MEKELLE UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

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DETERMINANT OF LENDING RATE FOR COMMERCIAL BANKS IN ETHIOPIA: CASE OF SELECTED PRIVATE COMMERCIAL BANKS.

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Determinant of lending rate for commercial banks in Ethiopia:

The case for selected private commercial banks.

By: Selamawit Gebreegziabher

A Thesis Submitted to the Department of Accounting and Finance in Partial Fulfillment of the Requirements for the Degree of Master of science in Finance and Accounting.

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MEKELLE, ETHIOPIA

DECLARATION

I, Selamawit Gebreegziabher Hagos, hereby declare that this thesis work entitled as "Determinant of lending rate for commercial banks in Ethiopia: case study for selected private commercial banks", is my own work submitted by me in partial fulfillment of the requirements for the award of the degree of Master of Science in finance and investment to the college of Business and Economics, Mekelle University, through the Department of Accounting and Finance, is original work carried out by myself. This study had not been submitted for the award of any degree or diploma in this or any other institution except where acknowledgments have been declared.

Name of the student: **Selamawit Gebreegziabher**

Signature: _____

Place: **Mekelle**

Date: _____

Certification

This is to certify that this thesis entitled “Determinant factors of lending rate for commercial banks in Ethiopia: case study for selected private commercial banks”, is an original work of Selamawit Gebreegziabher who has carried out this research work under my guidance. I certify further, that to the best of my knowledge the work reported here is not taken from any other project report or thesis on the basis of which a degree or award was conferred before. This work is original in nature and is suitable for submission to the award of Master of Science in Finance and Investment.

Name of principal adviser: _____Signature: _____

Place: Mekelle, Tigray, Ethiopia

Date: _____

ASTRACT

This study examines the determinants of lending rate in Ethiopian private commercial banking sector. The study used panel data collected from annual reports of nine private commercial banks operating in Ethiopia during the period 2013 - 2022. Accordingly, the lending rate of commercial banks is determined by bank, industry and macro-economic related factors. A quantitative research approach and explanatory design were adopted in carrying out this research. Secondary data were collected from annual audited reports of selected private commercial banks using purposive sampling technique. The study employed descriptive and econometric estimation techniques to analyze the influence of bank, industry and macroeconomic factors on lending rate. The analysis conducted using the econometric package STATA V.13. The study revealed that credit risk and market share have a positive and significant impact on bank lending rate; whereas, operating cost, reserve requirements and liquidity risk have a negative and significant effect on lending rate. However, bank size and inflation are not significant determinant of lending rate. The study recommends commercial banks to improve operational efficiency and effectiveness.

Keywords*: Lending Rates, Determinants of lending rate, private commercial banks*

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Table of Contents

DECLARATION ii
Certification iii
Acknowledgement v
LIST OF TABLES viii
LIST OF FIGURES viii
LIST OF ACRONYMS and ABBREVIATIONS viii
Chapter-One: Introduction 1
1.1. Background of the Study 1
1.2. Statement of the Problem 3
1.3. Research Questions 5
1.4. **Objectives of the study** 5
1.5. General Objective 5
1.5.1. Specific objectives 5
1.6. Significance of the study 6
1.6. Scope of the study 6
1.7. Limitation of the study 7
1.8. Organization of the study 7
CHAPTER-TWO 8
LITERATURE REVIEW 8
2.1. General Overview of the background of the banking industry in Ethiopia. 8
2.3. THEORETICAL LITERATURE 10
2.3.1. The Classical Theory of Interest or the Real Theory of Interest. 10
2.3.2. Neo-classical Theory of Interest or Loanable Fund Theory of Interest. 10
2.3.3. Keynes' Theory of Liquidity Preference. 12
2.4.3. Noe-Keynesian Theory of Interest or Hicks IS – LM Curve or Modern Theory of Interest 13
2.4. Empirical Literature Review 13
2.4. Determinants of Bank Lending Rate 17
2.4.1. Lending rate 17
2.4.2. Operating cost 17
2.4.3. Credit risk 18
2.4.4. Liquidity risk 18

2.4.5. Bank size 19
2.4.6. Bank Market Share 19
2.4.7. Reserve Requirement 20
2.5. Conceptual Framework 22
2.6. Summary and Literature Gap 23
CHAPTER-THREE 24
RESEARCH METHODOLOGY 24
3.2. Research Design 24
3.3. Research approach 24
3.4. Data Type and Source 24
3.5. Target population and sample size 24
3.6. Sample Design and Strategy 25
3.7. Methods of Data Analysis 25
3.8. Model Specification 25
Chapter-Four 28
Discussion for Major findings of the Study 28
4.2. Descriptive analysis and discussion of the findings 28
4.3. Correlation analysis and discussion of the findings 30
4.4. Testing for the Regression Model Assumptions 31
4.5. DISCUSSION OF THE FINDINGS FROM THE REGRESSION RESULTS 36
4.6. Testing the Hypotheses of the Study 38
Chapter-Five 42
Conclusions and Recommendations 42
5.2. Summary of the Findings. 42
5.3. Conclusions 44
5.4. Recommendations 45
References 48
Appendices ..... A
Appendix-I: Summary of the Commercial Banks' under the Study ..... A

LIST OF TABLES

Table 3-1. Summary for the Expected signs of explanatory variables on the dependent variable 26
Table 4-1: Descriptive Analysis for the determinants of lending rate 28
Table 4-2: correlation results of the variables..... 31
Table 4-3: Heteroscedasticity Test: Breusch-Pagan/Cook-Weisberg..... 33
Table 4-4: **Durbin-Watson d-statistic test for autocorrelation**..... 34
Table 4-5: Multicollinearity Test of the Determinants of Credit Risk Management..... 35
Table 4-6: Estimation of the Regression Coefficients 36
Table 4-7: Summary for Actual signs of Explanatory Variables..... 43

LIST OF FIGURES

Figure 1 : conceptual framework 22

LIST OF ACRONYMS

BS- Bank Size
CLRM- Classical Linear Regression Model
CR - Credit Risk
DW - Durbin-Watson
GDP - Gross Domestic Product
INF - Inflation
LIR – Liquidity Risk
LR - Lending Rate
MSh- Market Share
RR- Reserve Requirement

Chapter-One: Introduction

1. Introduction:

This chapter covers background of the study, statement of the problem, research questions, objectives of the study, significance of the study, scope and limitation of the study, and organization of the study.

1.1. Background of the Study

Banks usually consider different factors in determining the lending rate decisions which relates to the role a bank plays in any country's financial system and contributes to remarkable progress in the economy (Tsegay, 2020; Ullah, 2021). Accordingly, Commercial banks play an immense role in the growth of the economy by maintaining three main operating guiding principles, which are profitability, liquidity, and solvency (Ladime et al., 2013 and Alkhazaleh, 2017). Similarly, the primary role primary role of banks is intermediation by way of collecting savings from depositors' and making these savings as loan to borrowers (Mercy, 2016). Commercial Banks are regulated often by the environment within which they operate. Banks are profit seeking organizations and they have to earn sufficient income to meet expenses associated with providing financial service to clients in performing this function (Fahad, 2015; Ullah, 2021)).

In every economy, the existence of the financial sector like banks is designed to drive economic growth (Oyebowale, 2019). According to Malede (2014), lending plays a primary role in commercial bank daily banking activities where loan and advances in the largest component in banking asset portfolio and it is also the predominant source of revenue for the bank. As bank lending is source of generating income and it involves-remarkable amount of lending of generates a sustainable profit and liquidity source (Tsimshian,2016). Hence, the banks' lending decision shed more light in the economic development and sustainable environment of the developing countries.

However, the commercial bank loans and advances involve a high degree of risk and have a profound impact on the bank's profitability, liquidity, and solvency (Malede, 2014). Poor

management of loan portfolios is the major cause of liquidity crises and bank failures around the world. Although credit growth can spur investment and economic activity, excessive credit growth can impact the stability of the financial system by increasing prudential risks at the micro and macro levels (Timsina, 2016; Igan & Pinheiro, 2011). Furthermore, Ezirim (2005) stated that bank lending decisions are fraught with a lot of risks, which need a great deal of caution and tact since the major risk of the banking business lies in the credit function, as there is a high possibility of default.

Similarly, Akinlo and Oni (2015) stated that the issue of determining factors, which may affect the level of lending, is still a subject of research and is not resolved greatly, where there are still differences between many studies in the identification of which factors have a strong impact and on the direction of those impacts if any. Thus, this work tries to fill this gap and find evidence on the determinants of bank lending behavior in Ethiopia by investigating the effect of bank-specific, industry-specific, and macroeconomic factors on Ethiopian commercial bank lending.

On the other hand, all economic players including households, businesses and public sector are sensitive towards the efficient flow of resources from surplus to deficit units (Afzal, 2011). In order to conduct resource allocation between excess and deficit financing unit banks charge interest rate from borrower. Interest rate is one of the important terms in the lending decision process of commercial banks. The lending interest rate is the percentage of the loan amount that the lender charges to lend money. When banks lend money to customers, interest is charged on it for a number of reasons, including value preservation, compensation for risk, and profits among others (Sheriff & Amoako, 2014). Commercial banks can increase their profit margins through higher lending rates and lower deposit rates (Yoseph, 2014; Zenebe, January, 2024). Thus, determination of the appropriate lending rates usually becomes a major issue in banking industry. Moreover, the factors that determine the level of commercial banks' lending rates are important concerns not only for specific banks but also to policy makers, the banking industry and the public at large (Yoga, 2015).

As a result, this study focuses on the different factors of determinant of lending rates. Too low interest income will not be enough to cover the cost of deposits, general expenses and the loss of revenue from non-performing loan portfolio. On the other hand, too high loan rates will not be able to keep the banking relationship with the borrowers with high lending rate. Thus, determination of the appropriate lending rates usually becomes a major issue in banking industry. Moreover, the factors that determine the level of commercial banks' lending rates are important concerns not only for specific banks but also to policy makers, the banking industry and the public at large (Yoga, 2015). In general, empirical studies that examines the determinant of bank lending interest rate use variables that basically fall in eight elements: Operating Costs, Credit risk, Liquid risk, Bank size, Market Share, Reserve Requirement, Inflation and GDP Growth. Hence, the aim of the study is to fill the gap focusing on the determinants lending rate in selected private commercial banks.

1.2. Statement of the Problem

Interest income on loans and advances still remain to be a major source of revenue to the banks income portfolio followed by investments in government securities. Obviously, any major changes in the lending rates consequently influences the interest income earned by a bank hence a shift in the bank's income statement (Ruth, 2014). Due to this commercial banks need high lending interest rate. This high interest rate spread is caused by many factors evidenced in the existing literature. Many researchers opine that a high-interest rate is caused by internal factors of banks and macroeconomic and bank industry factors. The impact of the elements on the interest rate spread will vary from one country to another. Factors such as liquidity risk, return to Asset Ratio, Capital Adequacy, Cost Efficiency Ratio, and Risk Aversion can significantly affect interest rate spreads as well as all economic variables such as GDP and inflation affect significantly on the interest rate spread of conventional banks in Indonesia (Tadiyos, 2018).

Different studies examined this issue in different level of economies and different countries. In developed economies studies were conducted among others by Alidu, 2012; Adoah, 2015; Branko, 2014 and Khushbakht,2014. In developing countries, Zulfiqar, 2016; Ljupka et al., 2010; Yuga, 2015; Ruth, 2016; Fridah, 2011 and Mohamed, 2016 conducted their studies on determinants of lending rate. These studies show that lending rate is affected by bank specific, industry specific

and macroeconomic specific variables, but it shows deviation on the results due to different economic environments maintained with the countries. For instance the research conducted by Ljupka (2010), found that Operating cost has no effect on lending rate in Macedonia commercial banking sector. However, Yuga(2015), in his study found operating cost has positive and significant impact for the determinant of lending rate in Nepalese commercial banks. Similarly, the study by Alidu, (2012) found that GDP has positive and significant impact on lending rate in commercial banking sector in Ghana. This finding was inconsistent with Adoah (2015), GDP has negative and insignificant impact on lending rate in Kenya banking sectors.

In Ethiopian context few studies were conducted on the determinants of lending rate. Aregu (2014) and Meshesha (2016) focused on determinants of interest spread and interest margin in Ethiopian banking sectors respectively. The studies did not address the effect of interest rate on deposit and bank size on interest spread and net interest margin. According to Central Intelligence Agency, CIA (2018) average lending rate of other 191 countries shows that 10.38 % and 10.60% for the year 2016 and 2017 respectively. On the other hand, average lending rate of Ethiopia indicated that 12% and 13% for the year 2016 and 2017 respectively, without incorporating the current period lending rate adjustment made on Ethiopian banking sectors as a result of minimum requirement. The minimum lending rate in sub Saharan Africa was 11.80 % at the end of 2022deposit rate rose from 5% to &7% (NBE Directive, 2017). However, number of studies had been investigated on the determinants of lending rate in different countries, but there was limited researches conducted on the area in commercial banks in Ethiopia.

All the above results depict that further empirical evidence could provide additional insight about the determinants of lending rate by using more recent data set and determinant variables using the quantitative research approach. Thus, study seeks to investigate the determinants of lending rates in the commercial banks Ethiopia.

1.3. Research Questions

The following research questions are raised to address the study:

- ✓ What are the effects of:
  - ➢ operating cost,
  - ➢ credit risk,
  - ➢ liquidity risk,
  - ➢ bank size,
  - ➢ market share,
  - ➢ reserve requirements,
  - ➢ Inflation and gross domestic products on determining the effects lending rate on the selected commercial banks' lending rate?

1.4. **Objectives of the study**

The following research objectives are set to answer the above research questions.

1.5. General Objective

The general objective of this study is to examine the determinants of the lending rate for selected commercial banks in Ethiopia.

1.5.1. Specific objectives

In order to achieve the above general objective, the study addresses the following specific research objectives for research:

- ✓ To assess the effect of operating costs on lending interest rate for selected private commercial banks in Ethiopia
- ✓ To asses the effect of liquidity risk on lending interest rate for selected private commercial banks in Ethiopia
- ✓ To ascertain the effect of Credit risk on lending interest rate on selected private commercial banks in Ethiopia
- ✓ To investigate the effect of Bank size on lending interest rate for selected private commercial banks in Ethiopia.

- ✓ To evaluate the effect of Market share (MSh) on lending interest rate for selected of private commercial banks in Ethiopia.
- ✓ To understand the effect of Reserve requirement on lending interest rate of Ethiopian private commercial banks.
- ✓ To Assess the effect of inflation rate on lending interest rate for selected private commercial banks in Ethiopia.
- ✓ To indicate the effect of economic growth rate (GDP) on lending interest rate for selected private commercial banks in Ethiopia.

1.6. Significance of the study

The study is expected to help management of banks to provide a clue on the factors affecting bank lending and formulate a strategy that would ensure the stabilization of the banking sector of an economy. This study is also expected to serve the National Bank of Ethiopia for policy decisions and look for the appropriate rate of interest that enhance economic growth and efficiency growth of banking industry. Finally, this study will contribute to existing literature and further researchers.

1.7 .Scope of the study

The scope of this study is limited to the examination of determinate factors of lending rates in commercial bank of Ethiopia. Currently there are 32 commercial banks registered by national bank of Ethiopia. However, the study focused only on nine private commercial banks; namely, Awash bank, Dashen bank, Bank of Abyssinia, Wegagen bank, United bank , Nib International Bank, Lion international Bank, Oromia international bank and Cooperative Bank of Oromia which are partially and fully operating from the year 2002-2016 two of them are state owned banks, hence ,they have high bargaining power in many scenarios so it could outline the outcome figures and the conclusion significantly due to this expectation those two government commercial banks are not included in this study. And also the remaining new banks are not included in the study because they don't have sufficient source of financial report of the study period. Finally, the study focuses on the variables that affect lending rate within the audit reports of 2013 - 2022.

1.8. Limitation of the study

Even if there are 33 functional commercial banks in Ethiopia, this study considered only 9 commercial banks to investigate determinants of banks' lending based on the availability of data. This study considered only 8 variables as the determinants of commercial banks' lending rate although there could be other factors.

1.9.Organization of the pepper

This study is organized in five chapters. The second chapter deals with the literature review which is composed of theoretical and empirical research on the determinants of lending rate in private commercial banks. Chapter three deals with methodology of the research, which presents the research design employed, the sampling data collection methods, and the data analysis method and techniques, and model specification. Chapter four presents analysis and findings of the study. Finally, chapter five deals about the conclusion and recommendation of the study.

CHAPTER-TWO
LITERATURE REVIEW

2. introduction

This chapter presents critical review regarding with the determinants of lending rates of commercial bank of Ethiopia. It covers background of the banking industry in Ethiopia, review of conceptual and theoretical frame works, as well as empirical litterateurs.

2.1. General Overview of the background of the banking industry in Ethiopia.

In Ethiopia modern banking was first introduced in 1906 when the bank of Abyssinia was established based on the agreement being reached between the Ethiopian government emperor Minilik II and MR MA Gillivary, representative of the British owned National bank Egypt. Due to this agreement the first bank in Ethiopia, Bank of Abyssinia Inaugurated on February 16,1906. In 1931 Emperor Haile Sillasie introduced reformation the banking system The Ethiopian government purchased the Abyssinia bank which was the dominant bank and renamed it the bank of Ethiopia first national bank owned bank of Africa continent, the bank of Ethiopia provides central and commercial bank service to the country, During Italian invasion (1936-1941). Banking activity was actively expanded lending. The state bank of Ethiopia had established 19 Domestic branches, a Branch in Khartoum and a transit office in Djibouti. In 1963, the state bank was split into the National bank of Ethiopia and Commercial bank of Ethiopia. The national Bank of Ethiopia was established in 1963 by proclamation 206 of 1963 and began operation in January 1964. Further, private financial institutions, many of which were foreign owned, were established including the Addis Ababa Bank, Banco di Napoli, and Banco di Roma.

In 1976 Monastery and banking proclamation No.99 of 1976 went into effect defining the National Bank duty in accordance with the country's socialist economic rules and principles adopted during the Dreg regime. During this period, the National Bank was actively involved in monetary supervisory and expand insurance institutions, Credit cooperatives and investment bank (Yoseph, 2014). However, the banking business could not move further because of the nationalization of

private investments by the Socialist regime (the Derg regime) that came into power leaving only three government banks; the National Bank of Ethiopia, the Commercial Bank of Ethiopia and agricultural and Industrial Development Bank (Zenebe, January, 2024).

After this long path following the overthrow of the Derg regime in 1991, EPRDF declared a liberal economic system that the banks able to monetary and banking proclamation of 1994 established the national bank of Ethiopia as a judiciary entity separated from the government and out lined its duties and function. Banking Proclamation No.83/1994 and the Licensing and Supervision of Banking Business No.84/1994 laid down the legal basis for investment in the banking sector (Alemayehu, 2006; Azeb, 2022).

After the proclamation of 1994, the first private bank, Awash International Bank was established in 1994 by 486 shareholders paving a way to the establishment of related private banks such as Dashen Bank (1995), Abyssinia Bank (1996), Wegagen Bank (1997), United Bank (1998), Nib International Bank (1999), Cooperative Bank of Oromia (2004), Lion International Bank (2006), Oromia International bank (2008), Zemen Bank (2008), Buna International Bank (2009), Birhan International Bank (2009), Abbey bank (2010), Addis international bank (2011), Debub global bank (2012) and Enat bank (2012).

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2.3. THEORETICAL LITERATURE

Theoretical framework on lending rates is provided by an entity (organization or individual) to another part. Hence, Lending is the core function of commercial banks which is evidenced by the volume of loans that constitute banks' assets portfolio and the annual considerable raise of loan which is granted to borrowers in both private and public sectors of the economy (Abdul Adzis et al., 2018). Thus, the major portion of the gross profit of the banking industry is earned from loans in the form of interest income and contributes to the banks share of commercial bank earnings (Abdul Adzis et al., 2018 and Vong et al., 2009). In the view of Nwankwo (2000), "credit constitutes the largest single income-earning asset in the portfolio of most banks which explains why banks spend enormous resources to estimate, monitor and manage credit quality".

Commercial banking especially lending by its nature is highly prone to unpredictability, arising from different bank-specific, regulator, and macroeconomic factors. Furthermore, Ezirim (2005) stated that bank lending decisions are fraught with a lot of risks, which need a great deal of caution and tact in this aspect of banking operations, since the major risk of the banking business lies in the credit function, as there is a high possibility of default. Therefore, the study of the determinants of banks' lending behavior is very crucial for banks to make a more sustainable profit from the credit portfolio.

There are four theories of interest rate, which are enumerated below:

2.3.1. The Classical Theory of Interest or the Real Theory of Interest.

According to the classical theory, the rate of interest is determined by the intersection of demand for and supply of investment (or capital). Interest is the price of investment because. Firms borrows money for investment. Thus, investment depends on interest rate. Low interest rate encourages high investment and high interest rate leads to reduction in investment. So, investment is inversely related to interest rate(Ezirim, 2005).

2.3.2. Neo-classical Theory of Interest or Loanable Fund Theory of Interest.

According to this theory, the rate of interest is determined by the demand for and supply of

loan funds. Classical theory of interest considered only saving out of current income in the supply of saving while neon-classical economists considered not only saving but also bank credit, dis-hoarding and disinvestment. In classical theory, only saving was available for investment while in loan funds theory of interest of neon-classical economists not only savings, but also hoarded wealth, bank loans, disinvestment wealth are other sources of funds available for investment to the borrowers. Since loan funds theory of interest considered both savings of classical theory of interest and bank loans, dis-hoarding, and disinvestment: it is often referred as real as well as monetary theory of interest. Thus, it is both real and monetary theory of interest.

Governments and banks can also follow neoclassical principles, which will impact economic policy and market regulation. Followers of neoclassical economics believe that there is no upper limit to the profits that can be made by smart capitalists since the value of a product is driven by consumer perception. This difference between the actual costs of the product and the price it is sold for is termed the economic surplus.

This type of thinking was evident in the lead-up to the 2008 financial crisis. Modern economists believed that synthetic financial instruments had no price ceiling because investors in them perceived the housing market as limitless in its potential for growth. As a result, many investment banks and lenders continued to grow the market for subprime mortgages, assuming that continued growth in the market would prevent investment instruments that included these mortgages from losing value (Ezirim, 2005). These financial instruments were mostly unregulated by the federal government, allowing lenders and investors to drive growth in the subprime mortgage market (AnsgarBelke, 2009).

Both the economists and the investors were wrong, and the market for those financial instruments crashed. The housing market did eventually stop growing and begin to decline. Subprime lenders found themselves underwater on mortgages that they could not afford. They began to default in large numbers. This not only left huge numbers of borrowers unable to afford their homes, but it also undermined the stability of the banks and lenders who had backed their mortgages. The entire global economy suffered and required government intervention to stabilize.

According to neo classical theory, the interest rate, as a phenomenon, understood as economic in nature and defined as a rational choice of the individual or agent. How dependent variable seen as

determined by time - preference and capital productivity. As an independent variable seen as influential money through interest, bond interest and interest profit, which influence over reports that present goods in comparison with the goods of the future and the balance of savings or investments (AnsgarBelke, 2009).

Nero-Classical Theory, with the main representatives: Jeremy Bentham (1748-1832); Carl Menger (1840-1921); Leon Walras (1834-1919); Hermann Heinrich Gossen (1810- 1858). According to this theory, the interest rate is explained by the laws of decreasing marginal utility (Hermann Heinrich Gossen 1810-1858) whom: Law 1: increased consumption of a commodity generates a positive benefit, but the satisfaction of additional consumption may not be so great as that generated by the previous consumption; Law 2: in an optimal condition, the ratio of exchange of goods/price is equal to the ratio of marginal utility of goods in circulation (Ansgar Belke, 2009).

2.3.3. Keynes' Theory of Liquidity Preference.

In his classic work, "The General Theory of Employment, Interest and Money (1936),"Keynes offered his view of how the interest rate is determined in the short run. That explanation is known as the theory of liquidity preference because it posits that the interest rate adjusts to balance the supply and demand for the economy's most liquid asset – money.

The theory of liquidity preference posits that the interest rate is one determinant of how much money people choose to hold. The reason is that the interest rate is the opportunity cost of holding money: it is what you forgo by holding money in liquid or cash, which does not bear interest rate. When the interest rate rises, people want to hold less of their wealth in the form of money/liquid/cash (Fridah, 2011). According to Keynes, rate of interest will be determined at the point where demand for money equals supply of money. Demand for capital stems from investment decisions of the entrepreneur class. Investment demand schedule, thus, reflects the demand for capital, while the supply of capital results from savings in the community (Tadiyos, 2018). Due to this Savings schedule depicts the supply of capital (Zenebe, January, 2024). It follows that savings and investment are the two real factors determining the rate of interest (Friedman & Kuttner, 1991).

2.3.3. Noe-Keynesian Theory of Interest or Hicks IS – LM Curve or Modern Theory of Interest

Hicks and Learner have synthesized the theory of both classical' saving-investment theory, and Keynes' liquidity preference theory into a new theory, which is known as Hicks' IS-LM model. Hicks' IS-LM model explains the joint determination of both rate of interest and real income. IS curve has been derived from the combination of saving and investment in commodity market. Thus, the IS curve shows us, for any given interest rate, the level of income that brings the goods market into equilibrium. So, the IS curve representing equilibrium in the market for goods and services. The IS curves shows the combination of the interest rate and the level of income that are consistent with equilibrium in the market for goods and services. LM curve has been derived from the combination of liquidity preference and supply of money in the money market. Thus, the LM curve tells us the interest rate that equilaterals the money market at any level of income. So, LM curve represents the equilibrium in the money market for real money balances. The LM curve shows the combinations of the interest rate and the level of income that are consistent with equilibrium in the market for real money balances. The IS and LM curves together determine the interest rate and the national income in the short run when the price level is fixed.

On the other hand, 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. Lastly, the horizontal 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 (Zenebe, January, 2024).

2.4. Empirical Literature Review

Several researchers and scholar conducted different studies on the determinants of lending rate in both public and private commercial banks in the world. Some of these researchers found similar effect on the of the variables on lending rate; whereas, others obtain opposite to that. For example, Tsegay (2020), in his study found that the factors; liquidity ratio (LR) and credit rate (CR) have significant effect on lending behavior. He recommended that there should be closer consultation

and cooperation between commercial banks and the regulatory authorities so that the effect of regulatory measure on commercial banks is taken into account at the stage of policy formulation to include the most significant factors. The study also recommends that effective policies should be developed to ensure commercial banks grow and therefore advance more credit for their customers.

The study of Matousek and Solomon (2018) revealed that bank size, liquidity, and capitalization are significant determinants of loan supply in Nigeria, and a study by Ebire and Ogunyinka (2018) also showed that real GDP and lending rate have a negative relationship with bank loans while inflation has a positive relationship with bank loans in Nigeria. On the other hand, Moussa and Chedia (2016) studied the impact of internal and external factors on Tunisian banks credit and concluded that among external factors, only inflation has a significant impact on loans, while return on assets, net interest margin, and liquidity as internal factors have a significant impact on the volume of bank loans.

The study made by (Mbowe, Mrema & Shayo, 2019), found that the main drivers of lending rates are operating costs, non-performing loans; and costs of funds (deposits interest rates). Their study shows Operating costs, cost of funds, and inflation have a statistically significant positive effect on bank lending rates, while bank size and level of liquidity have a negative influence. Mensah and Abor (2014), in their article Agency Conflict and Bank Interest Spreads in Ghana, indicate that executive compensation, asset size, the level of concentration in the banking industry, the level of capital held by banks, the reserve requirement, and the level of inflation all positively contribute to the observed high interest spreads.

Tadiyos (2018) conducted a study on determinants of lending rate in commercial banks in Ethiopia. He found that bank size and operating 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. Finally, the study recommends banks to improve operational efficiency, NBE to instill competition within banks and policy makers to promote favorable economic situation. Further studies were recommended in the areas by considering additional variables and considering newly emerging banks.

Mbowe, Mrema and Shayo (2019), in their study found that factors operating costs and inflation have a statistically significant positive effect on banks' lending rates; while, bank size and level of liquidity have a negative influence on lending rates of commercial banks. In relative importance, the main determinants of lending rates could be ranked as inflation, operating costs and deposits rate. Bank size has the largest negative effect for every unit increase in the variable. These factors are also significant but with some variation across bank categories. Finally, the study recommended sustaining the macroeconomic stability through higher and sustainable economic growth and low and stable inflation could as well boost demand for credit and improve loan repayment capabilities, thus reducing credit risk.

Alkhazaleh (2017), in his study found that both credit risk and liquidity statistically significant effect on bank lending; while, there is a significant positive effect of the return on assets, size of the bank measured by inflation and growth in gross domestic product in determining the level of lending. Finally, they recommended that the review points out that because of the negative impact of liquidity and credit risk factors, commercial banks need to focus more on reducing their impact because presence of this impact at the end will decrease the ability of these banks to provide loans and stay in the banking market.

Mohammad and Omar Farooq (2022), in their study found that Consumer price index (CPI), liquidity position, the lending rate for personal loans, deposit ratio, and return on assets are the major determinants of bank lending rates to businesses. The study found that GDP growth, money supply growth, and nonperforming loans ratio are insignificant in determining the lending rate to businesses in Bahrain. In addition to yielding insights to the respective authorities, this study also helps creditors, investors, and borrowers predict interest rates and thus manage their assets and liabilities more efficiently.

Mbowe et al. (2020), in their study indicated that the main factors positively influencing lending rates are operating costs and inflation. The study also found that the regulatory or Statutory Minimum Requirement (SMR) ratio plays a crucial role in determining banks' lending rates. On the other hand, the study found that bank size and levels of liquidity have a negative impact. Cucinelli's (2015) study of the Italian banking sector was more robust as it included both listed and unlisted banks, as well as commercial and cooperative banks.

Similarly, Mekonnen (2021), in his study found that bank-specific factors like the bank size has a positive and statistically significant effect on bank lending. Industry-specific factors such as; cash reserve requirement, bank concentration, and average lending rate have a negative and statistically significant effect on bank lending. Likewise, one of the macro-economic variables, gross domestic products has a negative and statistically significant effect on bank lending. The study suggested that commercial banks in Ethiopia have to manage their lending by giving more attention to the internal factors, which the management has control over in line with the banking industry rules and regulations recalling the influence of the general economic dynamic.

On the other hand, Itimu and Abdul (2018), in their study found that banks specific factors such as liquidity risk, bank size and operational cost determine average lending rates of commercial banks in Kenya. According to the study, high non-performing loans increased credit risk and thus resulting to commercial banks high average lending rates. Operational cost resulted to high average lending rates due to commercial banks tried to recover the high operational costs through interest income Government domestic borrowing and inflation are some of the macro economic factors that were found to be a determinant of average lending into commercial banks in Kenya. They recommended that commercial banks to unite fully the credit information they gather on their lending policies so as to ensure consumers with good credit ratings, get competitive lending rate and don't suffer on the effect of branded risky borrowers. This resulted in lacking credit or being charged high lending rates.

Finally, Zenebe (January, 2024), in his study found that that Bank Size, profitability ratio, and liquidity ratio are the significant independent variables to explain the dependent 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.

Based on the empirical and theoretical point of view, the main determinants of lending rates of commercial banks include; market concentration, bank size, market share, deposit rate, credit risk,

liquidity risk, reserve requirements, operating cost, inflation rate, Gross demotic products and others. Of the several determinant factors affecting lending rates of commercial banks, the study selected eight determinants; namely, operating cost, bank size, market share, credit and liquidity risks, reserve requirement ratio, inflation and gross domestic products.

2.5. Determinants of Bank Lending Rate

Lending rate

The lending rate refers to the interest rate charged by the banks to its customers and it provides the most significant sources of income for the banks (Moussa &Chedia, 2016). It is also one of the monetary policy instruments used by the Central Bank to control the liquidity in the financial market (Elshaday, Kenenisa & Mohammed, 2018). Theoretically, a high-interest rate negatively affects the demand for a loan because only limited borrowers with high-risk projects may have their demand satisfied (Temesgen, 2016; Itimu & Abdul, 2018). Amano (2014), in his study found that the lending rate tends to negatively affect bank lending. This implies that a high interest rate negatively affects the demand of the public to borrow money from banks because it increases the financial cost of the borrowers (Prasad, 2020 and Shikumo & Mwangi, 2016). The study by (Temesgen, 2016), found a negative effect of bank capital on loans and advances.If the central bank reduces the rate, banks become unwilling to provide loans to firms and vice versa (McKinnon, 2009). On the other hand, Richard and Okoye (2014) and Swamy (2012) found that the higher interest rate tends to increase the volume of loans and advances granted by banks.

Theoretically, the determinant factors affecting commercial bank lending rate are divided into three broad categories such as; bank-specific, industry-specific and macroeconomic factors. These sub-categories also subdivide into eight determinant factors as discussed below;

2.5.1. Operating cost

Operating cost is described as the ratio of operating expenses to total net operating income. Commercial Banks incur operating cost both in deposit collection and lending (Karanu& Jackson, 2015). Upward pattern of operating cost indicates the inefficiency of the banks. This means that a

bank facing high operating cost would like to pass this cost to the clients who would increase the interest rate spread (Tadiyos, 2018; Zenebe, January, 2024). This approves the existence of a linear relationship between operating cost and lending interest rate. Likewise, operational cost was depicted to result of high average lending rates as commercial banks tried to recover the high operational costs through interest income which forms the basis for their profit (Itimu & Abdul, 2018).

H1: Operating risk has a significant and positive effect on bank lending rate.

2.5.2. Credit risk

Credit risk belongs to the group of factors with the highest impact on banks 'interest margins (Tadiyos, 2018). Non-performing loans to total loans ratio is used as an indicator of credit risk or quality of loans. Accordingly, an increase in provision for loan losses implies a higher cost to compensate bad debt write offs (Zenebe, January, 2024). This implies that banks facing higher credit risk are likely to pass the risk premium to the borrowers giving the risk-averse behavior (Shikumo & Mwangi, 2016). Hence the higher the risk, the higher the pricing of loans and advances to compensate for likely loss (Maudos and de Guevara, 2004; Maudos and Solis, 2009; Khan and Khan 2010; Were and Wambua, 2013; Ahokpossi, 2013; Tadiyos, 2018).

H2: Credit risk has a significant and positive effect on bank lending rate.

2.5.3. Liquidity risk

Liquidity risk is indicated by the ratio of deposit to liabilities. It reflects the true liquidity position which is a good measurement. Bank with greater liquidity face less liquidity risk which implies that they do not charge premium which leads to the spread would remain low (Itimu &Abdul, 2018). On the other hand, banks facing less liquidity would face liquidity risk indicating that they would impose high liquidity premium for bearing the risk (Shikumo & Mwangi, 2016). This theory suggests the existence of positive relationship between liquidity risk and interest rate spread of commercial banks. This is due to the availability of liquid funds is a key in determining the average lending rates for commercial banks (Itimu & Abdul, 2018).

H3: Liquidity risk has a significant and positive effect on bank lending rate.

2.5.4. Bank size

The bank size is used to measure the bank lending as it shows the economics of scale enjoyed by the bank (Chernykh & Theodossiou, 2011; Shikumo & Mwangi, 2016). Bank size was also founded to be a great determinant of average 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 (Itimu & Abdul, 2018; Zenebe, January, 2024). According to Bashir (2003), large-sized banks have the advantage of providing a larger menu of financial services to their customers and thereby mobilize more funds. Salas and Saurina (2002), in their study described that a big balance sheet allows managers to invest in different geographical or business segments to deal with asymmetric shocks. On the other side, Berger and Udell (2006), in their study provide large and complex banks tend to lend few loans to small-scale firms rather than smaller commercial banks. Stein (2000) clarifies that small banks have comparative advantages in producing soft information; whereas. large banks have comparative advantages in lending to bigger investors. Rabab'ah (2015), in their study found that bigger banks tend to provide higher credit facilities to the public. Likewise, Malede (2014) and Amidu (2014) argued that bank size positively influences bank lending. Finally, Mekonnen (2021), in his study found that bank size has positive and significant effect on commercial banks' lending rate.

H4:Bank size has a significant and positive effect on bank lending rate.

2.5.5. Bank Market Share

It is denoted as the ratio of bank assets to total assets in an economy. O"Regan (2002) , and Pearce and Robinson (2003) defined market share as a company's sales in relation to total industry sales for a certain period. Market share is usually used to express competitive position. It is also generally accepted that increased market share can be equated with success, whereas decrease market share is a manifestation of unfavorable actions by firms and usually equated with failure. The most common explanation as to why market share leads to higher profitability are higher economies of scale, experience and market power (Buzzel, 2004). Economies of Scale provide larger firms with cost advantages (Sharp et al., 2002). However, most studies indicate that economies of scale dissipate at a small percentage of the market. Differences in profitability among firms are due to higher efficiency. This means that efficient firms obtain a large market share and

earn high profits to induce a causal association between size and profitability (Shikumo & Mwangi, 2016). Likewise, Firms offering products that offer customers greater value enjoy gains in market share. This implies that the more a bank has larger amount of capital, deposits and loans as compared to competitors, the more it controls the market (Zenebe, January, 2024).. According to the efficiency hypothesis, market share is the consequence of efficiency rather than its cause.

H5: Bank market share has a significant and positive effect on bank lending rate.

2.5.6. Reserve Requirement

The cash reserve requirement is one of the monetary policy instruments used by the Central Bank to manage the liquidity and credit creation in the banking system (Medina & Roldos, 2014). Theoretically, central banks raise reserve requirements to contain credit growth in the boom part of the business cycle to counteract financial imbalances in the economy or an economic downturn, they can lower reserve requirements to enable banks to utilize reserve to extend more credit to non-financial businesses (Shikumo & Mwangi, 2016). Cargill and Mayer (2006), in their study found that cash reserve requirement tends to negatively influence bank lending. Koray et al., (2016), Glocker & Towbin, 2012) and Montoro and Moreno (2011) empirical study indicated that an increase in reserve requirement leads to a decreased bank credit. However, Richard and Okoye (2014), Olumuyiwa et al. (2012), and Olusanya et al. (2012) found that cash reserve requirement has a positive effect on the volume of bank loans and advances.

H6: Cash reserve required has a significant and positive effect on bank lending rates.

2.5.7. Inflation rate

The inflation rate refers to a reduction in the purchasing power of a currency resulted from a general and sustained increase in the general price level of all goods and services in an economy usually expressed as an annual percentage change of consumer price index (Shikumo & Mwangi, 2016). Banks also increase their cost of credit to keep the space with inflation, which will result in an increased lending rate in the country whenever inflation increases (Banda, 2010; Zenebe, January, 2024). This implies that as inflation increases results in a decrease in bank lending rate. Similarly, Uyagu and Osuagwu (2015), in their study found a negative relationship between inflation and bank lending rate. Taner (2000) study depicts that unpredictable inflation raises

interest rates, decreases loan supply, and affects loan demand. This suggested that an increase in inflation may raise the bank lending rates and reduce customer's demand for credit. On the other side, Alkhazaleh (2017), in his study found that inflation has a positive relationship with bank lending.

H7: Inflation rate has a significant and negative effect on bank lending rate.

2.5.8. Gross Domestic Product

The real gross domestic product denotes the measure of total economic activity within the economy and commonly used economic indicator. Accordingly, a strong economic condition creates more demand for goods and services, which lead to more investment in different sectors. This means that an increase the per capital income and the savings collectively provide commercial banks to issue more credit for the public and private investors (Shikumo & Mwangi, 2016). Amidu (2014), in his also described the increment of bank lending resulted from the increment of the gross domestic product. Rabab'ah (2015), in his study found that the higher rate of economic growth leads to an increased proportion of credit facilities. Similarly, Al-Kilani and Kaddumi (2015) found that gross domestic product has a positive significant effect on bank lending. On the other hand, Moussa and Chedia (2016), in their study claim that the gross domestic product has a negative relationship with bank lending.

H8: Real gross domestic product has a significant and positive effect on bank lending rate.

2.6. Conceptual Framework

The conceptual framework shows the relationship between lending rate and its explanatory variables like various banks, industry and macroeconomic determinants; namely, credit risk, operating costs, liquidity risk, bank size, bank market share, reserve requirements, inflation rate and gross domestic products (GDP) growth.

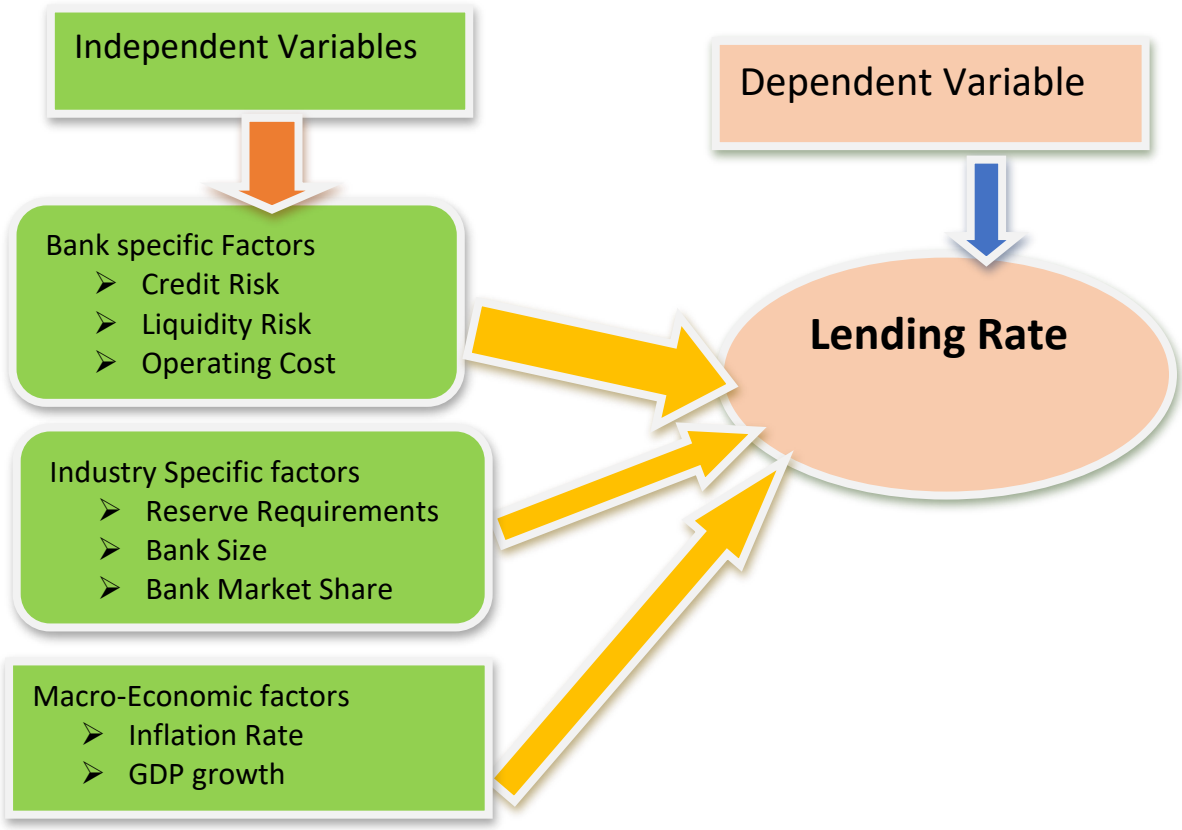

Figure 1 : conceptual framework

2.7. Summary and Literature Gap

Several researchers and scholars put their own determinant factors affecting lending rates of commercial banks depending on their point of view (Misganu, 2021; Shikumo & Mwangi, 2016). Accordingly, the conceptual, theoretical and empirical literature review and studies examine the determinants of bank lending rate variables, which basically fall in to three major categories: (1) individual bank-specific factors such as operating or administrative costs, non-performing loans, return on assets, capital of the banks, bank size, credit risk, bank liquidity risk, among others; (2) factors specific to the banking sector/industry such as the degree of competition or market concentration, regulatory requirements such as reserve requirements and market share and the last is macroeconomic indicators that include real gross domestic product (GDP) growth rate and inflation rate(Tadiyos, 2018). However, there is no universally accepted findings for the determinants of lending rate due to the countries differ each other by their economic, financial, regulatory and operating environments. For instance, the study conducted by Ljupka (2010) shows that operating cost has no influence for lending rate in \commercial banking sector. This finding is different from Yuga (2015), which shows that operating cost has positive and significant impact for the determinant of lending rate in Nepalese commercial banks. Further more. Alidu (2012) found that GDP has positive and significant impact on lending rate in commercial banking sector in Ghana. This finding was in consistence with (Adoah, 2015), the finding indicated GDP has negative and insignificant impact on lending rate in Kenya banking sectors.

Therefore, further empirical evidence could provide additional insight about the determinants of lending rate by using much recent dataset using quantitative research approach and needs further investigation. Similarly, there is few study conducted on the determinants of lending rate, rather there were few research conducted surrounding the area in Ethiopian context. Finally, the study by Aregu (2014), Meshesha (2016), Tadiyos (2018) and Misganu (2021) focused on determinant of Interest spread, determinant of interest margin and determinants of interest rate in Ethiopian banking sectors respectively. However, these studies were not address the effect of liquidity risk and banks market share on interest spread, net interest margin and lending rates of private commercial banks. Therefore, this study incorporated some of significant variable which are valuable effect on lending rate such as liquidity risk and banks market share in addition to the other factors.

CHAPTER-THREE

RESEARCH METHODOLOGY

3.1. **Introduction:** This chapter discusses on the research design, the research approach, sampling frame, data type and data sources, target population and sample size, the tools used in the research, data collection procedures and method of analysis and specification of model design.

3.2. Research Design

The study aimed to examine the determining factors of interest rate of commercial banks in Ethiopia. The researcher adopted a quantitative research design to understand and analyze the data collected from financial statements of commercial banks operating in Ethiopia and determine factors of interest rate decisions and to test the relationship between dependent variable and the explanatory variables.

3.3. Research approach

Panel data provide information on individual behavior, both across individuals and over time. They have both cross-sectional and time-series dimensions. The study employed cross-sectional quantitative approaches to analyze the determinants of lending rate for the selected commercial banks in Ethiopia.

3.4. Data Type and Source

To meet the objectives of this study, the researcher used secondary source of data, i.e., audited financial statements of those selected Commercial banks operating in Ethiopia. The reports were collected from Ministry of finance and economics of Ethiopia, web-sites of the banks and the National Bank of Ethiopia.

3.5. Target population and sample size

To study the observations of the banks in a different time period, panel data of ten years was extracted from financial statements of the commercial banks, covering the period from 2013 - 2022. The study was conducted based on data obtained from 9 selected private

Commercial banks operating in Ethiopia; namely, Dashin Bank, Abyssinia Bank, Awash Bank, United Bank, Oromia International bank, Nib bank, Lion International bank, Oromia Cooperative Bank and Wegagen Bank.

3.6. Sample Design and Strategy

The study took the nine private commercial banks that have been in operation for fifteen years and above out of the total banks of 33 commercial banks in Ethiopia registered by National bank of Ethiopia. Sample of nine commercial banks were selected from the population of 33 commercial banks. It represents 27.27 percent of the existing commercial banks. Therefore, pooling the cross-sectional data of 10 years for 9 private commercial banks, there are total 90 observations in the regression analysis. For this reason, using purposive sampling, the selected private banks were Awash Bank, Dashen Bank, Bank of Abyssinia, Wegagen Bank, United Bank, Nib International bank, Cooperative bank of Oromia, Lion international Bank and Oromia international Bank.

3.7. Methods of Data Analysis

The study used both descriptive statistics and econometric tools to analyze the data. The former one includes simple descriptive methods such as mean, maximum, minimum, standard deviations, and others that enable to better understand the existing situation and analyze the general trends of the data. The study substantiated the descriptive analysis by manipulating econometric models to examine causation between the explanatory and dependent variables. In this regard, the study employed the OLS Model to identify determinants that significantly affect commercial bank lending rate.

3.8. Model Specification

Most of the existing empirical studies on determinant factors of lending interest rates use linear regression techniques with proxies for the determinant factors used to explain the variation in INTERST across COMMERCIAL BANKS. The following multivariate ordinary least square (OLS) regression model was used to test the relationship between the lending rate and its determinate factors in the selected commercial bank of Ethiopia.

$L\ rate_{it} = \alpha + \beta_1 OC_{it} + \beta_2 CR_{it} + \beta_3 LIR_{it} + \beta_4 BS_t + \beta_5 MSh_{it} + \beta_6 RR_{it} + \beta_7 INF + \beta_8 GDP + \varepsilon_{it}$

Where:

OC = Operating cost

CR = Credit risk

LIR = Liquidity risk

BS = Bank Size

MSh = Market share

RR = Reserve requirement

INF = Inflation

GDP = GDP growth rate

α= Constant Term

$\beta 1, \beta 2, \beta 3 ..... \beta 8$ = Coefficient of the explanatory variables

ε_{it} = Error term of the regression.

Table 3-1. Summary for the Expected signs of explanatory variables on the dependent variable.

Variables	Description	Expected sign
Lending interest rate (LIR)	LIR= (interest received /all interest-bearing assets)-(interest paid/all interest-bearing liabilities)	NA
Operating costs (OC)	Non-interest expense/Total asset	Positive & significant
Credit risk (CR)	Nonperforming loans/ total loans	Positive & significant
Liquidity risk(LR	Total Loans/total asset	Positive & significant
Bank size (BS)	Natural logarism of Value of banking asset	Positive & significant
Market share (MS)	Bank asset/Total assets in the banking industry under the study	Positive & significant

Reserve Requirement (RR)	Required reserves at NBE/total asset	Positive & significant
Inflation (INF)	Annual inflation rates	Negative & significant
GDP	Annual Gross domestic products	Positive & significant

Chapter-Four

Discussion for Major findings of the Study

4.1 .This chapter covers the descriptive analysis, correlation analysis, Testing for the Regression Model Assumptions. And discussion of the regression results.

4.2. Descriptive analysis and discussion of the findings

Table 4.1 provides a summary of the descriptive statistics of the dependent and independent variables for nine selected private commercial banks for a period of ten years audited financial report from 2013-2022. This table includes the mean, standard deviation, minimum and maximum, for the dependent variable (Lending rate) and independent variables (Operating Cost, Credit Risk, Bank Size, Market Share, Reserve Requirement, Inflation Rate, GDP and Liquidity Risk).

Table 4-1: Descriptive Analysis for the determinants of lending rate

Variable	Mean	Std. Dev.	Min	Max
Lending Rate (LR)	.06435	.0569301	.0081	.1284
Credit Risk (CR)	.03457	.0104456	.023	.054
Bank Size (BS)	23.95497	.7792371	22.8536	25.0984
Liquidity Risk (LIR)	.54883	.0863332	.4455	.6771
Operational cost (OC)	.09611	.0695073	.0349	.1837
Reserve Requirements (RR)	.04315	.007876	.038	.0582
Market share (MSh)	.10967	.0017043	.107	.1111
Inflation (INF)	14.879	9.563014	4.46	33.89
Gross Domestic products (GDP)	29.60621	11.49178	19.0155	53.0337

Source: Authors compilation computed using Stata 13.

As per the above table 4.1 the bank lending rate measured by the ratio of interest income on loan to total loan. In this study lending rate indicate that the Ethiopian banks earn, on average 6. 44%, with a minimum of 0.81% and a maximum of 12.84% . This means the lower lending rate charges by the banks were 0.081 % The major reasons for this rate was new entrance banks lend their loan to staff in the form of either overdraft or emergency loan with zero interest rate, due to the fact that

external customers were low until introducing themselves and raise their market share in the form of deposit. On the other hand, the maximum lending rate charges by the banks were 12.84% with standard deviation of .0569301, indicating that the lending rate variation from the mean.

Regarding with OC (Operating cost) was measured by non-interest expense to total asset ratio. The average bank operating cost spent by the sampled banks were 9.611%, with the minimum of 3.49% and maximum of 18.23%. This implies most banks from the sample on average incurred 9.611 percent operating expenses to provide their financial services. In other words, the bank incurred 0.09611 cents as operating expenses to deliver their financial service. Similarly, the Standard deviation of .0695073, showing that the operating cost ratio variation from the mean was low

On the other hand, Credit risk was measured by the ratio of non-performing loans to total loans ratio. The average credit risk faced by the sampled banks was 3.457%. This indicates that, from the total loan granted to customer on average, 3.457% are non-performing loan. The highest credit risk faced by the commercial banks was 5.4%, this implies there were low asset quality due to the fact that the rate above the standard level set by NBE, on the other hand the minimum credit risk faced by banks was 2.3%, which indicate that the new banks might be give moderate lending as a result of low saving volume, due to such fact the credit risk approach to such percent. The standard deviation was .0104456 which shows low variation from the mean value. Furthermore, bank size which was measured by the natural logarithm of total bank assets. Bank size has an average of 23.95, maximum of 25.0984 and the minimum of 22.85. Bank size variation from the mean was .779, which implies that the largest bank size has the value of 25.0984 and the smallest size of 22.8536. The standard deviation from the mean was under one which was .779, which depicts that there was moderate variation from the mean.

Regarding with descriptive statistics of industry specific explanatory variables the following were observed. Market share of the banks was measured by the assets of the bank by the total asset of the selected commercial banks. Descriptive result indicate that average market share of the selected commercial banks was 10.97%, meaning that the bank's market shares on the level of the Ethiopian banking sector during the analyzed period have low market shares, the highest market shares in the sector has the maximum value of 11.11% share and the least concentrated bank in the sector has the minimum value of 10.70% share. The implications for minimum market share which is

around .0017 percent, it occurs due to the fact that the new entrant banks share was insignificant. The statistical result also shows standard deviation of .0017043, which depicts very low deviations from the mean. Another important variable for industry specific factors were reserve requirement.

Reserve requirement was measured by required reserve balance maintained at central bank to total asset ratio. The descriptive data shows that mean value for the last ten years was 4.32%. On the other hand, the minimum and maximum reserve requirement was of 3.8% and 5.82% respectively. The statistical result also shows higher standard deviation of .007876 implies very low variation from the mean.

Regarding the macroeconomic variable also shows that the mean real GDP growth in Ethiopia for the period of 2013 to 2022, the standard deviation was 11.49% this implies that economic growth in Ethiopia during the period of 2013 to 2022 the result was more or less in agreed with the government's report regarding economic growth.

Other macro-economic variable employed in this study was inflation; it had the mean CPI growth in Ethiopia for the last ten years was14.88%, with a maximum of 33.89% and a minimum of 4.46%. Also the standard deviation was 9.563014, which indicates somewhat a higher standard deviation compared to other explanatory except GDP; this implies that inflation rate in Ethiopia during the study period remains somewhat unstable. This means that the most efficient bank has a quite substantial cost advantage compared to inefficient banks.

4.3. Correlation analysis and discussion of the findings

Correlation refers to an index of the strength of the relationship between two variables. The standard Pearson's correlation describes the linear relationship between two variables. A linear relationship is one where an increase in one variable is associated with an increase or decrease in another variable. Rules of thumb (Cohen, 1988) states that the correlation coefficient (r) of Small (low) effect: $.10 < r < .30$, Medium (moderate) effect: $.30 < r < .50$ and large (strong) effect: $r > .50$.

Table 4-2: C**orrelation results of the variables**

	LR	CR	BS	LIR	OC	RR	MSh	INF	GDP
LR	1								
CR	0.859	1							
BS	-0.07	0.1124	1						
LIR	0.416	0.4215	-0.3215	1					
OC	-0.85	-0.714	0.0468	-0.347	1				
RR	0.518	0.6311	0.4135	-0.0187	-0.537	1			
MSH	0.606	0.2867	-0.5462	0.5341	-0.448	0.1503	1		
INF	0.501	0.4193	0.1336	0.1391	-0.396	0.3831	0.168	1	
GDP	0.49	0.2676	0.2648	0.1508	-0.394	0.3581	0.2065	0.7995	1

Source: Authors compilation computed using Stata 13.

As shown on table 4.2, credit risk, market share, reserve requirement, inflation, GDP, and liquidity risk have the most positively correlated variable with lending rate. This correlation clearly shows that, as those variables increase, lending rate also moves into the same direction. Of which; CR, RR, INF and MSh have strong and positive correlation with the selected commercial banks' lending rate; whereas, LIR and GDP have moderate and positive association with lending rates. On the other hand, bank size and operating cost are negatively correlated with the lending rate where operating cost was strongly correlated; while, bank size has almost no correlation with lending rates of the selected commercial banks. Which indicate that, when the bank size and operating cost increase, lending rate moves in to the opposite direction. This implies that these variables who have strongly relationship with lending rates have vital contribution of the lending rate performance of the selected commercial banks in Ethiopia.

4.4. Testing for the Regression Model Assumptions

Classical assumptions for regression analysis include the sample is representative of the population for the inference prediction and the error is a random variable with a mean of zero conditional on the explanatory variables, the independent variables are measured with no error(Brooks, 2008). The independent variables (predictors) are linearly independent, i.e. it is not possible to express any predictor as a linear combination of the others. It also include the errors

are uncorrelated, that is, the variance–covariance matrix of the errors is diagonal and each non-zero element is the variance of the error, the variance of the error is constant across observations (homoscedasticity) (Stevens, 2002). If not, weighted least squares or other methods might instead be used (Armstrong, 2012). Out of the above listed; the researcher applied the following testing of assumptions:

4.4.1 Test for average value of the error term is zero (E (Ut) = 0)

The average value of the errors term is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated. Therefore, since the constant term (i.e. α) was included in the regression equation, the average value of the error term in this study is expected to be zero (Stevens, 2002). Besides, the normal distribution of standardized residuals occurs when the average value of the error terms is zero. Hence, the data do not violate such assumptions.

4.4.2 HETEROSCEDASTICITY

If the OLS assumption that the variance of the error term is constant for all observations does not hold, we face the problem of *heteroscedasticity.* This leads to unbiased but inefficient (i.e., larger than minimum variance) estimates of the coefficients, as well as biased estimates of the standard errors and, thus, incorrect statistical tests and confidence intervals.

One test for heteroscedasticity involves arranging the data from small to large values of the independent variable X and running two regressions, one for small values of X and one for large values, omitting, say, one-fifth of the middle observations. Then, we test that the ratio of the error sum of squares (ESS) of the second regression to the first regression is significantly different from zero, using the F table with (n - *d* - 2k)/2 degrees of freedom, where n is the total number of observations, *d* is the number of omitted observations, and k is the number of estimated parameters.

If the error variance is proportional to *x2* (often the case), heteroscedasticity can be overcome by dividing every term of the model by X and then re-estimating the regression using the transformed variables. One of the applicable tests for of heteroscedasticity is Breusch-Pagan / Cook-Weisberg test for heteroscedasticity.

Accordingly, if the p-value of Breusch-Pagan test is greater than .05, the homogeneity of variance of the residual has been met (Homoscedasticity) (Schreiber-Gregory, 2018). Based on this concept, the null and its alternative hypotheses are as indicated below;

Ho: Constant variance/homoscedasticity
Variables: fitted values of growth in total loans and advances

Table 4-3: Heteroscedasticity Test: Breusch-Pagan/Cook-Weisberg

Breusch-Pagan / Cook-Weisberg test	$chi^2(1)$ = 0.00
	Prob> chi^2 = 0.9954 we rejject0.07%
NR2 version of the score test	$chi^2(1)$ = 0.00
	Prob> chi^2 = 0.9945
F-Statistics	F(1, 88) = 0.00
	Prob> F = 0.9952

Source: Authors compilation computed using Stata 13.

As indicated in table 4.3, the significant level of the Breusch-Pagan / Cook-Weisberg test, NR2 version of the score test and F-Statistics are above 0.07, indicating that the null hypothesis '' there is constant variance/homoscedasticity is accepted.'' Hence, the existence of a constant variance leads to no Heteroscedastic effect in the regression model.

4.4.3 AUTOCORRELATION

When the error term in one-time period is positively correlated with the error term in the previous time period, we face the problem of (positive first-order) *autocorrelation.* This is common in time-series analysis and leads to downward-biased standard errors (and, thus, to incorrect statistical tests and confidence intervals).

The Durbin-Watson test statistic tests the null hypothesis that the residuals ordinary least –squares regression are not auto correlated against the alternative residuals. The Durbin-Watson statistic ranges in value from 0 to 4. A value near 2 indicates non- Autocorrelation; a value toward 0 indicates positive autocorrelation; a value toward 4 indicates negative autocorrelation. As a rule of thumb values of $1.5 < d < 2.5$ show that there is no auto-correlation in the data (Schreiber-Gregory, 2018). This means that A DW value between 1.5 and 2.5 confirms the absence of first-order

autocorrelation. For this case, if DW value is less than 1.5, it indicates positive autocorrelation; whereas, if DW value greater than 2.5, it indicates negative autocorrelation.

Table 4-4: **Durbin-Watson d-statistic test for autocorrelation**

Variables	Durbin-Watson d-statistic
All the determinants of lending rate	1.836

Source: Authors compilation computed using Stata 13. Spss

As indicated in table 4.4, there is no presence of autocorrelation in the model as the DW statistic is approximately 2.

4.4.5 MULTICOLLINEARITY

Multicollinearity refers to the case in which two or more explanatory variables in the regression model are highly correlated, making it difficult or impossible to isolate their individual effects on the dependent variable (Gujarati, 2004). With multicollinearity, the estimated OLS coefficients may be statistically insignificant even though R* may be "high." Two or more independent variables are perfectly collinear if one or more of the variables can be expressed as a linear combination of the other variable(s). High, but not perfect, multicollinearity refers to the case in which two or more independent variables in the regression model arc highly correlated. This may make it difficult or impossible to isolate the effect that each of the highly collinear explanatory variables has on the dependent variable. However, the OLS estimated coefficients are still unbiased (if the model is properly specified). Furthermore, if the principal aim is prediction, multicollinearity is not a problem if the same multicollinearity pattern persists during the forecasted period. For this reason, the classic case of multicollinearity occurs when none of the explanatory variables in the OLS regression is statistically significant (and some may even have the wrong sign), even though R^2 may be high (say, between 0.7 and 1.0). In the less clear-cut cases, detecting multicollinearity may be more difficult. High, simple, or partial correlation coefficients among explanatory variables are sometimes used as a measure of multicollinearity.

Multicollinearity can sometimes be reduced by collecting more data, by utilizing a priori information, by transforming the functional relationship, or by dropping one of the highly collinear variables. Moreover, serious multicollinearity can be present even if simple or partial correlation coefficients are relatively low (i.e., less than 0.5). For this case, serious multicollinearity may

sometimes be corrected by (1) extending the size of the sample data, (2) utilizing a priori information, (3) transforming the functional relationship, or (4) dropping one of the highly collinear variables (however, this may lead to specification bias or error if theory tells us that the dropped variable should be included in the model). Moreover, to avoid Multicollinearity effect, it is important that the results from collinearity diagnostics should have tolerance value above 0.10 and variance inflation factor (VIF) value less than 10, which indicates less correlation of the variables (Gujarati, 2004). For this case, Tolerance is the percentage of the variance in a given predictor that cannot be explained by the other predictors. When the tolerances are close to 0, there is high Multicollinearity and the standard error of the regression coefficients will be inflated.

Table 4-5: Multicollinearity Test of the Determinants of Lending Factors

Variables	VIF	1/VIF = Tolerance
GDP	4.24	0.23561
CR	3.84	0.260517
INF	3.73	0.26788
BS	2.91	0.343708
RR	2.88	0.347675
MSh	2.78	0.359896
OC	2.73	0.366011
LIR	2.02	0.494808

Source: Authors compilation computed using Stata 13.

As indicated in table 4.5, there are no values for tolerance below 0.1 and VIF above 10, indicating that there is no multicollinearity effect here.

4.5. DISCUSSION OF THE FINDINGS FROM THE REGRESSION RESULTS

Table 4-6: Estimation of the Regression Coefficients

Source	**SS**	**df**	**MS**	**F(88, 1) = 311.57**
Model	**.029157587**	**8**	**.003644698**	Prob> F = 0.0438
Residual	**.000011698**	**1**	**.000011698**	R-squared = 0.9996
Total	**.029169285**	**9**	**.003241032**	Adj R-squared = 0.9964
				Root MSE = .00342

Variables	**Coef.**	**Std. Err.**	**t**	**P>t**	**Beta**
CR	4.331236	.213834	20.26	0.031	.7947031
BS	.0045169	.0024955	1.81	0.321	.061826 i
LIR	-.1677085	.018773	-8.93	0.071	-.2543263
OC	-.2131988	.0271114	-7.86	0.081	-.2602994
RR	-2.04658	.2454914	-8.34	0.076	-.2831352
MSh	14.40919	1.115066	12.92	0.049	.4313583
INF	-.0006382	.0002303	-2.77	0.220	-.1072115
GDP	.0014588	.0002044	7.14	0.089	.2944745
_cons	-1.606689	.1588392	-10.12	0.063	

Source: Authors compilation computed using Stata 13.

As indicated in table 4.6, the R^2 (R-squared) is 0.9996 which means that 99.96% of the variations in the dependent variable (Lending rates) are explained by the independent variables; credit risk, liquidity risk, market share, reserve requirements, bank size, operation cost, inflation and GDP; whereas, the remaining 0.04% is explained by other extraneous variables.

The standardized results of coefficient indicate that CR, LIR, OC, RR and Market Share statistically significant at 5 % level of significance; whereas, the remaining three factors: BS, IFL and GDP are not statistically significant. Accordingly, holding other variables constant, a 1% increase in the credit risk (CR) will lead to a 79.47% increase in the commercial banks' lending rate. Credit risk is also statistically significant at 5% level of significance. Holding others determinants constant, a 1% increase in bank size (BS) will lead to 6.18% increase in the dependent

variable. Bank size is also positively related to the dependent variable but statistically insignificant at 10 % level of significant.

Likewise, a 1% increase in Liquidity risk leads to a 25.43%decrease in lending rate. Liquidity risk is statistically significant at 10% level of significance and is negatively related to lending rates of the selected commercial banks. A 1% increase in operating cost (OP) also implies a 26.03% decrease in commercial banks' lending rate. Operating cost is statistically significant at 10 % level of significant and is negatively related to the lending rates of commercial banks. Reserve requirement has a linear relationship with lending rate, where a 1% increase in RR depicts to a 28.31% decrease in lending rates of the selected commercial banks, but the independent variable is statistically significant at 10 % level of significance. Similarly, a 1% increase in market share of the banks will lead to a 43.14% increase in the banks' lending rate and it is significantly affected the lending rate these banks at 10 % level of significance.

Inflation is also linearly related to lending rates, where a 1% increase in inflation will imply10.72% decrease in the lending rates of commercial banks. But, this factor is not significantly affected to the banks' lending rate a 1% increase in GDP will lead to a 29.45% increase in the banks' lending rate; while, it is significantly affected to the lending rates of the bank. On the other hand, from the unstandardized coefficient results the constant term is statistically significant at 10% level of significance. Assuming all the independent variables were zero, total lending rate will be -1.61.

Based on the above results on standardized coefficients,

Lending Rate (LR) =L $rate_{it} = \beta_1 OC_{it} + \beta_2 CR_{it} + \beta_3 LIR_{it} + \beta_4 BS_t + \beta_5 MSh_{it} + \beta_6 RR_{it} + \beta_7 INF_{it} + \beta_8 GDP_{it}$. This implies,

$LR = {-.26032}\ OCit + {.7947}CRit\ {-.2543}LIRit + {.0618}BSt + {.4314}\ MShit + {-.2831}\ RRit {-.1072}INF + {.945}GDp.$

4.6. Testing the Hypotheses of the Study

Based on the standardized coefficient, the tests of all the hypotheses are as indicated below;

1. **Operating cost**
   - ✓ H1: There is significant positive relationship between operating cost and lending rate.

For operating cost (β_1=-.2603), considering the regression model, the coefficient of the operating cost variable displays a negative relationship with the bank's lending rate and it is statistically significant (P = 0.081) at 10 % level of significance. This result implies that the lending rate increases when the operating expense decrease. Banks will keep their overheads cost at low levels as a result the lending rate rise to compensate for the additional costs of operations and can be considered operationally inefficient. This result is in consistence with the expansion of retail banking products, increasing retail branch networks and rising staff costs as a result of a salary increase to bank workers as a result it contributed much to the rising costs of operations.

This result is also inconsistent with the economic theory which deals about a positive relationship between the bank lending rate and overhead costs. This means that banks that incur low overhead costs are associated with increase in lending rate and these lower costs might indicate banking efficiency. These results are inconsistent with other scholar's findings who also found a positive relationship between the lending rate and bank operating costs (Yuga, 2016, Alidu, 2012; Adoah, 2015 and Ruth,2014) noted that overhead costs are generally higher in developing poorer countries, therefore, they are of greater relevance in the Ethiopia since the country is still developing. Itimu & Abdul (2018), in their study found that negative and insignificant relationship with lending rates of commercial banks.

The statistically significant impact of operating expense on lending rate is in line with hypothesis. This implies that operating cost has significant contribution of the selected commercial banks' lending rate. This means that there is significant but negative relationship between operating cost and lending rate.

2. Bank size

¬ H2: There is significant positive relationship between Bank size and lending rate.

In line with model specifications, bank size was measured by the natural logarithm of bank total assets. Asset growth of the banks shows a positive and significant at 10% significant level impact in its relationship with the banks' lending rate. This implies that bank size was able to explain the rising bank lending rate, as a result of independent variable of bank size (β_1 = .0618) positively correlated with dependent variable of lending rate. Estimation result suggests that larger banks in terms of total asset tend to have high margins. This implies that an increase in the market share on the total asset in the industry, lead to higher power to rise the lending rates. This finding this study is consistent with Adoah (2015), which found a positive relationship between the size of a bank and lending rate. The statistically significant impact of asset size on lending rate is in line with (similler to) hypothesis. However, the estimation result shows bank size is insignificantly related with the commercial banks' lending rate. Itimu Itimu & Abdul (2018), in their study found that negative and insignificant relationship with lending rates of commercial banks.

3. Credit Risk

¬ H3: There is significant positive relationship between credit risk and lending rate.

Credit risk measured by non-performing loans to total loans and advances within the bank. Considering the regression model, the coefficient of the credit risk (β_1 =.7947) is positive in its relationship with the bank's lending rate and statistically significant at 10 % significant level. The relationship of credit risk to the lending rates shows that an increase in the quantity of non-performing loans leads to an increase of the lending rates of the commercial banks. Ethiopian banks during this period have given more importance to loan market share increase, which is reflected in the balance sheet position. During this period, the banks have increased the variety of loan products that offer, but have shortened the processing time, deriving from the increasing competition in loan market. In addition, NPLs shows a downward sloping in commercial banks in Ethiopia over the time of 2002-2013 (Anisa, 2015). According to empirical results such as (Alidu, 2012; Adoah, 2015, Yuga, 2006; and Ruth,2014) a positive correlation was expected which is

consistence to this finding. In some studies, made in Argentina and Peru (Brock & Rojas Suarez, 2000), it is concluded that the sign of the coefficient is negative, which means that the lending rate reacts negatively to a nonperforming loans' increase. The statistically significant and positive impact of credit risk on lending rate is consistence with the hypothesis.

4. Liquidity Risk

H4: There is significant positive relationship between liquidity risk and lending rate.

As expected the coefficient of Liquidity risk was measured by the total loans to total asset of the selected commercial banks. The coefficient of LIR (β_1=-.2543) was negative and statistically significant level (p-value= 0.071) at 10 % level of significance. The coefficient of liquidity risk implies that if the liquidity risk increased by 1% lending rate significantly decrease by 25.43%, which is inconsistence to the hypothesis of the study. Itimu & Abdul (2018), in their study found that negative and insignificant relationship with lending rates of commercial banks.

5. Reserve requirements:

- ✓ H5: There is significant positive relationship between reserve requirement and lending rate.

As expected the coefficient of reserve requirement which was measured by the deposit reserve requirement central bank to total asset ratio. It was negative (β_1 = -0.2831) and statistically significant (p-value= 0.076) at 10 % level of significance. The coefficient of reserve requirement implies that if the reserve requirement increased by 1% lending rate significantly decrease by 28.31%. This is in consistence to the hypothesis. This finding is inconsistent with (Zulfiqar et al., 2016; Adoah, 2015 and Tadiyos, 2018).

6. Bank Market Share

- ✓ H6: There is significant positive relationship between bank market share and lending rate.

The coefficient of Market share was measured by the ratio of the total assets of each bank to the sum of the total asset of the selected commercial banks under the study. The coefficient of MSh (β_1= .4314) was positive and statistically significant (p-value= 0.049) at 10 % level of significance.

The coefficient of market share implies that if the market share increased by 1% lending rate significantly increase by43.14%, which is consistence to the hypothesis in the study.

7. Inflation rate

- ✓ H7: There is significant negative relationship between inflation and lending rate.

Inflation measured by annual CPI. This variable (B=-.10720) has a negative relationship with the dependent variable /lending rate, which implies that an increase in the variable will not result in an increase in the lending rate vice visa. This indicates that a 1% increase in inflation rate will result in a 10.17% decrease in the commercial banks' lending rate. Besides, it is insignificance with the p value of 0.220. This means that in Ethiopian commercial bank do not base their lending rate on inflation. The countries with high inflation rate lead to unproductive banking sectors and equity markets. This adverse suggests that inflation reduces banks' lending to the private sector. This result implies that there is negative and not significant relationship between inflation and lending rate. Similar to this finding, when inflation increase lending rates becomes decline (Maudos & Guevara, 2004; Tadiyos, 2018).

8. Real GDP Growth

- ✓ H8: There is significant positive relationship between GDP and lending rate.

GDP measured by annual GDP rate. This variable (B = .2945) has a positive relationship with the dependent variable which implies that an increase in the variable will result in an increase in the lending rate and vice visa. This implies that a 1% increase in GDP will result in a 29.45% increase in the lending rate. Besides, it is not significant with the p value of 0.089 at 10 % level of significance. This means that in Ethiopian commercial bank do not base their lending rate on GDP. This result is consistent with the findings of Ruth (2014), who state that lending rates have a positive relationship with GDP. Her views indicate that when country economic condition (GDP) is flourishing, many investors will be willing to invest in that particular country and this will result in increased the demand for credit, where lenders will take advantage by asking for higher rate. The actual result shows that there was positive correlation between bank lending rate and GDP. This empirical result is inconsistent with Adoah, (2015) and Tadiyos (2018).

Chapter-Five

Conclusions and Recommendations

5.1. Introduction:

This chapter presents summary of the findings and conclusions of the study. Further, it discusses the recommendations provided to the banks management and policy makers depending on the findings of the study. Finally, the last section gives suggestions for area of further research.

5.2. Summary of the Findings.

The general objective of the study was to investigate the determinants of lending rate in Ethiopian selected private commercial banks. To achieve such broad objective, the study used quantitative research approach. The study applied descriptive statistics and multiple linear regression analysis to analyzed and identify the influences of determinant factors on lending rate of the nine sampled Ethiopia commercial banks. A sample of nine selected private commercial banks has been analyzed over the period from 2013- 2022based on the audited financial reports of the selected commercial banks as well as such reports from the national bank of Ethiopia. Regression analysis and descriptive statistics were employed on secondary data collected from NBE and sample banks yearly audited financial reports. Multiple linear regressions model was conducted by the ordinary least square and classical linear regression model assumptions test of the models no evidence for the presence of heteroscedasticity, multicolinearity and autocorrelation problem. The study shows the cause-effect relationship between the eight-determinant factors and lending rate of the selected private Ethiopian commercial banks using the correlation these eight-determinant factors include operating cost, Credit Risk, Bank size, Bank market share, Reserve Requirement, inflation rate, Gross domestic and liquidity risk.

Based on the hypothesis testing from the regression results, the actual sign of the explanatory variables is summarized as indicated below;

Table 5-1: Summary for Actual signs of Explanatory Variables

Variables	Description	Expected sign	Actual sign obtained
Lending rate (LR)	LR= Total interest income/ total amount of loan	NA	NA
Operating costs (OC)	Non-interest expense/Total asset	Positive and & significant	Negative & significant
Credit risk (CR)	Nonperforming loans/ Total loans	Positive & significant	Positive & significant
Liquidity risk(LIR)	Total Loans/total asset	Positive & significant	Negative & Significant
Bank size (BS)	Natural logarism of Value of banking asset	Positive & significant	Positive & not significant
Market share (MS)	Bank asset/Total assets in the banking industry under the study	Positive & significant	Positive & significant
Reserve Requirement (RR)	Required reserves at NBE/total assets	Positive & significant	Negative & significant
Inflation (INF)	Annual inflation rates	Negative & significant	Negative & not significant
GDP	Annual Gross domestic products	Positive & significant	Positive & significant

5.3. Conclusions

Based on the findings of the study, the following conclusions were drawn;

First, Regarding the bank specific factors such as credit risk, liquidity risk, operating cost and bank size; first, as it was expected that a positive and statistically significant relationship between credit risk and bank lending rate and it was statistically significant and positively affected the lending rate of the commercial banks. This relationship between credit risk and lending rate suggests that an increase in provision for loan losses implies a higher cost of bad debt write offs.

Second, the standard coefficient of operating cost has negative and statistically significant relation with lending rate. The negative relationship between operating cost and banks' lending rate shows that, banks operating with relatively small costs. As a result, the bank operates with relatively lower lending rate to cover those costs and maintain overall profitability as per the planned. This implies that operating cost has significant contribution on banks' lending rate.

Third, there is significant and positive correlation between bank size and lending rate. This means that when the size of bank becoming high when we compare from the other banks, it indicates that the total asset volumes becomes high as a result of this, from the total asset element loan able fund might be one element, due to such fact the bank easily influence on the lending rate because the capacity is greater on the market. However, from the regression result, bank size has insignificant contribution to the lending rates of the selected commercial banks.

Fourth, the theory suggests positive and significant relationship between liquidity risk and lending rate. This implies that as liquidity risk increases, lending rate of commercial banks increase and vice-verse. However, the result shows negative and not significant relationship between liquidity risk and lending rate. This implies that liquidity risk has not significant contribution to lending rates of the selected commercial banks.

Regarding with industry specific factors include bank market share and reserve requirement: the following conclusions were drawn. First, the correlation coefficient of bank market share was positive and statistically significant at 10 % level of significance. This implies that an increase in the market share on the total asset in the industry, lead to higher power to rise the lending rates. This means that market share has significant contribution on the selected private commercial

banks' lending rate. Second, the standard coefficient between reserve requirement and lending rate was not significant and negative relationships. This implies that reserve requirement has not significant contribution on lending rate. This result supported the reserve requirement maintained at central bank is not a loan able fund to the customer, as a result the effect of reserve on lending rate was negligible (not significant).

In line with macroeconomic variables, such as GDP and inflation, the regression coefficient estimation of GDP shows positive and significant, this implies that when GDP rise lending rates increases. This indicates GDP has significant contribution on lending rates of the selected commercial banks. This means that commercial banks does base their lending rate on GDP in Ethiopia. Second, the standard regression coefficient of inflation is negative and not significant, which implies that when inflation rise lending rates reduce. This implies that inflation rate has not significant contribution to the lending rates of the selected commercial banks under the study.

Finally, I Concluded that Credit risk and GDP growth have more similarity in there hypnosis with the Theory of Neo-classical of interest.

5.4. Recommendations

The Negative and significant impact of Reserve requirement on lending rate implies that it has significant contribution on lending rate activities of the commercial banks. Accordingly, Reserve requirement regulation which forced banks to preserve about 5% to 8% of the total deposit without earning any interest is currently affecting the private commercial banks' lending rate negatively. Hence, the central bank needs to revisit its policy or it should take some corrective actions like paying at least equivalent interest with that of the deposit rate paid for commercial bank's customers.

The results confirmed that operating cost has significant impact on banks' lending rate. Hence, commercial banks required to improve on their operational efficiency which is relevant to reduce operational cost to set reasonable lending rate and to minimize the levels of influence. This means that improving operational efficiency made by reducing operating expense using appropriate cost reduction strategies and improvement in asset quality will help to bring bank lending rate down. As a result, it attracts investors on the same time employment opportunity will also increase.

Credit Risk revealed that significant and positive relation with lending rate. As a result, the banks required to improve credit risk base lending rate because the empirical result shows that a unit change in credit risk results in 0 .794 on lending rate. Hence, banks required to aware when they set lending rates and diversifies their income portfolio from difference source other than depending only on lending rate incomes.

The results in Liquidity risk revealed that significant and negative relationship with lending rates. This implies that liquidity risk has significant contribution on lending rates of the selected commercial banks. As liquidity risk is a bank's inability to meet its cash and collateral obligations without sustaining unacceptable losses, the banks should improve their liquidity risk performance to enhance their lending capacity and have more interest income.

As Bank market share has significant and positive relationship with lending rate, it gives an opportunity to set reasonable lending rate which is important for the country expansion policy. The study established that banks that possess a greater market share charges high lending rate. In Ethiopia, the private commercial banking sector has relatively a fewer players and the industry still lacks comparability on market share. Hence, there is need for the private commercial banks to increase their market share interventions of total asset in order to eliminate monopolistic lending rate competition and to encouraging investments with high market share in the country.

In general, the findings of the study lead to an overall recommendation that all commercial banks should have to consider the effect of Operating cost, Credit Risk, Bank market share, Liquidity risk and reserve requirements in order to set reasonable lending rate arrangements which can be support their performance and the country's economic development.

5.5.4. Future Works of the Study Area

A further study into this area of research should take into consideration the addition of more determinant factors, an analysis of determinants indicators on the lending rates of commercial banks. An extended research into this area of study, which will consider the practices of lending rate management in commercial banks using the primary data, will support the robustness or otherwise of the findings and conclusions drawn from this study; and for future policy direction for individuals, businesses, institutions of state, and other countries which share similar economic

conditions. It will help in the in-depth understanding of the nature and determinants of the lending rate for the growth of commercial banks loans and advances in order to increase their profitability.

Significantly, it will be useful for the academia and persons who may be interested in appreciating the dynamics of the role macroeconomic indicators play in developing economies vis-à-vis determinants of lending rate management, their impact on commercial banks' profitability and performance, economic growth and development; and the contributions of deposit banks through the financial intermediation process. On the other hand, future research should also be carried out on the impact of high lending rate on the profitability of Ethiopian commercial bank. Furthermore, future research should undertake the same study by considering the newly emerging other determinant factors affecting lending rate in more Ethiopia commercial banks.

References

Adoah, I. (2015). Determinants of universal bank lending rate in Ghana. Unpublished Master's Thesis, University of Ghana.

Alidu, U. (2012). The determinants of lending rate in Ghana. Unpublished Master's Thesis Ghana Kwame Nkrumah University.

Anisa, U. (2015). Determinant of non-performing loan in Ethiopia. Unpublished Master's Thesis, AAU .

Armstrong, J. S. (2012). "Illusions in Regression Analysis". International Journal of Forecasting (forthcoming): **28** (3): 689.

Azeb, Sh. (2022). Determinants of Non-Performing Loan of Commercial Banks in Ethiopia; Master Project, Addis Ababa University College of Business and Economics Department of Accounting And Finance. Addis Ababa, Ethiopia.

Brooks, C. (2008). Introductory Econometrics for Finance, 2nd edition, Cambridge University Press, New York.

Dorothy, N. (2013). Interest Rate spreads in Uganda's banking Sector. International Journal of Economics and Finance;Vol.5, No 1.

Elshaday, T, Kenenisa, D.& Mohammed, S. (2018). Determinant of financial performance of commercial banks in Ethiopia: Special emphasis on private commercial banks; African Journal of Business Management, Vol. 12(1), pp. 1-10.

Fahad, N. (2015). Analysis of some inner factors affecting the lending rate and commercial bank behavior. Empirical study based on the commercial Banking sector of Pakistan, Vol.12/nr 4.

Fridah, G. (2011). Determinants of lending rate of commercial banking in Kenya. Unpublished Master's Thesis University of Nairobi , 13-15

Francis Z Mbao F.Z, C. Kapembwa, O. Mooka, T. Rasummen & J. Sichalwa (2014). Determinants of Banks lending rates in Zambia. A balance sheet approach, working paper RAP/02/2014.

Gujarati, d. (2004). Basic econometrics. Fourth edition.

Itimu, S. M. & Abdul, F. (2018). Determinants of average lending rates among selected commercial banks in Kenya. International Academic Journal of Economics and Finance, 3(1), 142-158.

Karanu, E. & Jackson, I. (2015). Effects of Operational cost on lending interest rates of commercial banks in Kenya, journal of business, economics and finance ISSN: 2146-7943.

Karim, Z., & Abdul-Karim, N. w.-S. (2011). Bank lending channel of monetary policy: Dynamic panel Stata study of Malaysia. Journal of Asia-Pacific Business,12(3).

Alkhazaleh, Kh., A.M. (2017). Factors may drive the commercial banks' lending: evidence from Jordan. Banks and Bank Systems, 12(2), 31-38. doi:10.21511/bbs.12(2).2017.03

Mbowe,W. A. Mrema, M & Shayo, S/ (2019). Determinants of Banks Lending Interest Rates in Tanzania: An Investigation Using Banks Balance Sheet Data; Bank of Tanzania working paper series (WP). No. 17.

Meshesha, D. (2016). Determinants of net interest margin in Ethiopia. Unpublished Master's Thesis .

Meyers, L. S., Gamst, G. & Guarino, A. J. (2006). Applied multivariate research: design and interpretation. Thousand Oaks, CA: Sage Publications, Inc.

Misganu, B. B. (2021). Determinants of Private Commercial Banks' Lending in Ethiopia; Master project, jimma university college of business and economics department of banking and finance, Jimma, Ethiopia.

Mohamed, A. (2016). Determinants of bank lending: case of Tunisia. International Journal of Finance and Accounting 2016, 5 (1) , 27-36.

Mohammad, A., Gharaibeh, O.& Omar, M. F. (2022). Determinants of bank lending rates: Empirical evidence from conventional retail banks in Bahrain. Banks and Bank Systems, 17(4), 140-153. doi:10.21511/bbs.17(4).2022.12.

Moses, O. (2014). The determinant of bank interest spreads in Ghana. International journal of economic behavior and organization 2(4), 49-57.

Mekonnen, Y. (2021) Firm-specific, industry-specific and macroeconomic determinants of commercial banks' lending in Ethiopia: Panel data approach, Cogent Economics & Finance, 9:1, 1952718, DOI: 10.1080/23322039.2021.1952718

Prasad, B. Bh. (2020). Bank Lending Determinants: Evidence from Nepalese Commercial Banks; International Journal of Management (IJM) Volume 11, Issue 10, October 2020, pp. 1-10.

Ruth, Z. (2014). Determinants of loan pricing of commercial banks in Kenya. unpublished Master's Thesis , 15-16.

Schreiber-Gregory, D. (2018). Logistic and Linear Regression Assumptions: Violation Recognition and Control; Henry M Jackson Foundation, Paper 130-2018.

Shikumo, D. H. & Mwangi, M. (2016). Determinants of Lending to Small and Medium Enterprises by Commercial Banks in Kenya; Journal of Economics and Finance (IOSR-JEF) e-ISSN: 2321-5933, p-ISSN: 2321-5925.Volume 7, Issue 4. Ver. IV (Jul. - Aug. 2016), PP 57-63.

Stevens, J. P. (2002). Applied multivariate statistics for the social sciences. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Tadiyos, Y. (2018). Determinants of Lending Rate of Private Commercial Banks in Ethiopia; Master Project, St. merry university college, Addis Ababa, Ethiopia.

Tsegay, G. B. (2020). Determinants of Commercial Banks' Lending Behavior: Case Study for Selected Commercial Banks in Ethiopia; International Journal of Sciences: Basic and Applied Research (IJSBAR) (2020) Volume 53, No 1, pp 194-211.

Ullah, M. Bh. (2021). Determinants of Commercial Bank Lending Rates in Bangladesh; BB Working Paper Series: WP No. 2021-03.

Yoseph, W. (2014). Determinants of Loans And Advances of Commercial Banks in Ethiopia; Master project, Jimma University College of Business And Economics Department of Banking and Finance, Jimma, Ethiopia.

Yuga, R. Bh. (2015). Determinants of lending Interest Rates of Nepalese Commercial Banks; Economic Journal of Development Issues Vol. 19 & 20 No. 1-2 Combined Issue.

Zenebe, A. A. (January, 2024). Determinants of Lending Interest Rate in Ethiopian Private Banks; Master Project, Addis Ababa University college of business and economics, Addis Ababa, Ethiopia.

Appendices

Appendix-I: Summary of the Commercial Banks' under the Study

S. No.	**Name of the Bank**	**Year of Establishment**
1	Awash International Bank	1994
2	Dashen Bank	1996
3	Bank of Abyssinian	1996
4	Wegagen bank	1997
5	United Bank.	1998
6	Nib International Bank	1999
7	Lion International Bank	2006
8	Oromia International bank	2008
9	Cooperative Bank of Oromia (SC.)	2005

Sources: Http://www.wikipedia.org/list of banks in Ethiopia

LR	CR	BS	LIR	OC	RR	MSh	INF	GDP
0.0081	0.023	23.0426	0.4487	0.1837	0.038	0.1099	9.57	19.0155
0.0094	0.023	25.0984	0.4455	0.1699	0.0383	0.1072	6.89	35.6818
0.0108	0.0257	23.3151	0.6733	0.174	0.0385	0.1111	4.46	20.9772
0.0121	0.0336	24.5958	0.4912	0.1786	0.0389	0.107	20.36	22.2364
0.0127	0.0247	23.7957	0.5343	0.0542	0.0399	0.1083	10.69	23.5703
0.1215	0.0392	22.8536	0.5196	0.0349	0.0415	0.1111	13.65	27.8073
0.1127	0.054	24.3819	0.5892	0.0367	0.0577	0.1088	15.81	29.4891
0.1211	0.0439	24.1142	0.6193	0.041	0.0406	0.1111	6.63	19.686
0.1067	0.0375	24.8694	0.4901	0.0429	0.0582	0.1111	26.84	44.5648
0.1284	0.0411	23.483	0.6771	0.0452	0.0399	0.1111	33.89	53.0337

B

Panel ID	Time	ASSET	LOANS	DEPOSIT	CAPITAL	NPLs	Reserve at NBE	total Assets
AIB	2013	14,859,000,000.00	7,710,000,000.00	12,545,000,000.00	2,011,000,000.00	177,233,000.00	627,250,000.00	87,643,549,286.00
AIB	2014	20,028,787,000.00	9,176,359,000.00	15,039,714,000.00	2,525,448,000.00	289,972,944.40	751,985,700.00	104,249,329,000.00
OIB	2015	9,534,843,000.00	4,706,574,000.00	7,290,291,000.00	985,229,000.00	54,500,000.00	364,514,550.00	
OIB	2016	11,281,582,000.00	5,165,747,000.00	9,348,099,000.00	1,317,817,000.00	169,610,000.00	467,404,950.00	
BOA	2013	10,129,000,000.00	4,702,000,000.00	8,496,146,000.00	1,107,631,000.00	129,840,000.00	424,807,300.00	
BOA	2014	11,276,000,000.00	5,061,000,000.00	9,096,476,000.00	1,528,965,000.00	159,927,600.00	454,823,800.00	
WB	2015	13,711,358,000.00	6,071,915,000.00	9,870,944,000.00	2,414,372,000.00	246,130,000.00	493,547,200.00	
WB	2016	16,189,162,000.00	7,506,215,000.00	11,078,545,000.00	2,805,773,000.00	127,570,000.00	553,927,250.00	
UB	2013	9,977,669,000.00	4,710,762,000.00	8,063,473,000.00	1,201,146,000.00	119,214,340.00	403,173,650.00	
UB	2014	11,876,365,000.00	5,069,623,000.00	8,904,981,000.00	1,575,270,000.00	87,704,477.90	445,249,050.00	
NIB	2015	13,256,122,000.00	6,894,044,000.00	9,774,114,000.00	2,177,302,000.00	219,100,000.00	488,705,700.00	
NIB	2016	15,830,377,000.00	7,511,984,000.00	12,423,021,000.00	2,517,955,000.00	301,820,000.00	621,151,050.00	
CBO	2013	6,538,717,000.00	2,116,060,000.00	4,465,040,000.00	695,989,000.00	49,680,000.00	223,252,000.00	
CBO	2014	7,351,132,000.00	3,644,115,000.00	5,450,095,000.00	1,090,374,000.00	65,958,481.50	272,504,750.00	
CBO	2017	17,639,880,000.00	10,018,040,000.00	14,272,670,000.00	1,281,700,000.00	505,050,000.00	713,633,500.00	
LIB	2013	2,942,429,000.00	1,318,064,000.00	2,105,861,000.00	541,943,000.00	13,570,000.00	105,293,050.00	
LIB	2014	3,613,333,000.00	1,541,166,000.00	2,686,983,000.00	627,819,000.00	30,977,436.60	134,349,150.00	

Inflation Rates	GDP	Min.& max rates	local amounts	Percent of reserves

C

2022	33.89	**$105,776,000,000**	**53.0337**	**5609692651200.00**	7%
2021	26.84	**$100,435,000,000**	**44.5648**	**4475865688000.00**	7.25%
2020	20.36	**$95,071,776,945**	**35.6818**	**3392332130596.10**	5%
2019	15.81	**$89,640,012,689**	**29.4891**	**2643403298187.19**	5%
2018	13.65	**$82,721,145,212**	**27.8073**	**2300251701253.65**	5%
2017	10.69	**$77,442,546,767**	**23.5703**	**1825344060062.22**	5%
2016	6.63	**$70,682,352,527**	**22.2364**	**1571721063731.38**	5%
2015	9.57	**$64,589,329,345**	**20.9772**	**1354903279535.93**	5%
2014	6.89	**$58,508,821,687**	**19.6860**	**1151804663730.28**	5%
2013	4.46	**$53,065,619,502**	**19.0155**	**1009069287640.28**	5%

D