1.000**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	12	12	12	12	12	12
**. Correlation is significant at the 0.01 level (2-tailed).							

Source: Suervy Result, 2022

The above table showed the correlation between dependent variable Lending rate and independent variables liquidity ratio, profitability ratio, inflation rate, deposit rate, bank size. As clearly indicated, most independent variables have positively correlated with the dependent variable, Lending rate with significant level of 0.01.

The magnitude of correlation between independent variables and the dependent variable for liquidity ratio ($r=.994^{**}$), inflation rate($r=.950^{**}$), bank size ($r=.994^{**}$), deposit rate ($r=.985^{**}$) and profitability ratio ($r=.1.000^{**}$).

As the above table showed that, all independent variables have a positive significant relationship with lending rate in Ethiopian private banks.

As a sample size approaches to 100, the correlation coefficient of about or above 0.20 is significant at 5% level of significance (Meyers et al. 2006). The sample size of the study was 8*10 matrixes of 80 observations which was around 100 hence the study used the above justification for significance of the correlation coefficient.

4.5 Regression Analysis Results

Regression analysis is a set of statistical processes for estimating the relationships between a dependent variable (often called the 'outcome variable') and one or more independent variables often called 'predictors', 'covariates', or 'features'.

The most common form of regression analysis is linear regression, in which a researcher finds the line (or a more complex linear combination) that most closely fits the data according to a specific mathematical criterion. In this section the researcher used multiple regression analysis to absorb the relationship between the dependent variable and independent variables. Further, regression analysis helps the researcher to understand how typical value of the dependent variable changes when any one of the independent variable is varied, while other independent variables are held fixed.

4.5.1 Regression coefficients

Table 4.10 Regression Coefficients

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.761 ^a	.579	.228	3.08651
a. Predictors: (Constant), ldr, lbs, lbl, lir, lbr				

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	78.620	5	15.724	1.651	.000 ^b
	Residual	57.159	6	9.527		
	Total	135.780	11			
a. Dependent Variable: llp						
b. Predictors: (Constant), ldr, lbs, lbl, lir, lbr						

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.054	11.164		-.363	.729
	lbl	.261	.276	.287	.948	.000
	lir	.193	.367	.151	.526	.000
	lbs	.618	.307	.577	2.016	.000
	lbr	.338	.286	.388	1.184	.000
	ldr	.988	1.111	.256	.889	.000
a. Dependent Variable: llp						

Source: Suervy Result,2022

The regression model considers lending rate as dependent variable and liquidity ratio, inflation rate, bank size, deposit rate and profitability ratio as independent variables. The linear combination of those factors is significantly related to lending rate ($R^2=.579$). This means that, 57.9 percent of the variance in the dependent variable; Lending rate can be explained by the independent variables liquidity ratio, inflation rate, bank size, deposit rate and profitability ratio. This model indicted that as it close to reality or all independent variables can explain the dependent variable in accurate manner. The remaining percent of the change is explained by other factors which are not included in this study model.

Both the R-squared and the Adjusted R-squared values in this study are found to be sufficient enough to infer that the fitted regression line is very close to all of the data points taken together (has more explanatory power). R-Squared greater than 20% is still large enough for reliable conclusions for such data.

The ANOVA (Analysis of Variance) table provides the result of test of significance for R and R^2 . Accordingly, it shows the F value 1.651 is significant at 0.01 (P value that a correspondent to F statistic is significant). Thus, which states the independent variables liquidity ratio, inflation rate, bank size, deposit rate and profitability ratio significantly explain the variance in lending rate in Ethiopian private banks.

Under Beta coefficient table, **standardized Beta coefficient and unstandardized beta coefficient** values are used to predict the relative importance of each independent variable and to formulate the linear regression equation respectively. Based on the standardized beta coefficient values, it can be shown that liquidity ratio, profitability ratio, inflation rate, deposit rate, bank size found to be significant predictors of lending performance in Ethiopian private banks for the year 2010 up to 2021. The linear multiple regression formula for the dependent variable, lending and independent variables liquidity ratio, profitability ratio, inflation rate, deposit rate, bank size.

R-squared coefficient of obtained from the estimated model means that 57.9% of the Independent variables used to estimate the model were able to explain the dependent variable. The R-squared value measures how well the regression model explains the actual variations in the dependent variable. In general the whole model is statistically significant. Since the model's F-statistics tests the fitness of the model and a recommended F-statistics should be greater than 5

for it to be considered fit, the study obtained an F-statistic of is greater than 5 hence the model was fit for estimation.

The regression F-statistic and the p-value of zero attached to the test statistic reveal that the alterantive hypothesis that all of the coefficients are jointly zero should be accepted. Thus, it implies that the independent variables in the model were able to explain variations in the dependent variable. P-value of 0.000000 indicates strong statistical significance, which enhanced the reliability and validity of the model.

As per the study of Taye K., (2019) the liquidity ratio, profitability ratio and bank size had significant and negative effect on lending interest rate. And deposit rate had a significant and positive effect on lending interest rate.

The result indicates that the changes in the independent variables explain 57% of the changes in the dependent variable. That is deposit rate; bank size, liquidity ratio, profitability, and inflation rate collectively explain of the changes in lending interest rate. The remaining of changes was explained by other factors which are not included in the model. Thus, these variables collectively, are good explanatory variables of the loan lending rate of private commercial banks in Ethiopia.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATION

5.1 Conclusions

This study's major goal was to determine the key factors that can influence the lending interest rate of Ethiopian private commercial banks as well as the degree to which these determinants have an impact on that rate. As a result of reviewing earlier research on lending interest rates, it can be concluded that banks typically express their lending interest rates.

The categories of factors that have the biggest impact on lending interest rates are discussed differently in the literature. While some studies contend that lots of specific factors are the primary determinants of lending rates, others contend that external specific factors are the most significant variables that explain the level of lending interest rate.

To comply with the objective of this research, the paper used quantitative research method. The quantitative data were mainly obtained from the banks themselves, from NBE through documentary analysis in order to identify and measure the determinants of banks' lending interest rate. In specific, multiple regression analysis is adopted to measure the effect of determinants on banks' lending interest rate quantitatively. This study has identified a number of variables that have important bearing on lending interest rates in Ethiopia.

The lending rate of private commercial banks in Ethiopia is adversely impacted by factors such as inflation rate, deposit rate, bank size, liquidity ratio, and profitability ratio. The impact of the inflation rate on lending rates is favourable and negligible. The empirical findings of this study demonstrated that the lending interest rate of private commercial banks in Ethiopia was significantly impacted both positively and negatively by bank size, liquidity ratio, and profitability ratio, while this effect was significantly reversed by deposit rate. The rate of inflation has a small but favourable effect on the interest rates charged by private commercial banks in Ethiopia.

Deposit rate showed a favourable and statistically significant impact on Ethiopia's private commercial bank's lending interest rate. In other words, Ethiopia's private commercial banks' lending interest rates and deposit rates were directly correlated. The deposit rate sign was in line

with expectations, and this demonstrated that if commercial banks' deposit rates rise, their lending rates in the bank will also rise. Tadiyos Y., (2018) and Taye K., (2019) studies result revealed that the deposit rate has a positive and statistically significant impact on the lending interest rate of commercial banks. The higher deposit rate attracts depositors in which it increases the amount of loanable fund, and deposits are not free of charge. The increase in the deposit rate also increase the cost of fund, and banks tends to increase the lending rate to compensate the increased cost of fund.

In Ethiopia, the size of the bank showed a negative and statistically significant impact on the lending interest rate. Large banks have the advantage of offering their clients a broad range of financial services, which allows them to raise more money and, as a result, provide their clients with cheap interest rates on loans. Commercial bank lending rates were significantly influenced by bank size since larger banks were unable to offer higher loan rates because their interest spread was lower than that of smaller banks. Banks that keep sufficient assets should profit from their size and have lower interest rates as a result of enhanced economies of scale. Adoah (2015), the larger banks have the advantage of offering various type of financial services which allows them to mobilize more capital, and this enable them to provide cheap loan rate to their customers.

Bank liquidity ratio revealed negative and statistically significant impact on lending interest rate of private commercial banks in Ethiopia. When liquidity ratio increased by one percent, the lending interest rate will decrease by 0.45% on average, the relationship is statistically significant at 1% significant level. When bank total asset increase, bank lending rate moves upwards and low return of highly liquid asset.

The bank profitability ratio in Ethiopia showed a negative and statistically significant impact on the lending interest rate. Profitable banks have the opportunity to deploy cutting-edge credit risk management systems, technology, hire skilled labour and specialists, and have access to credit information, all of which help to support low lending rates.

The inflation coefficient was positive as expected, it was statistically significant; as a result, it impact the lending rate of Ethiopian private banks.

Therefore, the study reached on conclusion that variables deposit rate, bank size, liquidity ratio, Inflation rate and profitability, significant effect on lending interest rate of private commercial banks in Ethiopia.

5.2 Recommendations

The study suggests that the chosen variables be used as determinants of the lending interest rate in private commercial banks, such as inflation rate, deposit rate, bank size, liquidity ratio, and profitability ratio.

From the regression result lending interest rate has a negative relationship with bank size, liquidity ratio and profitability. The larger bank size, the higher liquidity and profitability ratio allow banks to provide loan to their customer with low lending rate in which it enables the banks to be more competitive in the industry.

The study suggests that large banks have the benefit of offering their clients a wide range of financial services as a result. Banks should make every effort to strike a balance between covering the costs of lending while also maintaining positive relationships with its clients. Lending rates should be carefully maintained by bank management since they are crucial to the stability and safety of banking institutions. In order to maintain lending rates at realistic levels with consistency and continuity, bank management should also make sure that the right policies, procedures, management information systems, and internal controls are in place. Due to economies of scale, this is a competitive advantage that allows major banks to transmit loans to their customers with low landing rates.

Private Banks heavily rely on the interest that individual banks pay on their deposits. The lending rate will increase in proportion to the amount of interest paid on these deposits, while it will decrease in proportion to the amount of interest paid. In order to prevent deposits from depreciating over the course of their storage with the bank, banks pay interest on deposits made by clients (such as savings and fixed time deposits). Time deposits have a higher borrowing rate than saving deposits, which is the interest paid on deposits. Thus, the banks have to diversify the deposit products to collect more cheap deposits.

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Different sources

- Internet sources
- National bank directives and reports

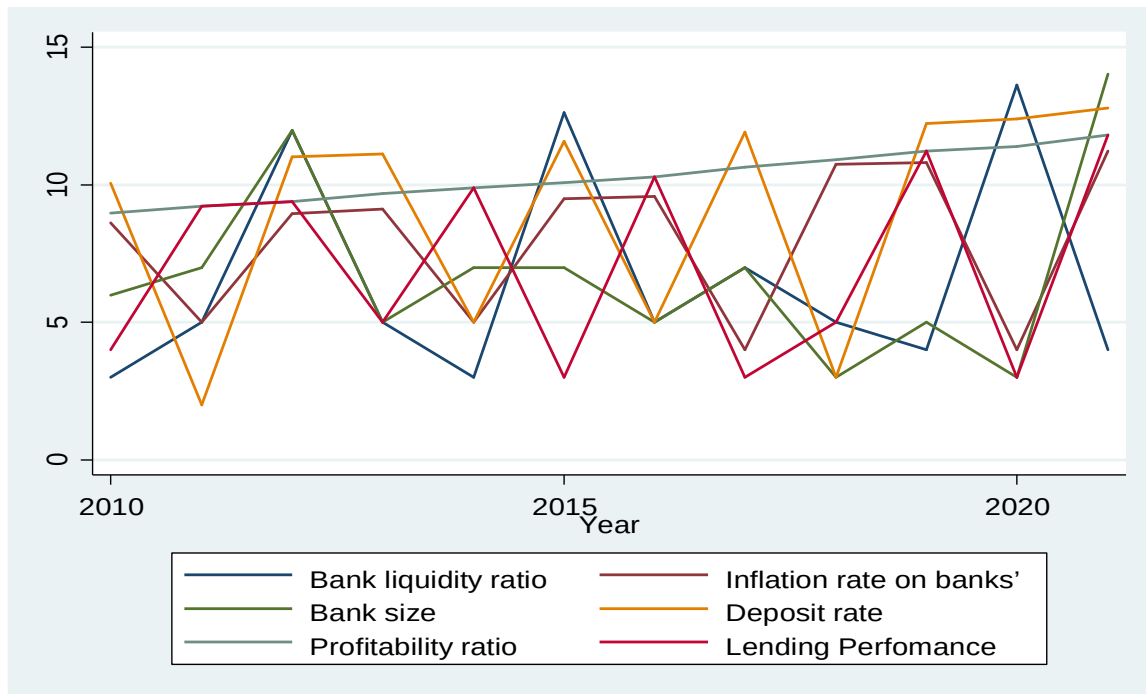
Appendixes

Normality result

```
. sktest lbl lir lbs ldr lpr llp
```

Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
lbl	12	0.7284	0.5780	0.44	0.8031
lir	12	0.7707	0.0241	5.07	0.0792
lbs	12	0.7284	0.5780	0.44	0.8031
ldr	12	0.4558	0.9313	0.59	0.7435
lpr	12	0.7575	0.2990	1.33	0.5155
llp	12	0.7575	0.2990	1.33	0.5155

Graphical Description of Independent Variables



Heteroskedasticity Test: White summary

```
. estat hettest
```

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

H0: Constant variance

Variables: fitted values of llp

chi2(1) = 1.30

Prob > chi2 = 0.2533

```
. reg uhat2 lbl lir lbs lpr llp
note: lbs omitted because of collinearity
note: llp omitted because of collinearity
```

Source	SS	df	MS	Number of obs	=	12
Model	2.8455e-22	3	9.4850e-23	F(3, 8)	=	0.00
Residual	2.4540e-09	8	3.0675e-10	Prob > F	=	1.0000
				R-squared	=	0.0000
				Adj R-squared	=	-0.3750
Total	2.4540e-09	11	2.2309e-10	Root MSE	=	1.8e-05

uhat2	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lbl	4.18e-11	.0000434	0.00	1.000	-.0001001 .0001001
lir	3.36e-12	.0000245	0.00	1.000	-.0000566 .0000566
lbs	0 (omitted)				
lpr	-4.18e-11	.0000502	-0.00	1.000	-.0001158 .0001158
llp	0 (omitted)				
_cons	-1.34e-10	.0001515	-0.00	1.000	-.0003493 .0003493

Autocorrelation Result

```
. estat bgodfrey, lag(1)
```

Breusch-Godfrey LM test for autocorrelation

lags(p)	chi2	df	Prob > chi2
1	0.007	1	0.9318

H0: no serial correlation

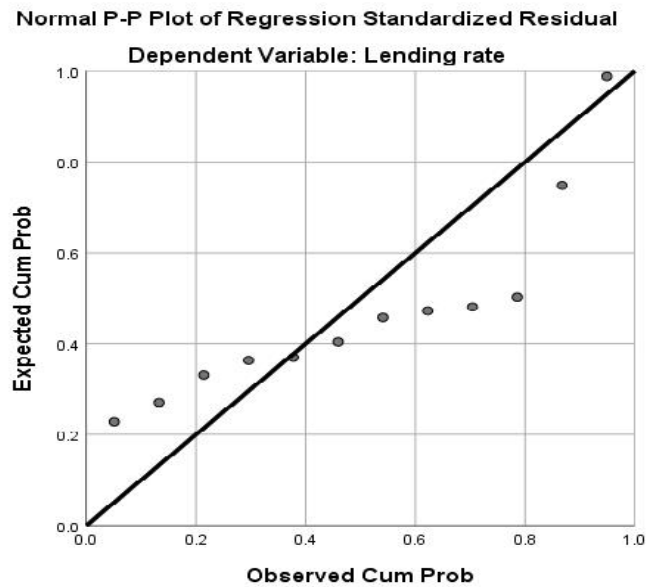
Correlation result

```
. reg llp lbl lir lbs ldr lpr
note: lbl omitted because of collinearity
```

Source	SS	df	MS	Number of obs	=	12
Model	9.14371035	4	2.28592759	F(4, 7)	>	99999.00
Residual	6.1350e-10	7	8.7643e-11	Prob > F	=	0.0000
				R-squared	=	1.0000
				Adj R-squared	=	1.0000
Total	9.14371035	11	.831246395	Root MSE	=	9.4e-06

	llp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
lbl		0 (omitted)				
lir		.0000149	.000016	0.93	0.383	-.0000229 .0000527
lbs		-.0002222	.0001141	-1.95	0.092	-.000492 .0000476
ldr		.0001624	.0000757	2.14	0.069	-.0000167 .0003415
lpr		1.000052	.0000392	2.5e+04	0.000	.9999588 1.000144
_cons		.0002648	.0001769	1.50	0.178	-.0001534 .0006831

Data Distribution of Dependent Variable



```
. pwcorr llp lbl lir lbs ldr lpr
```

	llp	lbl	lir	lbs	ldr	lpr
llp	1.0000					
lbl	0.9894	1.0000				
lir	0.9733	0.9584	1.0000			
lbs	0.9894	1.0000	0.9584	1.0000		
ldr	0.9715	0.9946	0.9308	0.9946	1.0000	
lpr	1.0000	0.9894	0.9733	0.9894	0.9715	1.0000

Regression result

```
. reg llp lbl lir lbs ldr lpr
note: lbl omitted because of collinearity
```

Source	SS	df	MS	Number of obs	=	12
Model	9.14371035	4	2.28592759	F(4, 7)	>	99999.00
Residual	6.1350e-10	7	8.7643e-11	Prob > F	=	0.0000
				R-squared	=	1.0000
				Adj R-squared	=	1.0000
Total	9.14371035	11	.831246395	Root MSE	=	9.4e-06

llp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lbl	0 (omitted)					
lir	.0000149	.000016	0.93	0.383	-.0000229	.0000527
lbs	-.0002222	.0001141	-1.95	0.092	-.000492	.0000476
ldr	.0001624	.0000757	2.14	0.069	-.0000167	.0003415
lpr	1.000052	.0000392	2.5e+04	0.000	.9999588	1.000144
_cons	.0002648	.0001769	1.50	0.178	-.0001534	.0006831