ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

The effects of determinants in approval process of agricultural loan finance: case of Development bank of Ethiopia.

A thesis submitted to Addis Ababa University College of business and economics in partial fulfillment for the requirement for the award of the degree of masters of Science in accounting and finance (MSc)

By

Zewdneh Gashaw

Addis Ababa, Ethiopia

January, 2025

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Zewdneh Gashaw

Under the guidance of

Dr. Habtamu Berhanu

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ACRONYM

DBE – Development Bank of Ethiopia

NBE – National Bank of Ethiopia

SPSS – Statically Package for Social Science

DECLARATION

I, Zewdneh Gashaw, hereby declare that this thesis entitled “The effects of determinants in approval process of agricultural loan finance: case of development bank of Ethiopia.” is my original work under the guidance and supervision of Dr. Habtamu. Is my original work and the thesis has not been presented in any other university for the award of a degree or other qualifications in any other institutions and that all the sources that I used have been acknowledged.

Researcher’s Name	Date	Signature
Zewdneh Gashaw Belay	_____	_____

CERTIFICATE

This is to certify that the thesis entitles “The effects of determinants in approval process of agricultural loan finance: case of development bank of Ethiopia.”, submitted to Addis Ababa university college of business and economics for the award of the Degree of Master of science in accounting and finance (MSc) and is a record of genuine research work carried out by Mr. Zewdneh Gashaw under our guidance and supervision.

Therefore, we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree or diploma.

Main Adviser’s Name	Date	Signature
Habtamu Berhanu, PhD	27 August 2025	
Examiner’s Name	Date	Signature
Abebe Yitayew, PhD	27 August 2025	
Examiner’s Name	Date	Signature
Dakito Alemu, PhD	27 August 2025	

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Abstract

This thesis examines the effects of determinants in approval process of agricultural loan finance: case of development bank of Ethiopia. Loan determinants are critical in approval process of agriculture loan; influencing various aspects this study examines the effects of loan size, interest rate, repayment period and collateral on approval process of agriculture loan from DBE. The researcher utilized explanatory and descriptive research design and quantitative research approach. The research were conducted in DBE head office employees, out of three departments 443 employees was selected and draw 210 respondents by using stratified sampling method. Structured questionnaires were distributed and collected to get primary data. The study employs regression analysis to explore the relationship between loan determinants and approval process of agriculture loan. The findings of the study reveal that loan size, repayment period and collateral has a significant positive effect on approval process of agriculture loan, fostering higher levels of approval process of agriculture loan and in contrast the study found that interest rate has negative and insignificant effect on approval process of agriculture loan. Hence, the study suggests that the organization must develop more ground to simplify and digitalize the above determinants in order to increase approval process of agriculture loan towards meet the development goal of the country. The study provides valuable insights for future research and organizational operations aiming to improve the effects of loan determinants and future outcomes.

Key words: Loan determinants, Approval process of agriculture loan, Loan size, Interest rate, Repayment period, Collateral.

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the study

Agriculture remains a cornerstone of the global economy and primary source of livelihood for about 40% of the world's population. It is not just a means of food production but also a significant contributor to national GDPs, especially in developing countries. However the sector faces numerous challenges, including climate change, resource scarcity, and the need for sustainable practices. Therefore, it is important to support farmers in order to increase agricultural production. One of the fundamental tools that are used to support farmers is providing access to agricultural credit. Dr. F. Hollinnger (2017)

However, farmers in rural areas of developing countries still find it difficult to obtain credit to increase their production. (Yadav & Sharma, 2015) Difficulties in raising funds in rural areas resulted in a decline in production, gross domestic production (GDP), and the national food security of poor countries. (Guirkinger & Boucher, 2008) Therefore, access to agricultural credit is considered as an important factor in economic development, especially for low-income farmers. Ellis (2018)

According to NBE Agriculture is the backbone of Ethiopia's economy, employing the majority of the population and contributing significantly to the country's GDP which is 35.45% in 2020. It employs 68.4% of the population who is directly engaged in agriculture. Agriculture contributed about 87.3% of export earnings in 2019. NBE (2019)

Agricultural loans are financial products designed to support farmers and agribusinesses in their operations. These loans can be used for various purposes, including purchasing seeds, fertilizers, equipment, and livestock, as well as funding irrigation projects and other infrastructure improvements. The availability and terms of agricultural loans can significantly impact the agricultural sector's productivity and sustainability. Ellis (2018)

Agricultural loans can be categorized into short-term, medium-term, and long-term loans, depending on the duration and purpose. Short-term loans are typically used for seasonal activities like purchasing seeds and fertilizers, while medium-term loans may fund equipment purchases. Long-term loans are often used for infrastructure projects like irrigation systems and land

development. The interest rates and repayment terms of agricultural loans vary based on factors such as the borrower's creditworthiness, the type of loan, and the lender's policies. Favorable interest rates and flexible repayment terms can encourage farmers to invest in their operations, leading to increased productivity and growth. Agricultural loans play a crucial role in promoting economic development, especially in rural areas. By providing farmers with the necessary capital to invest in their operations, these loans can lead to higher agricultural output, increased employment, and improved living standards for rural communities. The agricultural sector is inherently risky due to factors like weather variability, pests, and market fluctuations. These risks can affect farmers' ability to repay loans, leading to higher default rates. Lenders must carefully assess these risks and implement measures to mitigate them, such as offering crop insurance and providing financial literacy training to borrowers. Gebissa Y.W (2021)

In Ethiopia, the agricultural sector needs significant financial services for transformation of traditional agriculture sector to modern commercialization farming. In fact, the required growth of productivity in agriculture means that more capital must be invested in it. Farmers' need much more capital than they can afford to save and small and marginal farmers with meager savings require a higher input of capital, which is credit. Contrary to this, approval process of agriculture finance in Ethiopia was 8.3% which is the lowest among SSA countries 12.4%. AGRA, (2019)

Even if demand for agriculture finance increase over time in Ethiopia, it is far away from the availability of financial resources. This can be explained due to many finance related constraints for agriculture sector. One such constraint mostly mentioned and yet not adequately addressed is the lack of access to commercial agricultural credit. The share of domestic commercial banks credit to agriculture has declined consistently from 1998 to 2019, except with a marginal increase in 2014 and 2015 (NBE, 2019). Agricultural loan financing in Ethiopia has evolved over the years, with focus on expanding financial inclusion to rural areas and smallholder farmers. The development bank of Ethiopia, for instance, has been instrumental in providing credit services to agricultural projects, aiming to stimulate economic development and enhance food security. NBE (2020)

The development bank of Ethiopia (DBE) is one of the financial institutions engaged in providing short, medium and long term development credits. DBE's distinguishes feature is its "project" based lending tradition. Project financed by the bank are carefully selected and

prepared through appraised, closely supervised and systematically evaluated. DBE plays a significant role in agricultural finance, which is a key sector for the country's economy. The DBE is a specialized financial institution that aims to promote Ethiopia's national development agenda. It does so by providing development finance and technical support to viable projects in priority areas set by the government, including agriculture. DBE (2015)

DBE offers loans and financial support to projects in the agricultural sector that are deemed viable and align with the national development goals. Alongside financial assistance, the bank provides technical support to ensure the success and sustainability of agricultural projects. It mobilizes funds from both domestic and foreign sources to finance agricultural development. The bank has designed a growth strategy to play a pivotal role in financing agriculture, aiming to approve significant funding for the sector. In the last five consecutive years, DBE disbursed a total of birr 39.3 billion in agricultural loans, here's the breakdown of the credit operations during that period. DBE approved a total of birr 26.8 billion in agriculture loans the actual disbursement of loans amounted to birr 12.82 billion which is 47% of the total approved loan. DBE (2015)

It's important to note that DBE's commitment to financing agriculture is part of the government's broader strategy to increase loans to the agricultural sector. Despite the recent efforts, less than 10% of total loans were directed to agriculture in the past five years. However, there is a targeted goal to increase this value to between 30% and 40%. The DBE continues to play a crucial role in supporting agricultural development in Ethiopia, aiming for sustainable growth and improved livelihoods for farmers and the community. NBE (2019)

1.2 Statement of the problem

Many Ethiopian farmers struggle to secure loans due to stringent collateral, high interest rates, and complex application processes. And also the lack of tailored financial products that meet the specific needs of smallholder farmers further exacerbates the issue. Odihiambo, W. (2007)

The Shortage of financial assistance in the country is the root cause of the agricultural loan problem. Traditional farming practices and tools, coupled with the fast-increasing population, have led farmers to expand agricultural farmland into delicate ecological systems, risking the fabric of their own livelihoods. Gebissa Y.W (2021)

Banks and other lending bodies often perceive agriculture as a high-risk sector due to its susceptibility to climate variability and market fluctuations. And also farmer's limited understanding of financial management and credit utilization reduce their ability to leverage loans effectively. Ruey, C.J, et al (2020)

Even if demand for agriculture finance increase over time in Ethiopia, it is far away from the availability of financial resources. This can be explained due to many finance related constraints for agriculture sector. One such constraint mostly mentioned and yet not adequately addressed is the lack of access to commercial agricultural credit. The share of domestic commercial banks credit to agriculture has declined consistently from 1998 to 2019, except with a marginal increase in 2014 and 2015. NBE (2019)

Most smallholder farmers in Ethiopia lack collateral and credit history, making it difficult for them to access formal credit from banks and financial institutions. As a result, they often rely on informal financing sources, such as moneylenders or microfinance institutions, which charge high-interest rates. Furthermore, there is a lack of coordination between different actors in the agricultural financing ecosystem, including government agencies, financial institutions, and farmers' organizations. These results in fragmented and inefficient financing programs that fail to address the needs of smallholder farmers. Ruey, C.J, et al (2020)

The need for this study arises from the growing concern that these determinants often create barriers for agriculture loan, which is the backbone of Ethiopia's economy. Inefficient loan approval process can have determinable effects on agricultural productivity and rural development. Delays in loan disbursement may result in missed planting seasons, reduced yields, and financial strain for farmers. Additionally, stringent requirements and lengthy loan process often deter farmers from seeking formal credit, thereby limiting their growth potential.

Previous studies in the area shown as they focuses on analysis of agricultural finance constraints from demand side and also focuses on smallholder farmers. Which means former studies focused on individual farmer and gives a general perspective of agriculture loan finance and economic growth and agriculture development. But this study conducted to fill the gap by making analysis at a bank level (DBE) that deals with approval process of agriculture loan finance. And the researcher found a gap which is there is not enough ground as such a well-focused analysis of

combined factors affecting approval process of agriculture loan. This study will fill the gap by identifying factors affecting approval process of agriculture loan and the information gap to access agricultural loan using recent data set. In addition this study examines the specific determinants came with the agricultural loan financing from DBE.

1.3 Research question

"What are the key determinants influencing the approval process of agricultural loan finance from DBE?

- What are the effects of loan size in approval process of agriculture loan?
- What are the effects of interest rate in approval process of agriculture loan?
- What are the effects of repayment period in approval process of agriculture loan?
- What are the effects of collateral in approval process of agriculture loan?

1.4 Research objective

1.4.1 General objective

The research objective of these study on determinants of agricultural finance in Ethiopia typically involve in identifying the determinants related to access finance for agricultural activities in the country specifically in DBE.

1.4.2 Specific objective

- To examine the effects of loan size in approval process of agriculture loan from DBE.
- To examine the effects of interest rate in approval process of agriculture loan from DBE.
- To examine the effects of repayment period in approval process of agriculture loan from DBE.
- To examine the effects of collateral requirement in approval process of agriculture loan from DBE.

1.5 Hypothesis of the study

The study hypothesizes that the likelihood of approval process of agricultural loans from the bank side. Approval process of agricultural loan from DBE is significantly influenced by several key determinants: loan size, collateral, interest rates, and repayment periods. Specifically, it posits that larger loan sizes increase the probability of loan access as they provide sufficient capital for substantial agricultural investments. Also higher collateral are expected to positively impact loan access, as they pose as a good recovery for loan repayment. Additionally, higher interest rates hypothesized to enhance loan accessibility by the bank because the higher the interest rate the financed loan will be greater. Finally, longer repayment periods are anticipated to positively influence loan access by giving farmers more time to generate income and repay their loans.

This hypothesis is grounded in the understanding that financial constraints and loan conditions play a crucial role in the decision-making process of farmers seeking credit. By empirically testing these relationships using data from DBE's head office employers, the study aims to provide a comprehensive analysis of how these determinants affect loan accessibility. In order to answer the research questions arise in this study and achieve its objective the researcher develops this hypothesis by examining the relationships.

H1: *Loan size has a significant positive effect on approval process of loan from DBE.*

H2: *Interest rate has a significant positive effect on approval process of loan from DBE.*

H3: *Repayment period has a significant positive effect on approval process of loan from DBE.*

H4: *Collateral has a significant positive effect on approval process of loan from DBE*.

1.6 Significance of the study

The findings of the study imply policy decisions related to agricultural financing in Ethiopia. The study can help policymakers to identify areas where interventions are needed to improve access to financing for farmers and to address the challenges facing the sector. Economic Development: Agriculture is a key sector in Ethiopia's economy, accounting for a significant proportion of the country's GDP and providing employment to a large portion of the population. The study's findings help to identify ways to improve the performance of the agriculture finance sector and

to promote sustainable economic development. The study also provides valuable insights for financial institutions and investors interested in financing agricultural activities in Ethiopia. The findings of the study help to inform investment decisions and main areas of opportunity in the sector. In summary, the study on " The effects of determinants in approval process of agricultural loan finance: case of development bank of Ethiopia " is significant as it contributes to the existing knowledge on agricultural financing, informs policy decisions, promotes economic development, and provides practical implications for financial institutions and investors.

1.7 Scope of the Study

The scope of the study is restricted to the effects of determinants in approval process of agricultural loan finance: case of development bank of Ethiopia. The study considers different factors that may determine the access of agricultural loan financing from development bank of Ethiopia. The thesis focused on commonly known agricultural financing determinants which covered in the research topic. To be Specific loan size, interest rate, repayment period and collateral. The paper conducted the effect of these determinants on approval process of agriculture loan.

1.8 Limitation of the study

The agricultural financing is a bit harder in undeveloped countries; there are many factors that hinder the access to agricultural loan. But this paper only assess development bank of Ethiopia's agricultural loan facility, but there are some institutions which offer agricultural loan. And also most farmers in Ethiopia use non institutional lending services which are not discussed in this paper. The other limitation of the study is time; the researcher is attending some other classes and fulfilling other demanding commitments.

1.9 Organization of the paper

This paper includes five chapters. The first chapter presents the introduction part includes background of the study, statement of the problem, objective of the study, significance of the research, scope and limitations of the paper. The second chapter deals with literature review both theoretical and empirical literatures about agricultural financing and also related titles. Under chapter three, the methodology used in this thesis which includes the research approach as well as describes the data collecting and analysis method used presented, reliability and validity of the study including

ethical consideration are also part of this chapter. The fourth chapter presents the findings of the study and discussions of the findings within the context of previous studies and the theories that reinforce the study. The fifth chapter presents a summary of findings, conclusions and recommendations arising from the study.

CHAPTER TWO

2. Review of related Literature review

2.1Theoretical review

2.1.1 Definition of Terminologies

Credit or loan: A credit or loan is a legally binding contract that is entered into by the borrower and the lender. The borrower obtains funds from the lender by pledging to repay the loan in full, including interest, at a later date. It was a contract that included provisions for future payments. Credit served as a way to finance a project that would eventually yield a profit in order to ease cash flow constraints. Eventually, if the negotiated debt is greater than the projected return on investment, a liquidity issue may arise. Petrick, (2004) in other word, the term credit is defined as a sum of money in favors of the person to whom control over it is transferred, and who undertakes to pay it back.

Agricultural Finance: It alludes to a financial industry that was created mainly to support agricultural produce financially. The production, processing, and marketing sectors of the industry might apply for finance related to agriculture. Financing options include leasing, short-, medium-, and long-term loans, as well as insurance for livestock and crops. The rationale behind the formation of agricultural financing is to create favorable conditions toward approval process of or acquiring of modern agricultural variable inputs, paving the way towards adopting of new technology, creating of credit access, help to achieve the objective of balanced income distribution and to avoid the effect of price policy which arise from state policy. Meyer, (2011)

Nonperforming loans (NPLs): Since it is acknowledged that what is appropriate in one jurisdiction could not be in another, there is no universal definition of non-performing loans (NPLs) across all nations. On this matter, there is, nonetheless, a consensus. Accordingly, the IMF's Compilation Guide on Financial Soundness Indicators, NPLs is defined as: "A loan is nonperforming when payments of interest and/or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons such as a debtor filing for bankruptcy to doubt that payments will be made in full. IMF, (2018)

The immediate consequence of large amount of NPLs in the banking system is bank failure as well as economic slowdown. The causes of nonperforming loans are usually attributed to the lack of effective monitoring and supervision on the part of banks, lack of effective lenders' recourse, weaknesses of legal infrastructure, and lack of effective debt recovery strategies. Nomfundo, (2019) In Ethiopia the criteria of NPL are in accordance with the Basel rules. If a loan is past due 90 consecutive days, it will be regarded as non- performing. The criteria used in Ethiopian banking business to identify non-performing loan is a quantitative criteria based on the number of days passed from loan being due. NBE,(2011).

Commercial farm: An agricultural system in which the products are produced as cash commodities and sold is referred to as a "commercialized farm." According to Pingali (2006), the supply and input sides of agricultural production are included in the larger notion of a commercialized farm. Simultaneously, it considers the concept of choosing a production and marketing plan. Furthermore, the commercialized farm is not only bounded to production and sale of cash crop it also comprises of selling traditional crops used as food. Most portion of these traditional food crops were sold when they are produced in mass by a given household due to specialization. These situation creates a common consensus on the concept of commercialized farming in that it explains it as households not only sell the surplus of what they have produced it rather refers that households decide and targets what to produce and which market to serve. Households decide to produce by depending up on market signals and comparative advantage rather than focusing on subsistent farming and selling of surplus crops. Von Braun et al. (2010).

In wealthy nations, the trend in agricultural output has been toward greater mechanization with fewer laborers. On the other hand, labor-intensive modes of production predominate in the production systems of developing economies. The goal of the commercialized farming system's adoption is to move agricultural production from subsistence to market-oriented farming while simultaneously guaranteeing impoverished farmers' access to food supplies. Christopher (2007)

The commercialized farming can be influenced from two major factors. These are the supply side and the demand side. The supply side factors that influence commercialized farming are commercial agricultural finance, size and distribution of land holdings, number of farmers, and the level of technological advancement in agricultural sector, infrastructural policies from the government and price incentive made on agricultural products. Moti et al., (2009)

2.1.2 Credit theories

According to the idea of credit market pricing, banks typically charge lower interest rates on capital in order to provide larger returns. This is because higher interest rates on capital have historically been linked to asymmetric information, which can result in moral hazard and adverse selection. This situation suggests a correlation between the interest rate charged and nonperforming loans. J. E. Stieglitz (2016)

J. E. Stieglitz (2016) equilibrium quantity rationing arises from lender unwillingness to increase the interest rate to clear excess demand because doing so would result in adverse selection of the borrower groups. The interest rate charged by banks may itself affect the riskiness of loan and may lead to two major problems. First, the direct effect of raising the interest rate leads to the increase of the bank's return, but there is an indirect effect, adverse selection acting in the opposite direction and it may outweigh the direct effect.

To observe this, we simply assume that there are two groups of individuals, the safe group who borrow only if the interest rate is low, and the risky group who borrows when interest rate is increased. Secondly, under an asymmetric information regime, the risky borrower gets a loan at a lower level of interest rate than under perfect information. The opposite happens for a good or a safe borrower. This is because an increase in the interest rate punishes good borrowers and subsidizes bad ones. In credit markets, simply increasing the rate of interest would change the behavior of borrowers and induce them to undertake risky investments, A higher interest rate negatively affects the behavior of borrowers because risky projects become more attractive at a higher interest rate. J. E. Stieglitz (2016)

Conversely, moral hazard occurs when people fail to accept full responsibility for their conduct. Nonetheless, it is exceedingly expensive and challenging for the banks to have direct supervision over every move made by borrowers. It must craft the conditions of the loan agreement so that it draws in low-risk borrowers and encourages borrowers to act in the lender's best interests. J. E. Stieglitz (2016)

J. E. Stieglitz (2016) demonstrated that lenders' reluctance to raise interest rates in order to offset excess demand is the root cause of banks' rationing behavior. If the bank were to raise interest rates, this would also have the effect of altering borrower behavior because higher interest rates

make riskier projects more appealing overall, even though they have lower returns for the bank. Therefore, raising the interest rate could encourage borrowers to behave against the lender's best interests. In this scenario, the bank would be more motivated to restrict credit rather than raise interest rates in the event of an overabundance of demand for credit. As a result, in credit markets, supply and demand cannot be equated with interest rates.

Collateral can also be used by the lender as a screening mechanism inducing the borrower to undertake full responsibility of his action, and there by solve the moral hazard problem (Conning and Udry, 2007). Thus, to solve this moral hazard problem the lender asks borrower to be are a minimum of risk by pledging his collateral. Moreover, it is argued that both adverse selection and moral hazard arise directly from asymmetric information that characterizes credit markets of developing countries. This in turn may lead to the absence of formal lending institutions. This problem may be even larger since the poor cannot offer collateral and enforcement mechanisms are weak or even absent.

According to the Hold-up and Soft-Budget-Constraint Theories, banks' decision to adopt a multiple-bank lending strategy is essential for controlling credit risk. According to the holdup literature, shared loans can help businesses choose the correct investments to make in order to increase returns and prevent the expropriation of informational rents. Thadden (2004)

The soft-budget-constraint theory, states that banks deployment of multiple bank lending strategy can reduce the exposure to inefficient projects that result in loan default. But, currently many studies recommend different approaches from these two theories in that collateral were a good means to avoid risk from inefficient projects. Ewert and Schenk, (2008)

According to Ewert et al. (2000), credit market theory implies that letting of capital price to determine the level of credit that the bank can give by reducing other requirements like collateral. The existence of high interest premium will lead to non-performing loan. Despite different operational issues in credit market, the issue of non-performing loan was given a considerable attention. Non-performing loans are the major reason that causes financial crises. Louzis et al., 2010

2.2 The Concept of Agricultural Credit

Various scientific papers introduced different definitions for agricultural credit. Singh Yadav (2017) "The ability to command other people's capital in exchange for a promise to repay at a later date" is the definition of credit. Thus, the "ability to borrow" and the "willingness to borrow" are the two elements that make up credit. To put it another way, credit is the authority to use money now in exchange for a promise to pay it back later. It may also be viewed as an economic good that needs to be managed, produced, and sold. Credit, then, entails a brief wealth transfer. Credit to farmers can be categorized into cash credit (loans given to farmers by financial institutions), and non-cash credit, which comprises the supply of inputs to farmers by companies, individual businessmen, etc., for which these farmers make payments after harvesting. Kuwornu (2013)

Agricultural credit, according to Nwaru (2004), constitutes "the present and temporary transfer of purchasing power from one who owns it to another who wants it, allowing the latter to command another person's capital for agricultural purposes while remaining confident in his willingness and ability to repay at a specified future date" . Stated differently, it refers to the process of turning promises into money by exchanging current cash for future promises to repay, with or without interest. The promise to reimburse at a later time would mean nothing, if there isn't the desire capacity to do so. It is often referred to as one of the various means of financing agricultural deals. These instruments include notes, banker's acceptances, bills of exchange, and loans.

Agricultural credit has been an essential component of modernization and commercialization of agriculture and the rural economy (Abedullah et al., (2009). The introduction of easy and low-cost credit is the quickest way to increase agricultural output. As a result, meeting the credit needs of the farming community has been a top priority for all governments. Agriculture is more reliant on credit than any other economy sector due to seasonal variations in farmer returns and a changing market Vuong D., (2012). Therefore, credit is the important element that has to be considered as the main input for agricultural improvement.

According to Getahun (2001), Ethiopian agricultural financing sources are mostly divided into two groups. These include the Agricultural and Industrial Development Bank and the Commercial Bank of Ethiopia, two examples of informal and formal financial sectors. Roughly

one percent of farmers are thought to use institutional credit. Large portions of agricultural loans come from non-institutional sources, including merchants, neighbors, friends, family, and other farmers in addition to private moneylenders and intermediaries. However, over the decades, the percentage of farmers who have access to credit has increased to 33.3 percent, with 66.6 percent of those who were credit constrained owing to risk concerns and transaction costs (Mukasa et al., 2017). Furthermore the farmers who have credit access increased to 36.54% (Waje, 2020). Despite the improvement in credit access, it is obvious that there is still no enough credit access as expected.

2.2.1 The Context of Agricultural Finance in Ethiopia

A variety of banking and non-banking institutions were part of Ethiopia's long-standing financial sector development. Commercial banks, development banks, specialist financial institutions, insurance firms, cooperatives, and others make up the financial system. Under the various regimes, these financial organizations' ownership, management, and organizational structure have changed, as has their performance. The founding of the Agricultural Bank of Ethiopia (ABE) in 1945 was a trailblazer in the growth of financial organizations that provide agricultural finance. Following the establishment of the Ministry of Agriculture in 1943, the Agricultural Bank of Ethiopia was created to expedite agricultural development by providing loans to small landholders, whose farms had been ravaged during the Italian occupation, facilitating the purchase of seeds, livestock, and equipment, as well as the repair or reconstruction of their homes and farm structures. In terms of agricultural finance, the significance of agriculture was underscored in the Emperor's development plan, with subsistence and large-scale mechanized agriculture collectively receiving approximately half of the bank's credit. Subsistence agriculture was to be enhanced through (a) the introduction of improved tools and implements, modern techniques, and superior seeds; (b) credit, pricing, and taxation policies; and (c) land reform and agricultural services. In order to turn the subsistence agricultural industry into a commercialized one, farmers had to be helped to generate more marketable surpluses. The Development Bank of Ethiopia intended to provide credit for agricultural tools and implements through the Farmers' Cooperatives or the Grain Corporation at the time, rather than directly. These organizations were to receive credit funds, purchase the implements, and then either lease or sell them on credit if they were costly (e.g., winnowers, threshing machines, selectors, etc.) or give them to farmers on credit (to be paid back in kind). In order to guarantee that credit is utilized exclusively for

productive reasons, it was made clear that credit may only be granted for commodities and services. It was anticipated that these methods would enhance production by using effective tools quickly, and that the increased marketable agricultural output would cause peasant agriculture to become more commercialized. The cooperatives were to decide which farmers would receive loans first (with guidance from extension agents).This, however, appears to overlook the well-known issue of fundability. An examination of the entire amount of loans that the DBE disbursed revealed that the industrial sector received the majority of the loans. Approximately 58% of the DBE's total loan disbursements between 1951 and 1969 went toward industrial loans, with the remaining portion going toward agriculture. Commercial farms (for new equipment, fattening, etc.) and fishing cooperatives were also to receive preferential terms on credit from banks. Additionally, the Plan emphasized the significance of mobilizing and promoting domestic savings. Cooperatives were supposed to be involved in collecting excess cash from farmers (i.e., savings mobilization) in addition to marketing farmers' goods and providing credit to agriculture. Over the ten-year period between 1981 and 1990, borrowing institutions' loans and advances reveal that, on average, the government sector received 36.4% of the total, public enterprises received 50.3%, and the private sector received only 8.3% of the total loans and advances made by the banking system during that time. Access to credit was not the only way that the private sector was discriminated against. The private sector was specifically discriminated against in the interest rate schedule.

2.2.2 Lending conditions by Development bank of Ethiopia (DBE)

Development Bank of Ethiopia (DBE) is one of the state-owned financial institutions engaged in providing short, medium and long term credits over the last 107 years. The Bank has been playing central role in the over-all economic development of the Country since its establishment. And in it’s over a century old service; DBE has established recognition at the national and international levels. Nationally, it is the sole Bank with reputable experience in long-term investment financing. Internationally, it is recognized as an important on-lending channel for development programs financed by bilateral and /or multilateral sources. The recent focus of the government in relation to the revised credit policy of DBE is to provide medium and long term loans for investment projects in the Government priority areas such as Commercial Agriculture, Agro-processing, Manufacturing Industries, Mining and Extractive Industries preferably, export focused as well as lease financing for Small and Medium Enterprises. DBE (www.dbe.com.et)

Economic Sectors Financed by the Bank DBE's major area of focus is provision of medium and long-term loans for investment projects in the Government priority areas. In line with the Agriculture Development Led Industrialization Strategy (ADLI) of the Country, the Bank provides finance to encourage investment in Commercial Agriculture, Agro-processing Industries. DBE (www.dbe.com.et)

The Bank finances large scale irrigable and rain fed agricultural farms if they has a minimum equity capital Birr 7.5 million and above. Financing for rain fed agricultural farms is to be only for the production of sesame and cotton located in agro-ecological zones with reliable rain fall. The Bank also provides loan for project expansion in the priority area: priority area project requesting for expansion will be those projects which have been properly implemented and proved to be successful financially as well as in the area of project management. DBE (www.dbe.com.et, a short guide to access DBE's loans)

Agriculture financing

DBE finance an agriculture which is Commercial Agriculture: (All farming should be supported by irrigation system) DBE (www.dbe.com.et, a short guide to access DBE's loans)

Lending Conditions and Equity Contribution

- All prospective domestic investors or borrowers for new projects are required to provide at least 25% of the total project cost. The Bank will 10remaining balance up to a maximum of 75% of the total project cost after blocking and/or utilization of the 25% equity contribution by the borrower.
- The cash contribution will be placed upfront or gradually over a period not to exceed 6 months from the loan contract signing date.
- For projects with total project cost of Birr 1 billion and above, the cash contribution will be placed upfront or gradually. In case of gradual cash contribution, 1/3 of the total equity contribution shall be deposited within the first 6 months, 2/3 of the total equity contribution within 9 months and 100 percent cash contribution not to exceed 12 months from the date of loan contract signing. DBE (www.dbe.com.et, a short guide to access DBE's loans)

DBE receives in-kind equity contribution for new and existing investment projects under the following conditions :(for domestic investors)

i. For leased land, its value should be determined by the lease amount paid.
ii. For existing investment projects that shift from sectors such as the service sector to agriculture, agro-processing or manufacturing sectors, and in-kind contributions brought from the existing investment could be considered subject to fitness for the purpose.
iii. The in-kind contributions should be held as first degree collateral by DBE to obtain finance. DBE (www.dbe.com.et, a short guide to access DBE's loans)

Requirements for All Loans

- Land
- Contractual Lease Agreement that extends to six /6/ years after the full payoff period of the loan (If applicable)
- Title deed certificate or proof of ownership. DBE (www.dbe.com.et, a short guide to access DBE's loans)

For Agricultural Project

- Approved construction plan (blue print)
- Bill of quantity (in soft and hard copies)
- Approved site plan. DBE (www.dbe.com.et, a short guide to access DBE's loans)

2.3 Risk Management in Agricultural Financing

Risk is a concept that denotes a potential negative impact to an asset or some characteristic of value that may arise from some present process or future event. In everyday usage, "risk" is often used synonymously with the probability of a loss or threat. In professional risk assessments, risk combines the probability of an event occurring with the impact that event would have and with its different circumstances. It plays a very important role in agricultural production because there are so many variable factors that go into agricultural production. (http//en.Wikipedia.org/)

According to klapper, L and Singer D. (2019) there are two major types of risk in agriculture financing that are correlated and independent risks. Correlated risks came from production risk includes (whether condition, pests, diseases), price risk includes (fluctuations in commodity price and loan repayment capacity) and political risk includes (export bans and price caps).when we

came to independent risks are risk came from borrower-specific (health and life) and lender-specific (estimation of credit worthiness and wrong pricing).

Credit risk is among the most important risks that the financial institutions face. It is considered to be higher for agricultural loans as the sector inherent high level of risk. Agricultural enterprises still constituent the most risky business (Nmadu and Peter, 2010). This is because the production environment as wells as marketing prospects are fraught with imperfect knowledge and the vagaries of nature, which is more difficult to manage.

Nair, A(2020) suggested that agriculture risk can mitigated by both parties lenders and borrowers by using insurance, using forward sales price guarantee's from borrowers side and lenders can mitigate agriculture financing risk by implementing risk assessment technique's, by deploying joint liabilities and sale contracts.

Government's must invest in infrastructure, research, and legal frameworks to create an enabling environment for agricultural finance, also must facilitate risk pooling among national intermediaries and transfer risks to global reinsurance markets and use future market contracts. Effective risk management contributes to increased private investments in agriculture, improved financial services to the farmers. Wenner, M (2010)

2.4 Determinants of approval process of agriculture loan

Access to agricultural loans is crucial for sustainable development of the agriculture sector, understanding determinants are essential for farmers and policy makers. By considering socio-economic factors, it can enhance the affordability and availability of credit, ultimately contributing to farmers' income growth and overall economic development.

Loan size

Loan size refers to the amount of money borrowed by an individual or entity. In the context of agricultural financing, loan size specifically pertains to the monetary value of loans provided to farmers, Agri-SMEs, and other stakeholders in the agricultural sector. There are four main factors which determine Loan Size. World Bank (2020)

Farm Size: Larger farms may require more substantial loans to cover expenses such as seeds, fertilizers, machinery, and labor. Type of Agricultural Activity: Different agricultural activities

(e.g., crop cultivation, livestock rearing) have varying capital needs. Business Scale: Agri-SMEs with larger operations may seek bigger loans for expansion or investment. Risk Assessment: Lenders consider the risk profile associated with different loan sizes. Borrowers must demonstrate their ability to repay loans, regardless of size. World Bank (2020)

Theories related to loan size

Economies of Scale: Larger loans can enable farmers to invest in more efficient technologies and practices, leading to increased productivity and profitability. This theory suggests that as the loan size increases, the cost per unit of output decreases, resulting in higher overall efficiency.

Risk Diversification: Larger loans may allow farmers to diversify their agricultural activities, reducing the risk associated with relying on a single crop or livestock. Diversification can help stabilize income and improve the farmer's ability to repay the loan.

Loan Repayment Capacity: The size of the loan can affect the borrower's repayment capacity. Smaller loans may be easier to repay, but they might not provide sufficient capital for significant improvements. Conversely, larger loans can offer more substantial benefits but may also pose a higher risk of default if the borrower cannot generate enough income to cover the repayments.

Credit Rationing: Lenders may be more cautious when extending larger loans, leading to credit rationing. This theory suggests that lenders might limit the size of loans to manage risk, especially for borrowers with limited collateral or credit history.

Impact on Financial Performance: Studies have shown that the size of agricultural loans can influence the financial performance of farming enterprises. For example, a study on small-scale farmers in Kenya found that larger loans were associated with better financial performance, as they allowed for more significant investments in productive assets.

Loan Utilization: The effectiveness of loan utilization can vary with loan size. Larger loans may require more careful planning and management to ensure they are used effectively. Poor utilization of large loans can lead to financial difficulties and increased risk of default.

In summary, loan size plays a crucial role in agricultural financing, affecting the viability of farming operations and Agri-SMEs. Lenders, policymakers, and researchers continually explore ways to optimize loan sizes to meet the needs of borrowers while managing risks effectively.

Interest rate

The interest rate is the amount charged by a lender to a borrower for the use of assets, typically expressed as an annual percentage rate (APR). It applies to various financial transactions, including loans and savings accounts. Let's delve into the specifics of interest rates and their implications for agricultural loans in Ethiopia. Trading economics (2021)

Lending Rate: The lending rate in Ethiopia determines the cost of borrowing for businesses and individuals. As of the last recorded data, the benchmark interest rate in Ethiopia is 7%. Development Bank of Ethiopia (DBE): The DBE has recently revised its loan interest rates for agricultural projects. Borrowers engaged in agricultural activities now benefit from a reduced interest rate, which has been lowered from 11.5% to 7%. Trading economics (2021)

Factors Influencing Rates:

- Monetary Policy: The stability in interest rates suggests a cautious approach by the National Bank of Ethiopia.
- Inflation Expectations: Interest rates reflect expectations about future inflation.
- Economic Growth: Overall economic health can impact interest rates. Trading economics (2021)

Theories related to interest rate

Cost of Borrowing: Higher interest rates increase the cost of borrowing, making loans more expensive for farmers. This can lead to a decrease in loan applications and approvals, as farmers may find it difficult to afford the higher interest payments.

Credit Risk: When interest rates rise, the risk of default increases. Lenders may become more cautious and tighten their lending criteria, leading to fewer loan approvals. Conversely, lower interest rates can reduce the perceived risk, encouraging lenders to approve more loans.

Investment Incentives: Lower interest rates can stimulate investment in agriculture by reducing the cost of financing. This can lead to an increase in loan approvals as more farmers seek to invest in their operations. Higher interest rates, on the other hand, can discourage investment and reduce loan approvals.

Monetary Policy: Central banks use interest rates as a tool to control inflation and stabilize the economy. Expansionary monetary policy, which involves lowering interest rates, can increase the availability of credit and lead to more loan approvals. Monetary policy, which involves raising interest rates, can have the opposite effect.

Economic Conditions: Interest rates are often influenced by broader economic conditions. During periods of economic growth, interest rates may rise, leading to tighter credit conditions and fewer loan approvals. During economic downturns, interest rates may be lowered to stimulate borrowing and investment, resulting in more loan approvals.

Agricultural loans are financial products designed to support farmers and agribusinesses in their operations. These loans can be used for various purposes, including purchasing seeds, fertilizers, equipment, and livestock, as well as funding irrigation projects and other infrastructure improvements. The availability and terms of agricultural loans can significantly impact the agricultural sector's productivity and sustainability.

Agricultural loans can be categorized into short-term, medium-term, and long-term loans, depending on the duration and purpose. Short-term loans are typically used for seasonal activities like purchasing seeds and fertilizers, while medium-term loans may fund equipment purchases. Long-term loans are often used for infrastructure projects like irrigation systems and land development. The interest rates and repayment terms of agricultural loans vary based on factors such as the borrower's creditworthiness, the type of loan, and the lender's policies. Favorable interest rates and flexible repayment terms can encourage farmers to invest in their operations, leading to increased productivity and growth. Agricultural loans play a crucial role in promoting economic development, especially in rural areas. By providing farmers with the necessary capital to invest in their operations, these loans can lead to higher agricultural output, increased employment, and improved living standards for rural communities. The agricultural sector is inherently risky due to factors like weather variability, pests, and market fluctuations. These risks

can affect farmers' ability to repay loans, leading to higher default rates. Lenders must carefully assess these risks and implement measures to mitigate them, such as offering crop insurance and providing financial literacy training to borrowers. In summary, understanding interest rates is crucial for borrowers, lenders, and policymakers alike. For agricultural loans, the recent reduction in interest rates by the DBE aims to support Ethiopia's agricultural sector and promote economic growth.

Repayment period

The repayment period, also known as the loan term, is the duration over which a borrower is obligated to repay a loan. It's a key component of a loan agreement and affects both the total cost of borrowing and the size of monthly payments. A journal Factors affecting loan repayment rate. In the context of agricultural loans, the repayment period can vary significantly based on the type of loan, the lender, and the specific financial situation of the borrower. Agricultural loans often have flexible repayment terms that can accommodate the seasonal nature of farming. For instance, repayment might be scheduled after harvest when farmers are more likely to have the funds available. Tilahun Dessie (2015)

In Ethiopia, the repayment period for agricultural loans can be influenced by various factors, including the type of crop, the loan amount, and the specific terms set by the financial institution providing the loan. Studies have shown that factors such as on-farm income, off-farm income, family size, years of credit experience, and training on credit can significantly influence the probability of loan repayment among smallholder farmers in Ethiopia. F. Regassa (2019) For example, the Development Bank of Ethiopia (DBE), which plays a significant role in financing agriculture, offers different loan products with varying repayment periods designed to match the cash flow patterns of agricultural projects. The DBE's terms are tailored to ensure that farmers can repay their loans without undue financial strain, thereby promoting sustainable agricultural development. F. Regassa (2019)

Theories related to collateral

Liquidity Preference Theory: This theory suggests that borrowers prefer longer repayment periods as it allows them to manage their cash flow better. Longer repayment periods can reduce

the financial burden on farmers, enabling them to invest more in their agricultural activities and improve productivity.

Credit Risk Theory: According to this theory, the length of the repayment period can influence the credit risk associated with the loan. Longer repayment periods may increase the risk of default due to uncertainties in agricultural production, market prices, and other external factors. Lenders may charge higher interest rates for longer-term loans to compensate for the increased risk.

Loan Repayment Capacity: The repayment period can affect the borrower's ability to repay the loan. Shorter repayment periods may require higher periodic payments, which can strain the borrower's finances. Conversely, longer repayment periods can spread out the payments, making it easier for borrowers to meet their obligations.

Impact on Financial Performance: Studies have shown that the repayment period can influence the financial performance of agricultural enterprises. For example, a study on smallholder farmers in Ethiopia found that longer repayment periods were associated with better loan repayment performance, as they allowed farmers more time to generate income from their agricultural activities.

Loan Utilization: The effectiveness of loan utilization can vary with the repayment period. Longer repayment periods may encourage borrowers to invest in long-term projects and capital improvements, while shorter repayment periods may lead to a focus on short-term gains.

Economic Aspects of Repayment Period: The repayment period can influence the interest rates and overall cost of the loan. Loans with longer repayment periods typically have higher total interest costs, even if the periodic payments are lower. Borrowers need to balance the benefits of lower periodic payments with the higher overall cost of the loan.

Understanding the repayment period is crucial for farmers when considering loans, as it directly impacts their financial planning and the overall cost of the loan due to accumulated interest over time. It's advisable for borrowers to review the loan agreement carefully and consider their repayment capacity before committing to a loan.

Collateral

Collateral: refer to the assets or property that a borrower offers to a lender as security for a loan. If the borrower fails to repay the loan, the lender has the right to seize the collateral to recover the loan amount. Investopedia (2023)

In the context of agricultural loans in Ethiopia, collateral have evolved to include not just traditional fixed assets but also movable assets. This change aims to make it easier for smallholder farmers and small-scale entrepreneurs to access loans for investment and job creation purposes. NBE (2011)

Movable Assets as Collateral: The National Bank of Ethiopia (NBE) has issued directives allowing banks to accept movable assets as collateral. This includes farm products, livestock, financial instruments, and intellectual property, and forest and landholding certificates. NBE (2011)

Loan Accessibility: The NBE's directive is part of a broader effort to increase loans to the agricultural sector, which historically received less than 10% of total loans. The goal is to raise this to between 30% and 40%. Movable Collateral Registry Office: To facilitate the use of movable assets as collateral, the NBE has established a Movable Collateral Registry Office and an Electronic Collateral Registry System. This system allows for the registration and legal recognition of movable assets as collateral. NBE (2011)

Theories related to collateral

Financial Intermediation Theory: This theory suggests that collateral helps mitigate the risk for lenders by providing a security interest in the borrower's assets. This reduces the lender's risk of loss in case of default, making them more willing to extend credit to agricultural borrowers.

Credit Rationing Theory: According to this theory, lenders may limit the amount of credit offered to borrowers who lack sufficient collateral. This can lead to credit rationing, where some borrowers, particularly small-scale farmers, may be unable to obtain the necessary financing for their agricultural activities.

Collateral and Loan Performance: Studies have shown that the requirement for collateral can have a mixed impact on the financial performance of agricultural enterprises. For instance, a

study on agribusiness SMEs in Kenya found that collateral requirements had a negative and statistically insignificant effect on financial performance.

Economic Aspects of Collateral: Collateral can influence the interest rates and loan duration. Loans secured with collateral typically have lower interest rates and longer durations compared to unsecured loans. This is because the collateral reduces the lender's risk, allowing them to offer more favorable terms.

Non-Conventional Collateral: In some cases, non-conventional forms of collateral, such as group guarantees or agricultural insurance, can be used to secure loans. These alternative forms of collateral can help small-scale farmer's access credit without the need for traditional assets.

Impact on Loan Default: Research has shown that the type of collateral can affect the likelihood of loan default. For example, a study in China found that agriculture-related loans with certain types of collateral had higher default rates compared to non-agriculture-related loans.

Development Bank of Ethiopia (DBE): The DBE, which is instrumental in financing agriculture, has specific collateral for agricultural loans. These may include land contractual lease agreements that extend beyond the full payoff period of the loan. DBE brochure (2010)

The adaptation of collateral to include movable assets is a significant step towards addressing the challenges faced by smallholder farmers in securing the necessary funds to invest in their agricultural activities. It reflects a shift towards more inclusive financial practices that recognize the unique needs and circumstances of the agricultural sector in Ethiopia. NBE (2011)

2.5 Empirical review

According to miller and jones (2018) Agriculture financing is "the provision of financial services to support the production, processing and marketing of agricultural products, and the provision of financial services to those whose income is derived from agriculture.

Khanal and omobitan (2020), define agriculture loan financing as "one of several credit vehicles used to finance agricultural transactions such as a loan, note, bill of exchange or a banker's acceptance".

Rehman et al., (2017) claim that agricultural loan is an integral part of the commercialization process of agricultural modernization and the rural economy. And also they explain that easy and cheap loan is the fastest way to improve agricultural production. Therefore, meeting loan requirements is an important issue in many developing countries. Agricultural loan is seen as one of the strategic sources of agricultural production which leads to an increase in living standards for the rural agricultural population. Rehman et al (2017)

Even though agriculture plays a significant role in emerging nations, the financial sector contributes very little to the funding of this industry. Africa's agricultural industry is known for having a high need for agricultural financing, but the region's financial sectors were unable to supply it because of factors including high risk and expensive credit processing costs. Honohan and Beck, (2007)

Lack of financial capital limit the use of new improved yield and technology smallholder farmers in developing countries. Most researchers indicate that agriculture farmers that have limited possibility for credit use limited high-yielding varieties and try to invest on few high-quality products. Etonihu et al., (2013). In majority of developing countries, accesses to agriculture loans face high constraints by the farmers; even if approval process of agriculture credit is available; high interest rates on credit , which making difficult for the farmers to access credit. The collateral for credit is another factor that challenges farmers to receive credit in many developing countries.

Ahma (2010) claims that having access to finance enables farmers to expand their sources of money, take on new business ventures, and control the risks involved in farming. For farmers, having access to financing is crucial, but getting appropriate credit at a competitive rate presents a variety of obstacles. Reduced revenue and growth potential are also brought about by poorer return on investment, which limits the ability to make profitable investments or to fully capitalize on market opportunities.

Blancard et al. (2006) found that credit and investment constraints were binding on French farmers having access to financial markets performed significantly better, showed that production is lower by 3% in credit constrained farmers compared to credit unconstrained farmers in the United States.

The main obstacles to agricultural financing in Ethiopia are high transaction costs, a high default rate, a lack of infrastructure, and restricted loan availability. The situation was made worse by the existence of ineffective credit providers, rigid loan terms, and restricted credit availability for the targeted impoverished population. Tilahun, (2015)

The actions of the credit transaction can be impacted by providing borrowers with effective financial management training. Additionally, it can lessen Ethiopia's high default rate. Dereje,(2010).

There have been concerns raised about creditors' access; these can be explained by poor infrastructure, which leaves residence in poorer providence out of the credit market. The distance between the lenders and borrowers might affect the psychical approach and raise the transaction cost. Secondly, most of bank services occur in urban areas leaving other residence out. Gobezie, (2005)

Most of the residence that are left out of credit service can be highly presented by rural population. An overall barrier on access for credit is reported to affect the growth and productivity negatively. Bashir et al., (2010)

2.5.1 Empirical review on constraints of agricultural financing

Different theoretical and empirical literatures identify different classification of Constraints of agricultural finance as indicated below. The basic difference emanates from academicians' educational back ground and country context.

According to a Study Khanal and Omobitan (2020) analyzed factors influencing credit constraints and their impact on farm performance in Tennessee. Their Findings are Credit-constrained small farmers had significantly lower financial performance than unconstrained ones. Constrained borrowing led to up to **$51,000** lower gross farm sales. Proper access to agricultural loans is crucial for small farms' financial performance.

Jessop et al (2012) carried out a study named "Creating Access to Agricultural Finance" in six countries (Tunisia, Cambodia, Mali, Senegal, Tanzania, Thailand, and Mali), and found the following barriers to agricultural finance: external hazards, government involvement, poor

farming methods, poor banking technology, close proximity, high transport costs, and a lack of cooperation among farmers.

Temu (2009) conducted a study titled "Innovations in Addressing Rural Finance Challenges in Africa" and identified the following constraints: low income cash flows and capital bases (lack of collateral, social and cultural barriers, demand for small volumes savings, demand for small loan sizes), highly risky commodity and financial markets (financial transactions risks, agricultural commodity production and markets risks); high transaction costs (inaccessibility of rural areas and physical access challenges, asymmetric information, underdeveloped infrastructure compounding the challenge of inaccessibility).

Miller, (2008) found 12 agricultural finance constraints under four headings: Capacity Constraints (Infrastructural capacity, Technical capacity and training, Social exclusion, Institutional competency), Operational Constraints (Low investment returns, Low investment and asset levels, Low geographical dispersions), and Political and Regulatory Constraints (Political and social interference, and Regulatory framework).

2.5.2 Empirical review on determinants of access to agricultural loan

According to a Study by Fecke, Feil, and Musshoff (2016) investigated the influencing factors of loan demand in agriculture using detailed actual loan data at the farm level provided by a major German development bank. Their Findings are Interest rate, gross value added (GVA), grace periods, and farmers' business expectations significantly affect loan demand in agriculture. The interest rate has a significant negative effect, whereas granted grace periods, GVA in agriculture, and farmers' business expectations have significant positive effects on loan demand.

According to a Study by Gomez-Gonzalez et al. (2023) explored the impact of bank market power on interest rates charged for loans to nonfinancial firms in a developing country. In his Findings Banks with greater market power tend to impose higher interest rates on loan products. Severity of this effect is mitigated for firms managing multiple credit connections. High interest rates can hinder poverty alleviation efforts and overall well-being of borrowers.

According to a study Empirical evidence from Tanzania examined the impact of interest rates on loan repayment in micro financial institutions. Their findings show that Strong negative

correlation between multiple loans and higher interest rates charged and Business capacity positively correlated with interest rates.

According to a research paper by Pan A. Yotopoulos examines the effectiveness of agricultural loans and credit repayment. He found that Informal borrowing from sources like village money-lenders, local loan sharks, and relatives usually has better repayment rates due to substantial collateral or personal relationships. Short-term loans from formal sources (government agencies and banks) often face high default ratios. These formal loans are attractive (low or negative interest rates, minimal collateral), leading to adverse risk selection and high demand. Repayment is treated as a residual after informal loans are repaid. Formal and informal agricultural credits may be competitive rather than complementary. Expanding formal agricultural credit may not substantially increase repayment problems, as borrowers are already trained to repay informal loans promptly. Then he led to the Implications Expanding formal credit can make informal credit suppliers more honest and potentially lead to the demise of informal lending.

According to a Study Researchers in Benin analyzed the determinants of loan use and repayment behavior among farmers. Data collected from 400 farmers randomly selected from twenty villages representing the country's Agricultural Development Hubs (ADH). Use Semi-nonparametric bivariate probit approach used for analysis. Their Findings are Relationship between the decision to use loans and the decision to repay them. Significant variables influencing loan use and repayment include education level, membership in farmer organizations, income, age, sex, household size, farm size, and contact with extension services. Asset value significantly affects loan repayment.

According the study on loan repayment performance in Jordan, their Findings Factors affecting repayment performance include sex, timeliness of loan disbursement, and monthly income. Loan diversion negatively impacts full loan repayment.

According to a Study Researchers investigated successful agricultural loan applications. They found out that Older, more experienced farmers with sufficient collateral, longer business history with the credit provider, acceptable credit history, and smaller loan requests are more likely to succeed. Collateral significantly affects loan success. Diversification strategies play a role in loan approval.

2.6 Summary and research gap

The literature reviewed the current state and the trend of agricultural loan financing, focusing on farmer's access to credit and the impact of such financial services on agricultural productivity. Most of the literature agrees that agriculture is a significant contributor to Ethiopia's GDP, with the majority of the population engaged in farming activities.

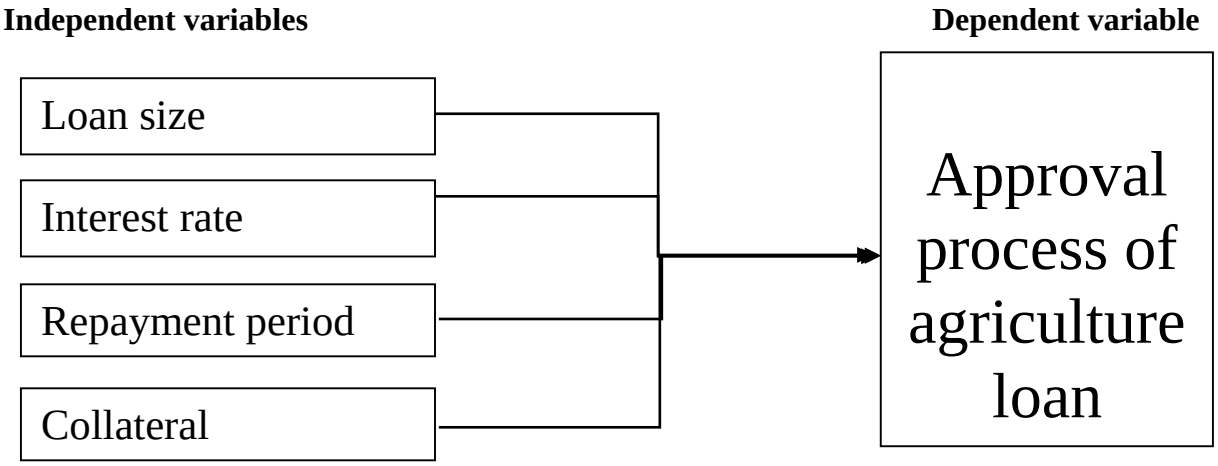
Key determinants affecting farmer's access to credit include main three characteristics and highlights that access to credit has a positive and significant effect on farm productivity. However, it is noted that many farmers face credit constraints and have unmet loan demands. Addressing these constraints could lead to increased agricultural productivity and improved income for farmers.

While all the above literatures provide valuable insights into the determinants of farmer's access to credit and the positive impact of credit on farm productivity, there is a notable gap in understanding the process of credit services which means that the there is an information and knowledge gap between lenders and borrowers specifically the researcher want to identify, assess and give an update to the information and knowledge gap and also mitigate the time to access to credit. There is also a scarcity literature that examines the role of interest rate, loan size, repayment period and collateral in accessibility and management of agricultural loans.

2.7 Conceptual framework

The main objective of this study is to examine the effects of determinants in approval process of agricultural loan from development bank of Ethiopia. Based on the objective of the study the following conceptual model is framed. As previously discussed in the related literature review parts, loan financed or disbursed to farmers affected by borrowers, lenders and loan characteristics. This three main characteristics include factors such as, the borrowers consists age, gender, education level and income level. The lenders consist as loan size, interest rate and repayment period. The loan consists as collateral, loan purpose and loan type.as the paper examined the loan granted process from the bank side the dependent and independent variables listed below.

Figure 2. 1 Conceptual framework



Source: adopted from D. Awunyo-vitor

Thus, the above conceptual model is outlined to summarize the main focus and scope of this study in terms of variables included. In this study, independent variables include loan size, interest rate, repayment period and collateral and the dependent variable is approval process of loan.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Introduction

Designing the appropriate research methodology is a prerequisite for conducting a good research work. This chapter deals with description of the study area, research design and approach, data collection methods, data type and sources, data analysis instruments, study population and sample design, sample size, data collection methods and finally ethical consideration. The detail of each issue is presented here under.

3.2. Description of the study area

This research paper focused on Development bank of Ethiopia located in Addis Ababa. The researcher selects this study area due to DBE is one of the main finance provider for the agriculture sector in Ethiopia.

3.3 Research design

Research design is a plan that is adopted by the researcher to answer questions validly, objectively, accurately, and economically (Ranjit 2011). It is a set of advance decisions that make up the master plan specifying the methods and procedures for collecting and analyzing of data (Burns and Bush 2010). There are different designs available for conducting research. These are; exploratory, descriptive, and explanatory (Yin 2009). Accordingly to the aim of the study to examine the effects of loan determinants in approval process of agricultural loan from DBE. Thus, to answer the research questions and meet the objectives of the study, both explanatory and descriptive designs were used for the study. Explanatory studies focus on analyzing a situation or a problem in order to explain the relationships between variables and establish causal linkages between variables (Saunders, Lewis et al. 2009). The goal of descriptive research design is an accurate description of people, events, or situations (Al-Ababneh 2020). Thus, the researcher was used descriptive design to determine the natures of variables based on mean and standard deviations and explanatory design for examining and testing the hypothesis formulated and to determine the cause and effect relationship of study variables (Loan determinants and approval process of agriculture loan case of DBE).Cross sectional research design were

employed to conduct this study, since data was collected at one point in a time to investigate the effect of loan determinants on approval process of agriculture loan.

3.4 Research approach

According to Creswell (2009) there are three types of research approaches these are quantitative, qualitative, and mixed methods: Quantitative research is a research approach aimed at testing theories, determining facts, demonstrating relationships between variables, and predicting outcomes by using statistical procedures from the natural sciences that are designed to ensure objectivity, generalizability, and reliability (Weinreich, 2009). On the other hand, qualitative research is an approach for exploring and understanding the meaning of individuals or groups assigned to a social or human problem which is to make a theory often by an interpretive model permitting the presence of multiple individual viewpoints and building knowledge from them (Denzin & Lincoln, 2005). Mixed methods research is an approach to an inquiry involving collecting both quantitative and qualitative data, which includes the use of induction which refers to the detection of patterns, a deduction which contains testing theories and hypotheses, and abduction which denotes to finding and relying on the top set of clarifications for understanding one's outcomes (Onwuegbuzi & Johnson, 2004). However, only the quantitative approach was considered for the study, because the study quantifies the problems by generating numerical data that can be transferred into usable statistics. A quantitative approach contains a descriptive, correlational and inferential approach to assessing theory, often using numbers or facts or natural science models and an objectivist understanding of the object will be studied (Apuke, 2017). In fact, with the use of quantitative approach data were collected, analyzed, and presented in number, the result obtained would be extremely reliable, and since it can avoid personal comment personal bias would be avoided (Weinreich, 2009). With quantitative research, a group of respondents or surveys can be achieved via the involvement of statistics which is less time consuming and straight forward with a wide scope of data collection (Creswell, 2009). Results may be limited to numerical descriptions rather than a detailed narrative of human perception, but this may not be the matters because the main aim of this study was examining the effect of loan determinants on approval process of agriculture loan, which would be quantifying the result that can be achieved with the use of quantitative research (Williams, 2011).

3.5 Study population and Sampling design

3.5.1. Study Population

According to Sekaran, (2009) population is the universe of units from which the sample is to be selected or it is an entire group of persons or elements that have at least one thing in common. Sampling is the process of selecting the target respondent that accurately represents the population that has been studied. The primary purpose of sampling is that by selecting some elements of a population, the researcher can conclude the entire population. For some research questions, it is possible to collect data from an entire population as it is of a manageable size (Saunders et al., 2009).

According to Check and Schutt (2011) population of the study also called the target population is the set of peoples or entities for which questions can be asked and study findings were to be generalized. Therefore, the targeted populations of this study would be permanent employees of DBE head office agriculture, SME, and project department which located in Addis Ababa and during the survey the total number of permanent employees' in the agriculture, SME, and project department has 443 (Four hundred forty three).

3.5.2. Sample size determination

Ideally, everyone wants to study the entire population. However, usually, it is impossible or unfeasible to do this and therefore it must settle for a sample. According to Black and Champion (2010), the sample is a piece of elements retained from a population, which is measured to be demonstrative of the population. Yamane (1967) suggested as there is a simplified formula for calculating the sample size from a population, so for a 95% confidence level, the size of the sample has determined as follows:

$$\mathbf{n = N/ \left(1+N\ (e^2)\right)}$$

Where

N= total population

n= sample size

e= level of precision or acceptable sampling error.

$n = 443/\ 1 + (443 * 0.05^2)$

n= 210

As seen the above, by using Yamane's formula of calculating sample size with an error 5% and with a confidence coefficient of 95% (Yamane, 1967). The total target Population of 443 the sample sizes calculated and result 210 samples. Based on the above calculation; a total of 210 numbers of respondents is taken as a sample size.

3.5.3. Sample Selection technique

The study used stratified and convenience sampling techniques. To give the chance of selection in each department, the study used the stratified sampling technique to classify the departments into strata then to select the subjects from each stratum in a proportionate manner. Even though it takes a longer time due to the extra stage in the sampling procedure, stratification is still best in that the process of stratifying can reduce sampling error and ensures a greater level of representation (Saunders & Lewis, 2012). Then, Convenience sampling is a non-probability sampling method where units are selected for inclusion in the sample because they are the easiest for the researcher to access. This can be due to geographical proximity, availability at a given time, or willingness to participate in the research. Convenience sampling involves using respondents who are "convenient" to the researcher.

3.6. Data collection Methods and Data Analysis

3.6.1. Data type and source

The main emphasis of this research is to investigate the effect determinants on approval process of agricultural loan. The researcher will use both primary and secondary data to conduct this study. According to Cooper and Schinler (2008), primary data is a data that is collected at first time specifically for the purpose of research project, whereas secondary data refers to data that are collected by someone other than the user and also in order to fully meet the objective of the study needs some interpretation or analysis. The collected data will focused on determinants and approval process of agriculture loan. The researcher collected primary data from the sample respondents using structured questionnaire. In addition to primary data secondary data would be used to conduct this study. This data gathered through document evaluation and referring of different articles, books and DBE annual reports, directives, documents from the organization database reviewed to build a useful theoretical foundation for the study. And other related researches both published and unpublished and different books. These additional sources of information provide useful theoretical foundation for the study.

3.6.2. Data collection method

Fundamentally there are two sources of data namely, primary and secondary sources. The primary data can be gained by using questionnaires and interviews. In this research, the study used only primary sources of data which applied only through questionnaires (survey). This is selected because of the capability of getting greater anonymity since there is no face to face interaction, respondents would give accurate information for sensitive questions asked. In addition, data gathered through the questionnaire is simple and clear to analyses and allows for the tabulation of responses and quantitatively analyzing factors (Jackson, 2011). Furthermore, he justified that, it is time-efficient for both the respondents and the researcher. The structured questioners designed to collect primary data from professionals of the case company because structured questioners consist of a series of pre-determined questions that all respondents answer in the same order, by which the researcher would compare and contrast different answers given to the same questions (Boyce & Neale, 2006). In addition, the structured questionnaire has fixed alternatives like multiple choices and mostly used for quantitative studies, unlike with unstructured questionnaire which is open-ended questions and the respondents are not restricted to a fixed choice that makes difficult to quantify, and it is mostly used for qualitative studies (Roopa & Rani, 2012). Therefore, the questions would be closed-ended items with the help of five points Likert scale because it can provide an option for respondents to put answers on their level of agreement to the questions on the scale of a given range (Jackson, 2011). With five points Likert scale, respondents can put their answers easy, without standing on one topic as of yes or no answers but allow to put their answers in a degree of agreement, it would be very versatile and can be addressed via email or given in person, and the responses will also easily be quantifiable and subjective to mathematical analysis; therefore the questionnaire contains the five rating primary data collection instruments design for this study will be a five-item Likert scale, Strongly Disagree (1), Disagree (2), Neither Agree nor Disagree (3), Agree (4), and Strongly Agree (5). (Likert R.,1932). Finally, it would be prepared in the English language only because all respondents would be familiar with subject matters, so it would not be difficult for them to interpret and understand it. The questionnaires would be structured in such a way that it includes all relevant parts and pieces of information to clearly inform the respondents.

3.6.3. Data analysis Instruments and model specification

Prior to analysis of the data, the researcher was cleaned the data. Data cleaning procedures enable the researchers to identify and correct any mistakes resulting from unclear responses, the incomplete data, and other related problems (Donald and Delno 2006). The researcher used Statistical Package for Social Science (SPSS) computer software version 26 to present and analyze the collected data through questionnaire. The quantitative methods of data analysis techniques such as descriptive statistics like frequency, mean, and standard deviation and inferential statistics methods such as correlation and regression analysis methods were used to present, analyze and interpret the collected data. Correlation analysis technique, especially Pearson correlation analysis technique was used to measure the degree of association or relationship between independent variables (loan determinants) and a dependent variable which is approval process of agricultural loan from DBE. The multiple regression analysis technique used to test the effect of independent variables (loan determinants) on the dependent variable which is approval process of agricultural loan from DBE. Thus, Multiple Linear Regression research model applied for this study to test the proposed hypotheses.

The multiple regression model developed as follows $\mathbf{Y= \beta_0+ \beta_1X_1+ \beta_2X_2+ \beta_3X_3+ \beta_4X_4+Ɛ}$

Where Y= dependent variables (approval process of agricultural loan from DBE)

β0=Constant term; β1, β2, β3, β4, =Beta coefficients

X1= Loan Size

X2=Interest Rate

X3=Repayment Period

X4=Collateral

Ɛ=Error term/the residual value.

3.7. Validity and Reliability of data collection instruments

As Cooper and Schindler (2003) validity refers to the extent to which a test measures what we actually wish to measure. In the quantitative research, validity is very essential for decreasing faults that might arise from measurement difficulties in the research study. Reliability is the consistency of data across time and between respondents (Adams 2005). It is the degree to which the measurement of the construct is consistent or dependable (Bolarinwa 2015). It is also a

measure of consistency between different items of the same construct or the degree to which a measurement technique can be depended up on to secure consistent results of repeated application (Weiner 2007). If a multiple item construct measure is administrated to respondent, the extent to which respondent rate those items in a similar manner is a reflection of internal consistency or reliability. Thus, to test this internal consistency, Cronbach‘s alpha coefficient is the most popular reliability coefficient in social science research for measures with multiple components (Green 2003). The alpha values between 0.50 and 0.80 are acceptable while below 0.50 are considered less reliable and therefore unacceptable (Sekaran 2003). Accordingly, the researcher was tested the questionnaire using Cronbach‘s alpha reliability measurement scales and the result was (.800) which lies between the normally accepted range stated above. This revealed that the items in the questionnaire exhibited Cronbach‘s alpha result more than enough to be called consistent or acceptable. Moreover, the results of each construct are presented in the following table.

Table 3. 1 Reliability analysis of constructs of the questionnaire

Variables	No of item	Cronbach’s alpha value	Decision
Loan size	9	.798	Acceptable reliability
Interest rate	9	.800	Acceptable reliability
Repayment period	10	.835	Acceptable reliability
Collateral	12	.722	Acceptable reliability
Approval process of agriculture finance	9	.850	Acceptable reliability
The overall Cronbach‘s alpha value		.789	Acceptable reliability

Source: Own survey results SPSS, (2024).

3.8. Ethical consideration

The data gathered used for solely to understand the determinants of approval process of agricultural loan from Development bank of Ethiopia. Furthermore, the researcher is solely responsible for conducting the whole research process and shall abide all the policies regarding the organization. There wasn’t transferable information for any means in person or organization. The research was done according to the guidelines, rules and regulation of the bank.

Ethical issues are very vital in research these days. This is because of honesty of the researcher is a critically important aspect of ensuring that the research process and a researcher's findings are trustworthy and valid. Therefore, this research paper conducted by considering the following principles; voluntary participation and harmlessness, anonymity and confidentiality, disclosure, finally analyzing and reporting principle also satisfies by disclosed the result which is unexpected.

CHAPTER FOUR

4. DATA ANALYSIS, PRESENTATION AND DISCUSSION

4.1. INTRODUCTION

This chapter presents the analysis of data and findings from the primary data gathered from the respondents. First of all, the questionnaires were developed in five scales ranging from five to one; where 5 represents strongly agree, 4 represents agree, 3 represents neutral, 2 represents disagree, and 1 represents strongly disagree. A total of 210 questionnaires were distributed to head office employees of Development bank of Ethiopia and 189 (90%) questionnaire were obtained valid and used for analysis. This is acceptable response rate based on Fowler (2002) a 75 percent response rate is considered acceptable. The data was found to be important to explain the effect of determinants in approval process of agricultural loan, namely loan size, interest rate, repayment period and collateral on approval process of agriculture loan from DBE. The collected data were presented and analyzed by using SPSS statistical software version 26. Mainly, this chapter includes the analysis part of the research like general characteristics of respondents such as gender, age, educational qualification, and work experience of the respondents, response rate, reliability analysis, perception of respondents on the effect determinants on approval process of agriculture loan from DBE, presented by descriptive statistics. Secondly, the relationship or degree of association between the above listed determinants and approval process of agricultural loan finance, case of Development Bank of Ethiopia were measured and presented through correlation analysis. Finally, this chapter consists of the result of multiple regression analysis to show the effect of independent variables (loan determinants) on the dependent variable which is approval process of agriculture loan of the case company, and testing the developed hypothesis and discussion on the findings.

4.2. Response Rate

Questionnaire was distributed to a total of 210 respondents from which 189 filled in and returned. The remaining 21 respondents were not able to properly fill and returned the questionnaire on time. So the respondent's rate is 90%.

Table 4. 1 Response Rate

Target population	**Sample size**	**Total questionnaire distributed**	**Questionnaire properly filled and returned**	**Questionnaire not returned**	**Response rate**
443	**210**	**210**	**189**	**21**	**90%**

Source: Own Survey data (2024).

4.3. Descriptive Analysis

4.3.1. Demographic Characteristics of Respondents

This section discusses about the demographic information of respondents such as gender, age, educational qualification, and work experience of respondents in their respective order. The main purposes of presenting the general information about the respondents are in order to show the participation of both genders in the study, the ability of respondents to understand and respond questions properly, to ensure the involvement of different work units within the organizations which in turn will infer that different sets of dimensions of loan determinants practice sought by the study were responded by their appropriate experts, and to ensure familiarity and experience of the respondents in loan determinant's issues. To get information on these issues the respondents were asked and their responses are analyzed and presented as follows.

Table 4. 2 Demographic Characteristics of Respondent

Description		Frequency	Percent	Valid Percent	Cumulative percent
Male		109	57.7	57.7	57.7
Female		80	42.3	42.3	100
Age	18-25	39	20.6	20.6	20.6
	26-33	104	55.1	55.1	75.7
	34-41	35	18.5	18.5	94.2
	42-49	5	2.6	2.6	96.8

	50 and Above	6	3.2	3.2	100
Marital Status	Single	55	29.1	29.1	29.1
	Married	104	55	55	84.1
	Divorced	23	12.2	12.2	96.3
	Widowed	7	3.7	3.7	100
Educational Background	Diploma	55	29.1	29.1	29.1
	Degree	84	44.4	44.4	73.5
	Masters and Above	50	26.5	26.5	100
Level/ Position	Managerial	28	14.8	14.8	14.8
	Non-Managerial	161	85.2	85.2	100
Years of Experience	Below 2 Years	16	8.5	8.5	8.5
	3-5	54	28.6	28.6	37.1
	6-10	94	49.7	49.7	86.8
	Above 10 Years	25	13.2	13.2	100
	Total	189	100	100	

Source: Own Survey data (2024).

The above table shows that the majority of respondents in the survey were male, 109 (57.7%), and the rest 53 (42.3%) of respondents were females. This indicates that in the case company, even though the company hired both female and male employees, the number of female employees is dominated by the number of male employees. In terms of age, The findings revealed that 39 (20.6%) of respondents were aged between 18 - 25 years, 104 (55.1%) of respondents were indicated that they were aged between 26-33 years, 35 (18.5%) of respondents were indicated that they were aged between 34-41 years, 5 (2.6%) of respondents were indicated that they were aged between 42 -49 years and the remaining 6 (3.2%) of them were aged at the age of above 50 years.. This indicates that the majority of the respondents are in the active working-age group and the case company had a hot manpower. Dealing with educational

qualification of the respondents, the majority of the respondents were first degree holders, 84(44.4%) followed by college diploma holder, 55 (29.1%) and having a master‘s degree, 50 (29.5%). This implies that most of the respondents were educated personnel that can understand the questions in the study and give better information about the degree of practicing loan determinants and approval process of agriculture loan. In addition, the above table shows, as shown in the above table 4.2, 161 (85.2%) of respondents were in Non-managerial position and the remaining 28 (14.8%) of employees' participated in the survey were fall under managerial position. The findings imply that the Non- managerial staffs were adequate in providing insight on the perceived effect of determinants on approval process of agriculture loan from DBE. Lastly table 4.2 describes about year of experience, of the respondents indicated that 16 (8.5%) of the respondents have worked in the Bank for below two years length of service experience while, 54 (28.6%) of respondents have worked for 3 to 5 years length of service, 94 (49.7%) of respondents have worked for 6 to 10 years length of service and Finally, 25 (13.2%) of the respondents have above 10 years length of service. This showed that majority of the respondents have working in the Development Bank of Ethiopia experience between 6 to 10 years length of service. From this we can conclude that most of the bank employees are experienced they have the ability to recognize the effects of loan determinants.

4.4. Descriptive Statistics of the Study Variables

The mean is a statistical measure of central tendency that offers a general picture of the data without unnecessarily covering one with each of the observations in the data set (Salingay and Tan 2018). The researcher has used a kind of rule of thumb to create equal intervals for a range of five points likert scale (ranges from strong disagreement to strong agreement in the survey questionnaire). A calculated mean value that ranges from 1 to 1.8 represented respondents perception of strong disagreement with the statement, 1.81to 2.6 represented the respondents perception of disagreement on the statement, 2.61 to 3.4 represented the respondents perception of neither disagreement nor agreement on the statement, 3.41 to 4.2 represented the respondents perception of agreement on the statement, and 4.21 to 5.00 represented the respondents perception of strong agreement on the statement. The 0.8 is served as a boundary for each elements of the measurement in the questionnaire. Accordingly, the 0.8 was a result found by dividing the difference between the maximum (5) and the minimum (1) scores to the maximum score (5) of the questionnaire. The mean of responses in each dimension of

constructs depicts that the average amount that each dimension has positive or negative responses of respondents. Based on this, the mean of each item response together with their respective construct average/ overall mean was calculated in order to conclude the overall respondent‘s perception towards loan determinants in DBE. And also in the process of examining the data, the standard deviation was used. It is a measure of how well the mean represents the data (Field 2009). Small standard deviations (relative to the value of the mean itself) imply that the data are close to the mean or respondents express relative and similar opinion for a given construct. On the other hand, a greater standard deviation (relative to the mean) indicates the data points are distant from the mean or the respondents give the variety of opinions for a given construct. Therefore, the mean scores have been computed for all the four determinants of loan namely loan size, interest rate, repayment rate and collateral requirement and also the dependent variable which is approval process of agriculture loan or loan financed of the case company. The average mean result of the above listed variables together with their respective dimensions/items were presented, analyzed and interpreted as follows.

4.4.1 Mean and standard deviation of loan size

In this part, the study determined the respondents ‘perception of Loan size. The respondents were put their perceptions towards this variable and the result was shown as follows.

Table 4. 3 Descriptive statistics of loan size

Loan size		N	Mean	Std. deviation
LS1	Larger loan sizes increase the likelihood of approval for agricultural loans.	189	4.48	. 704
LS2	The size of loan requested influences the risk assessment process for agricultural loans.	189	4.51	. 681
LS3	Loan officers are more confident in approving larger agriculture loans when there is sufficient collateral	189	4. 64	. 544
LS4	Larger loan sizes are associated with better repayment rates in agricultural loans.	189	4. 51	. 719

LS5	The size of the loan affects the interest rate offered to agricultural borrowers.	189	4. 66	. 538
LS6	Larger agricultural loans are more likely to be used for productive investments.	189	4. 65	. 541
LS7	Loan size impacts the administrative workload for processing agricultural loans.	189	4. 55	.655
LS8	The size of loan requested influences the loan approval time for agricultural loans.	189	4 .53	.649
LS9	Larger loan sizes are more likely to meet the financial needs of agricultural borrowers.	189	4.47	.718
	Overall mean of Loan size	189	4.74	.316

Source: Own survey SPSS result, (2024).

Based on the table 4.3 above; the overall mean of the responses on loan size was 4.74. This implies that the perception of respondents in loan size on approval process of agriculture loan or loan financed in their company was strongly agreed.

Accordingly, the respondents were responded on whether larger loan sizes increase the likelihood of approval for agricultural loans. (LS1). The mean for this item response was 4.48, with a standard deviation of (.704). This means that the respondents strongly agreed on larger loan size applications has an effect on approval process of agricultural loan or to be financed from DBE. On the second item (LS2) the respondents responded on whether the size of loan requested influences the risk assessment process for agricultural loans, and the mean and standard deviation of the response was 4.51and .681 respectively. This implies that the respondents were agreed on the loan size requested affect the risk assessment process which is one of the processes in approval process of agricultural loan. The mean for the response on loan officers are more confident in approving larger agriculture loans when there is sufficient collateral. (LS3) was 4.64, with a standard deviation of (.544). This implies that the respondents strongly agreed on the case company when there is sufficient collateral larger loan size applications can approved. The mean for the response on larger loan sizes are associated with better repayment rates in agricultural loans. (LS4) was 4.51, with a standard deviation of (.719). This implies that respondents strongly agreed on larger loan sizes are associated with

better repayment rates in agricultural loans. The mean for the response on the size of the loan affects the interest rate offered to agricultural borrowers. (LS5) was 4.66 with a standard deviation of (.538). This indicates that the respondents were strongly agreed on larger loan size affects the interest rate offered by the DBE. The mean for the response on larger agricultural loans are more likely to be used for productive investments. (LS6) was 4.65 with a standard deviation of (.541). This also indicates that respondents were strongly agreed on the larger agricultural loans are more likely to be used for productive investments. The mean response for loan size impacts the administrative workload for processing agricultural loans. (LS7) is 4.55 and standard deviation is (.655), this implies that respondents were strongly agreed on loan size impacts the administrative workload for processing agricultural loans. The size of loan requested influences the loan approval time for agricultural loans. (LS8) the mean and standard deviation of respondents on this questionnaire are 4.53 and .649 respectively, this implies that most of the respondents were strongly agreed on the size of loan requested influences the loan approval time for agricultural loans from DBE. Lastly, the mean for the response on larger loan sizes are more likely to meet the financial needs of agricultural borrowers (LS9), was 4.47, with the standard deviation of (.718). This means that the respondents were strongly agreed on larger loan size's meet the needs of the borrowers.

4.4.2 Mean and standard deviation of interest rate

Table 4. 4 Descriptive statistics of interest rate

Interest rate		N	Mean	Std. deviation
IR 1	Higher interest rates discourage farmers from applying for agricultural loans.	189	4.83	. 381
IR 2	Interest rate levels significantly impact the approval rate of agricultural loan applications.	189	4.84	. 366
IR 3	Loan officers are more cautious in approving agricultural loans when interest rates are high.	189	4. 86	. 366
IR 4	High interest rates increase the risk of default on agriculture loans.	189	4. 67	. 505

IR 5	Farmers are more likely to seek alternative financing options when interest rates are high.	189	4. 79	. 443
IR 6	Interest rate fluctuations affect the demand for agricultural loans.	189	4. 77	. 460
IR 7	Lower interest rates facilitate easier access to agricultural loans for farmers	189	4. 66	.557
IR 8	The interest rate is a critical factor in the decision- making process for agricultural loan approvals.	189	4 63	.583
IR 9	High interest rates negatively impact the overall agricultural loan portfolio performance.	189	4.62	.603
	Overall mean of interest rate	189	4.55	.398

Source: Own survey SPSS result, (2024).

Based on the table 4.4 above; the overall mean of the responses on interest rate was 4.54. This implies that the perception of respondents on the effects of interest rate on approval process of agriculture loan or loan to be financed in their company was strongly agreed.

Moreover respondents were responded on higher interest rates discourage farmers from applying for agricultural loans. (IR1). The mean for this item response was 4.83, with a standard deviation of (.381). This means that the respondents were strongly agreed higher interest rate discourage farmers from applying for agricultural loans. On the second item (IR2) Interest rate levels significantly impact the approval rate of agricultural loan applications the mean and standard deviation of the response was 4.84 and .366 respectively. This implies that the respondents were strongly agreed on their company interest rate levels significantly impact the approval rate of agricultural loan applications. The mean responses on loan officers are more cautious in approving agricultural loans when interest rates are high. (IR3) was 4.86, with a standard deviation of (.366). This implies that the respondents were strongly agreed on loan officers are more cautious in approving agricultural loans when interest rates are high. The mean for the response high interest rates increase the risk of default on agriculture loans. (IR4) was 4.67, with a standard deviation of (.505). This implies the respondents were strongly agreed on high interest rates increase the risk of default on agriculture loans. The

mean for the response of respondents on farmers are more likely to seek alternative financing options when interest rates are high. (IR5) was 4.79 with a standard deviation of (.443). This indicates that the respondents were strongly agreed on farmers are more likely to seek alternative financing options when interest rates are high. , the mean for the response of respondents on interest rate fluctuations affect the demand for agricultural loans. (IR6) was 4.77 with a standard deviation of (.460). This also indicates that respondents were strongly agreed on Interest rate fluctuations affect the demand for agricultural loans. The mean response for lower interest rates facilitate easier access to agricultural loans for farmers (IR7) was 4.66 and standard deviation was (.557), this implies that respondents were strongly agreed that lower interest rates facilitate easier access to agricultural loans for farmers. The mean response on respondents on the interest rate is a critical factor in the decision- making process for agricultural loan approvals (IR8) were 4.63 and standard deviation .583 can conclude that most of the respondents strongly agreed that interest rate is a critical factor in the decision-making process for agricultural loan approvals. Finally the mean response of respondents on high interest rates negatively impacts the overall agricultural loan portfolio performance. (IR9) was 4.62 and standard deviation were (.603).This implies that most of respondents were strongly agreed on High interest rates negatively impact the overall agricultural loan portfolio performance.

4.4.3 Mean and standard deviation of repayment period

Table 4. 5 Descriptive statistics of repayment period

Repayment period		N	Mean	Std. deviation
RP1	Longer repayment periods make agricultural loans more attractive to farmers.	189	4.76	.442
RP2	The length of the repayment period influences the approval rate of agricultural loans	189	4.77	.448
RP3	Farmers are more likely to repay agricultural loans on time when the repayment period is extended.	189	4.75	.457

RP4	Shorter repayment periods increase the risk of default on agricultural loans.	189	4.74	.451
RP5	Loan officers prefer to offer longer repayment periods to support farmer's financial stability.	189	4.72	.448
RP6	The repayment period is a critical factor in the risk assessment of agricultural loans.	189	4.57	.576
RP7	Farmers are more likely to apply for agricultural loans with flexible repayment periods.	189	4.29	.664
RP8	The repayment period offered by the bank is competitive compared to other financial institutions.	189	4.31	.685
RP9	Loan officers receive adequate training on how to set appropriate repayment periods for agriculture loans.	189	4.62	.603
RP10	Loan officers consider the repayment period as a key determinant in approval process of agricultural loans.	189	3.86	.594
	Overall mean of repayment period		4.52	.292

Source: Own survey SPSS result, (2024).

The above table 4.5 illustrates the overall mean of the responses on repayment period was 4.52 this indicates that the perception of respondents on the repayment period was strongly agreed.

Furthermore, the mean score of the response on longer repayment periods make agricultural loans more attractive to farmers. (RP1) was 4.76 with the standard deviation of (.442), which shows the respondents were strongly agreed on the longer repayment periods makes agricultural loans more attractive to farmers. The mean score of the response on the length of the repayment period influences the approval rate of agricultural loans (RP2) was 4.77, with the standard deviation of (.448). This means the respondents were strongly agreed on that the length of the repayment period influences the approval rate of agricultural loans. The mean score of the response on farmers are more likely to repay agricultural loans on time when the repayment

period is extended. (RP3) was 4.75, with the standard deviation of (.457), indicating that the respondents were agreed that farmers are more likely to repay agricultural loans on time when the repayment period is extended. The mean score of the response on shorter repayment periods increase the risk of default on agricultural loans, (RP4) was 4.74, with the standard deviation of (.451). This implies that the respondents were strongly agreed on shorter repayment periods increase the risk of default on agricultural loans. Also the mean score of the response on loan officers prefer to offer longer repayment periods to support farmer's financial stability, (RP5) was 4.72, with the standard deviation of (.448). This indicates the respondents were strongly agreed on Loan officers prefer to offer longer repayment periods to support farmer's financial stability. The mean responses of respondents on the repayment period is a critical factor in the risk assessment of agricultural loans (RP6) were 4.57, with the standard deviation of (.576),this implies that respondents were strongly agree that the repayment period is a critical factor in the risk assessment of agricultural loans. The mean response of respondents on farmers are more likely to apply for agricultural loans with flexible repayment periods. (RP7) were 4.29 and standard deviation was (.664), this implies that most of the respondents were strongly agreed that farmers are more likely to apply for agricultural loans with flexible repayment periods. The mean response on the repayment period offered by the bank is competitive compared to other financial institutions, (RP8) were 4.31and standard deviation was (.685), this implies that respondents were strongly agreed that the repayment period offered by the bank is competitive compared to other financial institutions. The mean score of respondents' loan officers receive adequate training on how to set appropriate repayment periods for agriculture loans, (RP9) were 4.62 and standard deviation were (.603). This implies that most of the respondents are strongly agreed that loan officers receive adequate training on how to set appropriate repayment periods for agriculture loans. Lastly, the mean score of the loan officers consider the repayment period as a key determinant in approval process of agricultural loans, (RP10) was 3.86, with the standard deviation of (.594). This means the respondents were agreed on they consider the repayment period as a key determinant in approval process of agricultural loans.

4.4.4 Mean and standard deviation of collateral

Table 4. 6 Descriptive statistics of collateral

Collateral		N	Mean	Std. deviation
CR1	The stringency of collateral significantly influences the approval of agricultural loans.	189	4.26	.853
CR2	Higher collateral reduce the likelihood of loan approval for farmers.	189	4.71	.487
CR3	Loan officers prioritize collateral over other factors when assessing agricultural loan applications.	189	4.82	.425
CR4	Farmers with substantial collateral are more likely to receive favorable loan terms.	189	4.82	.425
CR5	The risk associated with agricultural loans is significantly mitigated by stringent collateral.	189	4.83	.420
CR6	Collateral are a critical factor in determining the loan amount for agricultural loans.	189	4.81	.428
CR7	Loan officers receive adequate training on evaluating and enforcing collateral for agricultural loans.	189	4.71	.487
CR8	The process of assessing collateral is transparent and consistent across all loan applications.	189	4.72	.485
CR9	Farmers are well-informed about the collateral necessary for their loan applications.	189	4.67	.601
CR10	Collateral are a significant factor in the overall satisfaction of farmers with their agricultural loans.	189	4.71	.487
CR11	Loan officers find it challenging to assess and enforce collateral for agricultural loans.	189	4.66	.538
CR12	The bank policies on collateral are competitive	189	4.65	.571

	compared to other financial institutions.			
	Overall mean of collateral	189	4.69	.325

Source: Own survey SPSS result, (2024).

The above table 4.6 illustrates the overall mean of the responses on collateral was 4.69 this indicates that the perception of respondents on the collateral was strongly agreed.

Furthermore, the mean score of the response on respondents on the stringency of collateral significantly influences the approval of agricultural loans, (CR1) was 4.26 with the standard deviation of (.853), which shows the respondents were strongly agreed on the stringency of collateral significantly influences the approval of agricultural loans.. The mean score of the response on the higher collateral reduce the likelihood of loan approval for farmers. (CR2) was 4.71, with the standard deviation of (.487). This means the respondents were strongly agreed that higher collateral reduce the likelihood of loan approval for farmers. The mean score of the response on loan officers prioritize collateral over other factors when assessing agricultural loan applications (CR3) was 4.82, with the standard deviation of (.425), indicating that the respondents were strongly agreed on loan officers prioritize collateral over other factors when assessing agricultural loan applications. The mean score of the response on farmers with substantial collateral are more likely to receive favorable loan terms (CR4) was 4.82, with the standard deviation of (.425). This implies that the respondents were strongly agreed farmers with substantial collateral are more likely to receive favorable loan terms. And also the mean score of the response on the risk associated with agricultural loans is significantly mitigated by stringent collateral (CR5) was 4.72, with the standard deviation of (.448). This indicates the respondents were strongly agreed on the risk associated with agricultural loans is significantly mitigated by stringent collateral. The mean responses of respondents on collateral are a critical factor in determining the loan amount for agricultural loans. (CR6) were 4.81, with the standard deviation of (.426), this implies that respondents were strongly agree that collateral are a critical factor in determining the loan amount for agricultural loans. The mean response of respondents on loan officers receive adequate training on evaluating and enforcing collateral for agricultural loans, (CR7) were 4.71 and standard deviation was (.487), this implies that most of the respondents were strongly agreed that loan officers receive adequate training on evaluating and enforcing collateral for agricultural loans. The mean response on the process of

assessing collateral is transparent and consistent across all loan applications (CR8) were 4.72 and standard deviation was (.485), this implies that respondents were strongly agreed that the process of assessing collateral is transparent and consistent across all loan applications. The mean score of respondents' farmers are well-informed about the collateral necessary for their loan applications (CR9) were 4.67 and standard deviation were (.601). This implies that most of the respondents are strongly agreed that farmers are well-informed about the collateral necessary for their loan applications. The mean score of respondents on collateral are a significant factor in the overall satisfaction of farmers with their agricultural loans (CR10) were 4.71and the standard deviation were .487, this implies that most of the respondents were strongly agreed collateral are a significant factor in the overall satisfaction of farmers with their agricultural loans. The mean score of respondents on loan officers find it challenging to assess and enforce collateral for agricultural loans (CR11) were 4.66 and the standard deviation were (.538) this indicates that most of respondents were strongly agreed that loan officers find it challenging to assess and enforce collateral for agricultural loans. Lastly, the mean score of the bank policies on collateral are competitive compared to other financial institutions (CR12) was 4.65, with the standard deviation of (.571). This means the respondents were agreed on the bank policies on collateral are competitive compared to other financial institutions.

4.4.5 Mean and standard deviation Approval process of agriculture loan

Table 4. 7 Descriptive statistics of Approval process of agriculture loan

Approval process of agriculture loan		N	Mean	Std. deviation
AL1	The agricultural loan application process is straightforward and easy to understand.	189	4.83	.381
AL2	The criteria for approving agricultural loans are clear and well-defined.	189	4.84	.366
AL3	I feel confident in my ability to assess the creditworthiness of agricultural loan applicants.	189	4.86	.366
AL4	The training provided to loan officers on agricultural finance is adequate and effective.	189	4.67	.505

AL5	The risk associated with agricultural loans is manageable with the current risk management practices.	189	4.71	.487
AL6	The interest rates on agricultural loans are competitive and fair.	189	4.76	.466
AL7	The repayment terms for agricultural loans are flexible and suitable for the needs of farmers.	189	4.76	.466
AL8	The support and resources provided to loan officers for agricultural finance are sufficient.	189	4.76	.466
AL9	I believe that agricultural loans significantly contribute to the development of the agricultural sector.	189	4.78	.450
	Overall mean of access to agricultural loan (loan financed)	189	4.74	.316

Source: Own survey SPSS result, (2024).

Based on the table 4.7 above, the overall mean of loan approval was 4.74. This indicates that the respondent's strong agreement on DBE has a good approval process of agriculture loan or loan financed.

Hence, the attitude of respondents on the first item of approval process of agriculture loan or loan financed, AL1 (The agricultural loan application process is straightforward and easy to understand) was strongly agreed as the mean and standard deviation was 4.83 and .381 respectively. The attitude of respondents on the second item, AL2 (The criteria for approving agricultural loans are clear and well-defined) was strongly agreed as the mean and standard deviation was 4.84 and .366 respectively. Concerning with the third item, AL3 (I feel confident in my ability to assess the creditworthiness of agricultural loan applicants), the respondents were strongly agreed since, mean and standard deviation was 4.86 and .366 respectively. The attitude of respondents on the fourth item, AL4 (The training provided to loan officers on agricultural finance is adequate and effective) was strongly agreed as the mean and standard deviation was 4.67 and .505 respectively. And also respondents were strongly agreed with the fifth item of approval process of agriculture loan or loan financed construct, AL5 (The risk associated with agricultural loans is manageable with the current risk management practices)

since the mean and standard deviation was 4.71 and .487 respectively. The respondents were strongly agreed on the sixth item, AL6 (The interest rates on agricultural loans are competitive and fair) since mean and standard deviation of 4.76 and .466 respectively. The perception of respondents on the seventh item, AL7 (The repayment terms for agricultural loans are flexible and suitable for the needs of farmers) was strongly agreed as mean and standard deviation was 4.76 and .466 respectively. The respondents attitude on the eighth item, AL8 (The support and resources provided to loan officers for agricultural finance are sufficient) was strongly agreed as the mean and standard deviation was 4.76 and .466 respectively. Finally on the ninth item, AL9 (I believe that agricultural loans significantly contribute to the development of the agricultural sector) the respondents were strongly agreed so as its mean and standard deviation was 4.78 and .450 respectively. Thus, the respondents were agreed on all items of approval process of agriculture loans or loan financed.

4.5 Inferential statistics

4.5.1 Correlations Analysis

Under research investigation the expectations to understand concepts are the means and standard deviations of the dependent and independent variables of the study. So that needs to know how one variable is related to another comes with the concept of correlation. According to Field (2005), correlation is the relationship between two variables correlating the dependent and independent variables under investigation. So the researchers would like to observe the nature, direction and strength of relationship the relationship of the variables in the study. The bivariate correlations procedure computes the pair wise associations for a set of variables and displays the results in the matrix form. In this study the researcher calculated the direction and strength of the relationship between dependent and independent variables by using a linear product-moment correlation coefficient which is also called Pearson correlation coefficient. As noted above, a Pearson correlation coefficient indicates the direction and strength of bivariate relationships of all variables in the study. According to Burns (2008), correlation coefficient is a very useful means for summarizing the relationship between two variables with a single number that will between -1 and +1. The convenient symbol for correlation coefficient is r. The extreme values of r, that is, when r= 1, indicate that there is a perfect (positive or negative) correlation between the two variables, where as if r is 0, it indicates that there is no or zero correlation between variables.

Hence, in this study bivariate Pearson correlation coefficient (r) was used to show the relationship between the four dimensions of loan determinants on agriculture loan approval and by using a two-tailed test of statistical significance at the level of 95% confidence interval and p 0.05.

Table 4.8 Correlation Matrix of variables

Correlations						
		LOS	ITR	RPP	COR	AAL
Loan size	Pearson Correlation	1	.294**	.546**	.454**	.727**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	189	189	189	189	189
Interest rate	Pearson Correlation	.294**	1	.395**	.247**	.244**
	Sig. (2-tailed)	.000		.000	.001	.000
	N	189	189	189	189	189
Repayment period	Pearson Correlation	.546**	.395**	1	.478**	.579**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	189	189	189	189	189
Collateral	Pearson Correlation	.454**	.247**	.478**	1	.546**
	Sig. (2-tailed)	.000	.001	.000		.001
	N	189	189	189	189	189
Approval process of agriculture loan(loan financed)	Pearson Correlation	.727**	.244**	.579**	.546**	1
	Sig. (2-tailed)	.000	.001	.000	.000	
	N	189	189	189	189	189

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

Independent variable; - LOS (Loan size), ITR (Interest rate), RPP (Repayment period), COR (Collateral).
Dependent variable:- AAL (approval process of agriculture loan)

Source: Own survey SPSS result (2024)

The above table shows the relationship between the dependent variable and independent variables. The coefficient of correlation 1 (one) indicates that each variable is perfectly correlated with itself. Based on the survey result, the correlation between loan size and approval process of agriculture loan was a strong positive correlation and they are significantly correlated at (r=.727**, and $P < 0.05$). Therefore, loan size and approval process of agriculture loan were strongly correlated.

The correlation between interest rate and approval process of agriculture loan is less positive correlation and they are significantly correlated at ($r=.244^{**}$, and $P < 0.05$). Therefore, interest rate and approval process of agriculture loan were correlated.

According to the survey result, there was a correlation between repayment period and approval process of agriculture loan and they are moderate correlated as compared to the other determinants in this research at ($r=.244^{**}$, and $P < 0.05$). Therefore, repayment period and access to agricultural loan were correlated. In the same way, the correlation between collateral and approval process of agriculture loan was a strong positive correlation and they are significantly correlated at ($r=.579^{**}$, and $P < 0.05$).

4.5.2 Regression analysis

The purpose of this study is to investigate the effects of independent variables (loan determinants) on the dependent variable which is approval process of agriculture loan. The results of correlations indicated the existence of the relationship between the variables but did not identify the most essential variable for this relationship. To achieve this objective, multiple regressions were conducted to analyze the combined effect of predictor (independent) variables on the dependent outcome. Before running the regression analysis, the researcher has tested basic assumption tests for the model such as; Linearity, Normality of the distribution, Multicollinearity tests, Homoscedasticity, and Autocorrelation (independence of observation) tests with the help of SPSS statistical software version 26. Testing statistical assumptions of regression analysis is essential to ensure that the results obtained are truly representative of the

sample and to obtain the best results possible (Hair, Black et al. 2014). Each assumption has described and tested bellow.

4.5.2.1 Testing the assumptions of the multiple regression

4.5.2.1.1. Normality Test

The most fundamental assumption in multivariate analysis is normality, which refers to the shape of the data distribution for an individual metric variable and its correspondence to the normal distribution (Hair, Black et al. 2014). The skewness and kurtosis are statistical tools that can enable to check if the data is normally distributed or not. The skewness value provides an indication of the symmetry of the distribution. A distribution or data set is symmetric if it looks the same to the left and right of the center point, whereas, the value of Kurtosis provides information about the peak of the distribution (a property of the distribution that describes the thickness of the tails). The thickness of the tails comes from the number of scores falling at the extremes relative to the Gaussian/normal distribution (Pallant, 2010) The acceptable range of Skewness and Kurtosis results are between -1.0 and +1.0, and the error term for each variable should be constant (Smith and Wells 2006). Accordingly, the result of analysis was confirmed this rule, and the outcome is presented in the following table.

Table 4. 8 Skewness and Kurtosis results of normality test

	N	Skewness		Kurtosis	
	Statistic	**Statistic**	**Std. Error**	**Statistic**	**Std. Error**
Loan size	189	-.136	.177	.431	.352
Interest rate	189	-.076	.177	.216	.352
Repayment period	189	-.399	.177	.531	.352
Collateral	189	-.654	.177	-.262	.352
Approval process of agriculture loan	189	-.169	.177	.847	.352

Source: Own survey SPSS result, (2024)

Based on the table 4.8 above, the Skewness and Kurtosis test results of the data in this study were within the acceptable range and error term for each variable is constant. Therefore, it can be concluded that the data is normally distributed, and normality assumption of the model was met.

4.5.2.1.2. Linearity Test

Linearity defines the dependent variable as a linear function of the predictor or independent variables (Wilkinson 1975). Multiple linear regressions can only accurately estimate the relationship between dependent and independent variables if the relationships are linear in nature (Osborne and Waters 2002). This is because of the difficulty to estimate the parameters if they are non-linear and not known their value given with data of both dependent and independent variables. Therefore, plotting the standardized residuals against the standardized predicted value is to check the linearity of variances. Accordingly, the P-P plot diagram below depicts that the data was distributed without any increment or decrement since; the points lie closer to the diagonal line. This indicates that there is a linear the relationship between independent variables and a dependent variable as it is presented below.

Figure 4. 1 linearity test

Source: own survey SPSS result, (2024).

By visually looking at the P-P plot diagram produced by SPSS software above it looks somewhat like a shotgun blast, the relationship between each independent variable and a

dependent outcome (variable) was found to be linear. Therefore, the linearity assumption of the model was met.

4.5.2.1.3. Multicollinearity Test

Multicollinearity, which refers to correlation among the independent variables, is another issue in testing assumptions of multiple regressions. Multicollinearity problem exists when the independent variables are too highly correlated (Hair, Black et al., 2014 And Pallant 2010). When independent variables are highly correlated (independent variables are multicollinearity), there is an overlap or sharing of predictive power. This may lead to the paradoxical effect, whereby the regression model fits the data well, but none of the predictor variables has a significant effect in predicting the dependent variable (Myers and Myers 1990). The two most common methods for measuring multicollinearity are Tolerance and its inverse, the inflation factor (VIF). A direct measure of multicollinearity is tolerance, which is defined as the amount of variability of the selected independent variable not explained by the other independent variables. The second measure of multicollinearity is variance inflation factor (VIF), which is simply calculated as the inverse of the tolerance value (Hair, Black et al. 2014). According to Hair et al, the suggested cut off VIF is 10 which means that the Tolerance value less than 0.1 and VIF value greater than 10 indicates there is serious multicollinearity problem and violates the assumption of linear regression model. The following table (table 4.9) shows the values of Tolerance and VIF.

Table 4. 9 Multi Collinearity test

Coefficients[a]			
		Collinearity Statistics	
Model		Tolerance	VIF
1	Loan size	.648	1.543
	Interest rate	.833	1.200
	Repayment period	.590	1.695
	Collateral	.717	1.395
a. Dependent Variable: Approval process of agriculture loan			

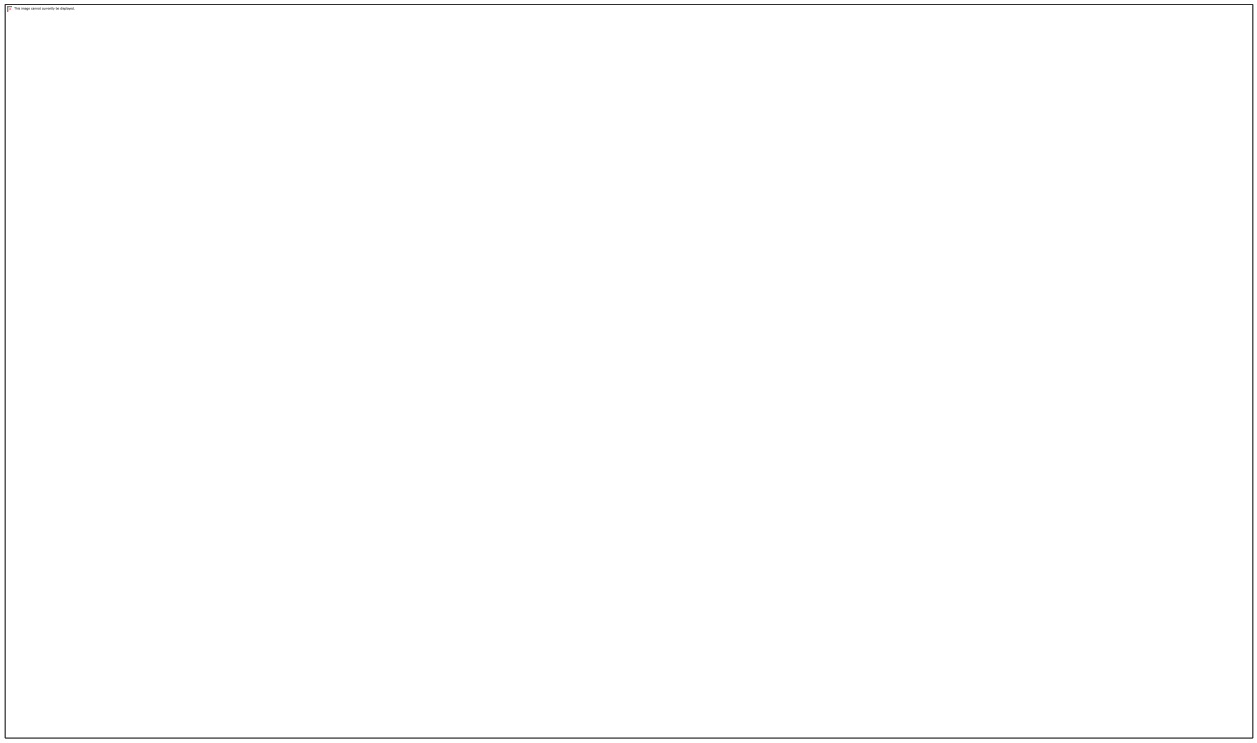
Source: own survey SPSS result, (2024).

4.5.2.1.4. Homoscedasticity Test

Homoscedasticity is the extent to which the data values for the dependent and independent variables have equal variances (Olvera & Zumbo, 2019). At each level of the predictor variables, the variance of the residual terms should be constant. It means that the residuals at each level of the predictors should have the same variance; therefore, checking for this assumption is helpful for the fitness of the regression model. In this regard, to plot the homoscedasticity test, as supported by Erik (2014), the researcher plots the standardized residuals, or error (ZRESID) on the Y-axis and the standardized predicted value of the dependent variable based on the model (ZPRED) on the X-axis and the result is presented as follows.

The usual recommendation for investigating the existence of homoscedasticity in regression analysis is to plot the anticipated variable values against the residual values. Homoscedasticity is shown when these values range or fan out from left to right or right to left. Accordingly, the scatter plot drowns for this research clearly indicated that majority of the points are concerted around zero (0) which confirm the no violation of homoscedasticity.

Figure 4. 2 Test for Homoscedasticity



Source: own survey SPSS result (2024).

4.5.2.1.5. Autocorrelation (Independence of observation) test

Independence of observation requires that the dependent measures for each respondent be uncorrelated with the response from other respondents in the sample. The most common method for testing the independence of observations is Durbin-Watson statistics, which is used to test the assumption that residuals are independent (uncorrelated). The Durbin-Watson statistic ranges in value from zero to four. The value of two indicates no autocorrelation problem. A value towards zero indicates positive autocorrelation, and conversely, a value towards four indicates negative autocorrelation (Saunders, Lewis et al. 2009).

Table 4. 10 Autocorrelation test

Model	R	R Square	Adjusted R Square	Std. error of the Estimate	Durbin-Watson
1	.782[a]	.612	.603	.17482	1.852
a. Predictors: Loan size ,Interest rate, Repayment period and Collateral					
b. Dependent variable: Approval process of agriculture loan					

Source: own survey SPSS result (2024).

According to the above table (Table 4.10), the Durbin-Watson value in this study was close to two (1.852). Therefore, it is found to be an acceptable range, and autocorrelation assumption of multiple regressions was met. In summary, since the general assumptions of multiple regressions are satisfied, it is eligible to perform the regression analysis to determine how well the regression model fits the data (model summary), to determine statistical significance of independent variables to predict the dependent variable and to identify statistical significance of each of the independent variables (Beta coefficients).

4.6. Regression analysis between loan determinants and loan approval

4.6.1. Model summary

A regression analysis was performed in this study in order to forecast the effects of loan determinants on approval process of agriculture finance from DBE. Multiple regression analysis also implies that how much of the variance in the dependent variable can be explained by the independent variables. In order to see the contribution of loan determinants (i.e. loan size,

interest rate, repayment period and collateral) on approval process of agriculture finance. Multiple regression analysis was employed; the following table presented the results of Multiple Regression Analysis. The squared multiple correlation coefficients (R^2) shows the level of variance in the dependent variable (approval process of agriculture finance) which was explained by the model.

Table 4. 11 Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.782[a]	.612	.603	.17482
a. Predictors: (Constant), Collateral, Interest rate, Loan size, Repayment period				

Source: own survey SPSS result (2024).

Correlation analysis alone does not provide enough information regarding the interrelationships between the variables and can‘t imply a cause-effect relationship between independent variables/predictors and a dependent variable. This is checked by conducting the regression analysis. Based on the above table (Table 4.11), the coefficient R indicates the correlation between predictors (independent variables) and a dependent variable. From the table 4.8 above, R=.782 indicates that there is a very strong relationship between predictors (loan determinants) and a dependent variable (approval process of agriculture finance, which in turn shows a very good level of prediction.

The R square value (and also called the coefficient of determination) refers to the proportion of variance on the approval process of agriculture finance that can be explained by the set of loan determinants included in the model. As presented from table 4.11 above, R square value of .612 indicates that 61.2% of variance in a dependent variable that is approval process of agriculture finance from DBE can be explained by the set of loan determinants practices included in the model.

However, R-squared measures the proportion of variance on the approval process of agriculture finance explained by the set of loan determinants irrespective of how well they are correlated to approval process of agriculture finance. But, adjusted R square provides an adjustment to the R-

squared statistic by taking in to account the set of loan determinants have a correlation to approval process of agriculture finance. Therefore, in order to ensure reliability of the prediction, adjusted R square is more preferred than R square. Here R square may be overestimated and it is better to look for adjusted R square. As the above table indicates, according to adjusted R-squared, the combined effect of all loan determinants dimension included in the model explains 60.3% variation in approval process of agriculture finance from DBE. The remaining 39.7% of the variance in approval process of agriculture finance can be explained by the factors other than loan determinants dimension. This means that 39.7% of approval process of agriculture finance in the case company cannot be explained by loan determinants. The standard error of the Estimate shows that the remaining with the amount of 0.17482 variations would be predicted by other extraneous variables which are not included in the model.

4.6.2. Analysis of variance (ANOVA)

Table 4. 12 ANOVA-Model fit

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.866	4	2.217	72.526	.000[b]
	Residual	5.623	184	.031		
	Total	14.490	188			
a. Dependent Variable: Approval process of agriculture loan						
b. Predictors: (Constant), Collateral, Interest rate, Loan size, Repayment period						

Source: Own survey SPSS result, (2024).

According to the above table (table 4.12), from the total number of observation (14.490) the regression model explains 8.866. The remaining 5.623 is not explained by the model. Based on this the researcher can conclude the regression model explains most of the observation whereas the lesser observations are explained by other extraneous variables. In addition, mean square of the model represents the average amount of variation explained by the model is 2.217, whereas the mean square of the residual or the average amount of variation explained by other extraneous variables is .031. And also as ANOVA has been used to test the overall fit of the model, the above ANOVA table revealed that the set of loan determinants stated in the model are

statistically significant to predict approval process of agriculture finance, because there is a high value of F (F=72.526), especially, P < .001. Based on this the researcher concluded that the regression model is a good fit of the data.

4.6.3. Regression Analysis of Coefficients

Table 4. 13 Regression coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.257	.250		5.032	.000
	Loan size	.465	.050	.530	9.300	.000
	Interest rate	-.044	.048	-.046	-.920	.359
	Repayment period	.173	.051	.203	3.392	.001
	Collateral	.153	.038	.219	4.046	.000
a. Dependent Variable: Approval process of agriculture loan						

Source: Own survey SPSS result, (2024).

To remind, the researcher was developed and defined four alternative hypotheses with respect to study objectives in chapter one. In this section, the researcher performed multiple regression analysis with the help of SPSS statistics software version 26 for testing those developed hypotheses. The results made the researcher to accept three of the hypotheses from the developed four alternatives hypotheses and reject one alternative hypothesis, and conclude that the three loan determinants included in this study have positive and significant effect on approval process of agriculture loan of the case company because the p value of those hypotheses is less than 0.05. But one loan determinant which is the interest rate have negative effect on approval process of agriculture loan, since P-value is statistically not significant (P >0.05).

As indicated in the above table, loan size, repayment period and collateral requirement's had statistically significant contribution to approval process of agriculture finance at 95% confidence level, since their P-values were 0.000, 0.001, and 0.000 respectively and the significance level for them were less than 0.05 (P<0.05), but interest rate have no positive significant effect to approval process of agriculture finance rather it negatively affect approval process of agriculture finance with P value of 0.359 which is greater than 0.05(P>0.05) there for it hasn't positive significant contribution to approval process of agriculture finance.

Unstandardized beta coefficient (β)

According to table 4.13 above, the unstandardized coefficient implies the mean or average change in the dependent variable (approval process of agriculture finance) with a unit change in set of loan determinants mentioned in the model as independent variables.

As it is described in chapter three, the unstandardized coefficients (X1 up to X4) are the coefficients of the estimated regression model. Hence, by including the error term (Ɛ), the model for approval process of agriculture finance can be written as;

Y= β0+β1x1+β2x2+β3x3+β4x4+ Ɛ

Where; Y=Dependent variable (approval process of agriculture finance (APL)

β0=Constant term; β1, β2, β3, β4, =Beta coefficients, X1= Loan size (LOS), X2= Interest rate (ITR), X3= Repayment period (RPP), and X4= Collateral (COR),

Thus, APL= 0.465LOS+IRT-0.044+0.173RPP+0.153COR +1.257

The expected value of approval process of agriculture finance is 1.257 when all the four independent variables assume zero value. Among the four independent variables, three of them are found to be statistically significant and are significant predictors of the dependent variable which is approval process of agriculture finance. But one of the independent variable interest rate have no statistically significance to approval process of agriculture finance Moreover, the findings presented in the above table (table 4.13) indicates that taking all other independent variables at zero, a unit increase in loan size increases approval process of agriculture finance by 0.465, a unit increase in repayment period increases approval process of agriculture finance by 0.173, a unit increase in collateral increase approval process of agriculture finance by 0.153, and a unit increase in interest rate decreases approval process of agriculture finance by 0.044.

Standardized coefficients (Beta)

The standardized coefficients in the above table are useful to know which of the loan determinants has more impact on the approval process of agriculture finance of the case company of this study. It is used for comparing the effect of loan determinants included in the model on the approval process of agriculture finance. As indicated in the above regression coefficients table, loan size have the highest standardized coefficient (.530) followed by repayment period with standardized beta coefficient of (.203) and collateral with beta coefficient (.219).respectively in their relative effect on the approval process of agriculture finance from DBE.

4.7. Hypothesis testing

The study‘s hypothesis testing has been made based on Beta and P values. Here, using those coefficient results the proposed hypotheses for this study can be tested as follows.

Table 4. 14 Analysis of Hypothesis

Hypothesis	Beta Coefficient	Significant (P<0.05)	Decision
H1: Loan size has a significant positive effect on approval process of agriculture loan from DBE.	.465	0.000	Accept
H2: Interest rate has a significant positive effect on approval process of agriculture loan from DBE.	-.044	0.359	Fail to Reject
H3: Repayment period has a significant positive effect on approval process of agriculture loan from DBE.	.173	0.001	Accept
H4: Collateral has a significant positive effect on approval process of agriculture loan from DBE.	.153	0.000	Accept

Source: Own survey SPSS result, (2024).

Hypothesis 1: loan size has a positive significant effect approval process of agriculture loan:

The results of Multiple Regressions, as presented in the above (table 4.14), revealed that approval process of agriculture loan identification of loan size have a positive and statistically significant influential relationship (contribution) to approval process of agriculture loan with β= 0.465, at 95% confidence level P=0.000 which is less than 0.05. Therefore the hypothesis is accepted.

Hypothesis 2: interest rate has a negative significant effect on approval process of agriculture loan:

The results of Multiple Regression, as presented in the above (table 4.14), revealed that interest rate has a negative and significant influential relationship (contribution) to approval process of agriculture loan with β = -0.044, at 95% confidence level (P>0.05).which is the P=0.359 so the hypothesis is fail to reject.

Hypothesis 3: repayment period has a positive significant effect on approval process of agriculture loan: The results of Multiple Regression, as presented in the above (table 4.14), revealed that repayment period has a positive and statistically significant influential relationship

(contribution) to approval process of agriculture loan with β = 0.173, at 95% confidence level (P<0.05), P=0.001 which is less than 0.05. Therefore the hypothesis is accepted.

Hypothesis 4: collateral has a positive significant effect on approval process of agriculture loan: There is significant relationship between collateral and approval process of agriculture loan. The results of Multiple Regression, as presented in the above (table 4.14), above, revealed that collateral has a positive and significant influential relationship (contribution) to approval process of agriculture loan with β= 0.153, at 95% confidence level (P<0.05) with sig value of (P =0.000).which significantly affect approval process of agriculture loan.

4.8. Summary of hypothesis results

To remind, on the basis of proposed hypotheses that the researcher was developed and defined in chapter one, all hypotheses were accepted except interest rate. To do this, the researcher conducted multiple regression analysis with the help of SPSS statistics software version 26, and the results let the researcher to conclude that the loan determinants, except interest rate which one of the loan determinants which has negative or no significant contribution on approval process of agriculture loan other loan determinants collateral, repayment period and loan size have significant predicting power on approval process of agriculture loan from DBE. The results are summarized in the following table.

Table 4. 15 Summary of hypothesis results

Hypothesis statement	**Type**	**Beta Coefficient**	**Sig**	p-value	Remark
H1	Alternative	0.465	0.000	<0.05	Accept
H2	Alternative	-0.044	0.359	>0.05	Fail to Reject
H3	Alternative	0.173	0.001	<0.05	Accept
H4	Alternative	0.153	0.000	<0.05	Accept

Source: Own survey SPSS result, (2024).

4.9. Discussion of major findings

This section deals with discussion of results by linking the effects of loan determinants on approval process of agriculture loan with theories and problems rose.

- The first hypothesis stated loan size has a positive significant effect on approval process of agriculture loan the Beta value (β=0.465) shows that if there is a one-unit increase in loan size, there will be 46.5% increase on approval process of agriculture loan. Therefore, the researcher accepted the hypothesis. This indicated that loan size has a positive and statistically significant influential relationship (contribution) to approval process of agriculture loan. Study on Small-Scale Rice Farmers in Ebonyi State, Nigeria. This study found that larger loan sizes significantly increased the likelihood of successful loan acquisition. Other significant factors included farm size, cost of farm inputs, and interest charges. Another research on Rice Farmers in Kazaure Local Government Area, Jigawa State, Nigeria. The analysis revealed that the amount of loan obtained by farmers, years of farming experience with credit, and level of education were major factors that positively influenced loan access ability. Larger loan sizes were associated with better loan access ability. Also another study on the Analysis of the Performance of Agricultural Loans in Ethiopian Commercial Banks, found that larger loan sizes positively influenced the accessibility of agricultural loans. The multiple regression analysis indicated that loan size, along with collateral requirements and loan processing time, significantly affected loan accessibility. Research on the Determinants of Non-Performing Loans in Ethiopian Commercial Banks, The study revealed that larger loan sizes were associated with a lower likelihood of loans becoming non-performing. The multiple regression analysis showed that loan size, along with return on assets, return on equity, and loan-to-deposit ratio, significantly impacted loan performance. These findings highlight the importance of loan size in both approval process of and repaying agricultural loans in Ethiopia, alongside other factors such as borrower characteristics, collateral, and financial ratios.

In addition the finding loan determinants in general and loan size in specific is a significant positive predictor of approval process of agriculture loan.

- The second research hypothesis was interest rate has a negative significant effect on approval process of agriculture loan: The Beta value (β= -0.044) shows that if there is one unit increase in interest rate, there will be 4.4% decrease on approval process of

agriculture loan. Therefore, the researcher rejected the hypothesis, and this indicated that interest rate has a negative and statistically no significant (contribution) to approval process of agriculture loan. There is no significant relationship between interest rate and approval process of agriculture loan. The sig. value of this variable is greater than alpha (0.359>0.05) therefore the result has no significant and positive relationship with approval process of agriculture loan so the alternative hypothesis is rejected. Therefore, from the regression results it can be concluded that the application of interest rate has a negatively and statistically no significant positive impact on approval process of agriculture loan. A study on Financial Literacy and Credit Accessibility of Rice Farmers in Pakistan, this study found that higher interest rates negatively impacted farmers' access to agricultural loans. Other significant factors included financial literacy, collateral, and farm income. Another Research on the Effect of Interest Rate on the Uptake of Loans in Kenya. The analysis revealed a significant negative relationship between interest rate capping and the uptake of loans among commercial banks. Higher interest rates were associated with reduced loan uptake. Study on the Impact of Interest Rates on Credit and Loan Repayment in Ethiopia. This study found that higher interest rates negatively impacted the demand for credit among cooperative union members. The analysis showed that as interest rates increased, the likelihood of approval process of loans decreased. Other significant factors included education level, loan size, and repayment period. Analysis of the Performance of Agricultural Loans in Ethiopian Commercial Banks. This study found that higher interest rates reduced the accessibility of agricultural loans. The multiple regression analysis showed that interest rates, along with collateral requirements and loan processing time, significantly affected loan accessibility.

- The third hypothesis stated that repayment period has a positive significant effect on approval process of agriculture loan: The Beta value (β=0.173) shows that if there is one unit increase in repayment period, there will be 17.3% increase on approval process of agriculture loan. Therefore, the researcher accepted the hypothesis, and this indicated that repayment period has a positive and statistically significant influential relationship (contribution) to approval process of agriculture loan. A study on factors Affecting Agricultural Loan Repayment in Zambia. This research examined the factors affecting farmers in loan repayment in Lusaka district. The study found that the repayment period,

training in loan management, and years of farming experience significantly influenced loan access. Another study shows Demand for Agricultural Credit by Rural Smallholder Farmers, The findings showed that the loan repayment period, number of groups household members are part of, and collateral positively influenced the household decision to borrow. The intensity of participation was significantly influenced by the loan repayment period and household wealth endowment. Causal Nexus between Agricultural Credit Rationing and Repayment Performance, This research investigated the effects of credit rationing on loan repayment performance using a two-stage Tobit regression. The findings indicated that credit rationing significantly influenced repayment rates, highlighting the importance of adequate credit rationing for improving loan repayment performance.

- The fourth hypothesis of the study was collateral has a positive significant effect on approval process of agriculture loan, The Beta value (β= 0.153) shows that if there is one-unit increase in collateral, there will be 15.3% increase on approval process of agriculture loan. Therefore, the researcher accepted the hypothesis. This indicated that collateral has a positive and statistically significant influential relationship (contribution) to approval process of agriculture loan. A study on agricultural Lending Decision: A Tobit Regression Analysis. This study used a Tobit regression model to analyze data from loan applicants and bank officials at Union Bank of Nigeria and First Bank of Nigeria Agricultural lending decision a Tobit regression analysis. It found that sufficient collateral, family support and wealth significantly facilitated securing agricultural loans Agricultural lending decision a Tobit regression analysis. Another study on the analysis of Loan Acquisition and Repayment among Small Scale Rice Farmers in Ebonyi State, Nigeria. This study employed multiple regression and logit regression models to analyze loan acquisition and repayment among small-scale rice farmers it revealed that adequate collateral, cost of farm inputs, and interest charges were significant factors in determining loan acquisition.

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. INTRODUCTION

This chapter deals with summary of findings, general conclusions, recommendations for the case company and suggestions for further researchers should discuss.

5.2. Summary of findings

Based on the findings of the study, the following summaries were drawn.

The general objective of the study was to examine the effect of loan determinants on approval process of agriculture loan case of DBE. In line with the general objective, the specific objectives of the study consists of; - examine the effect of loan size on approval process of agriculture loan, examine the effect of interest rate on approval process of agriculture loan, To examine the effect of repayment period on approval process of agriculture loan, To examine the effect of collateral on approval process of agriculture loan, the case of Development Bank of Ethiopia.

The data were mainly collected from the primary sources i.e. from employees and managers of the case company through questionnaire. The researcher distributed 210 questionnaires and 189 (90%) out of the total were correctly filled, returned and used for analysis. The response rate of 90% was considered adequate for analysis and the reliability of constructs using Cronbach‘s alpha was .798 which was highest in the normally accepted range (between 0.50 and 0.80) for social sciences. For analysis of the data, descriptive statistics, correlation analysis, and regression analyses were used.

Starting from descriptive statistics, the study established out of 189 respondents, most of the respondents were males. The majority of the respondents have 6-10 years’ work experience in the organization, and majority of the respondents were from the non-managerial position. Additionally, educational background of the respondents revealed that the majority of the respondents were bachelor degree holders which in turn implies have better understanding about the questionnaire and the loan determinants in their organization that the study sough to address. The questionnaire and the loan determinants matters of their organization that the study soughs to address.

The first specific objective of the study was to examine the effect of loan size on approval process of agriculture loan of the case company. From the descriptive analysis, their mean score was 4.74, which indicates the respondents were agreed on loan size effect on approval process of agriculture loan.

The second specific objective of the study was to examine the effect of interest rate on approval process of agriculture loan of from case company. Based on the descriptive analysis result, the mean score was 4.52, which indicates that the respondents were agreed that interest rate has effect on approval process of agriculture loan.

The third specific objective of the study was to examine the effect of repayment period on approval process of agriculture loan of the case company. The descriptive analysis result shows that the respondents were agreed on repayment period has effect on approval process of agriculture loan in their company as their mean score was 4.69.

The fourth specific objective of the study was to examine the effect of collateral on approval process of agriculture loan of the case company. As the descriptive analysis result shows (M=4.55), the respondents were agreed the effect of collateral on approval process of agriculture loan in their company.

Correlation analysis (Pearson coefficient) was used to determine the relationship between the set of loan determinants included in the model as independent variables and approval process of agriculture loan from DBE which is a dependent variable of the study. Therefore, results of correlation analysis revealed that; There was a significant and strong positive correlation between loan size and approval process of agriculture loan with correlation coefficient of r=.727**and significance (P) value of less than 0.05, there was a significant and strong correlation between collateral and approval process of agriculture loan with correlation coefficient of r= .546** and significance (P) value of less than 0.05, there was a significant and strong correlation between repayment period and approval process of agriculture loan with correlation coefficient of r= .579**and P value of less than 0.05, there was a significant and strong correlation between interest rate and approval process of agriculture loan with correlation coefficient of r=244**and P value of less than 0.05, Then after, multiple regression analysis between loan determinants and approval process of agriculture loan determine the overall relationship and effect between loan determinants and approval process of agriculture loan based on “R”(multiple correlation coefficient). Therefore, the R value (.782) from the regression

model summary indicates that there is a strong positive correlation between loan determinants mentioned in the model and approval process of agriculture loan from Development bank of Ethiopia. Adjusted R square value (.603) indicates the proportion of variation/change in approval process of agriculture loan explained by the whole loan determinants stated in the model. This means that 60.3% of variation in approval process of agriculture loan was explained by the whole loan determinants mentioned in the model. The ANOVA test result shows that all loan determinants except interest rate which has negative effect on approval process of agriculture loan which has P>0.05 mentioned in the model collectively have statistically significant predicting power on approval process of agriculture loan of the case company ($F=72.526$, $P < 0.001$). The regression result further revealed that loan size is a statistically significant predictor of approval process of agriculture loan of the case company, since its beta coefficient is 0.465 and P-value less than 0.05, collateral is a statistically significant predictor of approval process of agriculture loan of the case company, since its beta coefficient is 0. 153 and P-value less than 0.05, repayment period has statistically significant predicting power on approval process of agriculture loan of the case company, since its beta coefficient is 0.173 and P-value less than 0.05, and interest rate is statistically no significant to predict the approval process of agriculture loan of the case company, since its beta coefficient is -0.044 and P-value greater than 0.05. Accordingly, the regression result revealed that loan size has the highest effect on approval process of agriculture loan followed by repayment period and collateral and the interest rate has less significant and negative effect on approval process of agriculture loan.

5.3. Conclusion

The leading goal of conducting this research was investigating the Effect of loan determinants on approval process of agriculture loan case of Development bank of Ethiopia. Thus, based on the objectives and findings, the following conclusions are drawn.

Based on the descriptive statistical analysis results, the respondents were agreed on the effects of loan determinants mentioned in the study. Therefore, on the basis of the findings acquired the researcher concluded as:

- Among the four dimension of loan determinants included in study namely; loan size, repayment period, collateral and interest rate The three loan determinants (loan size, repayment period and collateral) has a significant effect in approval process of

agriculture loan from Development bank , except interest rate which have negative effect on approval process of agriculture loan and have p value greater than 0.05.

Under correlation analysis, the relationship between loan determinants stated in the model and approval process of agriculture loan of the case company is concluded as;

- Three loan determinants included in the model (loan size, repayment period, and collateral) have strong and positive correlation/relationship with approval process of agriculture loan from Development bank. But interest rate have correlation with approval process of agriculture loan but it has negative relationship.

From the multiple regression analysis result, the following conclusions are drawn.

- Loan size has positive and significant effect on the approval process of agriculture loan from DBE.
- Repayment period has positive and significant effect on the approval process of agriculture loan from DBE.
- Collateral has positive and significant effect on the approval process of agriculture loan from DBE.
- Interest rate has negative and no significant contribution to the approval process of agriculture loan from DBE.

Accordingly, the researcher concluded as; the only three loan determinants included in the model have positive and significant effect on the approval process of agriculture loan from DBE. Furthermore, loan size has higher predicting power on the approval process of agriculture loan from DBE, followed by repayment period and collateral respectively. Lastly, interest rate has negative effect on approval process of agriculture loan and has low predicting power on approval process of agriculture loan.

5.4. Recommendations

Based on the research finding and conclusion made, the researcher came up with some important recommendations which would help Development bank of Ethiopia on effectively to managing loan determinants that significantly contribute to the improvement on accessibility of agriculture loan. Here are some recommendations regarding the effects of loan determinants on approval process of agriculture loan:

- ✓ Since loan size has a positive and significant effect on approval process of agriculture loans, DBE should consider offering flexible loan to farmers. This can help them invest more in their agriculture activities, leading to increased productivity and income.
- ✓ Given that a longer repayment period positively impacts approval process of agriculture loans, DBE should consider extending the repayment terms for agriculture loans. This would reduce the financial burden on farmers and make it easier for them to manage their repayments.
- ✓ As collateral has a positive and significant effect on loan access, DBE should simplify the collateral requirements for agriculture loans. This could include accepting alternative forms of collateral or reducing the amount of collateral needed.
- ✓ Although interest rate has a negative and insignificant effect on loan access, lowering interest rates could still make agriculture loans more affordable for farmers. DBE should explore ways to reduce interest rates or offer an alternative ways of different remedial options of interest.
- ✓ The bank should collaborate with agriculture cooperatives, farmers associations and NGOs to reach more farmers and provide comprehensive support and partner with technology providers to leverage digital platforms for loan disbursement and monitoring.
- ✓ In order to decrease loan determinants effect on approval process of agriculture loan DBE could develop risk-sharing schemes with insurance companies to cover potential loan defaults due to factors like crop failure or natural disasters. And implement government-backed guarantees to reduce the risk for the bank and encourage lending.

Finally the recommendations stated above can be applied to address the problem of loan determinants and can enhance approval process of agriculture loans. The findings could be an important input, particularly to the DBE in designing various policies in order to improve approval process of agriculture loan and achieve the desired goal as a country. It also serves as a stepping stone for future research that might be conducted on related areas.

5.5. Limitations of the study and suggestions for future researchers

This research had intended to establish the effect of loan determinants on approval process of agriculture loan in case of Development Bank of Ethiopia. The following are some of recommendation for further researcher:

- ✓ This study was conducted only on Development bank of Ethiopia and the findings were drawn only from this company. Thus, this may not be actual representation of other banking sector. Therefore, it is suggested that future researchers should able address the other bank sector .In addition, future researches should conduct a comparative study among two or more banks in order to make comparison of the status of loan determinants and draw more reliable findings.
- ✓ This study focuses on only four variables, including more control variables, such as farmer's education level and market conditions can help to better understand the factors influencing agriculture loan access
- ✓ The study is limited to a specific time period which cannot be capture long-term trends in order conducting longitudinal studies to track changes in loan access over time can provide insights into the long-term effects of the identified factors.
- ✓ The study used only a quantitative data if future researches use qualitative research, such as interviews or focus groups with farmers and loan officers, can provide deeper insights into accessibility of agriculture loan.
- ✓ Lastly, evaluating the impact of specific policies and interventions on agriculture loan access can help to identify effective strategies for improving approval process of agriculture loans.

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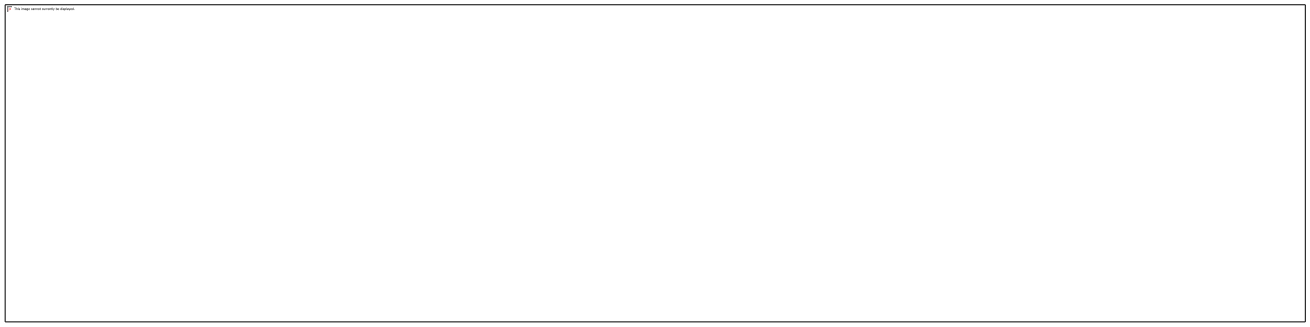
APPENDIX



ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

Dear Respondent,

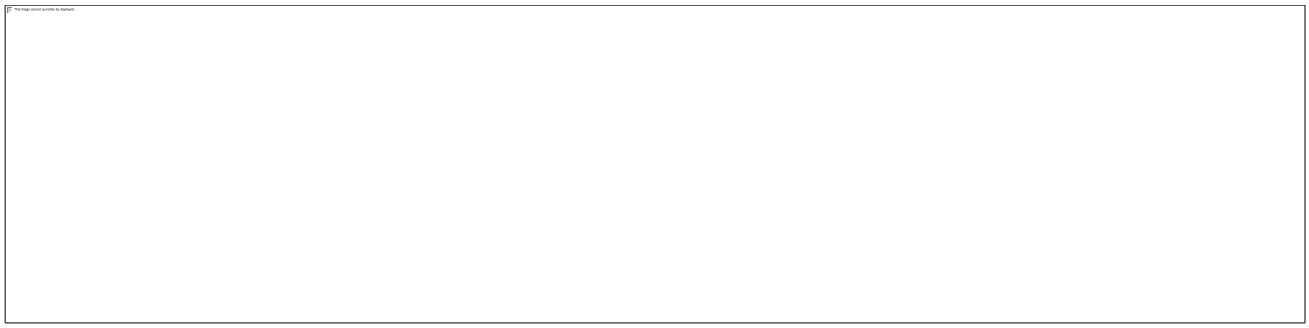
My name is Zewdneh Gashaw, Addis Ababa university student in department of accounting and finance (MSc). The aim of this questionnaire is to assess the effect of determinants on approval process of agricultural loan from DBE. The information you provide in response to the items in the questionnaire will be used only as part of the data needed for a study of assess the effect of determinants on approval process of agricultural loan from DBE. I would like to assure you that the information you provide will be used only for the purpose of achieving academic award. Your involvement is regarded as a great input to the quality of the research result. Hence, I believe that you will enlarge your assistance by participating in the study. Your honest and thoughtful response is invaluable.

Thank you for your participation in advance.

Best regards,

Zewdneh Gashaw

Tel -0922-43-60-56



ADDIS ABABA UNIVERSITY

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DEPARTMENT OF ACCOUNTING AND FINANCE

Survey Questionnaire

Part I: -Demographic Information

Please put a tick (√) mark in the box for your answer and for the number of your choice for the alternatives given.

1. Age:

Years 18-25 ☐ Years 26-33 ☐ Years 34-41 ☐ Years 42-49 ☐

Above 50 ☐

2. Sex: Male ☐ Female ☐

3. Marital Status: Single ☐ Married ☐ Divorced ☐ Widowed ☐

4. Educational Background: Diploma ☐ Degree ☐

Masters and Above ☐

5. Level/ position in the Bank: Managerial ☐ None Managerial ☐

6. Years of experience: Below2 years ☐ 3 – 5 years ☐ 6- 10 years ☐ Above 10 years ☐

Part II: Questions related to Loan determinants

The following question mainly focuses on assessing key dimension of the culture at your organization. So you are requested to indicate your perception using the following five point Likert scale.

1= Strong Disagree 2= Disagree 3=Neutral 4= Agree 5=Strong agree

No	Statement Loan Size	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
1	Larger loan sizes increase the likelihood of approval for agricultural loans.					
2	The size of loan requested influences the risk assessment process for agricultural loans.					
3	Loan officers are more confident in approving larger agriculture loans when there is sufficient collateral					
4	Larger loan sizes are associated with better repayment rates in agricultural loans.					
5	The size of the loan affects the interest rate offered to agricultural borrowers.					
6	Larger agricultural loans are more likely to be used for productive investments.					
7	Loan size impacts the administrative workload for processing agricultural loans.					
8	The size of loan requested influences the loan approval time for agricultural loans.					
9	Larger loan sizes are more likely to meet the financial needs of agricultural borrowers.					
No	**Statement Interest rate**	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
1	Higher interest rates discourage farmers from applying for agricultural loans.					

2	Interest rate levels significantly impact the approval rate of agricultural loan applications.					
3	Loan officers are more cautious in approving agricultural loans when interest rates are high.					
4	High interest rates increase the risk of default on agriculture loans.					
5	Farmers are more likely to seek alternative financing options when interest rates are high.					
6	Interest rate fluctuations affect the demand for agricultural loans.					
7	Lower interest rates facilitate easier access to agricultural loans for farmers					
8	The interest rate is a critical factor in the decision- making process for agricultural loan approvals.					
9	High interest rates negatively impact the overall agricultural loan portfolio performance.					
No	**Statement** **Repayment period**	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
1	Longer repayment periods make agricultural loans more attractive to farmers.					
2	The length of the repayment period influences the approval rate of agricultural loans					
3	Farmers are more likely to repay agricultural loans on time when the repayment period is					

	extended.					
4	Shorter repayment periods increase the risk of default on agricultural loans.					
5	Loan officers prefer to offer longer repayment periods to support farmer's financial stability.					
6	The repayment period is a critical factor in the risk assessment of agricultural loans.					
7	Farmers are more likely to apply for agricultural loans with flexible repayment periods.					
8	The repayment period offered by the bank is competitive compared to other financial institutions.					
9	Loan officers receive adequate training on how to set appropriate repayment periods for agriculture loans.					
10	Loan officers consider the repayment period as a key determinant in approval process of agricultural loans.					
No	**Statement** **Collateral**	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
1	The stringency of collateral significantly influences the approval of agricultural loans.					
2	Higher collateral reduce the likelihood of loan approval for farmers.					
3	Loan officers prioritize collateral over other factors when assessing agricultural loan applications.					

4	Farmers with substantial collateral are more likely to receive favorable loan terms.					
5	The risk associated with agricultural loans is significantly mitigated by stringent collateral.					
6	Collateral are a critical factor in determining the loan amount for agricultural loans.					
7	Loan officers receive adequate training on evaluating and enforcing collateral for agricultural loans.					
8	The process of assessing collateral is transparent and consistent across all loan applications.					
9	Farmers are well-informed about the collateral necessary for their loan applications.					
10	Collateral are a significant factor in the overall satisfaction of farmers with their agricultural loans.					
11	Loan officers find it challenging to assess and enforce collateral for agricultural loans.					
12	The bank policies on collateral are competitive compared to other financial institutions.					

Part III: Questions related to Approval process of agricultural loan

No	**Statement** **Approval process of agricultural loan**	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
1	The agricultural loan application process is straightforward and easy to understand.					

2	The criteria for approving agricultural loans are clear and well-defined.					
3	I feel confident in my ability to assess the creditworthiness of agricultural loan applicants.					
4	The training provided to loan officers on agricultural finance is adequate and effective.					
5	The risk associated with agricultural loans is manageable with the current risk management practices.					
6	The interest rates on agricultural loans are competitive and fair.					
7	The repayment terms for agricultural loans are flexible and suitable for the needs of farmers.					
8	The support and resources provided to loan officers for agricultural finance are sufficient.					
9	I believe that agricultural loans significantly contribute to the development of the agricultural sector.					