ADDIS ABABA UNIVERSITY COLLEGE OF BUSINESS AND ECONOMICS

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Determinants of Agricultural Loan by Commercial Banks in Ethiopia: A Case of Three Selected Commercial Banks

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A thesis submitted to the School of Graduate Studies of Addis Ababa University in partial fulfillment of the requirements for the Degree of Master of Science in Corporate Finance, with a specialization in Investment Management

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DECLARATION

I, Ayenew Negusse Gebre, hereby declare that this thesis entitled "Determinants of Agricultural Loan by Commercial Banks in Ethiopia: A Case of three Selected Commercial Banks" is my original work and has been carried out independently, except for quotations and references which have been properly acknowledged.

I further declare that this thesis has not been submitted, either in part or in full, to Addis Ababa University or any other institution for the purpose of any academic award or qualification.

STATEMENT OF CERTIFICATE

This is to certify that the thesis entitled **"Determinants of Agricultural Loan by Commercial Banks in Ethiopia: A Case of Three Selected Commercial Banks"** was undertaken by **Ayenew Negusse Gebre** for the partial fulfillment of the requirements for the degree of Master of Science in Corporate Finance with a specialty in Investment Management at Addis Ababa University. To the best of my knowledge, this thesis is an original work and has not been submitted for any degree at Addis Ababa University or any other university. It is hereby submitted with my approval as a thesis.

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Name of Advisor	Signature	Date

STATEMENT OF CERTIFICATION OF ORIGINALITY AND QUALITY

This is to certify that the thesis prepared by **Ayenew Negusse Gebre**, entitled: **"Determinants of Agricultural Loan by Commercial Banks in Ethiopia: A Case of Three Selected Commercial Banks"**, and submitted in partial fulfillment of the requirements for the Degree of Master of Science in Corporate Finance with a specialty in Investment Management, complies with the regulations of Addis Ababa University and meets the accepted standards concerning originality and quality.

Advisor: _____ Signature _____ Date_____

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External Examiner: _____ Signature _____ Date_____

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LIST OF ACRONYMS / ABBREVIATIONS

Acronym	Full Term
AL	Agricultural Loan
BS	Bank-Specific Factors
BSF	Borrower-Specific Factors
ECF	Environmental and Climate Factors
EI	Economic Indicators
IMF	International Monetary Fund
NBE	National Bank of Ethiopia
PIF	Political and Institutional Factors
RE	Regulatory Environment
RM	Risk Management
SPSS	Statistical Package for the Social Sciences
GDP	Gross Domestic Product
FAO	Food and Agriculture Organization (of the United Nations)
ADB	African Development Bank
UNDP	United Nations Development Programme
BIC Africa	Business Incubator Communities Africa
ACCs	Agricultural Commercialization Clusters

Abstract

This study examines the key factors influencing agricultural lending by commercial banks in Ethiopia, a sector vital to the economy yet underserved financially. Using survey data from credit officers and analysts, it analyzes seven dimensions—ranging from bank-specific and borrower-specific factors to broader economic, regulatory, and environmental conditions—through multiple linear regression. The findings show that bank-specific factors, risk assessment and management, political and institutional conditions, and environmental and climate factors significantly impact lending decisions, while borrower characteristics, regulatory frameworks, and economic indicators are less influential. The study concludes that institutional capacity and external macro-level factors play a greater role in shaping agricultural finance than individual borrower attributes, highlighting the need for stronger institutional frameworks, risk-sharing mechanisms, and targeted policy reforms to enhance credit access in the agricultural sector.

Keywords: agricultural Loan, commercial banks, Ethiopia, lending decisions, risk assessment

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Agriculture continues to serve as the backbone of the Ethiopian economy, sustaining livelihoods, contributing to economic output, and ensuring food security for a rapidly growing population. With over 70 million people residing in rural areas and depending directly or indirectly on farming, the sector plays a vital role in both national and household economic well-being. In quantitative terms, the agricultural sector contributes approximately 43% to Ethiopia's Gross Domestic Product (GDP), generates more than 80% of the country's foreign exchange earnings, and provides employment for about 85% of the population (Ebenezer et al., 2019; Osman Nabay et al., 2022). It also supplies the raw materials for agro-processing industries and ensures the domestic supply of food and exportable commodities such as coffee, oilseeds, pulses, and horticultural products.

Despite its strategic importance, the performance of the agricultural sector has been suboptimal. Agricultural productivity remains low compared to sub-Saharan African averages, and growth has been uneven across subsectors (FAO, 2021). Much of Ethiopia's agriculture is subsistence-based, rain-fed, and exposed to environmental shocks such as recurrent droughts, erratic rainfall, pest infestations, and land degradation (UNDP, 2023). These structural vulnerabilities are compounded by the limited availability of modern agricultural technologies, inefficient extension services, poor rural infrastructure, and weak market linkages.

A major bottleneck to unlocking the productive potential of Ethiopian agriculture is the chronic shortage of financial resources. Credit is a critical input for modern agriculture. It enables farmers to invest in inputs (such as improved seeds, fertilizers, pesticides, and irrigation systems), adopt better technologies, hire labor, and expand production (ADB, 2021). However, access to formal financial services, especially credit from commercial banks, remains severely limited for the vast majority of farmers in Ethiopia. This is particularly true for smallholder farmers, who account for over 90% of the country's agricultural output.

Empirical data show a troubling trend: despite agriculture's centrality to the economy, the share of loans allocated to the sector by commercial banks has declined in recent years. In 2022, agricultural loans accounted for 28.8% of total bank credit, but this figure dropped significantly to 18.7% in 2023 (National Bank of Ethiopia, 2024). This decline reflects an underlying reluctance among financial institutions to engage with the sector, largely due to its perceived high risk and low profitability. Unlike urban-based businesses that operate in regulated and structured environments, agriculture is often seen as unpredictable, un-bankable, and exposed to systemic shocks beyond the control of farmers or financial institutions.

Several key challenges constrain commercial banks' participation in agricultural loan. These include the seasonal and uncertain nature of agricultural income, lack of appropriate insurance products, high transaction costs of servicing rural clients, inadequate rural infrastructure, limited financial literacy among farmers, and insufficient collateral (BIC Africa, 2023; MMA, 2023). Most banks still require immovable assets—such as titled land or urban property—as collateral, which rural farmers typically do not possess. Furthermore, the diversion of agricultural loans to non-productive or consumer uses undermines repayment rates and further discourages lending to the sector.

On the institutional front, the National Bank of Ethiopia (NBE) has introduced various reforms aimed at improving access to credit. These include the promotion of financial inclusion strategies, development of a movable collateral registry system, and efforts to enhance the capacity of rural financial institutions (NBE, 2024). The government has also launched several initiatives, such as the Agricultural Commercialization Clusters (ACCs), the National Financial Inclusion Strategy (NFIS), and credit guarantee schemes in partnership with development partners, to reduce the risks borne by lenders. However, these efforts have not yielded sufficient results, and commercial banks remain cautious in their engagement with the sector.

The reluctance of commercial banks to finance agriculture is shaped by a complex mix of internal and external factors. Internal factors include credit policies, risk management frameworks, capital adequacy, and lending strategies of the banks themselves. These institutional arrangements affect how banks evaluate risk, assess loan applications, and determine

creditworthiness. Additionally, borrower-specific factors such as farming experience, financial literacy, recordkeeping, and trustworthiness influence the outcomes of loan applications. On the other hand, external factors such as macroeconomic stability, inflation, interest rate volatility, government policies, infrastructure development, market access, and climate variability play a crucial role in shaping the broader environment in which credit decisions are made.

As the Ethiopian economy continues to evolve, and with increasing emphasis on agricultural commercialization, rural industrialization, and inclusive finance, it becomes necessary to understand the dynamics that drive or hinder commercial bank financing to agriculture. Addressing this gap is not only critical for transforming the rural economy but also for achieving the Sustainable Development Goals (SDGs), especially those related to poverty reduction, food security, and inclusive growth (UNDP, 2025).

Given this multifaceted context, this study seeks to explore the key determinants, both internal and external, that influence commercial banks' willingness and ability to provide agricultural credit in Ethiopia. By focusing on selected commercial banks, the study aims to generate evidence-based insights that can inform banking strategies, policymaking, and future research on agricultural finance in Ethiopia.

1.2 Statement of the Problem

Agriculture has historically served as the backbone of Ethiopia's economy, employing approximately two-thirds of the labor force and contributing significantly to national output. However, recent trends show a notable decline in agriculture's share of GDP—from about 54% in 2000 to between 32% and 36% by 2023 (African Development Bank, 2024; Statista, 2024). While part of this decline reflects Ethiopia's structural transformation toward industrialization and services, it also signals deeper issues within the agricultural sector—specifically, lagging productivity, underinvestment, and constrained access to finance.

A core challenge contributing to this decline is the persistent financing gap within the agricultural sector. Farmers, particularly smallholders and emerging commercial producers, require access to capital to invest in modern inputs, irrigation, mechanization, storage facilities,

and technologies that drive productivity and resilience. However, they often remain excluded from formal financial systems.

According to the National Bank of Ethiopia (2024), commercial banks have shown limited participation in agricultural lending. This limited engagement is driven by several perceived and actual risks, including climate variability, price volatility, and weak rural infrastructure. Most commercial banks also maintain strict collateral requirements, typically demanding immovable assets like titled urban land, which most farmers do not possess.

In addition to the lack of collateral, farmers often lack formal credit histories and financial literacy. This combination makes them less attractive to banks and limits their ability to access financing. Consequently, many are unable to expand production, adopt new technologies, or manage climate-related shocks—further weakening the sector's contribution to GDP and economic development.

From the perspective of financial institutions, agriculture is considered a high-risk sector. Unpredictable weather patterns, fluctuating commodity prices, and inadequate infrastructure contribute to high default risks. The absence of crop insurance schemes, reliable credit information systems, and high loan processing costs further discourage banks from extending credit to agricultural clients.

Recent studies confirm that assessing the creditworthiness of agricultural borrowers is inherently complex (Gutama & Bozoğlu, 2022; BIC Africa, 2023). Unlike urban borrowers with stable income streams and asset-backed portfolios, farmers operate in volatile environments where yields and income are uncertain. This complexity often leads banks to prioritize lending to sectors perceived as more stable and less costly to manage.

In the Ethiopian context, the constraints surrounding Agricultural Loan can be broadly categorized into two dimensions: Internal (bank-specific) factors: These include credit policies, risk management procedures, institutional capacity, and the overall appetite for risk in agricultural portfolios. External factors: These include borrower-specific characteristics (such as credit history and literacy), government regulations, macroeconomic conditions (such as inflation and interest rates), and environmental uncertainties.

Despite various government initiatives, such as credit guarantee schemes, financial inclusion strategies, and collateral reforms, financing gaps remain persistent, particularly for rural and commercial farmers who need medium- to long-term credit to modernize their operations (National Bank of Ethiopia, 2024; UNDP, 2025).

While numerous studies have explored agricultural credit in developing countries, most focus on microfinance institutions or government-led programs. There remains a significant empirical gap concerning the determinants of agricultural lending decisions by commercial banks in Ethiopia. Specifically, limited research has been conducted to examine how both internal banking practices and external macroeconomic and institutional factors jointly affect commercial banks' engagement with the agricultural sector.

This financing gap not only limits farmers' access to critical investment resources but also directly impacts national agricultural productivity and GDP. Without adequate funding, farmers cannot modernize, scale operations, or adapt to climate risks—ultimately constraining the sector's contribution to economic growth, employment, and food security.

Understanding the multifaceted determinants of Agricultural Loan decisions by commercial banks is essential. It is key to address systemic credit delivery challenges and to design evidence-based policies that promote sustainable agricultural development and broader economic transformation in Ethiopia.

1.3 Research Questions

i. How do bank-specific factors- such as bank size, liquidity, and risk assessment practices affect the provision of agricultural loans by commercial banks in Ethiopia?
ii. In what ways do borrower characteristics such as farming experience, credit history, and financial literacy influence their eligibility for Agricultural Loan?
iii. How do macroeconomic conditions, particularly inflation and interest rates, impact the terms and accessibility of agricultural loans?
iv. How do regulatory and institutional frameworks including collateral requirements, central bank directives, and political stability shape commercial banks' willingness to finance agriculture?

v. To what extent do environmental risks and risk mitigation tools such as climate variability, crop insurance, and agricultural extension services Affect banks' agricultural lending decisions?

These questions are designed to explore the multifaceted aspects of Agricultural Loan by commercial banks in Ethiopia, providing a comprehensive understanding of the factors that facilitate or hinder access to agricultural credit.

1.4 Objectives of the Study

Access to adequate and timely Agricultural Loan is widely recognized as a key enabler of agricultural transformation and economic development in Ethiopia. However, multiple constraints continue to limit commercial banks' engagement with the agricultural sector. Understanding the range of internal and external factors that influence lending decisions is essential for identifying strategic interventions to improve credit access for farmers. This study, therefore, sets out the following research objectives:

1.4.1 General Objective

To assess the key determinants influencing the provision of Agricultural Loan by commercial banks in Ethiopia, with a particular focus on selected institutions and their lending practices toward the agricultural sector.

1.4.2 Specific Objectives

i. To assess how bank-specific factors including size, liquidity, and risk assessment practices influence agricultural loan decisions.
ii. To evaluate the impact of borrower characteristics such as farming experience, credit history, and financial literacy on access to Agricultural Loan.
iii. To examine how economic conditions, particularly inflation and interest rates, affect agricultural loan terms and availability.
iv. To analyze the role of regulatory and institutional frameworks including collateral requirements, loan directives, and political stability in shaping banks' willingness to finance agriculture.

v. To determine how environmental risks and the availability of mitigation tools such as crop insurance and extension services influence commercial banks' agricultural lending behavior.

By addressing these objectives, the study aims to provide a comprehensive understanding of the determinants of Agricultural Loan by commercial banks in Ethiopia, which can inform policy decisions and strategies to improve access to agricultural credit.

1.5 Research Hypotheses

Based on the literature review and the study's conceptual model, the following hypotheses are proposed:

H1: Bank-specific factors have a significant positive effect on the provision of agricultural loans by commercial banks.
H2: Favorable economic indicators significantly enhance agricultural loan provision by commercial banks.
H3: A conducive regulatory environment significantly promotes agricultural loan provision by commercial banks.
H4: Effective risk assessment and risk management practices significantly increase agricultural loan provision by commercial banks.
H5: Borrower-specific characteristics significantly influence the provision of agricultural loans by commercial banks.
H6: Political and institutional support significantly increases agricultural loan provision by commercial banks.
H7: Environmental and climate-related risks significantly affect the provision of agricultural loans by commercial banks.

1.6 Significance of the Study

The significance of this study on 'Determinants of Agricultural Loan by Commercial Banks in Ethiopia: A Case of Some Selected Commercial Banks' lies in its ability to help us understand some important underlying factors regarding how commercial banks provide Agricultural Loan

in Ethiopia. Mathewos (2019) stated that the agricultural sector serves as the lifeblood of the Ethiopian economy, making up a significant proportion of Ethiopia's GDP and providing employment. However, access to credit continues to be a key barrier to adopting technologies and implementing productive farming practices (WoldeKidan et al., 2017).

The study`s findings will offer valuable guidance to policymakers and financial institutions, identifying the elements that significantly promote or hinder access to agricultural finance. With this detailed insight they will be able to create better, more tailored strategies and policies which address the customized financial needs of the agricultural sector. In addition, the recommendations made in this study are likely to assist commercial banks in Ethiopia in creating and implementing customized and innovative financial products that address the specific needs of farmers. Moreover, these banks can initiate focused training programs that would aid farmers in familiarizing themselves with agricultural loan products, thus enhancing their financial literacy and facilitating their understanding of the details of agricultural loan products and repayment terms.

1.7 Scope and Limitations of the Study

This study investigates the determinants of Agricultural Loan by selected commercial banks in Ethiopia, focusing on both internal and external factors influencing lending decisions. The research primarily targeted credit officers and analysts working in these banks, as they are directly involved in evaluating and approving agricultural loans. The study was conducted in 2025 and focused on Head offices` of commercial banks operating in Ethiopia, Addis Ababa.

The scope of the study was limited to three commercial banks, excluding microfinance institutions and government-supported rural credit agencies. This decision was based on the increasing role of commercial banks in formal credit delivery and their influence on the future of agricultural finance in Ethiopia. The study used purposive sampling to identify respondents with relevant experience in credit analysis, Agricultural Loan, and risk assessment.

However, several limitations were encountered. First, access to confidential bank records, including actual loan applications and performance reports, was restricted due to the sensitive nature of such information. As a result, the research relied on self-reported data in the form of

survey questionnaire from bank professionals who are engaged in credit process. While these insights are valuable, they may not fully capture the practical complexities of real-life lending scenarios. Second, the study was unable to include the perspectives of agricultural loan applicants or farmers due to political instability in some rural areas and logistical constraints. This limitation prevented a balanced analysis that could have incorporated the demand-side perspective of agricultural finance. Additionally, the reliance on purposive sampling and the relatively small sample size may affect the generalizability of the findings to all commercial banks in Ethiopia.

Despite these limitations, the study provides meaningful insights into the decision-making processes of commercial banks and highlights key barriers to improving agricultural finance in Ethiopia.

1.8 Operational Definitions of Key Terms

a. **Agricultural Loan-** Agricultural loan refers to credit or financial services provided by commercial banks specifically for agricultural purposes such as crop production, livestock, farm machinery, irrigation, and agro-processing. It is measured by loan volume, approval rate, and loan disbursement records for agricultural clients.
b. **Bank-Specific Factors**-Bank-specific factors are characteristics internal to the bank that influence lending decisions. These include bank size, capitalization level, liquidity position, capital adequacy, internal strategy, and mission orientation. These are measured using Likert-scale items reflecting respondent perceptions.
c. **Economic Indicators-** Economic indicators refer to macroeconomic variables such as GDP growth rate, interest rate levels, inflation rate, and exchange rate stability that influence agricultural loan provision. These are assessed through respondent agreement and perception on how these indicators impact lending decisions**.**
d. **Regulatory Environment**- Regulatory environment refers to the policy and legal framework governing banking operations, particularly those issued by the National Bank of Ethiopia. It includes collateral requirements, interest rate controls, and capital adequacy directives. It is measured by respondents' perceptions of how regulations affect lending.

e. **Risk Assessment and Management**- Risk assessment and management involves the systems and processes used by banks to evaluate, mitigate, and manage risks associated with agricultural loans. This includes credit risk, production risk, market risk, and the use of risk-sharing mechanisms such as insurance and guarantees.
f. **Borrower-Specific Factors**- Borrower-specific factors are attributes and characteristics of the loan applicant, such as credit history, financial literacy, business experience, collateral capacity, and documentation quality. These are measured using perception-based responses from loan officers.
g. **Political and Institutional Factors**- Political and institutional factors include the influence of political stability, government agricultural policies, subsidies, loan guarantees, and institutional support such as cooperatives and extension services on banks' lending decisions.

1.9 Organization of the Report

This research is organized into five interrelated chapters, each contributing to a comprehensive understanding of the determinants of Agricultural Loan by commercial banks in Ethiopia. Chapter One introduces the study by outlining the background, articulating the research problem, and highlighting its significance. It also presents the research objectives, hypotheses, and the scope and limitations of the study. Chapter Two provides a detailed review of relevant theoretical frameworks and empirical studies, offering insights into the dynamics of Agricultural Loan based on existing literature. Chapter Three describes the research methodology, including the study design, sampling techniques, data collection procedures, and the analytical methods employed. Chapter Four presents and interprets the findings, supported by descriptive and inferential statistical analysis to identify key patterns and relationships. Finally, Chapter Five summarizes the major findings, discusses their implications for policy and practice, and offers recommendations for future research aimed at improving access to agricultural finance in Ethiopia.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

Agriculture remains the backbone of the Ethiopian economy, contributing significantly to GDP, employment, and export earnings. However, despite its crucial role, the agricultural sector in Ethiopia continues to face major financial constraints, particularly in accessing adequate and timely credit from commercial banks. Agricultural Loan plays a vital role in ensuring the sustainability and productivity of the sector, but it remains one of the most underfinanced sectors by formal financial institutions in Ethiopia.

Commercial banks, as key players in the financial system, have the potential to provide much-needed credit to support agricultural activities. Nonetheless, their engagement in Agricultural Loan is often limited by a complex set of factors ranging from borrower-related characteristics to institutional, political, and environmental conditions. Understanding the determinants that influence commercial banks' decisions to finance agriculture is essential for addressing the credit gap and promoting inclusive economic development.

This chapter provides a comprehensive review of the existing literature related to Agricultural Loan with a specific focus on the factors that affect the willingness and ability of commercial banks to lend to the agricultural sector. It begins by exploring theoretical frameworks that underpin agricultural credit and financial intermediation. The chapter then examines empirical studies on borrower-specific factors, bank-specific factors, political and institutional influences, and environmental or climate-related risks. The review highlights both global and Ethiopian contexts to identify key determinants and gaps in the existing body of knowledge that the current study seeks to address.

2.2 Review of Theories

Agricultural Loan is pivotal for enhancing productivity, ensuring food security, and fostering economic development in Ethiopia. Understanding the theoretical underpinnings that influence commercial banks' lending decisions to the agricultural sector is essential. This section delves into key theories that elucidate the determinants of agricultural loans by commercial banks

2.2.1 Financial Intermediation Theory

Financial Intermediation Theory explains the vital role that financial institutions—particularly banks—play in bridging the gap between savers and borrowers. According to this theory, financial intermediaries exist to reduce transaction costs, mitigate information asymmetry, and manage risk, thereby enabling the efficient allocation of capital in an economy (Freixas & Rochet, 2020). The central premise is that banks, by pooling savings and extending credit, facilitate economic activities that would otherwise be constrained by financing gaps.

One of the earliest formulations of the theory came from Gurley and Shaw (1960), who argued that financial intermediaries are critical in mobilizing and reallocating funds from surplus units (savers) to deficit units (investors or borrowers). Banks are considered more efficient than individual lenders due to economies of scale in screening borrowers, monitoring loans, and enforcing contracts. In the context of Agricultural Loan, where borrowers are often dispersed, lack formal credit histories, and face volatile income streams, banks serve a unique role in managing risk and facilitating access to capital.

The theory has since evolved to emphasize the intermediary's role in resolving information problems, which are particularly acute in rural and agricultural finance. As noted by Allen and Santomero (2001), financial intermediaries reduce the costs associated with adverse selection and moral hazard by applying standardized lending criteria, developing credit-scoring systems, and requiring collateral. However, in low-income countries like Ethiopia, such tools are often underdeveloped or inapplicable to informal, subsistence-based agriculture.

In the Ethiopian context, financial intermediation remains underdeveloped, particularly in rural and agricultural areas. Despite the country's heavy reliance on agriculture—contributing over 30% of GDP and employing about 65% of the labor force—access to formal credit remains severely limited for farmers (National Bank of Ethiopia [NBE], 2022). Commercial banks often find it unprofitable or too risky to lend to smallholder farmers, who typically lack collateral, have irregular cash flows, and are exposed to natural shocks such as droughts and floods. According to Bekele and Desta (2021), the weak link between financial intermediaries and rural borrowers in Ethiopia is a major barrier to agricultural development.

Financial Intermediation Theory thus offers a strong foundation for understanding the determinants of agricultural lending. It posits that the efficiency and capacity of banks as intermediaries directly affect their willingness and ability to lend to risky sectors like agriculture. In this regard, institutional constraints—such as lack of rural banking infrastructure, absence of agricultural insurance, and limited credit information systems—can hamper the intermediation process. Furthermore, when the cost of risk mitigation (such as borrower screening and loan monitoring) exceeds potential returns, banks may choose to ration credit or exclude smallholder farmers altogether (Alebachew & Roba, 2024).

Moreover, the theory also highlights the importance of financial innovation and policy support to enhance intermediation. New models such as mobile banking, warehouse receipt systems, and group lending (as used in microfinance) can lower transaction costs and expand credit access. In Ethiopia, recent efforts by the government and development partners to strengthen rural financial institutions, digitize banking services, and improve the legal framework for collateral registration are steps in line with the financial intermediation approach (Ghebru & Girmachew, 2022).

In summary, Financial Intermediation Theory provides a theoretical lens through which the limited provision of agricultural loans by commercial banks in Ethiopia can be examined. It helps explain how institutional weaknesses, borrower characteristics, and risk management challenges impede the flow of credit to the agricultural sector. As such, improving the capacity and incentives of financial intermediaries is essential for addressing the credit constraints facing Ethiopian farmers.

2.2.2 Credit Rationing Theory

Credit Rationing Theory, as developed by Stiglitz and Weiss (1981), is one of the most influential frameworks in understanding why lenders may deny credit to borrowers, even when the borrowers are willing to pay higher interest rates. The theory challenges the classical notion that credit markets clear through interest rate adjustments and posits that information asymmetry, adverse selection, and moral hazard are fundamental causes of credit rationing in financial markets. This theory is particularly relevant to Agricultural Loan in developing countries like Ethiopia, where market imperfections and high lending risks prevail.

According to the theory, adverse selection occurs when banks cannot perfectly distinguish between low-risk and high-risk borrowers due to lack of information. If interest rates are increased, safer borrowers may withdraw from the market, leaving only risky borrowers who are more likely to default. Similarly, moral hazard arises when borrowers, once they have obtained credit, engage in riskier behavior than initially disclosed or intended, knowing that losses may be borne by the lender. These conditions prompt lenders to limit credit supply or deny credit applications, regardless of borrowers' willingness to pay higher rates (Stiglitz & Weiss, 1981).

In the context of agricultural lending in Ethiopia, credit rationing is a persistent challenge. Many smallholder farmers operate informally, lack verifiable financial records, and possess limited or no collateral, making it difficult for banks to assess their creditworthiness (Gebeyehu et al., 2020). The nature of agriculture—characterized by seasonal incomes, susceptibility to weather shocks, and price volatility—further increases the perceived risk by banks. As a result, commercial banks may ration credit by offering smaller loan amounts than requested, requiring stringent collateral, or excluding certain categories of borrowers altogether.

The Ethiopian financial system is also marked by underdeveloped credit information systems and weak enforcement of lending contracts, which exacerbate asymmetric information problems. A study by Woldemichael and Mekonnen (2023) found that rural borrowers in Ethiopia are frequently excluded from formal credit channels, not due to interest rate issues, but because of lenders' concerns over repayment capacity and insufficient guarantees. This supports the main tenets of credit rationing theory—that even with a demand for credit, supply may not respond due to perceived risks.

Credit rationing can also be non-price based, meaning that lenders use quantity restrictions or screening criteria rather than interest rates to manage lending risk. For example, banks may favor urban or commercial farmers with better records and assets, while excluding subsistence farmers. This selective credit allocation limits the growth potential of the agricultural sector, which is largely composed of smallholders who depend on external financing to adopt new technologies, purchase inputs, and invest in productivity improvements (Alemayehu & Kassahun, 2022).

Furthermore, credit rationing theory implies that policy interventions are necessary to correct market failures. Governments and development partners can play a role by subsidizing agricultural credit, guaranteeing loans through credit guarantee schemes, or improving rural infrastructure and credit information systems. In Ethiopia, recent efforts to register land-use rights (LIFT program), digitize banking services, and establish credit reference bureaus are steps toward reducing asymmetric information and easing credit rationing (Ghebru & Girmachew, 2022).

In summary, Credit Rationing Theory offers a strong theoretical basis for understanding the limited access to agricultural finance by smallholder farmers in Ethiopia. It highlights how imperfect information, risk perception, and non-price credit allocation mechanisms contribute to constrained lending by commercial banks. Recognizing these limitations is vital for designing interventions that can enhance access to agricultural loans and support inclusive rural development.

2.2.3 Asymmetric Information Theory

Asymmetric Information Theory is one of the foundational concepts in modern financial economics and plays a central role in understanding the dynamics of lending, particularly in credit-constrained environments such as agricultural finance. This theory posits that in many lending relationships, the borrower typically holds more information about their ability and willingness to repay a loan than the lender. This imbalance of information gives rise to two key problems: adverse selection and moral hazard (Akerlof, 1970; Stiglitz & Weiss, 1981).

Adverse selection occurs before a loan is issued, where banks face difficulty in distinguishing between low-risk and high-risk borrowers due to lack of reliable financial data. In agricultural lending, this issue is worsened by the informal nature of most farm operations, lack of audited financial records, and absence of credit histories. As a result, lenders may be reluctant to extend credit or may do so only under very stringent conditions. On the other hand, moral hazard arises after the loan is granted when the borrower may change their behavior in ways that increase the lender's risk—such as using the funds for unintended purposes or neglecting proper farm management—because the bank cannot perfectly monitor the borrower's actions (Jaffee & Russell, 1976).

In the context of Ethiopia, asymmetric information is a major constraint in the expansion of agricultural credit. Many smallholder farmers do not keep records of their farming activities and rarely have formal employment or fixed income sources. Furthermore, the rural banking infrastructure is limited, and Ethiopia's credit information systems are still in the early stages of development. These realities significantly limit banks' ability to conduct due diligence, making agricultural loans inherently riskier (Demissie & Teshome, 2021).

According to Alemayehu and Kassie (2023), one of the leading causes of loan rejection among rural borrowers in Ethiopia is the inability of banks to accurately assess the borrower's creditworthiness. This is consistent with asymmetric information theory, which suggests that when lenders are unable to verify borrower information, they respond conservatively by either reducing the loan amount or denying the application altogether. Such cautious behavior helps protect the bank but leads to sub-optimal credit allocation and underinvestment in agriculture.

Moreover, the lack of credit registries or comprehensive borrower databases in Ethiopia means that financial institutions must rely heavily on relationship-based lending or require collateral. However, most smallholder farmers do not possess legally recognized land titles or valuable movable assets to pledge. This further deepens the asymmetry and leads to exclusion from formal finance (Ghebru & Girmachew, 2022). In turn, the market for agricultural loans becomes characterized by unmet demand and persistent credit gaps.

Asymmetric information theory also explains why financial institutions often favor urban, salaried, or corporate clients over agricultural borrowers. These preferred borrowers provide better documentation, offer predictable income, and operate within structured legal frameworks—making it easier for banks to assess risk and enforce repayment. Conversely, agricultural borrowers often operate in less formal environments with volatile incomes and low financial literacy levels, which increase the risk of default (Abebe & Berhanu, 2020).

To mitigate the effects of asymmetric information, policy interventions and innovations are necessary. These may include strengthening credit information systems, promoting financial literacy, developing collateral registries, and supporting alternative lending models such as group lending and value chain finance. In Ethiopia, recent policy initiatives aimed at digitalizing land

registration and expanding credit reference bureaus are considered critical steps toward reducing information gaps between lenders and borrowers (National Bank of Ethiopia, 2022).

In conclusion, Asymmetric Information Theory provides a vital framework for understanding why commercial banks are hesitant to extend loans to the agricultural sector in Ethiopia. It highlights how the information imbalance between banks and borrowers increases lending risks and leads to conservative lending behavior or credit rationing. Addressing these asymmetries is essential for expanding agricultural credit and enhancing rural financial inclusion.

2.2.4 Risk Management Theory

Risk Management Theory plays a critical role in financial institutions' lending decisions, especially in sectors with inherently high uncertainty such as agriculture. This theory focuses on how banks identify, assess, and mitigate risks associated with lending activities to ensure financial stability and sustainable profitability. Understanding risk management is essential for explaining the determinants of agricultural loan provision by commercial banks in Ethiopia, where agricultural activities are highly exposed to various financial and non-financial risks.

Agricultural lending is subject to multiple sources of risk, including production risk**,** price risk, credit risk, and institutional risk. Production risk arises from the uncertainty of agricultural output due to weather variability, pests, diseases, and other environmental factors. Price risk stems from fluctuations in commodity prices in local and international markets. Credit risk refers to the possibility of borrower default, which is influenced by both borrower-specific factors and broader economic conditions. Institutional risks involve policy changes, regulatory uncertainty, and infrastructure limitations (Jaffee & Russell, 1976; Mishra & Rath, 2021).

According to Saunders and Cornett (2020), banks adopt comprehensive risk management frameworks to evaluate these risks before extending credit. These frameworks typically involve risk identification, measurement, monitoring, and control mechanisms. The adoption of sound risk management practices enables banks to price loans accurately, set appropriate collateral requirements, and design loan terms that reflect the underlying risk profile of the agricultural sector.

In the Ethiopian context, the importance of risk management cannot be overstated. The agricultural sector's vulnerability to climatic shocks, coupled with weak rural infrastructure and underdeveloped insurance markets, significantly elevates the risk perception of commercial banks. As a result, many banks prefer to limit their exposure to agricultural loans or impose stringent lending conditions that may restrict farmers' access to credit (Teshome & Belay, 2022).

Furthermore, risk management theory suggests that banks' risk tolerance and capacity directly influence the volume and terms of agricultural loans. Banks with robust capital bases, diversified loan portfolios, and advanced risk assessment tools are more likely to extend credit to the agricultural sector. Conversely, smaller banks or those facing capital constraints may adopt conservative lending strategies, leading to credit rationing or complete exclusion of high-risk borrowers (Alemu & Mekonnen, 2023).

The theory also underscores the role of innovative financial instruments in mitigating agricultural risks. Products such as weather-indexed insurance, warehouse receipt financing, and loan guarantees can help banks manage production and price risks, thereby encouraging more lending to farmers (World Bank, 2021). However, the availability and adoption of these instruments in Ethiopia remain limited, restricting the risk management options for commercial banks.

Government policies and regulatory frameworks are also integral to risk management in agricultural finance. The Ethiopian government's initiatives aimed at improving rural infrastructure, establishing agricultural insurance schemes, and enhancing legal frameworks for collateral and loan recovery can reduce institutional risks and improve banks' willingness to lend (National Bank of Ethiopia [NBE], 2022).

In conclusion, Risk Management Theory provides a comprehensive framework for understanding the cautious approach of commercial banks toward agricultural lending in Ethiopia. It explains how banks' assessment of multifaceted risks influences their lending decisions and highlights the necessity of improved risk mitigation tools and policies to expand agricultural finance.

2.2.5 Institutional Theory

Institutional Theory provides an insightful framework for understanding how formal and informal institutions shape economic behavior, including lending practices in the agricultural sector. Institutions, broadly defined as the rules, norms, and structures that govern social and economic interactions, influence the accessibility and distribution of agricultural finance in Ethiopia. This theory emphasizes that beyond market forces and individual borrower characteristics, institutional environments significantly affect the functioning of credit markets (North, 1990).

According to Institutional Theory, financial institutions operate within a complex web of formal regulations—such as banking laws, land tenure systems, and contract enforcement mechanisms—and informal norms, including cultural practices and social networks. These institutions can either facilitate or constrain the provision of agricultural loans by affecting transaction costs, trust, and risk perception (Scott, 2014).

In Ethiopia, institutional factors are critical determinants of Agricultural Loan. The land tenure system is one of the most important institutional constraints. Although the government has made efforts to register land use rights, formal land titles are still rare among smallholder farmers. This lack of clear property rights limits farmers' ability to provide land as collateral, a key requirement by many commercial banks for loan approval (Gebremariam & Woldie, 2021). The absence of enforceable collateral rights increases lenders' perceived risks and leads to restrictive lending practices or outright denial of credit.

Moreover, regulatory frameworks and the efficiency of legal institutions affect banks' confidence in recovering loans in cases of default. Weak contract enforcement and lengthy judicial processes in Ethiopia increase the risk and cost of lending, discouraging banks from extending credit to the agricultural sector, which is already perceived as risky (Tefera & Alemu, 2022). This institutional weakness is compounded by limited access to credit information and inadequate credit bureaus, which hamper the effective assessment of borrower creditworthiness.

Informal institutions, including community-based networks and social capital, also play a pivotal role in agricultural finance. In many rural Ethiopian communities, social norms and trust

influence borrowing behavior and repayment discipline. Banks sometimes rely on group lending models or social collateral to mitigate risks associated with asymmetric information and moral hazard (Kassa & Tekle, 2023). These informal mechanisms often complement formal institutions but are insufficient substitutes for robust legal and financial infrastructure.

Institutional Theory also highlights the role of government policies and interventions in shaping agricultural credit markets. For instance, state-led agricultural development programs, credit guarantee schemes, and subsidies can alter banks' incentives and risk exposure. The Ethiopian government's policy initiatives aimed at improving financial sector regulation, expanding credit infrastructure, and enhancing rural development are significant steps toward addressing institutional bottlenecks (National Bank of Ethiopia, 2022).

Empirical studies corroborate the importance of institutional factors in Ethiopian agricultural finance. For example, Gebremariam and Woldie (2021) found that the absence of formal collateral and weak legal institutions are among the primary obstacles faced by commercial banks in extending agricultural loans. Similarly, Tefera and Alemu (2022) argue that strengthening institutional frameworks is essential to unlock the full potential of agricultural credit in Ethiopia.

In conclusion, Institutional Theory underscores that the availability and effectiveness of agricultural finance depend heavily on the institutional environment. Formal regulations, property rights, contract enforcement, and informal social norms collectively influence commercial banks' lending behavior. Addressing institutional deficiencies is therefore crucial for enhancing agricultural credit access and fostering sustainable rural economic development in Ethiopia.

2.3 Determinants of Agricultural Loan

2.3.1 Bank-Specific Factors

Bank-specific factors play a critical role in determining commercial banks' willingness and ability to provide agricultural loans. Larger banks typically have greater financial capacity and risk diversification, making them more likely to extend credit to agriculture (Beck, Demirgüç-Kunt, & Martinez Peria, 2020). Capitalization levels are equally important, as well-capitalized

banks can better absorb potential loan losses and comply with regulatory requirements, thus supporting more agricultural lending (Adem, 2022). Liquidity position also affects lending capacity; banks with sufficient liquidity are better equipped to finance agriculture, which often involves longer-term and riskier loans (Saunders & Cornett, 2020).

Capital adequacy regulations impact lending by requiring banks to hold capital reserves against risk-weighted assets, often making agricultural loans more costly to finance and thereby reducing their supply (National Bank of Ethiopia, 2022). The comprehensiveness of internal risk assessment mechanisms enables banks to effectively evaluate agricultural borrowers, influencing loan approval decisions (Mishra & Rath, 2021). Finally, a bank's strategic focus or mission shapes its lending priorities; banks oriented toward rural development or economic growth are more inclined to prioritize Agricultural Loan (Ngugi, 2021).

2.3.2 Economic Indicators

Economic indicators such as GDP growth, interest rates, inflation, and exchange rate fluctuations significantly affect commercial banks' decisions to lend to the agricultural sector. Strong GDP growth improves farmers' repayment capacity and encourages banks to increase agricultural lending (Bekele & Hassen, 2023; World Bank, 2021). High interest rates raise borrowing costs, reducing loan demand and increasing default risk, while low rates can stimulate lending but reduce banks' profitability (Kedir, 2020; Mishra, 2022). Inflation affects the structure of agricultural loans by eroding repayment value and increasing credit risk, leading banks to adjust lending terms (Girma & Tadesse, 2021). Exchange rate volatility influences input costs for farmers dependent on imports, thus impacting loan risk and banks' willingness to finance agriculture (Solomon & Desta, 2022).

2.3.3 Regulatory Environment

The regulatory environment, shaped primarily by the National Bank of Ethiopia (NBE), significantly affects commercial banks' agricultural lending. Prudential regulations and capital requirements ensure banking stability but can restrict agricultural loan supply (NBE, 2022). Strict collateral requirements, due to the risky nature of agricultural lending and challenges in land ownership documentation, limit many farmers' access to credit (Getahun, 2021; Kassahun

& Mulugeta, 2020). Additionally, government-imposed interest rate ceilings reduce banks' profitability, often resulting in credit rationing in agriculture, while interest rate floors can discourage borrower demand (Asfaw & Alemu, 2022; Tesfaye & Tadesse, 2021).

2.3.4 Risk Assessment and Management

Risk assessment and management are crucial in agricultural lending due to the sector's vulnerability to various uncertainties. Production risks such as drought and pests significantly influence lending policies, as they threaten yields and repayment capacity (Deressa & Alemayehu, 2021). Price volatility of agricultural commodities increases income uncertainty, reducing both loan demand and supply (Tadesse & Mesfin, 2020).

Credit risk, particularly the risk of borrower default, is a major concern since many farmers lack formal credit histories (Kenea, 2023; World Bank, 2021). Market risk, including limited access to stable input and output markets, further complicates lending decisions (IFAD, 2022). The availability of risk-sharing mechanisms such as crop insurance and credit guarantees encourages lending, but such tools remain underdeveloped in Ethiopia (Gebre & Fekadu, 2021).

2.3.5 Borrower-Specific Factors

Commercial banks heavily rely on borrower-specific characteristics when making agricultural lending decisions. Experience in agricultural activities enhances a borrower's credibility, as it indicates practical knowledge and better risk management, increasing loan approval chances (Kifle & Abebe, 2021). Similarly, financial literacy influences a borrower's ability to manage loans effectively and meet repayment obligations, thereby improving lender confidence (Fanta & Abebe, 2022).

A positive repayment history signals trustworthiness and reduces perceived credit risk, making it a major factor in lending decisions (World Bank, 2021). Additionally, the scale of agricultural operations determines both the loan size and terms; larger operations often qualify for more favorable terms due to economies of scale and better resource management (Mengesha & Alemu, 2020). Finally, a well-prepared business plan reflects the borrower's strategic thinking and

financial planning skills, which strongly influence the bank's willingness to provide credit. (Yimer, 2023).

2.3.6 Political and Institutional Factors

Political and institutional environments significantly shape the agricultural lending behavior of commercial banks. Government subsidies and support programs—such as interest rate reductions, input subsidies, or credit lines—lower the cost and risk of lending, encouraging banks to offer more agricultural loans (Bekele & Tadesse, 2021). Additionally, political stability fosters a predictable investment climate, reducing macroeconomic uncertainties and increasing banks' confidence in long-term Agricultural Loan (World Bank, 2021).

Strong institutional support, including agricultural extension services and farmers' cooperatives, enhances borrowers' productivity and creditworthiness, making them more attractive to lenders (Alemayehu & Desta, 2020). Moreover, government-backed loan guarantees reduce the risk of default for commercial banks, encouraging lending to high-risk sectors like agriculture (Gebremariam & Fikadu, 2022). In Ethiopia, however, limited coverage and implementation of such mechanisms continue to restrict their impact.

2.3.7 Environmental and Climate Factors

Environmental and climate-related challenges are increasingly recognized as major determinants in the agricultural lending decisions of commercial banks. Unpredictable weather patterns and climate change—including droughts, floods, and shifting rainfall—pose substantial risks to crop yields and borrower repayment capacity, making banks more cautious about financing agriculture (Deressa & Alemayehu, 2021).

Environmental sustainability has become a growing concern for financial institutions, especially in aligning with green finance principles. Banks may prioritize agricultural projects that adopt sustainable land-use practices and resource conservation techniques (FAO, 2022). Moreover, the availability of agricultural insurance or climate-risk mitigation tools—such as index-based insurance or climate-resilient technologies—helps reduce the perceived lending risk and encourages more financing to the sector (Gebre & Fekadu, 2021).

Lastly, soil degradation and land-use issues reduce the long-term productivity of agricultural land, thereby affecting loan security and influencing risk assessments during credit evaluations (IFAD, 2022). In Ethiopia, such environmental constraints are particularly relevant due to high land pressure and poor soil management practices in many rural areas.

2.4 Empirical Review of the study

The determinants of agricultural loans by commercial banks have been the subject of growing empirical inquiry due to the sector's essential role in economic development, food security, and poverty reduction. Empirical studies worldwide indicate that a combination of internal (bank-level) and external (macroeconomic and institutional) factors influence banks' decisions to finance agricultural activities. This section provides a review of related empirical findings, progressing from global to African, and finally Ethiopian contexts.

Globally, empirical research shows that bank-specific factors such as size, capital adequacy, liquidity, and strategic mission significantly impact agricultural lending. A study by Pagano and Jappelli (2021) found that larger and more liquid banks in OECD countries were more capable of extending long-term agricultural loans, primarily due to their stronger risk-bearing capacity. Similarly, capital adequacy has been shown to influence lending behavior, where undercapitalized banks tend to avoid high-risk sectors like agriculture.

Economic indicators, such as inflation, interest rates, and GDP growth, also play a key role. Beck et al. (2020) demonstrated that inflation volatility and high interest rates reduce lending to agriculture in Latin America and Southeast Asia. Conversely, stable economic growth leads to increased credit flows to rural areas, as it signals greater borrower repayment capacity and reduced default risk.

In terms of regulatory environments, studies from India and Brazil emphasize that stringent collateral requirements and directed credit policies influence the flow of loans to the agricultural sector. For instance, Kumar and Mishra (2020) found that collateral limitations hinder access to credit for small-scale farmers in India, despite priority sector lending mandates.

Globally, risk management practices are found to be critical. A study by Carter et al. (2022) revealed that banks in North America use weather-indexed insurance and government loan guarantees to reduce risks associated with climate variability in agricultural lending.

In Africa, the literature highlights similar barriers and facilitators. A study conducted by D'Alessandro et al. (2021) in West Africa found that political stability and government agricultural programs significantly influenced commercial banks' lending patterns. In addition, borrower-specific factors—especially farm experience, credit history, and financial literacy—were consistently found to impact loan approvals in Nigeria and Ghana (Owusu & Antwi, 2020).

Regulatory barriers continue to be a challenge across African countries. Kanyenze and Mushunje (2020) reported that in Zimbabwe, banks were discouraged from lending to agriculture due to weak land tenure policies and unpredictable regulatory changes, which increased credit risk.

Regarding environmental and climate factors, research by IFAD (2022) across Sub-Saharan Africa found that climate risk—especially drought and soil degradation—was one of the main reasons for low Agricultural Loan. The study highlighted that risk-sharing mechanisms such as crop insurance or public loan guarantees were largely absent or underdeveloped in the region, further discouraging banks.

Empirical studies in Ethiopia align closely with global and regional trends but also reveal unique structural and policy-related barriers. Bank-specific factors such as size and liquidity have been empirically confirmed as determinants of agricultural lending. Yohannes and Abebe (2021) found that larger, more diversified banks were more likely to engage in Agricultural Loan than smaller ones, owing to their better capacity to absorb sector-specific risks.

Economic indicators also play a major role. Fekadu (2021) showed that high inflation rates and exchange rate fluctuations discouraged commercial banks from financing agriculture, while positive GDP growth supported increased lending.

In terms of the regulatory environment, empirical work by Tadesse and Lemma (2022) revealed that collateral requirements and interest rate controls by the National Bank of Ethiopia posed significant constraints, especially for smallholder farmers who lacked formal assets.

Risk assessment and management practices were found to be underdeveloped in Ethiopian banks. Kenea (2023) reported that production risks (e.g., drought, pests), price volatility, and credit risk were major factors that negatively influenced lending. The absence of robust risk-sharing mechanisms such as crop insurance was noted as a significant constraint.

Regarding borrower-specific factors, studies indicate that financial literacy, repayment history, and farm size directly affect loan approvals. Mengesha and Alemu (2020) observed that farmers with formal education and training in farm management had better access to formal credit. Similarly, Yimer (2023) found that quality business planning significantly improved farmers' likelihood of receiving loans.

On political and institutional factors, Bekele and Tadesse (2021) found that regions with better institutional infrastructure, such as agricultural extension services and cooperatives, experienced higher rates of agricultural lending. The same study emphasized that government-backed guarantees were instrumental in reducing banks' risk perceptions.

Finally, environmental and climate factors are a growing concern. Gebremariam and Fikadu (2022) demonstrated that banks operating in regions prone to drought and land degradation were more conservative in their agricultural lending practices. These risks were often not mitigated due to limited availability of climate-risk insurance tools.

Empirical studies at the global, regional, and national levels consistently indicate that agricultural loan disbursement by commercial banks is influenced by a wide range of determinants. In Ethiopia, while macroeconomic conditions, borrower characteristics, and bank-specific factors are significant, regulatory barriers, climate-related risks, and institutional weaknesses remain major challenges. Understanding these empirical patterns is critical to addressing financing gaps and designing more effective agricultural credit policies.

2.5 Hypothesis of the study

The formulation of hypotheses is central to empirical research, providing a basis for testing the proposed relationships between independent and dependent variables. Drawing upon the theoretical and empirical literature reviewed in the preceding sections, this study formulates

hypotheses to examine how various internal and external determinants influence the provision of agricultural loans by commercial banks in Ethiopia. The hypotheses consider factors such as bank-specific characteristics, macroeconomic indicators, regulatory environment, risk management practices, borrower attributes, institutional and political factors, and environmental conditions.

2.5.1 Bank-Specific Factors and Agricultural Loan Provision

The characteristics intrinsic to commercial banks—such as their size, liquidity, capital adequacy, and strategic priorities—are widely recognized as critical determinants of loan decisions. Larger banks with greater resources and diversified portfolios may have a higher capacity and appetite for agricultural lending, a sector often viewed as risky due to its vulnerability to external shocks (Pagano & Jappelli, 2021). In addition, capital adequacy ensures a buffer against potential losses and is positively associated with credit expansion (Yohannes & Abebe, 2021). Liquidity, or the ability of a bank to meet its short-term obligations, also enhances its lending capability. Furthermore, a bank's mission and strategic focus—particularly if aligned with developmental finance or rural outreach—can significantly influence its commitment to agricultural lending.

H1: Bank-specific factors have a significant positive effect on the provision of agricultural loans by commercial banks.

2.5.2 Economic Indicators and Agricultural Loan Provision

Macroeconomic conditions shape the lending environment by influencing both the demand for and the supply of credit. Variables such as GDP growth, interest rates, inflation, and exchange rates play a crucial role in banks' lending behavior. Higher GDP growth rates signal economic stability and improved borrower repayment capacity, which can encourage banks to lend more (Beck et al., 2020). On the other hand, high inflation and elevated interest rates tend to increase the cost of credit, discourage borrowing, and reduce banks' willingness to extend agricultural loans (Fekadu, 2021). Exchange rate volatility affects the cost of agricultural inputs and export earnings, thereby influencing banks' risk assessments for agricultural borrowers.

H2: Favorable economic indicators significantly enhance agricultural loan provision by commercial banks.

2.5.3 Regulatory Environment and Agricultural Loan Provision

The regulatory framework established by central banks and financial authorities significantly shapes lending practices. In the Ethiopian context, the National Bank of Ethiopia (NBE) mandates requirements such as minimum collateral, capital adequacy, and interest rate controls. These regulations, while intended to maintain financial stability, can sometimes limit credit accessibility, especially for smallholder farmers who lack traditional forms of collateral (Tadesse & Lemma, 2022). Interest rate ceilings or floors imposed by regulatory bodies can also distort market-driven lending decisions, making Agricultural Loan less attractive to commercial banks.

H3: A conducive regulatory environment significantly promotes agricultural loan provision by commercial banks.

2.5.4 Risk Assessment and Management and Agricultural Loan Provision

Risk is an inherent feature of agricultural finance due to climate variability, market price fluctuations, and borrower creditworthiness. Effective risk assessment systems, including credit scoring, market analysis, and the use of insurance or guarantee mechanisms, enable banks to better evaluate and manage the risks associated with agricultural loans (Carter et al., 2022). Banks that integrate robust risk management strategies into their loan evaluation processes are more likely to participate in Agricultural Loan despite its uncertainties.

H4: Effective risk assessment and risk management practices significantly increase agricultural loan provision by commercial banks.

2.5.5 Borrower-Specific Factors and Agricultural Loan Provision

Borrower attributes such as financial literacy, credit history, farming experience, and documentation quality are fundamental in influencing a bank's lending decision. In Ethiopia, studies have shown that borrowers with formal education, access to business records, and cooperative membership are more likely to obtain loans (Mengesha & Alemu, 2020; Yimer,

2023). These factors enhance the perceived creditworthiness of borrowers and reduce the information asymmetry between lenders and borrowers.

H5: Borrower-specific characteristics significantly influence the provision of agricultural loans by commercial banks.

2.5.6 Political and Institutional Factors and Agricultural Loan Provision

Political and institutional stability foster an environment conducive to long-term investments such as agriculture. Political risks—such as instability, policy reversals, or weak governance—deter banks from lending to the agricultural sector. Conversely, supportive policies, including government subsidies, loan guarantees, and agricultural extension services, can significantly improve banks' confidence in financing agriculture (D'Alessandro et al., 2021; Bekele & Tadesse, 2021). Strong institutional frameworks facilitate loan processing, reduce transaction costs, and enhance project viability.

H6: Political and institutional support significantly increases agricultural loan provision by commercial banks.

2.5.7 Environmental and Climate Factors and Agricultural Loan Provision

Climate change and environmental degradation represent growing concerns in agricultural finance. Events such as droughts, floods, and erratic rainfall patterns elevate production risks and influence banks' perceptions of lending viability. However, access to climate-risk mitigation tools—such as agricultural insurance, early warning systems, and sustainable farming practices—can mitigate some of these concerns and promote increased lending to the sector (Gebremariam & Fikadu, 2022; IFAD, 2022). Soil fertility and land use patterns also impact loan evaluations, particularly for long-term agricultural investments.

H7: Environmental and climate-related risks significantly affect the provision of agricultural loans by commercial banks.

2.6 Research Gap

Although a growing body of literature has addressed Agricultural Loan in Ethiopia and globally, several notable gaps persist-particularly in relation to the decision-making processes within commercial banks. Many studies focus predominantly on macroeconomic and policy-level variables such as inflation, interest rates, and regulatory conditions (American Bankers Association, 2024). However, micro-level determinants, particularly those internal to banks and specific to individual borrowers, remain underexplored in empirical studies.

One critical gap involves the limited examination of how commercial banks in Ethiopia implement alternative collateral frameworks. While traditional collateral requirements have been identified as significant barriers for smallholder farmers (FAO, 2020; Itana Ayana, 2020), and movable collateral systems have been introduced by the National Bank of Ethiopia, few studies have assessed their actual adoption and operational feasibility within banking institutions (BIC Africa, 2023). This gap is particularly important given the increasing push for inclusive agricultural lending.

Additionally, borrower-specific factors such as repayment history, financial literacy, and farming experience have not been systematically analyzed in combination with bank-specific and contextual factors (Balami, 2022). The current literature often isolates these variables rather than examining their interplay in influencing credit decisions.

Another underexplored area is the impact of environmental and climate risks on agricultural lending behavior. Although environmental variability and climate change are recognized as major sources of agricultural risk (ScienceDirect, 2024), few empirical studies have integrated these factors into statistical models evaluating lending decisions.

Finally, there is a lack of primary data from operational bank staff, such as credit analysts and relationship managers, who are directly involved in evaluating loan applications and implementing bank policy. Most studies rely on secondary data or high-level policy reviews, which overlook on-the-ground factors that shape Agricultural Loan decisions.

This study seeks to fill these gaps by focusing on three selected commercial banks in Ethiopia and examining the determinants of Agricultural Loan from the perspective of banking

professionals i.e. credit analysts and relationship managers. The research integrates multiple dimensions i.e. bank-specific, borrower-specific, regulatory, economic, institutional, and environmental into a unified analytical model, contributing new empirical evidence to the literature.

2.7 Conceptual Framework of the Study

The conceptual framework of this study outlines the hypothesized relationships between the identified determinants and the agricultural loan provision by commercial banks. At the core, the study focuses on the extent to which these multiple variables—both internal and external—affect banks' decisions to approve and disburse loans specifically intended for the agricultural sector.

Bank-specific factors such as the size of the bank, its capitalization level, liquidity position, and internal strategic focus are critical indicators of its capacity and willingness to finance agricultural ventures. Larger, well-capitalized banks with robust liquidity and clear strategic objectives related to agriculture are more likely to extend loans to this sector.

Macroeconomic indicators, including GDP growth, inflation, interest rates, and exchange rate fluctuations, serve as environmental signals for banks. A strong economic environment encourages investment and reduces perceived risk, whereas high inflation or volatile exchange rates can deter agricultural lending due to uncertainty in repayment capacity and market stability.

The regulatory environment, shaped by the National Bank of Ethiopia and other policy bodies, sets boundaries within which banks operate. Collateral requirements, interest rate ceilings, and capital adequacy ratios can either facilitate or constrain the lending process depending on how favorable or stringent they are. Excessively strict regulations may limit credit access, while supportive regulatory policies can promote rural financing.

Risk assessment and management are fundamental in the banking sector, especially in agriculture which is inherently risk-prone. Risks such as drought, pests, market price fluctuations, and borrower default potential are evaluated to determine creditworthiness. The availability of risk-sharing mechanisms such as agricultural insurance and government guarantees can enhance banks’ confidence in extending credit to farmers and agribusinesses.

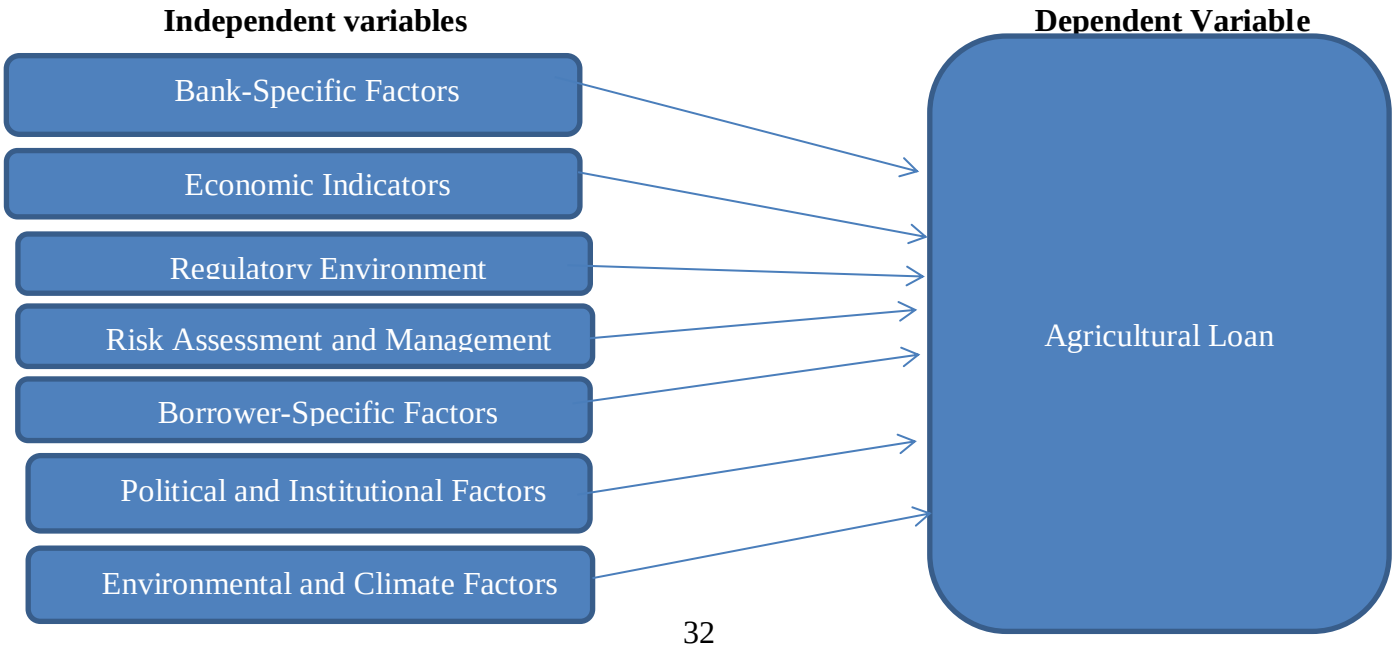
Borrower-specific characteristics—including credit history, financial literacy, experience in agricultural activities, and collateral availability—are also key to determining agricultural loan access. Borrowers who present lower risk through positive financial histories, adequate knowledge, and clear documentation are generally more attractive to lenders.

Political and institutional factors such as government subsidies, political stability, and institutional support through cooperatives or agricultural extension services significantly influence agricultural lending. Where political institutions are stable and supportive structures like agricultural cooperatives are active, banks are more willing to lend. Government-backed loan guarantee schemes also reduce the perceived risk of lending to the sector.

Lastly, **environmental and climate-related factors**, such as unpredictable rainfall, soil degradation, and broader climate change concerns, pose substantial challenges. These risks affect both the viability of agricultural investments and repayment potential. As a result, banks increasingly evaluate sustainability, climate-resilience, and the availability of agricultural insurance when deciding to approve loans.

In sum, this conceptual framework underscores the multi-dimensional nature of agricultural lending and provides a structured lens through which the determinants influencing loan decisions by commercial banks in Ethiopia can be examined.

Figure 1. Conceptual framework



CHAPTER 3
RESEARCH METHODOLOGY

3.1 Introduction

This research paper primarily aims to analyze the determinants influencing Agricultural Loan provided by commercial banks in Ethiopia, with a particular emphasis on a case study involving a selection of three commercial banks operated in Ethiopia named Commercial Bank of Ethiopia, Bank of Abyssinia S.C and Nib International Bank S.C. This topic highlights the approaches utilized to examine the key determinants affecting Agricultural Loan within Ethiopian Commercial Banks. Research is a structured approach to discovering solutions to problems; while research methodology signifies the specific sequential steps a researcher follows to investigate a problem with a specific goal in focus.

3.2 Research Design

A research design provides a structured framework for how a study is planned and executed, ensuring that the methods used are appropriate for answering the research questions or testing the hypotheses. It outlines the logical progression from the formulation of the research problem to data collection, analysis, and interpretation, thereby ensuring the study's validity, reliability, and relevance. This study aims to investigate the key factors that influence Agricultural Loan by commercial banks in Ethiopia, with a particular focus on selected institutions—namely, the Commercial Bank of Ethiopia, Bank of Abyssinia S.C., and Nib International Bank S.C.

To explore these factors in a systematic and objective manner, a quantitative research design has been adopted. This approach is appropriate as it allows for the measurement and statistical analysis of variables related to financing decisions. The study emphasizes both descriptive and inferential techniques to analyze data collected from loan officers working in the selected commercial banks. Specifically, descriptive statistics will summarize the general patterns in the data, while regression analysis will be used to identify the most significant factors affecting lending decisions in the agricultural sector. The structured nature of quantitative design ensures objectivity and consistency in data collection and analysis. Moreover, the use of standardized

instruments enables efficient aggregation and comparison of data, which is essential for identifying statistically significant determinants of Agricultural Loan.

3.3 Population and sample

The target population for this study comprises the 31 licensed commercial banks currently operating in Ethiopia as of June 2023. According to the National Bank of Ethiopia (NBE), these banks are categorized into three groups based on asset size: large, medium, and small. To ensure representativeness and improve the generalizability of the findings, one bank was purposively selected from each category: Commercial Bank of Ethiopia (large), Bank of Abyssinia S.C. (medium), and Nib International Bank S.C. (small). This purposive selection allows the study to capture insights across different scales of banking operations, reflecting varied capacities and lending behaviors within the sector.

A total of 130 respondents were selected across the three banks using stratified purposive sampling. The sample was proportionally allocated to reflect the relative size and operational reach of each bank: 60 participants from Commercial Bank of Ethiopia, 40 from Bank of Abyssinia S.C., and 30 from Nib International Bank S.C.

The final sample size for this study consisted of 119 respondents, drawn from three purposively selected commercial banks in Ethiopia: Commercial Bank of Ethiopia, Bank of Abyssinia S.C., and Nib International Bank S.C. representing large, medium, and small banks, respectively. Although the study initially targeted 130 participants, the achieved response rate of approximately 91.5% is considered high for survey-based research and ensures sufficient data for analysis. Despite the slight reduction in the number of respondents, the final sample still satisfies widely accepted statistical guidelines for conducting quantitative analyses. As noted by Hair et al. (2014), a minimum of 5 to 10 observations per variable is required for reliable multivariate techniques such as regression and factor analysis.

However, it is important to acknowledge that the purposive sampling approach may affect the generalizability of the findings to the entire banking sector in Ethiopia. Although the final sample size of 119 respondents meets accepted statistical standards for multivariate analysis (Hair et al., 2014), it may not capture the full diversity of institutional practices across all 31

licensed commercial banks. Future research should consider expanding the sample to include more banks using probability-based sampling techniques to enhance representativeness and external validity, and potentially incorporate longitudinal data to observe changes over time.

3.4 Sources of data

Primary data were collected using a structured questionnaire administered to credit analysts, relationship managers and other credit staffs from selected commercial banks in Ethiopia. No secondary data sources were used for empirical analysis, although relevant literature and reports were reviewed to provide theoretical and contextual background.

3.5 Data collection and processing procedures

To gather reliable and relevant data for this study, structured questionnaires were developed and distributed to credit staff working in selected commercial banks. The questionnaire was systematically organized to capture both the dependent and independent variables influencing Agricultural Loan decisions. Each section of the questionnaire was designed based on established literature and practical indicators.

The dependent variable, Agricultural Loan, was measured using 5 items developed to reflect real-world indicators such as loan volume, accessibility, and portfolio composition. Independent variables were categorized into key thematic areas grounded in empirical research and institutional reports. Specifically, Bank-Specific Factors (6 items) were drawn from AESS Publications (2019) and IMF (2015), emphasizing criteria commonly used in banking loan decisions. Economic Indicators (4 items) were informed by IMF (2015) and World Bank (2020), focusing on the impact of macroeconomic variables like interest rates and inflation. The Regulatory Environment (3 items) was shaped by the National Bank of Ethiopia's guidelines and the Ethiopian Banking Proclamation.

The questionnaire also included 5 items on Risk Assessment and Management, including collateral requirements, based on credit risk theory and collateral risk literature. Borrower-Specific Factors (5 items), such as financial literacy and farming experience, were incorporated using insights from AESS Publications (2019). In addition, Political and Institutional Factors (4

items) were drawn from sources such as IMF (2004) and literature on land policies and government agricultural support programs. Finally, Environmental and Climate Factors (4 items) were integrated based on recent studies from PMC and Springer (2024), addressing climate risks and climate-smart agricultural practices.

All items were rated by respondents using a five-point Likert scale (1 = Not Significant at All, 5 = Very Significant), allowing for an assessment of the perceived significance of each factor in influencing agricultural lending decisions.

Table 3.1: Questionnaire Source and Reference

Variable / Construct	No. of Items	Source / Basis
Agricultural Loan (Dependent Variable)	5	Developed based on practical indicators of loan volume, access, and portfolio composition
Bank-Specific Factors	6	AESS Publications (2019); IMF (2015); common banking criteria in loan decisions
Economic Indicators	4	IMF (2015); World Bank (2020); interest rate and inflation impacts on credit
Regulatory Environment	3	National Bank of Ethiopia (NBE) guidelines; IMF (2015); Ethiopian Banking Proclamation
Risk Assessment and Management (incl. Collateral)	5	AESS Publications (2019); credit risk theory; collateral risk literature
Borrower-Specific Factors	5	AESS Publications (2019); financial literacy and experience as lending determinants
Political and Institutional Factors	4	IMF (2004); Ethiopia's land policy; Government support program literature
Environmental and Climate Factors	4	PMC (2024); Springer (2024); climate-smart agriculture and risk impacts

3.6 Data analysis Method

To address the research objectives and test the formulated hypotheses, both descriptive and inferential statistical methods were employed. The analysis was conducted using Statistical

Package for Social Sciences (SPSS) version 26, focusing on understanding the relationship between Agricultural Loan (dependent variable) and the seven key independent variables.

Descriptive statistics such as mean, standard deviation, and frequency distribution were used to summarize the characteristics of the responses from loan officers and credit analysts. This helped provide an overview of the trends and central tendencies within the dataset.

Cronbach's Alpha was computed to test the internal consistency and reliability of the questionnaire items under each independent variable. A Cronbach's alpha value of 0.70 or above was considered acceptable for reliability.

To examine the influence of the independent variables on the provision of agricultural loans, a multiple linear regression model was applied. The model assessed the extent to which each determinant variable contributes to variations in Agricultural Loan. The regression equation used is:

$$AL=\beta0+\beta1BS+\beta2EI+\beta3RE+\beta4RM+\beta5BSF+\beta6PIF+\beta7ECF+\varepsilon$$

Where:

AL- Agricultural Loan (dependent variable)

BS - Bank-Specific Factors

EI - Economic Indicators

RE - Regulatory Environment Factors

RM - Risk Management Factors

BSF - Borrower-Specific Factors

PIF - Political and Institutional Factors

ECF - Environmental and Climate Factors

ε - Error term

$\beta0$ - Constant

$\beta 1 \ldots \beta 7$ = Coefficients of independent variables

The regression model was evaluated using:

R and R^2 values to measure model fit and explanatory power

ANOVA (F-test) to test overall model significance

p-values (Sig.) for individual predictor significance

Standardized Beta coefficients to identify the relative influence of each variable

To check for multicollinearity among independent variables, Variance Inflation Factor (VIF) and Tolerance values were examined. VIF values below 10 and tolerance above 0.1 indicated the absence of multicollinearity problems.

Assumptions of multiple linear regression, including linearity, normality of residuals, homoscedasticity, and independence of errors, were tested using graphical and statistical diagnostics (e.g., Durbin-Watson test, residual plots).

CHAPTER 4
DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1 Introduction

In this chapter, raw data collected through structured questionnaires from selected commercial banks in Ethiopia are processed and presented in an understandable format using appropriate statistical tools. The transformation of this data into meaningful insights is known as analysis, which involves examination, interpretation, and the drawing of conclusions. This chapter is therefore central to the study, as all findings, conclusions, and recommendations are grounded in the calculations and analyses conducted here.

Specifically, this section begins with a descriptive analysis of the demographic characteristics of respondents, including gender, age, educational qualifications, job titles, and years of experience in the banking sector. These variables provide critical context for understanding the respondents' perspectives on Agricultural Loan. The demographic data serve as a foundational layer for interpreting responses to both dependent and independent variables such as Agricultural Loan, Bank-Specific Factors, Economic Indicators, Regulatory Environment, Risk Management, Borrower-Specific Factors, Political and Institutional Factors, and Environmental and Climate Factors.

In subsequent sections of this chapter, correlation and regression analyses are conducted to examine the relationships and influences among these variables. These statistical procedures offer deeper insights into the determinants of Agricultural Loan decisions within Ethiopian commercial banks.

4.2 Descriptive Results

4.2.1 Demographic Characteristics of Respondents

As shown in Table 4.1, more than half of the respondents (approximately 53%) fall within the 36–45 years age group, followed by about 27% in the 25–35 years category. This indicates that a significant majority of credit officials involved in Agricultural Loan decisions are relatively young and within similar age brackets. Notably, among the 25–35 age group, 21 males and 11

females were identified, suggesting age group consistency across genders. In contrast, only around 20% of respondents are aged 45–60 years, and none are above 60, showing that the population under study is relatively younger. This demographic trend may suggest a generational shift in banking professionals managing credit services in Ethiopian commercial banks.

Regarding gender distribution, the data reveals that 64% of respondents are male, while 36% are female, indicating a higher male representation in credit-related roles. This male dominance may reflect the broader staffing structure within the credit and loan departments of the banks surveyed.

When analyzing years of experience, most employees—57% overall—have served in the banking sector for more than 5 years. Specifically, 27 males and 21 females reported having 5–10 years of experience, while 18 males and 11 females stated they have served 11–15 years. Moreover, 18% of males and 14% of females have served more than 15 years. These figures suggest that a large portion of the respondents possess considerable exposure to bank lending and credit processes.

Overall, the demographic distribution reflects a respondent pool that is relatively young, well-experienced, and predominantly male—characteristics that are important for understanding the perspectives and judgments made regarding the key variables in this study, such as Bank-Specific Factors, Risk Management, Borrower-Specific Factors, and Political/Institutional Influences on Agricultural Loan.

Table 4.1: Demographic Characteristics of Respondents

Category	Number (N)	Percentage (%)
Age		
(25–35 years)	33	27.73%
(36–45 years)	62	52.1%
(45–60 years)	24	20.17%
Total	119	100.0%
Gender		
Female	42	35.29%

Male	77	64.71%
Total	119	100.0%
Banking Experience		
Less than 5 years	18	15.13%
5–10 years	48	40.34%
11–15 years	29	24.37%
Above 15 years	24	20.17%
Total	119	100.0%
Educational Qualification		
Bachelor's Degree	37	31.09%
Master's Degree	82	68.91%
Total	119	100.0%
Job title		
Credit Analyst/Underwriting	49	41.18%
Credit Relationship Manager	66	55.46%
Other	4	3.36%
Total	119	100.0%

Source: own survey, 2025

4.3 Reliability Test

To assess the accuracy and internal consistency of the measurement scales, a reliability analysis was conducted. According to Hamid et al. (2011), a reliability coefficient (Cronbach's alpha) between 0.5 and 0.7 may be considered acceptable when other indicators of construct validity are sufficiently strong. However, a commonly accepted benchmark for good reliability is a Cronbach's alpha of 0.7 or higher.

In this study, a structured questionnaire was utilized to examine the influence of various factors on agricultural loan decisions by commercial banks. To evaluate the reliability and internal

consistency of the measurement items, Cronbach's alpha was calculated using SPSS version 26. This approach, widely adopted in social science research, helps to establish the credibility of the instrument and ensures that comparisons across the sample are statistically sound. The reliability coefficients for each construct are presented in the table below.

Table 4.2: Reliability Statistics (Cronbach's Alpha)

Construct	**No. of Items**	**Cronbach's Alpha**	**Rating**
Agricultural Loan	5	.999	Excellent reliability
Bank-Specific Factors	6	.967	Excellent reliability
Economic Indicators	4	.965	Excellent reliability
Regulatory Environment	3	.953	Excellent reliability
Risk Assessment and Management	5	.976	Excellent reliability
Borrower-Specific Factors	5	.963	Excellent reliability
Political & Institutional Factors	4	.961	Excellent reliability
Environmental & Climate Factors	4	.964	Excellent reliability

Source: own survey, 2025

As shown in Table 4.2, all constructs demonstrated excellent internal consistency, with Cronbach's Alpha values well above the accepted threshold of 0.70. The values ranged from

0.953 to 0.999, indicating that the items within each scale are highly correlated and reliably measure the same construct.

Notably, the Agricultural Loan scale yielded a near-perfect alpha value of 0.999, suggesting an extremely high level of internal consistency. Similarly, all other independent variable constructs, such as Bank-Specific Factors, Risk Management, and Environmental and Climate Factors are also demonstrated excellent reliability, validating the questionnaire design and the subsequent use of these items in statistical analysis.

These results affirm that the data collection instrument is reliable and suitable for further analysis, including regression and correlation procedures.

4.4 Descriptive Statistics Analysis

This section presents descriptive statistics of the dependent and independent variables using responses from 119 participants. The key statistical measures reported include the mean**,** standard deviation**,** minimum, and maximum values. These indicators provide insights into how respondents perceive the factors influencing agricultural loan disbursement by commercial banks in Ethiopia.

4.4.1 Agricultural Loan

Table 4.3: Agricultural Loan

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Bank provides loans to agricultural borrowers	119	1.00	5.00	3.1176	.10686	1.16573
Proportion of agri-loans is increasing	119	1.00	5.00	3.1261	.10778	1.17570
Agriculture is strategic lending priority	119	1.00	5.00	3.1176	.10884	1.18734

Repayment performance of agri-loans is satisfactory	119	1.00	5.00	3.1261	.10778	1.17570
Bank offers diverse financing products for agriculture	119	1.00	5.00	3.1261	.10711	1.16847

Source: own survey, 2025

The aforementioned table presents the descriptive analysis of the dependent variable, Agricultural Loan, and the grand mean across these five items was calculated to be 3.12**,** indicating a moderate level of agreement among respondents on the positive involvement of commercial banks in Agricultural Loan. This suggests that, on average, banks are neither strongly supportive nor strongly averse to agricultural lending, reflecting a neutral to moderately favorable perception of their engagement in this sector. The standard deviations, ranging around 1.17, indicate a moderate spread in responses, which implies some variation in how different bank representatives perceive their institution's level of Agricultural Loan. While the grand mean suggests that commercial banks do engage in agricultural lending to a certain extent, the results also imply that there is room for improvement, especially in strengthening commitment and diversifying financial products to meet the sector's unique needs.

4.4.2 Bank-Specific Factors

Table 4.4: Bank-Specific Factors

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Size of bank influences agricultural lending	119	1.00	4.00	2.7899	.07048	.76882
Level of capitalization affects agri-lending	119	1.00	5.00	2.8151	.07256	.79155

Liquidity position affects agricultural finance	119	1.00	5.00	2.7815	.07657	.83524
Capital adequacy influences agri-loans	119	1.00	5.00	2.7395	.07401	.80740
Risk assessment comprehensiveness affects approval	119	1.00	4.00	2.8151	.07256	.79155
Strategic mission influences Agricultural Loan	119	1.00	4.00	2.8067	.07088	.77325

Source: own survey, 2025

The table above shows grand mean of 2.79 which indicates that respondents moderately agreed that internal bank characteristics influence agricultural lending decisions. This score, being slightly below the neutral point of 3.00, implies that while bank-specific factors are considered relevant, they may not be perceived as strong enablers of Agricultural Loan.

The standard deviations range from 0.77 to 0.84, suggesting relatively consistent responses with moderate variability among participants. This consistency across all items points to a shared perception among respondents that internal bank factors—such as size, capital strength, liquidity, capital adequacy, internal risk assessment, and strategic priorities—have a measurable but modest impact on agricultural loan decisions.

The analysis suggests that although bank-specific factors are recognized by commercial bank staff as influencing agricultural lending, the level of significance is not particularly strong. This finding aligns with prior empirical research that indicates while internal bank health is important, external and sector-specific dynamics often play a larger role in agricultural credit decisions.

4.4.3 Economic Indicators

Table 4.5: Economic Indicators

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
General economy affects agri-lending	119	1.00	4.00	2.8824	.07842	.85546
Interest rates influence willingness to lend	119	1.00	5.00	2.9076	.08181	.89245
Inflation affects loan structure	119	1.00	5.00	2.8908	.08250	.90000
Exchange rates influence input cost and loan risk	119	1.00	4.00	2.8571	.07852	.85654

Source: own survey, 2025

The grand mean of 2.88 suggests that respondents moderately agreed that macroeconomic variables play a role in shaping agricultural lending decisions. This mean is slightly below the neutral point (3.00), indicating a moderate but not strong perception of influence. The standard deviations (ranging from 0.86 to 0.90) reflect moderate variability in responses, implying that while there is a general recognition of the importance of economic indicators—such as GDP trends, inflation, interest rates, and exchange rates—individual respondents may weigh their impact differently based on their experiences and roles within the banks. Overall, the findings indicate that economic conditions have a moderate perceived influence on the provision of agricultural credit by commercial banks in Ethiopia. This aligns with the literature, which

suggests that volatile macroeconomic conditions can impact the cost and risk of agricultural lending, particularly in countries with developing financial sectors.

4.4.4 Regulatory Environment

Table 4.6: Regulatory Environment

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
National Bank regulations affect agri-financing	119	1.00	4.00	2.5294	.08253	.90032
Collateral requirements hinder access to loans	119	1.00	4.00	2.5462	.08333	.90898
Government interest rate ceilings impact lending	119	1.00	4.00	2.5798	.08481	.92513

Source: own survey, 2025

The grand mean of 2.55 indicates a moderate level of agreement among bank officers and credit analysts that regulatory factors influence agricultural lending decisions. While this score is slightly below the neutral midpoint of 3.00, it suggests that respondents acknowledge that regulatory policies—especially those issued by the National Bank of Ethiopia, collateral requirements, and interest rate caps—pose noticeable but not overwhelming constraints on agricultural lending.

The standard deviations, ranging from 0.90 to 0.93, indicate moderate variability in the responses. This shows a reasonable spread in perceptions, potentially reflecting differences in how regulations are interpreted or enforced across the three selected commercial banks. The results suggest that although regulatory constraints do not overwhelmingly hinder Agricultural Loan, they are significant enough to warrant attention, particularly with regard to collateral

requirements and interest rate policies. This reinforces findings in previous literature that stringent regulatory environments can inadvertently suppress access to credit in the agricultural sector, especially in developing economies like Ethiopia.

4.4.5 Risk Assessment and Management

Table 4.7: Risk Assessment and Management

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Production risks influence lending policy	119	1.00	5.00	2.6807	.08517	.92912
Price volatility affects loan decisions	119	1.00	5.00	2.7647	.08827	.96292
Credit risk influences lending strategy	119	1.00	4.00	2.7143	.08366	.91265
Market risk Affects project evaluation	119	1.00	4.00	2.6639	.08292	.90458
Risk-sharing mechanisms encourage agri-lending	119	1.00	5.00	2.7143	.09022	.98414

Source: own survey, 2025

The grand mean of 2.70 reflects a moderately positive significance of the importance of risk-related factors in influencing agricultural loan decisions. While the score remains slightly below the neutral point of 3.00, it still suggests that risk considerations such as production risks, price fluctuations, credit default risks, market uncertainty, and the presence of risk-sharing mechanisms are significant influences on banks' lending strategies to the agricultural sector.

The standard deviations (ranging from 0.90 to 0.98) indicate a moderate level of variability in responses, suggesting some degree of divergence in how strongly bank officers perceive these risks, possibly due to differences in institutional risk policies or geographical exposure to agricultural risk. The findings imply that risk factors are indeed critical barriers or facilitators in the provision of agricultural finance by commercial banks. These results reinforce empirical studies emphasizing that high exposure to uncontrollable risks discourages banks from expanding agricultural lending unless there are effective risk-sharing frameworks or guarantees in place.

4.4.6 Borrower-Specific Factors

Table 4.8: Borrower-Specific Factors

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Borrower experience influences loan approval	119	1.00	4.00	2.6050	.08201	.89460
Financial literacy affects repayment confidence	119	1.00	5.00	2.6303	.07814	.85237
Repayment history determines credit decisions	119	1.00	4.00	2.6891	.08160	.89013
Scale of operations affects loan terms	119	1.00	4.00	2.6639	.08119	.88564
Quality of business plan affects willingness to finance	119	1.00	5.00	2.6975	.08486	.92567

Source: own survey, 2025

The grand mean of 2.66 suggests a moderately low agreement with the influence of borrower-specific characteristics on agricultural loan decisions. While close to the midpoint value of 3.00, it leans slightly toward disagreement, indicating that these factors are recognized but not strongly emphasized in current lending practices. Among the specific items, the quality of the business plan had the highest mean (2.70), highlighting its relative importance in loan approval decisions. In contrast, borrower experience (2.61) and financial literacy (2.63) were rated slightly lower, suggesting that while these factors matter, they may not be uniformly applied or emphasized across all banks or branches. The standard deviations (ranging from 0.85 to 0.93) reflect moderate variation in perceptions among respondents, possibly influenced by institutional policies, borrower profiles, or geographic disparities in loan applications. This analysis indicates that borrower-specific factors are moderately important in determining agricultural lending outcomes. While not as influential as other institutional or environmental variables, elements such as repayment history and business planning still play a supportive role in credit assessments. These findings align with literature suggesting that borrowers' competencies and histories contribute to building trust and reducing perceived risk for lenders in the agricultural finance context.

4.4.7 Political and Institutional Factors

Table 4.9: Political and Institutional Factors

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Government subsidies influence lending	119	1.00	5.00	2.8655	.08845	.96484
Political stability increases lending confidence	119	1.00	5.00	2.8739	.08486	.92567

Institutional support facilitates agri-loans	119	1.00	5.00	2.8571	.08712	.95034
Govt-backed guarantees increase lending willingness	119	1.00	5.00	2.8908	.08914	.97242

Source: own survey, 2025

The grand mean of 2.87 suggests a moderate agreement among respondents that political and institutional factors influence Agricultural Loan decisions. Although the average is slightly below the neutral threshold of 3.0, it indicates that commercial banks do acknowledge the enabling or limiting effects of political and institutional frameworks in their agricultural lending activities. Among the items, the availability of government-backed loan guarantees had the highest mean (2.89)**,** showing that risk mitigation through such guarantees is particularly valued. Close behind were government subsidies (2.87) and political stability (2.87), which underscores the importance of a stable political climate and supportive government policies in encouraging banks to lend to the agricultural sector. The relatively consistent means and standard deviations (ranging from 0.93 to 0.97**)** indicate moderate variation in responses, suggesting a generally shared perception across banks, though slight differences may exist due to policy implementation disparities or institutional exposure to political influences. Overall, this analysis highlights that political and institutional factors moderately influence agricultural lending decisions in Ethiopia. While not rated as highly influential as internal bank-specific variables, the presence of political stability, institutional support, and government incentives appear to reduce perceived lending risks and increase the confidence of commercial banks in financing agricultural projects.

4.4.8 Environmental and Climate Factors

Table 4.10: Environmental and Climate Factors

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
Climate change poses financing risk	119	1.00	4.00	2.8067	.08119	.88564
Environmental sustainability influences loan approval	119	1.00	5.00	2.7983	.08977	.97928
Climate insurance improves lending confidence	119	1.00	5.00	2.8151	.08603	.93850
Soil degradation influences risk evaluation	119	1.00	4.00	2.8908	.08164	.89053

Source: own survey, 2025

The grand mean of 2.83 reflects a moderate level of agreement among respondents that environmental and climate factors influence agricultural lending decisions. Although the mean does not indicate strong agreement (i.e., 3.0 or higher), it signals that these variables are acknowledged as important considerations by commercial banks in Ethiopia. The item **"**Soil degradation influences risk evaluation**"** scored the highest (Mean = 2.89**),** suggesting that banks are particularly concerned about land quality when assessing agricultural loan applications. This is followed closely by "Climate insurance improves lending confidence" (Mean = 2.82), indicating that risk-mitigation tools such as insurance are seen as facilitating greater credit provision. The lowest-rated item, "Environmental sustainability influences loan approval" (Mean = 2.80**),** still shows modest agreement, suggesting that sustainability practices are recognized, but perhaps not yet fully integrated into loan decision criteria. The standard deviations range

between 0.89 and 0.98, indicating a moderate spread of responses and suggesting some variation in perception across respondents, likely reflecting differences in bank policy or geographic exposure to environmental risk. This analysis demonstrates that environmental and climate factors are considered moderately significant by commercial banks in Ethiopia when making Agricultural Loan decisions. The insights suggest that while these factors are not yet dominant determinants, concerns around soil degradation, climate change, and the availability of climate-risk mitigation tools are influencing credit risk evaluations and overall lending behavior.

4.5 Inferential Analysis

4.5.1 Correlation Analysis

To examine the strength and direction of the relationships between the dependent variable (Agricultural Loan) and the independent variables, a Pearson correlation analysis was conducted. The results are summarized in Table 4.4.

Table 4.11: Pearson Correlation Matrix between Agricultural Loan and Independent Variables

Correlations									
		AL	BS	EI	RE	RM	BSF	PIF	ECF
Agriloan	Pearson Correlation	1	.347**	.184*	.097	.362**	.122	.314**	.313**
	Sig. (2-tailed)		.000	.045	.296	.000	.188	.000	.001
	N	119	119	119	119	119	119	119	119
Bankspec	Pearson Correlation	.347**	1	.081	.026	.132	.027	.042	.008
	Sig. (2-tailed)	.000		.381	.780	.154	.770	.647	.932
	N	119	119	119	119	119	119	119	119
EconomicIndicators	Pearson Correlation	.184*	.081	1	-.137	.113	.088	.039	.169
	Sig. (2-tailed)	.045	.381		.138	.219	.342	.671	.066

	N	119	119	119	119	119	119	119	119
Regulatoryenvt	Pearson Correlation	.097	.026	-.137	1	-.091	.016	-.014	-.049
	Sig. (2-tailed)	.296	.780	.138		.325	.862	.882	.598
	N	119	119	119	119	119	119	119	119
Riskassess	Pearson Correlation	.362**	.132	.113	-.091	1	.054	.277**	.133
	Sig. (2-tailed)	.000	.154	.219	.325		.557	.002	.150
	N	119	119	119	119	119	119	119	119
Borrowerspecific	Pearson Correlation	.122	.027	.088	.016	.054	1	.135	-.025
	Sig. (2-tailed)	.188	.770	.342	.862	.557		.144	.785
	N	119	119	119	119	119	119	119	119
Politicalinsti	Pearson Correlation	.314**	.042	.039	-.014	.277**	.135	1	.129
	Sig. (2-tailed)	.000	.647	.671	.882	.002	.144		.162
	N	119	119	119	119	119	119	119	119
Environmentclimate	Pearson Correlation	.313**	.008	.169	-.049	.133	-.025	.129	1
	Sig. (2-tailed)	.001	.932	.066	.598	.150	.785	.162	
	N	119	119	119	119	119	119	119	119
**. Correlation is significant at the 0.01 level (2-tailed).									
*. Correlation is significant at the 0.05 level (2-tailed).									

Source: own survey, 2025

The correlation matrix shows that several independent variables have statistically significant relationships with the dependent variable, Agricultural Loan (AL). Bank-Specific Factors (BS) exhibited a moderate positive correlation with AL ($r = .347$, $p < 0.01$), suggesting that strong internal banking strategies positively influence agricultural lending. Risk Management (RM) also showed a moderate positive relationship with AL ($r = .362$, $p < 0.01$). Political and Institutional Factors (PIF) and Environmental and Climate Factors (ECF) were both moderately correlated with AL ($r = .314$ and $r = .313$, respectively; $p < 0.01$). Economic Indicators (EI) had a weak but significant correlation with AL ($r = .184$, $p < 0.05$).Regulatory Environment (RE), Borrower-Specific Factors (BSF), and others showed weak or statistically non-significant relationships with AL.

4.5.2 Diagnostics tests /Assumption/

According to Field (2013), conducting multiple linear regression requires the verification of several key assumptions to ensure the validity of the model and the accuracy of inferences drawn about the population. In line with the Classical Linear Regression Model (CLRM), it is essential to test for assumptions such as linearity, normality of residuals, multicollinearity, and homoscedasticity. Accordingly, diagnostic tests were conducted as part of a preliminary analysis to assess the extent to which the data meet these assumptions and to validate the suitability of the regression model employed in this study.

4.5.2.1 Linearity test

To conduct linear regression analysis, it is essential that the relationship between the dependent and independent variables is linear (Hayes et al., 2012). This assumption implies that changes in the independent variables correspond proportionally to changes in the dependent variable. To assess this, scatter plots were generated using SPSS version 26, illustrating the relationships between each independent variable and the dependent variable—agricultural Loan.

The visual inspection of the residual scatter plot indicated that the data points were generally aligned along a straight line from the bottom left to the top right of the plot. This pattern suggests that the assumption of linearity is reasonably met. In regression analysis, linearity is confirmed

when the plotted points exhibit a trend that can be approximated by a straight line. Therefore, based on the scatter plot outputs, the linear relationship between the independent variables and the dependent variable was supported in this study.

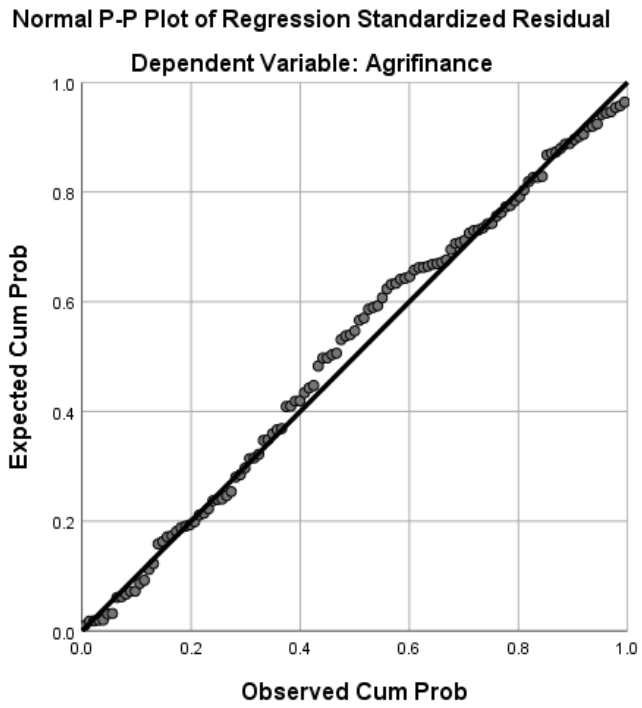


Figure 2: Linearity test

Source: own survey, 2025

4.5.2.2 Normality Test

The process of linear regression analysis requires verifying the normality of the data distribution. According to Ghasemi and Zahediasl (2012), normality can be questioned when the distribution curve is skewed either to the left or right, indicating that the data may not follow a normal distribution. In this study, the normality of the data was assessed using SPSS 26 by examining skewness and kurtosis values. Skewness measures the degree of asymmetry in the data distribution—how much the data are concentrated on one side of the mean. Field (2016) notes that the closer the skewness value is to zero, the more normally distributed the data is considered to be. Kurtosis, on the other hand, measures the "peakedness" of the distribution. Positive kurtosis indicates a sharper peak than a normal distribution, while negative kurtosis indicates a flatter distribution.

Additionally, histograms were used to visually inspect the frequency distribution of the variables. Histograms plot variable values on the X-axis and the frequency of those values on the Y-axis, providing an easy way to observe the data distribution. For normally distributed data, the observations cluster symmetrically around the mean, forming a bell-shaped curve. This combined approach of numerical (skewness and kurtosis) and graphical (histogram) analysis ensured the data met the normality assumption required for valid regression results.

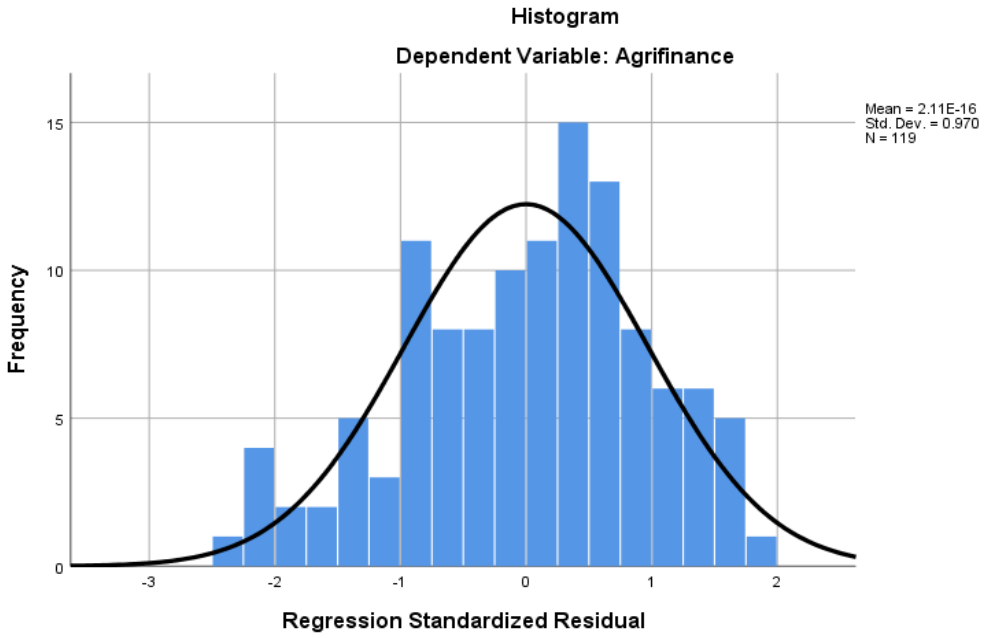


Figure 3: Normality test

Source: own survey, 2025

4.5.2.3 Multi-collinearity Test

Multicollinearity among the independent variables was assessed using Variance Inflation Factor (VIF) and Tolerance statistics. The results showed that all predictors had tolerance values between 0.887 and 0.976, and VIF values ranged from 1.025 to 1.127. Since these values are well within the acceptable limits (tolerance > 0.1 and VIF < 5), there is no evidence of multicollinearity among the independent variables. This indicates that the variables included in the regression model are sufficiently independent, allowing for reliable estimation and interpretation of the regression coefficients.

Table 4.12: Result of Multi-collinearity

Variable	Tolerance	VIF
Bank-specific factors	0.976	1.025
Economic indicators	0.935	1.070
Regulatory environment	0.972	1.029
Risk assessment	0.887	1.127
Borrower-specific factors	0.971	1.030
Political & institutional	0.899	1.112
Environmental & climate	0.945	1.058

Source: own survey, 2025

4.5.2.4 Homoscedasticity Test

According to Olvera and Zumbo (2019), homoscedasticity refers to the assumption that the variance of the residuals remains constant across all levels of the independent variables. In the context of linear regression, this implies that the residuals (errors) should exhibit equal variance regardless of the value of the predictor variables. Ensuring homoscedasticity is essential for validating the reliability and efficiency of the regression model, as heteroscedasticity may indicate biased or inefficient estimates.

To examine this assumption, the researcher employed a scatter plot of standardized residuals (errors) against the standardized predicted values (ZPRED) of the dependent variable, following the procedure recommended by Erik (2014). A random and evenly dispersed pattern of points around zero in the scatter plot would indicate that the homoscedasticity assumption has been met. The corresponding test results are presented in the figure below.

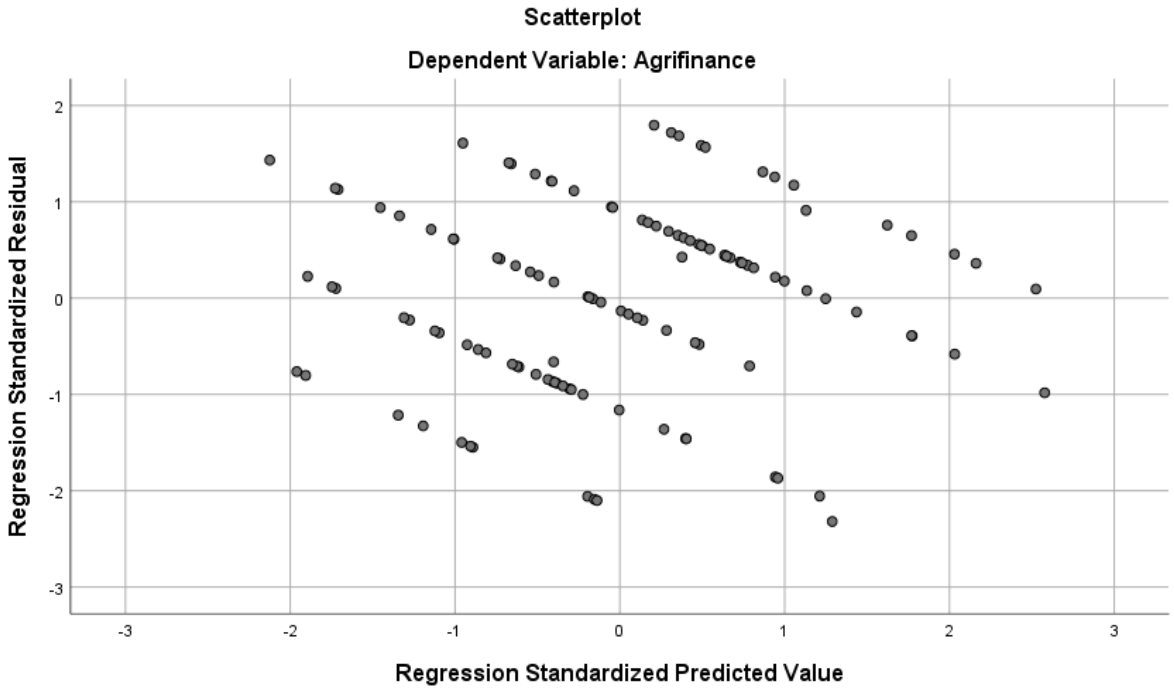


Figure 4: Homoscedasticity result

Source: own survey, 2025

The scatter plot shows that most of the data points are clustered around the zero line, indicating that the assumption of homoscedasticity is reasonably satisfied.

4.5.2.5 Autocorrelation Test

Autocorrelation refers to the correlation of error terms across observations, implying that the residuals are not independent of one another. This violates a key assumption of linear regression—that the errors are uncorrelated and linearly independent. The Durbin-Watson (DW) statistic is commonly used to detect the presence of autocorrelation, particularly first-order autocorrelation. The DW statistic ranges from 0 to 4, with a value around 2 indicating no autocorrelation. According to Babatunde (2014), a value between 1.50 and 2.50 is generally considered acceptable for assuming the independence of residuals. In this study, the Durbin-Watson test was employed to assess whether autocorrelation exists among the residuals. The interpretation follows the standard rejection and acceptance criteria based on the calculated DW value.

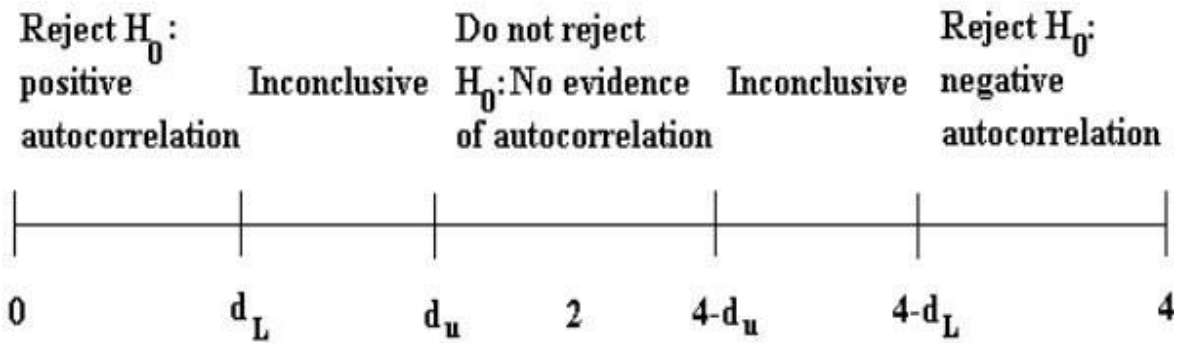


Figure 5. Durbin-Watson test

Model Summary

Durbin-Waston test of autocorrelation

autocorrelation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.604[a]	.364	.324	.96369	1.745

a. Predictors: BS, EI, RE, RM, BSF, PIF, ECF

b. Dependent Variable: AL

Source: own survey, 2025

According to the model summary presented above, the regression analysis shows that the independent variables—Bank-Specific Factors (BS), Economic Indicators (EI), Regulatory Environment (RE), Risk Management (RM), Borrower-Specific Factors (BSF), Political and Institutional Factors (PIF), and Environmental and Climate Factors (ECF)—collectively explain a significant proportion of the variation in Agricultural Loan (AL). Specifically, the R-squared (R^2) value is 0.364, indicating that approximately 36.4% of the variance in agricultural loan provision by commercial banks is explained by these predictors. The remaining 63.6% of the variation may be attributed to other factors not included in this model.

As noted by Hair et al. (2014), the coefficient of determination (R^2) reflects the extent to which the variability of the dependent variable is accounted for by the regression model. A higher R^2 value implies greater explanatory power. In this case, while the model provides meaningful

insights, it also suggests room for exploring other external determinants that may influence Agricultural Loan.

Furthermore, the Durbin-Watson (DW) statistic is 1.745, which falls within the acceptable range of 1.5 to 2.5, suggesting that the assumption of no autocorrelation among the residuals is not violated. This implies that the residuals (errors) in the regression model are approximately independent, enhancing the validity and reliability of the estimated coefficients.

Table 4.14: ANOVA result

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59.083	7	8.440	9.088	.000[b]
	Residual	103.086	111	.929		
	Total	162.169	118			
a. Dependent Variable: Agriloan						
b. Predictors: (Constant), Environmentclimate, Bankspec, Borrowerspecific, Regulatoryenvt, Politicalinsti, EconomicIndicators, Riskassess						

Source: personal survey, 2025

According to the aforementioned table, the F-value of 9.088 with a p-value < 0.001 indicates that the regression model is statistically significant overall. This means that, collectively, the seven independent variables (Bank-Specific Factors, Economic Indicators, Regulatory Environment, Risk Management, Borrower-Specific Factors, Political and Institutional Factors, and Environmental and Climate Factors) significantly predict Agricultural Loan decisions. The low p-value (Sig. = 0.000) confirms that the probability of the observed F-statistic occurring by chance is almost zero, providing strong evidence to reject the null hypothesis that all regression coefficients are equal to zero.

Table 4.15 Coefficients [a]

Coefficients[a]								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-1.790	.685		-2.615	.010		
	Bankspec	.466	.122	.292	3.817	.000	.976	1.025
	EconomicIndicators	.137	.110	.097	1.245	.216	.935	1.070
	Regulatoryenvt	.185	.103	.137	1.789	.076	.972	1.029
	Riskassess	.307	.105	.235	2.927	.004	.887	1.127
	Borrowerspecific	.099	.108	.070	.913	.363	.971	1.030
	Politicalinsti	.252	.104	.194	2.428	.017	.899	1.112
	Environmentclimate	.329	.104	.246	3.164	.002	.945	1.058
a. Dependent Variable: Agriloan								

Source: own survey, 2025

Based on the data shown in the preceding table, Bank-specific factors, including liquidity, size, strategic mission, and capitalization, have a strong and statistically significant positive effect on agricultural lending. A unit increase in favorable bank-specific factors increases the likelihood of agricultural loan provision by 0.466 units. This aligns with literature suggesting that well-capitalized banks with stronger internal policies and rural outreach are more willing to extend credit to risky sectors like agriculture (Afolabi, 2021).

Though economic indicators like GDP growth, interest rates, inflation, and exchange rates show a positive effect, the result is not statistically significant. This suggests that macroeconomic trends alone may not drive banks' decisions to lend to agriculture unless accompanied by supportive bank policies or risk mitigation frameworks. These finding echoes Abate et al. (2020), who found that GDP growth had limited predictive power on sector-specific lending in Ethiopia.

The regulatory environment, such as collateral requirements and interest rate ceilings, has a marginally insignificant positive effect. Though the coefficient is positive, the p-value (0.076) exceeds the conventional 0.05 threshold. This result suggests that regulations do affect lending but may not act as a standalone driver. A more supportive regulatory framework could enhance lending effectiveness, particularly if aligned with risk-sharing programs (IMF, 2022).

Risk assessment and management practices—including analysis of production, credit, and market risks—show a statistically significant positive impact. A 1-unit increase in effective risk management is associated with a 0.307 increase in agricultural loan likelihood. This result underscores the importance of developing agricultural risk analytics, such as crop insurance or forward contracting (World Bank, 2021).

Borrower-specific factors—such as the credit history, financial literacy, and collateral capacity of applicants—show a positive but statistically insignificant influence on loan decisions. This suggests that banks may weigh borrower-specific information less heavily, possibly due to perceived uniformity in risk or reliance on institutional criteria. This outcome partially contrasts with Eyo and Fagbenro (2020), who emphasized borrower characteristics in explaining credit access.

Political and institutional support factors significantly affect lending. The presence of stable governance, agricultural extension programs, and government loan guarantees enhances banks' confidence. The positive coefficient of 0.252 and statistically significant p-value reinforce findings by FAO (2021), which emphasized that government support is a major enabler of private sector financing in agriculture.

Environmental and climate conditions—such as drought risk, soil degradation, and access to climate insurance—have a strong and significant positive relationship with agricultural loan decisions. Banks with access to climate mitigation tools and environmental information are more likely to lend. This supports findings by Gebre et al. (2023), who showed that climate-resilient finance is increasingly critical in Ethiopia.

4.6 Hypothesis tests

In order to assess the effect of each independent variable on Agricultural Loan by commercial banks, multiple linear regression analysis was conducted. The regression output includes key statistics such as R^2, ANOVA significance, and standardized coefficients (Beta), which were used to test the formulated hypotheses.

Model Summary and Overall Significance

As shown in the model summary, the regression model has an R value of 0.604 and an R^2 of 0.364. This indicates that approximately 36.4% of the variation in agricultural loan provision is explained by the seven independent variables included in the model. The ANOVA table reveals a significant F-value ($F = 9.088$, $p = 0.000$), confirming that the model is statistically significant and suitable for hypothesis testing.

Hypothesis Test Results

H1: Bank-specific factors have a significant positive effect on the provision of agricultural loans by commercial banks.

As indicated in the regression output, bank-specific factors have a statistically significant positive effect on the provision of agricultural loans. The unstandardized regression coefficient (B) is 0.466, with a standardized beta value (β) of 0.292. The corresponding t-value is 3.817, and the p-value is 0.000, which is less than 0.01. This demonstrates that the relationship is statistically significant at the 1% significance level. Therefore, Hypothesis 1 (H1) — that bank-specific factors positively and significantly affect agricultural loan provision — are supported by the data.

H2: Favorable economic indicators significantly enhance agricultural loan provision by commercial banks.

The regression results show that economic indicators do not have a statistically significant effect on agricultural loan provision. The unstandardized coefficient (B) is 0.137, and the standardized

beta (β) is 0.097. The t-value is 1.245, and the p-value is 0.216, which is greater than the 0.05 significance level. This indicates that the relationship is not statistically significant. Therefore, Hypothesis 2 (H2)**,** that favorable economic indicators significantly enhance agricultural loan provision is not supported by the data. The regression results indicate that economic indicators (B = 0.137, β = 0.097, t = 1.245, p = 0.216) do not have a statistically significant effect on agricultural loan provision, as the p-value exceeds the 0.05 threshold. This suggests that in the Ethiopian banking context, macroeconomic factors such as interest rates, inflation, or exchange rates may not directly influence lending decisions. Instead, banks may prioritize internal policies, risk assessments, or regulatory directives over broader economic conditions. As a result, Hypothesis 2 is not supported.

H3: A conducive regulatory environment significantly promotes agricultural loan provision by commercial banks.

The regression analysis reveals that the regulatory environment has a positive but statistically marginal effect on agricultural loan provision (B = 0.185, β = 0.137, t = 1.789, p = 0.076). Although the p-value exceeds the conventional 0.05 threshold, it is close enough to suggest a potential weak or emerging influence. This implies that while current regulatory frameworks may not strongly drive Agricultural Loan decisions, there may be underlying trends or partial effects worth further investigation. Therefore, Hypothesis 3 is not statistically supported, but it highlights a possible association warranting future study.

H4: Effective risk assessment and risk management practices significantly increase

The regression results indicate that risk assessment and management practices significantly and positively influence agricultural loan provision (B = 0.307, β = 0.235, *t* = 2.927, *p* = 0.004). The p-value is well below the 0.01 threshold, confirming statistical significance at the 1% level. This supports Hypothesis 4, suggesting that the effectiveness of risk evaluation mechanisms plays a critical role in enhancing commercial banks' willingness to finance agricultural activities.

*H5****: Borrower-specific characteristics significantly influence the provision of agricultural loans by commercial banks.***

The regression results show that borrower-specific characteristics do not have a statistically significant effect on agricultural loan provision (B = 0.099, β = 0.070, t = 0.913, p = 0.363). Since the p-value is substantially higher than the 0.05 threshold, this result indicates a lack of significant relationship. Therefore, Hypothesis 5 is not supported, implying that within this sample, borrower-related factors such as experience, financial literacy, or credit history may not play a decisive role in influencing commercial banks' lending decisions for agricultural projects.

The insignificance of borrower-specific characteristics (p = 0.363) suggests that commercial banks in Ethiopia may prioritize institutional policies and external risk factors over individual borrower traits when providing agricultural loans. This may be due to the high-risk nature of agriculture, where systemic issues outweigh personal attributes like experience or financial literacy. It also indicates that standardized lending procedures may minimize the influence of borrower-level differences.

H6: Political and institutional support significantly increases agricultural loan provision by commercial banks.

The statistically significant result (p = 0.017) supports H6, indicating that political and institutional support has a meaningful positive effect on agricultural loan provision by commercial banks in Ethiopia. This implies that stable political conditions and strong institutional frameworks—such as guarantees, subsidies, and supportive policies—enhance banks' confidence and willingness to finance agricultural projects.

H7: Environmental and climate-related risks significantly affect the provision of agricultural

The regression result (B = 0.329, β = 0.246, t = 3.164, p = 0.002) indicates a statistically significant relationship at the 1% level. Therefore**,** H7 is supported**,** confirming that environmental and climate-related factors significantly influence the provision of agricultural loans by commercial banks. This suggests that issues such as climate change, soil degradation, and weather-related risks are critical considerations in banks' lending decisions in the agricultural sector.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Major Findings

This study was conducted to investigate the critical determinants that affect Agricultural Loan decisions by commercial banks in Ethiopia. The research employed quantitative approaches by using a structured questionnaire directed at loan officers and credit analysts across selected commercial banks. The study was guided by five specific objectives which aimed to identify influencing factors, assess internal policies, analyze borrower characteristics, examine external barriers, and explore institutional frameworks.

The findings are summarized as follows

5.1.1 Bank-Specific Factors

Internal institutional factors such as credit policy frameworks, risk appetite, loan recovery experience, and sectoral priority significantly influence the decision-making process regarding Agricultural Loan. Commercial banks often perceive agriculture as a high-risk venture due to its susceptibility to climate shocks, market fluctuations, and production variability. As a result, banks tend to prioritize other sectors with more predictable cash flows and stronger guarantees. Additionally, stringent collateral requirements, coupled with a lack of specialized knowledge among credit officers, further hinder agricultural lending.

5.1.2 Borrower-Specific Factors

Borrower-specific factors such as financial literacy, farming experience, credit history, and ability to provide acceptable collateral were found to be decisive in loan appraisal outcomes. Banks expressed greater confidence in lending to clients who demonstrated proper record-keeping, viable business planning, and repayment capacity. Farmers who lacked formal education or prior borrowing experience were often disadvantaged, even if their projects were technically feasible. This indicates a knowledge and trust gap between financial institutions and smallholder agricultural borrowers.

5.1.3 Political and Institutional Factors

Government policies, legal frameworks, and institutional mechanisms play a pivotal role in influencing the flow of agricultural finance. Although Ethiopia's government has introduced several agricultural development policies and initiatives, inconsistencies in policy implementation, lack of coordination among stakeholders, and inadequate institutional support continue to undermine these efforts. The absence of an effective credit guarantee system, delays in disbursement of government-supported funds, and weak enforcement of loan contracts contribute to the overall reluctance of commercial banks to lend to the sector.

5.1.4 Environmental and Climate Factors

Environmental uncertainties, particularly those related to climate change such as drought, flooding, and pest outbreaks, were perceived as major risks by banks. The lack of affordable crop insurance and climate-resilient infrastructure leaves both farmers and lenders exposed. Banks reported limited confidence in lending to areas prone to ecological shocks, thus widening the rural finance gap. This reinforces the need for climate-smart finance tools and risk-sharing mechanisms that can alleviate lender exposure.

5.1.5 Barriers to Agricultural Finance

The study identified multiple systemic and operational barriers, including underdeveloped rural infrastructure (roads, storage, market access), insufficient agro-economic data, weak collateral enforcement, and lack of agricultural credit training among banking personnel. These structural challenges diminish the attractiveness of agricultural lending and limit banks' ability to scale their services to remote and underserved regions.

5.2 Conclusions

This study concludes that Agricultural Loan in Ethiopia is shaped by a complex interplay of internal institutional policies, borrower characteristics, and external macroeconomic and environmental variables. While commercial banks express a cautious interest in the agricultural sector, their actual lending decisions are highly risk-averse and influenced by perceived uncertainties and operational constraints.

Internally, the absence of agricultural-specific credit assessment tools and inadequate staff expertise results in generalized risk classifications that fail to differentiate viable agricultural investments from high-risk ventures. Borrower-side limitations, including low financial literacy and lack of formal documentation, exacerbate the credit access challenge. Externally, the policy and institutional ecosystem remains fragmented, with limited incentives or safety nets to encourage bank engagement.

Despite these challenges, the research finds substantial potential for improving agricultural loan outcomes through targeted reforms and innovative financial instruments. Addressing these determinants could not only enhance credit flow to agriculture but also contribute meaningfully to Ethiopia's broader goals of food security, rural development, and economic diversification.

5.3 Recommendations

To address the identified challenges and promote sustainable Agricultural Loan, the following strategic recommendations are proposed for key stakeholders:

5.3.1 Recommendations for Commercial Banks

a. ***Develop Sector-Specific Lending Products***: Tailor financial products to accommodate the unique needs of the agricultural sector, including seasonal loan structures, grace periods, and cash-flow-based lending.
b. ***Build Internal Capacity:*** Train loan officers and credit analysts in agricultural project evaluation, climate risk assessment, and value-chain financing.
c. ***Leverage Technology and Data***: Utilize digital platforms and geospatial data to assess farm productivity and creditworthiness in the absence of conventional records.
d. ***Adopt Alternative Collateral Mechanisms***: Implement flexible collateral frameworks such as movable assets, group lending guarantees, and warehouse receipt systems.

5.3.2 Recommendations for Government and Policymakers

a. ***Strengthen Credit Guarantee Schemes***: Expand government-backed risk-sharing facilities to reduce exposure for banks lending to smallholder farmers.
b. ***Ensure Policy Consistency and Implementation***: Align national strategies for agricultural transformation with practical financing frameworks and enforce supportive regulations.

c. ***Invest in Rural Infrastructure***: Improve roads, irrigation systems, and market facilities to reduce logistics costs and post-harvest losses.
d. ***Promote Agricultural Insurance***: Partner with the private sector to offer affordable, accessible, and reliable crop and weather insurance products.

5.3.3 Recommendations for Farmers and Agricultural Borrowers

a. ***Enhance Financial Literacy***: Engage in training programs that improve understanding of financial services, loan repayment obligations, and business planning.
b. ***Maintain Accurate Records***: Document income, expenses, and production data to strengthen credibility with lenders.
c. ***Form Cooperatives or Producer Groups***: Pool resources and guarantee joint liability to improve bargaining power and reduce perceived lending risk.

5.3.4 Recommendations for Development Partners and NGOs

a. ***Support Innovation in Agricultural Finance***: Pilot digital credit scoring models, blended finance, and results-based financing in rural areas.
b. ***Provide Technical Assistance***: Assist banks in developing climate-resilient credit products and building Agricultural Loan expertise.
c. ***Facilitate Public-Private Partnerships***: Promote multi-stakeholder collaborations to scale inclusive finance initiatives and policy reforms.

5.4 Suggestions for Future Research

This study focused on selected commercial banks in Ethiopia. Future research could explore the comparative performance of agricultural loans versus other sectors across different regions, longitudinal studies on the impact of agricultural credit on farm productivity and household income and the role of digital financial services and fin-tech in reducing the agricultural finance gap.

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QUESTIONNAIRE

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF CORPORATE FINANCE

Dear Respondent,

I am conducting a research study titled "Determinants of Agricultural Loan by Commercial Banks in Ethiopia: A Case of Some Selected Commercial Banks" as part of the requirements for the completion of a postgraduate degree. The objective of this study is to examine the key factors influencing the decision of commercial banks to provide financing to the agricultural sector in Ethiopia. You have been selected as a respondent because of your role and expertise in credit assessment, loan management, or related banking operations. Your responses will be kept strictly confidential and used solely for academic purposes.

Thank you for your time and participation.

Section A: Demographic Information

Instruction: Please put (□) in each box for the option that best describes you:

1. **Gender:**
   - ☐ Male
   - ☐ Female
2. **Age:**
   - ☐ 25–35 years
   - ☐ 36–45 years
   - ☐ 45–60 years
   - ☐ 60 years and above
3. **Educational Qualification:**
   - ☐ Diploma
   - ☐ Bachelor's Degree

☐ Master's Degree

☐ PhD

4. **Job Title:**

☐ Credit Relationship Manager (CRM)

☐ Credit Analyst/underwriting

☐ Other: _____

5. **Years of Experience in the Banking Sector**:

☐ Less than 5 years

☐ 5–10 years

☐ 11–15 years

☐ Above 15 years

Section B: Dependent and independent variables

Instruction: Please indicate the degree of significance for each factor in determining your bank's decision to provide Agricultural Loan.

Scale: 1 = Not Significant at All, 2 = Slightly Significant, 3 = Moderately Significant, 4 = Significant, 5 = Very Significant

Statement	1	2	3	4	5
Agricultural Loan (Dependent Variable)					
1. Our bank regularly provides loans to the agricultural sector eligible borrowers.					
2. The proportion of our total loan portfolio allocated to agriculture is increasing.					
3. Agricultural Loan is a strategic priority in our bank's lending operations.					

4. Repayment performance of agricultural loans in our bank is satisfactory.					
5. Our bank offers a diverse range of financing products tailored to agricultural activities.					
Bank-Specific Factors					
6. The size of our bank significantly influences our willingness to provide agricultural loans.					
7. The level of capitalization of our bank plays a significant role in agricultural lending decisions.					
8. The liquidity position of our bank significantly affects our ability to finance to the agricultural sector.					
9. Capital adequacy requirements influence our decision to lend to the agricultural sector.					
10. The comprehensiveness of our internal risk assessment determines agricultural loan approvals.					
11. Our bank's strategic focus or mission influences Agricultural Loan priorities.					
Economic Indicators					
12. The general economic environment (e.g., GDP growth) impacts our agricultural lending decisions.					
13. Prevailing interest rates influence our willingness to lend to the agricultural sector.					
14. Inflation affects the disbursement and repayment structure of agricultural loans.					
15. Exchange rate fluctuations affect agricultural input costs and hence influence loan risk.					
Regulatory Environment					

16. Regulations by the National Bank of Ethiopia influence our Agricultural Loan operations.					
17. Current collateral requirements hinder applicants from accessing agricultural loans.					
18. Government-set interest rate ceilings or floors impact our agricultural lending decisions.					
Risk Assessment and Management					
19. Production risks (e.g., drought, pests) are a significant factor in our agricultural lending policy.					
20. Price volatility of agricultural products affects our decision to approve loans.					
21. Credit risk (likelihood of borrower default) influences our agricultural lending strategy.					
22. Market risk is a key consideration in evaluating agricultural projects.					
23. Availability of risk-sharing mechanisms (e.g., guarantees, insurance) affects lending to the sector.					
Borrower-Specific Factors					
24. The borrower's experience in agricultural activities influences loan approval.					
25. The financial literacy of borrowers affects our confidence in loan repayment.					
26. The borrower's repayment history is a major determinant in credit decisions.					
27. The scale of the borrower's agricultural operations influences the size and terms of the loan.					

28. The borrower's business plan quality affects our willingness to finance agricultural projects.					
Political and Institutional Factors					
29. Government subsidies or support programs influence our lending decisions.					
30. Political stability increases our bank's confidence in agricultural lending.					
31. Institutional support (e.g., agricultural extension services, cooperatives) facilitates agricultural loans.					
32. Availability of government-backed loan guarantees increases our willingness to lend.					
Environmental and Climate Factors					
33. Unpredictable weather patterns and climate change pose significant risks in Agricultural Loan.					
34. Environmental sustainability is a factor in our agricultural loan approval process.					
35. Availability of agricultural insurance or climate-risk mitigation tools enhances our lending decisions.					
36. Soil degradation and land-use concerns influence our risk evaluation for agricultural projects.					