ST.MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

MASTER OF BUSINESS ADMINISTRATION

FACTOR AFFECTING CREDIT RISK MANAGEMENT IN THE CASE OF BANK OF ABYSSINIA S.C

BY

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ID:-SGS/0275/2015A

JUNE 2024

ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO ST.MARY'S UNIVERSITY, SCHOOL OFGRADUATESTUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DEGREE OF MASTER IN BUSINESS ADMINISTRATION

ADVISOR: KIROS HABTU (ASS.PROFF)

JUNE 2024
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ACKNOWLEDGMENT

First and above all, my deepest spirit and thanks would go to God, the almighty for giving me a chance to live and granting me the capability to proceed up to the end. The blessing, help, and guidance from God from time to time shall carry me a long way in the journey of life on which I am about to embark.

Next, I want to sincerely thank my advisor Kiros Habtu (Ass Prof), who gave me the direction and inspiration I needed to complete this project. Additionally, I want to thank my family, coworkers, friends, and everyone who commented on my study and gave assistance of any kind during my thesis work.

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List of Acronyms

CGP	Credit Granting Process
CRE	Credit Risk Environment
CRM	Credit Risk Management
CM	Credit Management
CMF	Credit Monitoring and Follow-up
ERA	Environmental Risk Analysis
GPR	Government Policy Risk
NPL	Non-Performing Loan
SPSS	Statistical Package for Social Science

Abstract

The objective of this study was to investigate factors affecting credit risk management practices in the Bank of Abyssinia. To achieve this, both primary and secondary sources of data were used. Questionnaires were distributed to 84 selected employees working in risk management and credit management departments at head office of Bank of Abyssinia from which 80 questionnaires were returned. In addition, an interview was conducted with four (4) managers. In the study both quantitative and qualitative research approaches with descriptive and inferential analysis techniques were employed. Descriptive and multiple linear regression analysis were conducted on the data collected through questionnaires with the help of Statistical Package for Social Science (SPSS), version 27 and interview data were analyzed thematically. Descriptive analysis as well as qualitative analysis of interviews data were conducted to evaluate effectiveness of credit risk management practice and the result revealed that the Bank has effective risk management system. Sound credit risk environment, appropriate credit granting process, effective credit risk monitoring and follow up were properly institutionalized. The result also showed that the bank incorporated environmental risk analysis, government policy risk analysis, and market risk analysis in its credit risk management system. Whereas the regress analysis was conducted to examine the effect of independent variables (credit risk environment, credit granting process, credit risk monitoring and follow up, environmental risk analysis, government policy risk analysis, market risk analysis) on dependent variable (effectiveness of credit risk management system). The regression output result indicated that all explanatory variables have statistically significant positive effect on credit risk management of the bank. Based on the results the researcher recommended that the bank ought to robust its credit risk management through incorporating stress tests for potential government policy risks analysis and developing information systems and analytical techniques in credit assessment process.

Keywords: Banking Sector, Credit Risk Management System, external factors and internal factors

Chapter One: Introduction

1.1. Background of the study

The banking system is a fundamental part of an economy that makes low-cost economic transactions between the lender and the depositor possible. Banks are in the business of safeguarding money and other assets as well as providing credit, lending, and payment services such as cashier checks, money orders, and bank accounts for their clients (Anteneh, 2021). The specialization of banks in accepting deposit, providing loan and other financial services, enabled them to play a vital role in effective and productive allocation of financial resources in the economy. Therefore, well-functioning banking sector has a strong impact on the entire economic development in both developed and developing countries and is considered as precondition for a country's economic wellbeing (Koju et al., 2020).

However, the crucial function that banking plays is not always well and might be impacted by internal and external threats including inept management, lax regulations, and economic issues (Taskinsoy, 2019). Since, banks are highly dependent on loan interest revenue, their performance is mainly affected by credit risk and it is thought to be the first form of risk that threatens bank survival and financial stability when taking into account the impact of numerous types of hazards (Velliscig et al., 2022).

Koju et al. (2020) explained that credit risk as defined as the possibility of losing the outstanding loan partially or totally, due to credit events (default risk) have lately received increased attention from regulators and commercial banks as a result of the global financial crisis because it poses a danger to bank stability and may result in bank failure. Koju et al. also stated that many academics and experts think that credit risk is the biggest danger to the stability of financial institutions and poor credit risk management can result in significant financial losses and possibly bankruptcy. As per these authors, credit risk is directly related to lax credit standards for borrowers and counterparties, poor portfolio risk management, or a lack of attention to changes in economic or other circumstances that can lead to a deterioration in the credit standing of a bank's counterparties. Thus, the ability of financial institutions to successfully manage their credit risk is essential to their survival. Through effective management of credit risk exposure, banks not only support the

viability and profitability of their own business but also contribute to systemic stability and to an efficient allocation of capital in the economy.

According to Tseganesh (2012) credit risk management includes all management function such as identification, measurement, assessment, monitoring and control of the credit risk exposure. Credit risk management is a structured approach of uncertainty management through risk assessment, development of strategies to manage it and mitigation of risk using managerial resources. The strategies of credit risk management involve transferring risk to other parties, avoiding risks, reducing the negative influence of risk and accepting some or all of the consequences of a particular risk (Afriyie&Akotey, 2013).

Effective credit risk management involves establishing an appropriate credit risk environment; operating under a sound credit granting process; maintaining an appropriate credit administration that involves monitoring process as well as adequately ensure that there are proper and clear guidelines in managing credit risk, that is, all guidelines are properly communicated throughout the organization; and that everybody involved in credit risk management understand them. Considerations that form the basis for sound credit risk management system include: policy and strategies (guidelines) that clearly outline the scope and allocation of a bank credit facilities and the manner in which a credit portfolio is managed, that is, how loans are originated, appraised, supervised and collected (Basel committee on bank supervision and regulation [Basel], 2004).

Despite its importance, credit risk management however, is not a simple task and is affected by various determinant factors. For instance, Bhatt et al. (2023) stated that credit appraisal measurements, environmental risk, and market risks significantly influence effectiveness of credit risk management development. According to Fikremariam (2018) government policy, infrastructure facilities, inflation, global economic crises, credit culture of the society and economic development level are external factors, whereas; credit assessment technique, credit approval process, credit management tools, supervisory monitoring and evaluating, credit guideline and employee are some of the internal factors that can affect credit risk management practices of commercial banks.

Given these facts; i.e. the importance of effective credit risk management and the existence of various determinant factors, the large literature on factors of credit risk management has however,

focused mostly on developed economy and it is imperative to understand the factors that could explain the credit risk management practice in developing economy. Therefore, the objective of this study is to investigate and provide empirical evidence on factors of credit risk management practices from developing economy specifically from Ethiopian context.

1.2. Background of the Organization

Bank of Abyssinia is one of the prominent commercial banks operating in Ethiopia. It was established in 1996 in accordance with 1960 Ethiopian commercial code and the Licensing and Supervision of Banking Business Proclamation No. 84/1994, as a private commercial bank with the aim of providing various banking services to individuals, businesses, and institutions. It started its operation with an authorized and paid up capital of Birr 50 million, and Birr 17.8 million respectively, and with only 131 shareholders and 32 staff. In two decades since its establishment, Bank of Abyssinia has registered a significant growth in paid up capital and total asset. It also attracted many professional staff members, valuable shareholders and large customers from all walks of life. This performance indicates public confidence in the Bank and reliability and satisfaction in its services.

Currently, employing the state-of-art banking technology, the Bank provides excellence domestic, international and special banking services to its esteemed and valuable customers. It also strives to serve all economic and services sectors via its ever increasing branch networks throughout the country. Bank of Abyssinia operates under the regulatory framework of the National Bank of Ethiopia, which is the central bank of the country. The bank is licensed to provide a wide range of financial services, including deposit-taking, lending, trade finance, foreign exchange operations, and electronic banking services.

Over the years, Bank of Abyssinia has expanded its network and presence throughout Ethiopia. It has established a significant number of branches and ATMs across the country, making its services accessible to a large customer base. The total customer of the Bank is more than 2,829,789 and the number of total employees reached 6910. In Addis Ababa, there are 2982 employees in which 2441 are clerical and the other 541 non-clerical staffs. The bank also has 2400 total shareholders and 541 branches all over the country. Bank of Abyssinia also has 10 Districts in Ethiopia as whole and 3 districts in Addis Ababa. The annual report of (2018) of the bank states that there is 209

number of branches is Addis Ababa. All branches offer both domestic and international banking services. The bank has also embraced technological advancements and offers digital banking solutions to cater to the evolving needs of its customers.

As stated at annual report Bank of Abyssinia provides various banking products and services, including current accounts, savings accounts, fixed deposits, loans, mortgages, letters of credit, and money transfer services. It serves diverse customer segments, including individuals, small and medium-sized enterprises (SMEs), corporate clients, and government institutions.

As a socially responsible bank, Bank of Abyssinia actively participates in corporate social responsibility initiatives. It contributes to various community development projects, supports education, healthcare, and environmental conservation programs, and promotes financial literacy among the population. With its commitment to customer satisfaction, innovation, and financial stability, Bank of Abyssinia has established itself as a leading player in the Ethiopian banking sector. Bank of Abyssinia has made significant strides in expanding its operations and enhancing its services to meet the diverse needs of its customers. Bank of Abyssinia still strives to identify bankable area every year and serve valuable customers by expanding its branch networks throughout the country.

1.3. Statement of the Problem

The health of financial sector is a cornerstone for the overall economic development of a country. Banks' health reflects to a large extent the health of their borrowers, which in turn reflects the health of the economy as a whole. Credit provision is the main source of banks as well as economic development. However, provision of credit alone does not support the economic development of the country unless it is accompanied by the effective credit management for efficient utilization of the fund in order to repay the loan in accordance with the agreement. According to Koju et al, (2020) many academics and experts think that credit risk the biggest danger to the stability of financial institutions and thus, the ability of financial institutions to successfully manage their credit risk is essential to their survival and growth. In its simplest form, credit risk management involves the identification, evaluation and management of a company's exposures to loss. In addition, credit risk management attempts to mitigate the occurrence of losses while initiating

advance planning to assure that adequate funds will be available to cover those losses that occur (Fikiremariam, 2018).

However, Credit risk management frameworks in general are often not sufficiently integrated within the organization, there is no unified approach, and there is no holistic view of all risks (Bhatt et al. 2023). Similarly in Ethiopian context, despite the recent reality of significant expansions of private commercial banks, the 2014/15 survey of national bank of Ethiopia (NBE) revealed that, significant proportion of commercial banks in Ethiopia lacks appropriate credit risk management system. In line to this, from their recent empirical evaluations of credit risk management practices in commercial bank of Ethiopia and Awash International Bank; Shahida and Venkata (2018) concluded that both banks applied inappropriate credit risk management system. Thus, it is obvious that the existing expansions of private banks in Ethiopia should be matched with strong credit risk management practices. This is because with the fastest economic growth of the country, societal demand of credit service also increase and this situation may increase credit risk on the banks unless and otherwise banks have effective credit risk management program. Therefore, it is imperative that, identifying factors affecting credit risk management through scientific research provides empirical evidences to come up with a more advanced form of credit risk management practice of private banks in Ethiopian context.

In the literature of credit risk management, various researchers (Abraham, 2002; Kibrom and mulugeta, 2010; Wondimagegnehu 2012; Negera 2012; Tehulu & Olana, 2014; Muluken 2014; Arega, et al. 2016; and Million, 2019) investigated factors of credit risk. Some other scholars (Yalemzewud, 2004; Hagos, 2010; Yalemzewd, 2013; Solomon, 2013; Abdul Majeeb and Bayush; 2017) conducted research on assessment of credit risk management practices. Still other researchers (Girma, 2011; Tibebu, 2011; and Kassahun 2023) investigated the relationship between bank performance and credit risk management. Mitiku (2014) studied the “Determinants of Commercial Banks Lending decisions while, Endale (2015) has done a study on “Assessment of loan recovery performance”. On identical title of this study, using data from commercial bank of Ethiopia, Asnakech (2021) investigated determinants of credit risk management. Similarly, Fikremariam (2018) conducted research on factors affecting credit risk management practices, in case of four selected private commercial banks, namely; Oromia, Birhan, Debub global and Anbessa. Aemiro (2014) and Agegnew and Gujral (2021) also investigated determinant factors of

credit risk management in microfinance institutions in Ethiopia. Furthermore, Mignot (2018) empirically analyzed factors affecting credit risk management of Development Bank of Ethiopia.

This shows, although there are several studies conducted in the area of credit risk, most of the studies were focused on determinants of credit risk followed by assessment of credit risk management practices and little emphasis was given for determinant factors of credit risk management in Ethiopian commercial banks. Furthermore, although, credit risk management practices are organization specific, as per the researcher knowledge, none of those studies considered a study on credit risk management factors focusing on the Bank of Abyssinia. In addition to this, even if environmental risk analysis and market risk analysis were identified as significant factor of credit risk management (Koju et al., 2020), no research has considered these variables in Ethiopian context. Therefore, to fill the gap the study was attempted to identify factors that affect the effectiveness of credit risk management systems in Bank of Abyssinia.

From the customer's and bank specific, environmental, and macroeconomic attribute, the study considered factors that are found to significantly influence credit risk management in most of prior studies (Wondimagegnehu, 2012; Fikremariam, 2018; Mignot, 2019; Agegnew and Gujral, 2021; Asnakech, 2021; Bhatt et al., 2023) and are also the focusses of government regulation (Basel, 1999). Therefore, the study was investigated influence of credit risk environment, credit granting process, credit monitoring and follow up process, environmental risk analysis, governmental policy risk and market risk analysis on credit risk management effectiveness in Bank of Abyssinia.

1.4. Objective of the Study

1.4.1. General Objective

The main objective of the study is to investigate credit risk management and its factors in Bank of Abyssinia.

1.4.2. Specific Objectives

To conveniently achieve the above overall objective the specific objectives of the study are:

I. To evaluate the credit risk management practice of Bank of Abyssinia.
II. To investigate the impact of credit risk environment on credit risk management.
III. To examine the impact of credit granting process on credit risk management.
IV. To investigate the impact of credit monitoring and follow up process on credit risk management.
V. To examine the impact of environment risk analysis on credit risk management.
VI. To investigate the impact of governmental policy risk analysis on credit risk management.
VII. To investigate the impact of market analysis on credit risk management.
VIII. To assess the challenges of credit risk management practice in Bank of Abyssinia.

1.5. Research Questions

The basic research questions those the study is going to answer are:

I. What is the credit risk management practice in Bank of Abyssinia?
II. What are the internal factors affecting Bank of Abyssinia's credit risk management?
III. What are the external factors affecting credit risk management practice in the study area?
IV. What are the main challenges of credit risk management practices in the study area?

1.6. Significant of the Study

After its successful completion, the study would have the following significance:

First, since the study was among the fewest studies of factor of credit risk management it would have a contribution towards other researchers as a source of reference and as a stepping stone for

those who want to furnish further insights into prevailing factors that affect effectiveness of credit risk management in developing countries context, particularly in Bank of Abyssinia.

Second, knowledge of factors of credit risk management should be of interest and importance to banking sectors and all other economic sectors; the overall economic development is influenced by well-functioning of banks. So, by identifying the most important determinants of credit risk management practices, it helps to improve banks' performance and economic growth. Therefore, employees of banks, shareholders, and all citizens in the economy would be benefited, because economic growth reduces unemployment rate and poverty in the country's economy.

Third, as Schelluch and Thorpe (1995) stated gaining an understanding of factors that affect credit risk management is important because it can help regulators, bank managers and board of directors to formulate policy based on empirical evidence rather than on a priori assumptions. Accordingly, the study would provide a base for regulators and other concerned body to formulate policy.

1.7. Scope the Study

1.7.1. Conceptual scope

From broadest and most interesting topics of credit risk, the scope of the study is limited to factors affecting credit risk management in case of Bank of Abyssinia. As it defined in background of study above, effectiveness of credit risk management depends mainly on establishing an appropriate Credit Risk environment; operating under a sound credit granting process and maintaining an appropriate credit administration. Therefore, these three activities together measures credit risk management effectiveness in the study. Thus, the effects of three external variables (government policy, credit culture of the society, and market risk analysis) and four internal variables (credit risk environment, credit approval process, credit risk monitoring and follow up process and environmental risk analysis) on effectiveness of credit risk management was examined. The other measurements of credit risk management are beyond this study. Although it is equally important to study factor affecting of credit risk management from different parties such as board of directors, internal auditors and bank customers point of views, the study delimited to bank employees.

1.7.2. Geographical scope

In fact, the study would be more effective and provides more valuable information if it covers all districts and branches of Bank of Abyssinia found in the country. However, from manageability perspective as well as shortage of budget, it become very challenging to do so. Thus, geographically, the study was conducted in the head office.

1.7.3. Time scope

To conveniently achieve the study objective, data were collected from employees of Bank of Abyssinia who are active during 2024 in credit management and risk management department.

1.7.4. Methodology scope

The study was applied mixed research approach with concurrent triangulation research design. Using mixed research approach enable to minimize limitations of qualitative and quantitative research approach and enjoy both methods strengths. Since, the objective of the study is to investigate effectiveness of credit risk management and its factors, concurrent triangulation research design is considered as appropriate for the study.

1.8. Limitations of the study

Most of previous studies in the area of credit risk management focused on assessment part. Therefore, scarce previous research studies and accessibility of sufficient current literatures on the subject of effectiveness of credit risk management and the factors that affects it in the context of Ethiopia may be one of the limiting factors. Second, although data from all districts and branches found in a country, provides more reliable information, due to cost constraints the study delimited to the head office of Bank of Abyssinia. This can be considered as the other limitation of the study. Despite, the above first limitation of the study the researcher made her maximum effort to understand effectiveness of credit risk management and its determinant factors, to design the research as properly as possible and to achieve specified objectives.

Chapter Two: Literature review

2.1. Introduction

The first chapter gives introduction about the problem to be investigated in this study. Under this particular part the researcher presented related materials reviewed regarding to the research topic. This chapter has both theoretical perspective and empirical studies of credit risk management and its determinants factors. The theoretical framework consists of a discussion and a presentation of the concept of risk and risk management in general and particularly for credit risk. Next prior empirical studies of credit risk management were discussed. Lastly the conclusion and knowledge gap from the overall review of related literatures were presented.

2.2. Review of Theoretical Literature

2.2.1. Credit and credit Risk.

The concept of credit has existed from the early day of civilization. Nowadays credit implies monetary and monetary- equivalent transactions. It also includes non- monetary and/or barter transactions. Roughly we can define. "a transaction between two parities in which one (the creditor or lender) supplies money or monetary equivalent good, service, etc. in return for promise of future payment by other (the debtor or borrower) .such transaction normally include the payment of interest to the lender (Joseph, 2006). The term 'credit' in the terminology of finance has an omnibus connotation. It not only includes all types of loans and advances (known as funded facilities) but also contingent items like letter of credit, guarantees and derivative (non-funded/ noncredit facilities). Investment in security is also treated as credit exposure (Bagchi, 2006).Credit risk is the bank's risk of loss arising from a borrower who does not make payments as promised. . Accordingly to Basel Committee on bank supervision [Basel] (1999) "Credit risk is most simply defined as the potential that a borrower or counterparty will fail to meet its obligation in accordance with agreed terms.

Banks need to manage credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions. Credit risk is calculated on the basis of possible losses from the credit portfolio. Potential losses in the credit business can be divided into expected losses and unexpected

losses. Expected losses are derived from the borrower's expected probability of default and the predicted exposure at default less the recovery rate, i.e. all expected cash flows, especially from the realization of collateral. The expected losses should be accounted for in income planning and included as standard risk costs in the credit conditions. Unexpected losses result from deviations in losses from the expected loss. Unexpected losses are taken into account only indirectly via equity cost in the course of income planning and setting of credit conditions. They have to be secured by the risk coverage capital (Basel, 1999).

Additionally, banks should be aware that credit risk does not exist in isolation from other risks, but is closely intertwined with other risks. Credit risk is by far the most significant risks faced by banks and the success of their business depends on accurate measurement and efficient management of these risks to a greater extent than any other risk (Gieseche, 2004 cited by Solomon2013).

2.2.1.1. Common Causes for Credit Risk

Credit risk decision is a complex process which implies a careful analysis of information regarding the borrower in order to estimate the probability of regular repayment. Any consequence on such decision will result to severe damage to banks. It. is, therefore, necessary to look into the cases of credit risk vulnerability. The main cause of credit risk include, limited institutional capacity, inappropriate credit policies, volatile interest rates, poor management, inappropriate laws, ineffective control processes, poor loan underwriting, laxity in credit assessment, poor lending practices, government interference and inadequate supervision by the central bank (Kithinji,2010, as cited in Solomon, 2013). According to Bagchi (2006) broadly, there are three sets of causes

The first cause of credit risk is Credit concentration. Credit concentration refers to the extent of concentration any group can pose a threat to the lender’s wellbeing. Such measure should be evaluated in relation to institution’ capital base (paid- up –capital+ reserves), total tangible assets and prevailing risk level. The alarming consequence is the like hood of large losses at one time or in succession without an opportunity to absorb the shock.

The second cause for credit risk is related with credit granting and/or monitoring process in which ineffective appraisal system and pre sanction care with lack of supplemented by an appropriate and prompt post- disbursement supervision and follow-up system. Credit exposure in the market

and liquidity is the other cause of credit risk. This implies sensitive sectors- associated to absence of compact analytical system to check for the customers' vulnerability of liquidity problem.

2.2.1.2. Forms of Credit Risk Exposures in Banks

Credit involves not only funds outgo by way of loans and advances and investment, but also contingent liabilities. Therefore, credit risk should cover the entire gamut of an organization's operations. Whose ultimate "loss factor is quantifiable in terms of money.

2.2.2. Credit Risk Management

Credit risk Management is the process of controlling the potential con-sequence of credit risk (Solomon, 2013).The credit risk management provides the broad canvas and infrastructure to effectively identify, measure, manage and control credit risk both at the portfolio and individual levels- in accordance with an organization's risk principles, risk policies.(Ibid). Credit risk management processes enforce the Banks to establish a clear process in for approving new credit as well as for the extension to existing credit. These processes also follow monitoring with particular care, and other appropriate steps are taken to control or mitigate the risk of connected lending (Basel, 1999).Credit granting procedure and control systems are necessary for the assessment of loan application, which then guarantees a bank's total loan portfolio as per the bank's overall integrity (Boyd, 1993). It is necessary to establish a proper credit risk environment, sound credit granting processes, appropriate credit administration, measurement, monitoring and control over credit risk, policy and strategies that clearly summarize the scope and allocation of bank credit facilities as well as the approach in which a credit portfolio is managed i.e. how loans are originated, appraised, supervised and collected, a basic element for effective credit risk management (Basel, 1999).

The Basel committee has pointed out the main problems associated to bank failure- which looks, lax credit standard for borrowers and counterparties, poor portfolio risk management and lack of attention to change in the economic situation or other circumstance. Thus international regulatory authorities felt that a clear and well laid management system is the first prerequisite in ensuring the safety and stability of the system. The goal of credit risk management is to maximize a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters.

Banks need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions. Banks should also consider the relationships between credit risk and other risks. The effective management of credit risk is a critical component of a comprehensive approach to risk management and essential to the long-term success of any banking organization (Basel, 1999). Since exposure to credit risk continues to be the leading source of problems in banks world-wide, banks and their supervisors should be able to draw useful lessons from past experiences. Banks should now have a keen awareness of the need to identify, measure, monitor and control credit risk as well as to determine that they hold adequate capital against these risks and that they are adequately compensated for risks incurred. The Basel Committee is issuing this document in order to encourage banking supervisors globally to promote sound practices for managing credit risk. (Basel, 1999) Accordingly to Basel requirement the following are the key principle or standards that should be apply

2.2.3. General Principles of CRM

Principles for the Assessment of Banks' Management of Credit Risk focuses on Establishing an appropriate credit risk environment, Operating under a sound credit granting process, Maintaining an appropriate credit administration, measurement and monitoring process, Ensuring adequate controls over credit risk, and The role of supervisors. These principles are detailed as follows.

A. Establishing an appropriate credit risk environment

Establishing an appropriate credit risk environment requires that the board of directors should have responsibility for approving and periodically (at least annually), reviewing the credit risk strategy and significant credit risk policies of the Bank. The strategy should reflect the Bank's tolerance for risk and the level of profitability the Bank expects to achieve for incurring various credit risks.

On the other hand, senior management should have responsibility for implementing the credit risk strategy approved by the board of directors and for developing policies and procedures for identifying, measuring, monitoring and controlling credit risk. Such policies and procedures should address credit risk in all of the Bank's activities and at both the individual credit and portfolio levels.

Banks should identify and manage credit risk inherent in all products and activities. Banks should ensure that the risks of products and activities new to them are subject to adequate risk management procedures and controls before being introduced or undertaken, and approved in advance by the board of directors or its appropriate committee.

B. Operating under a sound credit granting process

According to this principle, Banks must operate within sound, well-defined credit-granting criteria. Credit granting process incorporates three important activities: obtaining quality information about borrowers, assessing their creditworthiness and decide whether to extend credit or not. Credit granting process is also called credit approval. Credit approval is the process of deciding whether or not to extend credit to certain customers. It involves two steps: collecting relevant information and determining credit worthiness. Credit-granting criteria should include a clear indication of the Bank's target market and a thorough understanding of the borrower or counterparty, as well as the purpose and structure of the credit, and its source of repayment. In addition, Banks should establish overall credit limits at the level of individual borrowers and counterparties, and groups of connected counterparties that aggregate in a comparable and meaningful manner different types of exposures, both in the banking and trading book and on and off the balance sheet.

Furthermore, Banks should have a clearly-established process in place for approving new credits as well as the amendment, renewal and re-financing of existing credits. All extensions of credit must be made on an arm's-length basis. In particular, credits to related companies and individuals must be authorized on an exception basis, monitored with particular care and other appropriate steps taken to control or mitigate the risks of non-arm's length lending.

Generally, after credit information obtained about the borrower and the credit assessment performed, banks apply either credit risk rating model or quality model (using five Cs) or a combination of both to make credit approval decisions.

C. Maintaining an appropriate credit monitoring and follow up process

Maintaining an appropriate credit administration, measurement and monitoring process is the other principles to assess banks credit risk management. As per this principles, banks should have in place a system for the ongoing administration of their various credit risk-bearing portfolios and a

system for monitoring the condition of individual credits, including determining the adequacy of provisions and reserves. Banks are encouraged to develop and utilize an internal risk rating system in managing credit risk. The rating system should be consistent with the nature, size and complexity of a bank's activities.

In addition, Banks must have information systems and analytical techniques that enable management to measure the credit risk inherent in all on- and off-balance sheet activities. The management information system should provide adequate information on the composition of the credit portfolio, including identification of any concentrations of risk. Furthermore, Banks must have in place a system for monitoring the overall composition and quality of the credit portfolio and they should also take into consideration potential future changes in economic conditions when assessing individual credits and their credit portfolios, and should assess their credit risk exposures under stressful conditions.

D. Ensuring adequate controls over credit risk

To ensure adequate control over credit risk, banks must establish a system of independent, ongoing assessment of the bank's credit risk management processes and the results of such reviews should be communicated directly to the board of directors and senior management. It is equivalently important to banks to ensure that the credit-granting function is being properly managed and that credit exposures are within levels consistent with prudential standards and internal limits. Banks should establish and enforce internal controls and other practices to ensure that exceptions to policies, procedures and limits are reported in a timely manner to the appropriate level of management for action. Banks are also required to have a system in place for early remedial action on deteriorating credits, managing problem credits and similar workout situations.

E. The role of supervisors

In credit risk management, supervisors play a vital role. The continuously require banks to have an effective system in place to identify measure, monitor and control credit risk as part of an overall approach to risk management. Supervisors should also conduct an independent evaluation of a bank's strategies, policies, procedures and practices related to the granting of credit and the ongoing management of the portfolio. Furthermore, they should consider setting prudential limits to restrict bank exposures to single borrowers or groups of connected.

2.2.4. Credit Risk Management Process

Credit risk management process is a set of outlined activities aimed at managing credit risk. These activities will cover the range from credit granting to credit collection. They are risk identification, measurement, assessment, control and monitor (Ngwa cited by Solomon 2013). As any risk management process, credit risk management process started by identifying the risk involved in the credit process. It is necessary to spell out the danger signals. This in turn helps decision makers to get the best from various activity points of the organization, allowing them to take calculated risks and not be risk averse. While identifying risk, all types of risk must be identified and their likely effect in short- run be understood. The magnitude of each risk segment should be identified and dominate risk activities must be separated from the other. In addition a clear way of identifying risk in an organization is to scan both balance sheet items and off- balance sheet items and finds the risk elements.

The other activity in credit risk management process is measurement. Measurement means weighing the contents and /or value intensity magnitude of any object against a yardstick. In risk measurements it is necessary to establish clear ways of evaluating various risks categories in an organization. In lending activity, for higher credit limit detailed qualitative and quantitative analysis with sophisticated credit rating models may be required because the size of the credit rating models would indicate the size of default and risk and its ultimate effect on the institution. Among the factor the availability sufficient and compatible and reliable MIS and conducting the validation activities is the critical one.

Then the monitoring phase then comes in. in this phase, keeping close track of risk identification measurement activities in the light of the risk, principles and policies is a core function. It is essential that the operating wings perform their activities within the broad contour of the organization, risk perception. Such activity ensures that each credit decisions activities to have clear lines of authority and responsibility. The final issue is controlling phase, this is the activity that helps to regulate or guide the credit risk management process in the credit as well as on the entire organizations thorough set of control devices. Such activities can be achieved by assessing risk profile techniques regularly, analyzing internal and external audit feedback from the risk angle and by putting in place a well-drawn- out risk focused audit system.

2.2.5. Credit Risk Management Measurement

Measuring risk is always a critical part in risk management process, and suggested by (Fabozzi, 2006) there are three categories of methods for bank credit risk measurement

2.2.5.1. Credit Risk Rating

A credit rating is for assessing the credit worthiness of an individual or corporations to predict the probability of default, which is based on the financial history and current assets and liabilities of the subject (Solomon, 2013). Such rating framework deploys a number / alphabets/ symbol as a primary summary of risk associated with a credit exposure, and involved both internal and external credit rating. A well-structured risk rating system provides a good means of differentiating the degree of credit risk in the credit portfolio of a banking institution (Ibid). This will allow more accurate determination of the overall characteristics of the credit portfolio, quality distributions, problems credits, and the adequacy of loan loss reserves. (Comptroller's handbook, 2011)

2.2.5.2. Credit Scoring System

Credit scoring uses quantitative measures of the performance and characteristics of past loans to predict the future performance of loan with similar characteristics (Dean and kossmann, 2003)

2.2.5.3. Credit Risk Modeling

Accordingly to (Basel ,1999b) credit risk models attempt to aid banks in quantifying, aggregating and managing credit risk across geographical and product lines, and the outputs can be very important to banks' risk management as well as economic capital assignment. regarding the potential benefits from the application of credit risk models in banking sector, (Basel ,1999b) has conclude that they are responsive and informative tools offering banks a framework for examining credit risk in a timely, manner, centralizing data on global exposures and analyzing marginal and absolute contribution to risk. In most cases, credit models concentrate on one single important issue-default risk. Investigating its characteristic (mostly finding statistical distribution) analytics can transform it into related dilemmas: how to measure it and how to price credit risk. The first one gives a chance of proper distinguishing more risky investments from the saver ones, the second one allows to calculate the value of the debt considering yield margin reflecting risk undertaken. (Tomas, 2011).

According to four types of credit risk models that are better known or commonly used by banks are Altman's Z score model, Credit metrics model, value at risk model and KMV model (Jackson and perraudin, 1999).

- Altman's Z score model- predicts whether or not a company is likely to enter into bankruptcy within one or two years. The Z-score is a linear combination of four or five common business ratios, weighted by coefficients. The coefficients were estimated by identifying a set of firms which had declared bankruptcy and then collecting a matched sample of firms which had survived, with matching by industry and approximate size (assets)Altman applied the statistical method of discriminates analysis to a dataset of publicly held manufacturers. The Variables influencing the financial strength of a firm are; current asset, total assets, net sales, interest, total liability, current liability, market value of equity, earning before taxes and retained earnings.

Credit metrics model- is a tool for assessing portfolio risk due to changes in debt value caused by changes in obligor credit quality. We include changes in value caused not only by possible default events, but also by upgrades and downgrades in credit quality. Also, we assess the value-at-risk (VaR) – the volatility of value – not just the expected losses. Importantly, we assess risk within the full context of a portfolio. We address the correlation of credit quality moves across obligors. This allows us to directly calculate the diversification benefits or potential over-concentrations across the portfolio. (George and finger, 2007). The model advocates that the amount of portfolio value should be viewed not just in terms of likelihood of default, but also in terms of credit quality over time of which default is just a specific case.

Value at risk (VaR) - is a statistical technique used to measure and quantify the level of financial risk within a firm or investment portfolio over a specific time frame. Value at risk is used by risk managers in order to measure and control the level of risk which the firm undertakes. The risk manager's job is to ensure that risks are not taken beyond the level at which the firm can absorb the losses of a probable worst outcome. Value at Risk is measured in three variables: the amount of potential loss, the probability of that amount of loss, and the time frame.

Mertonbased models-are a model, named after the financial scholar Robert C. Merton that was developed in the 1970s and is used today to evaluate the credit risk of a corporation's debt in

order to determine a company's ability to service its debt, meet its financial obligations and to gauge the overall possibility of credit default. The current value and the volatility of the firm's assets, the outstanding debt and its maturity are required as inputs from which the borrower's default probability can be determined (Hull, and white, 2004).

2.2.6. Importance of credit risk management

Credit risk management in financial institutions has become crucial for the survival and growth of these institutions (Afriyie & Akotey, 2013). Credit risk is core components and parcel of financial institutions. If not effectively managed, it causes non-performing loans or bad assets, reduces a bank's profit margins, erodes capital and in extreme cases, may lead to bank failure. The Credit Risk Management by financial intermediaries is critical to the institutional viability and sustained growth. Commercial banks are of essential consideration and importance because they play a dominant role to accelerate the economic activities and growth in any country. A banking system not functioning well hinders the economic growth, aggravate poverty as well as up swells the odds of negative shocks for the entire economy while the well-functioning ones outpace the economic growth which ultimately eradicate the roots of poverty. Being financial intermediary their role in the economy is just like blood arteries in the body of human beings. Therefore credit risk management is critically important to the banking sector and to the entire economy as a whole.

According to Achou and Tenguh (2008) for the long run survival and sustainability of financial institutions such as banks, to manage the credit risk adequately are critical. Management of credit risk is of paramount importance for banks because it's an integral part of loan facilitation. Credit risk management maintains the credit risk exposure and thus enhances the risk adjusted rate of return of banks.

A robust risk management framework can help banks to reduce their exposure to risks, and enhance their ability to compete in the market (Iqbal and Mirakhor, 2007). A reduction in each institution's exposure will reduce the systemic risk as well. Hence, it is necessary that Banks have in place a comprehensive risk management and reporting process to identify, measure, monitor, manage, report and control different categories of risks. In addition, this process should pay attention to compliance with Shariah rules and principles. Credit risk management is important to reduce assymetric information which may result in adverse selection and moral hazards problems.

2.2.7. Factors affecting credit Risk Management

As explained in background of the study part, Fikremariam (2018) stated that Banks' credit risk management practices can be affected by both internal and external factors. Internal factors are bank specific but external factors are beyond control of banks.

2.2.7.1. Internal factors

The establishment of a suitable credit risk environment, sound credit granting procedures; appropriate credit administration; measurement, monitoring, and controlling credit risk are considered as important internal factors of credit risk management effectiveness. Commercial banks should have credit policies, and strategies that concisely describe the scope and allocation of bank credit facilities; as well as a method in which a credit portfolio is managed, that is, how loans are originated, assessed, supervised, and collected. These bank's credit policies, procedures, and directives guide the credit assessment process. The credit assessment process involves collecting, processing, and analyzing quality information to identify the creditworthiness of customers and reduce incentive problems between lenders and borrowers.

In addition to the above listed factors, now a day, environmental risk becomes important internal determinant of credit risk. Thus, efficient credit risk management requires acceptance of environmental and market risk management techniques and procedures as important items for financial institutions in recent year (Bhatt et al. 2023).

According to Bhatt et al. (2023) Environmental risk is one of the elements that have a variety of effects on credit risk (direct, indirect, or reputation). In certain affluent nations, banks may be immediately in danger because they are directly liable under the law for clearing up any pollution left behind by bankrupt borrowers. If borrowers participate in environmentally harmful activities that result in financial penalties that raise expenses or decrease income, banks may be exposed to indirect risks because financial penalties can harm their profitability and cash flow, which reduce borrowers' capacity to repay their loans. Even if a bank complies with the law to the letter, its image might suffer if it is perceived as supporting or being otherwise connected to projects and borrowers that are judged to be environmentally harmful. For this reason, the creation of environmental credit risk management (ECRM), which incorporates standardized environmental risk assessment techniques into the credit rating process, is crucial for banks' credit risk

management. Banks, business borrowers, and environmental agencies may all benefit from effective environmental credit risk management.

2.2.7.2. External factors

These are factors beyond the control of banks. External factors are diversion of the borrowed fund to other purposes, unavailability of demand and price fluctuation on both local and international market, country's economic and political condition, impact of change in fiscal and monetary policy, insufficient credit awareness, unwilling customers to disclose the information required, unethical competition made between banks and willful default.

2.2.8. Challenges of Credit Risk Management

Credit risk management is an essential component of the financial industry, with banks and other lending institutions constantly seeking to optimize their strategies. However, with numerous challenges facing institutions today, achieving success in credit risk management is easier said than done. Kansiime et al. (2020) on their critical analysis of challenges and strategies of credit risk management, they found the following 9 challenges.

2.2.8.1. Increasingly complex regulatory requirements

Banks must navigate a constantly evolving regulatory landscape, frequently introducing new rules and requirements. Failure to comply with these regulations can result in significant financial and reputational damage. Banks are subject to continuously emerging rules and regulations. To improve banks' risk management system at worldwide, Basel Committee on Banking Supervision issued Basel I, Basel II, and Basel III. The Basels' guidelines establish capital adequacy requirements and supervisory standards for banks to be implemented by all banks around the world. Banks are learning to review their risk portfolios using the criteria laid down by Basel II. Greenspan has indicated that Basel's goal is to induce bankers to improve their risk management capability, including how the institutions price products, reserve for loss, and control their operations (Rehm, 2002 as cited by Kansiime et al., 2020). However, implementing these increasing and complex regulatory requirement are the main challenge of credit risk management, since, they in turn require highly trained staffs and advanced automated technology.

2.2.8.2. Data quality and availability

Accurate and timely data is essential for effective credit risk management. However, many banks struggle with data quality and availability issues. Credit risk management mainly depends on credit risk assessment. To make informed decisions regarding to this credit risk management, banks should have quality both financial and non-financial information. Commercial banks utilize a systematic framework and have tools in place to guide credit risk assessment processes. According to Kansiime et al., (2020) however, banks' credit risk management process have been challenging by inadequacy in information particularly the availability, accessibility and correctness as well as volatility of the business environment.

2.2.8.3. Lack of skilled personnel

Credit risk management requires a team with diverse skills, including statistical modeling, data analysis, and risk assessment. However, finding and retaining this skilled personnel is the other important challenge of credit risk management practices in commercial banks. Lack of technical capacity hiden effective credit risk management in financial institutions.

2.2.8.4. Rapidly changing market conditions

The financial industry is constantly in flux, with market conditions changing rapidly and frequently. Banks must be able to adapt to these changes quickly to minimize risk and maximize returns. Therefore, incorporating the concurrent market risk analysis to traditional credit risk management becomes a challenge for banks credit risk management practices.

2.2.8.5. Counterparty risk

The risk of default or other negative actions by counterparties can significantly impact credit risk management strategies. Advanced analytics and modeling capabilities give banks a clear picture of their counterparty risk exposure, enabling them to take proactive measures to mitigate this risk. However information asymmetry poses a challenge on this analysis.

2.2.8.6. Cybersecurity risks

Cybersecurity threats are a growing concern for banks and other financial institutions, with the potential to cause significant financial and reputational damage. Having robust security measures to ensure that all data and systems are protected from cyber threats, giving banks peace of mind and allowing them to focus on their core business.

2.2.8.7. Economic downturns

Economic downturns can majorly impact credit risk management, with default rates increasing and credit quality deteriorating. GDS Link's risk management solutions are designed to help institutions weather economic downturns, providing advanced modeling and analytics capabilities that enable them to anticipate and mitigate the effects of an economic slowdown.

2.2.8.8. Business strategy alignment

Effective credit risk management requires clearly understanding an institution's overall business strategy. However, aligning credit risk management strategies with broader business goals can be challenging. GDS Link's solutions are designed to fully integrate with an institution's overall business strategy, ensuring that credit risk management always aligns with broader organizational objectives.

2.2.8.9. Balancing risk and return

Finally, balancing risk and return is one of the most significant challenges facing banks in their credit risk management efforts. Banks must seek to maximize returns while minimizing risk, a difficult task that requires a deep understanding of the markets, the economy, and individual borrowers. Advanced analytics capabilities and modeling solutions enable banks to carefully assess their risk exposure and make informed decisions about lending practices, helping them to achieve the optimal balance of risk and return.

2.2.9. Tools for Credit Risk Management

According to previous researchers (Sunitha and J. K. Raju, 2013; Thirupathi & M. Manojkumar, 2013; Bhaskar, 2014; and Nayan & M.Kumaraswamy, 2014) the tools through which credit risk management is carried out are:

Exposure Ceilings: Prudential Limit is linked to Capital Funds -say 15% for individual borrower entity, 40% for a group with additional 10% for infrastructure projects undertaken by the group, Threshold limit is fixed at a level lower than Prudential Exposure; Substantial Exposure, which is the sum total of the exposures beyond threshold limit should not exceed 600% to 800% of the Capital Funds of the bank (i.e. six to eight times).

Review/Renewal: Multi-tier Credit Approving Authority, constitution wise delegation of powers, Higher delegated powers for better-rated customers; discriminatory time schedule for review/renewal, Hurdle rates and Bench marks for fresh exposures and periodicity for renewal based on risk rating, etc are formulated.

Risk Rating Model: Set up comprehensive risk scoring system on a six to nine point scale. Clearly define rating thresholds and review the ratings periodically preferably at half yearly intervals. Rating migration is to be mapped to estimate the expected loss Risk based scientific pricing: Link loan pricing to expected loss. High-risk category borrowers are to be priced high. Build historical data on default losses. Allocate capital to absorb the unexpected loss.

Portfolio Management: The need for credit portfolio management emanates from the necessity to optimize the benefits associated with diversification and to reduce the potential adverse impact of concentration of exposures to a particular borrower, sector or industry. Stipulate quantitative ceiling on aggregate exposure on specific rating categories, distribution of borrowers in various industry, business group and conduct rapid portfolio reviews.

Loan Review Mechanism: This should be done independent of credit operations. It is also referred as Credit Audit covering review of sanction process, compliance status, and review of risk rating, pickup of warning signals and recommendation of corrective action with the objective of improving credit quality. It should target all loans above certain cutoff limit ensuring that at least

30% to 40% of the portfolio is subjected to LRM in a year so as to ensure that all major credit risks embedded in the balance sheet have been tracked.

2.3. Empirical Literature Reviews

The study aimed to assess credit risk management practices was conducted by Yalemzewud (2004) in case of Bunna International Bank S.C (BIB). By analyzing the process of accessing credits; credits control processes and credits collection strategies, the author found that; the main factors influencing access to credit are the stringent policy guidelines as well as the credit worthiness of the customers. Abraham (2002) conducted research on identifying the major factors of the loan default problems of Small Scale Enterprises, specifically borrowers of Development Bank of Ethiopia at Zeway Branches. Using the tobit models the author found that loan diversion is one of the major determinants adversely affected the loan recovery rate.

The study conducted by Lin et al. (2005) on Taiwan's banking industry from the year 1993 to 2000 of 40 banks including 24 state-owned banks and 16 new private banks showed the relationship between capital adequacy and financial performance of banks. They also show the effect of the capital adequacy regulation before and after implementation. They used ordinary least square (OLS) method to analyze and interpreted results. The study used capital adequacy and insolvency rate as an independent variable with four dependent variables that measures the performance of banks like return on assets (ROA), return on equity (ROE), net profit margin (NIS) and earnings before income tax (PIS). Along with main variables, they used two control variable size and time to explore the reciprocation of the effect and results. The study found that capital adequacy ratio (CA) is positively associated with insolvency-risk (IR) index and also with financial performances. On the contrary, insolvency-risk (IR) index is negatively associated with financial performance and are statistically significant.

A couple of studies (Kibrom, 2010; Mulugeta ,2010, &Muluken, 2014) on the determinants of loan repayment performances also found that educational level of the borrowers, repayment period of the loan, availability of other source of income, purpose of the loan and type of labor, managerial experience of the project managers, marital status of the borrower determine loan repayment of borrowers.

With the main objective of evaluating the performance of credit management, Hagos (2010) has investigated Credit Management on Wogagen Bank in Tigray region. The benchmark for evaluation was comparison to National Bank's requirements in credit policy and procedures. The result of the investigation showed that the issues impeding loan growth and rising loan clients complaint on the bank regarding the valuing of properties offered for collateral, lengthy of loan processing, amount of loan processed and approved, loan period, and discretionary limits affecting the performance of credit management.

Meseret (2010) conducted research on an assessment of credit risk management in Bank of Abyssinia. By applying descriptive method of data analysis on primary data from 20 sample respondents the study found that, the credit management system of the Bank of Abyssinia is not effective enough.

Girma (2011) investigated the relationship between bank performance and credit risk management. It could be inferred from their findings that return on equity (ROE) and return on assets (ROA) both measuring profitability were inversely related to the ratio of non-performing loan to total loan of financial institutions thereby leading to a decline in profitability. This was supported by the empirical result of Tibebu (2011) who conducted research on "Ethiopian Risk Management and Profitability of Commercial Banks in Ethiopia".

An empirical analysis result on determinants of NPLs on commercial banks of Ethiopia by Wondimagegnehu (2012) revealed that underdeveloped credit culture, poor credit assessment, aggressive lending, botched loan monitoring, lenient credit terms and conditions, compromised integrity, weak institutional capacity, unfair competition among banks, willful defaults by borrowers and their knowledge limitation, fund diversion for unexpected purposes and overdue financing has significant effect on NPLs. Conversely, the study indicated that interest rate has no significant impact on the level of commercial banks loan delinquencies in Ethiopia.

Using data from Bunna International Bank S.C, Yalemzewd (2013) conducted research to assess credit management practice and found that the process of accessing credit, credit control process and credit collection strategy are the major factors of non-performing loan of the bank. On the same topic, Arega, et al. (2016) conducted a study aimed at identifying the major factors affecting Non-performing loans of Development Bank of Ethiopia (DBE). In the study the explanatory

variables were classified as bank specific and customer specific variables. The result of the study showed that aggressive lending, compromised integrity in approval, rapid credit growth and bank's great risk appetite; high interest rate, poorly negotiated credit terms and lenient/lax credit terms, and elongated process of loan approval were bank specific causes for the occurrence of nonperforming loans. On the other hand, poor credit culture of customers, lack of knowledge of borrower for the business they engaged in, willful default, loan diversion, and project management problems were identified as the major customer specific causes of NPLs.

A study done by Mulken Tariku (2014) on factors affecting loan repayment performance of floriculture industries to the Development Bank of Ethiopia (DBE) also Educational status, sustainable floriculture certification status and farming experience of growers were statistically significant factors affecting repayment of floriculture loan of DBE. Endale (2015) has done a study on "Assessment of loan recovery performance in Development Bank of Ethiopia." Both primary and secondary data were used in the study. Descriptive research methods were employed to identify the loan recovery performance of the Bank and the result shows that the loan repayment period, assessment of customer credit history, collateral estimation, project follow up, monitoring and controlling system, delays to decide on nonperforming loans has affected the loan recovery performance of the Bank.

Tehulu (2014) conducted research aimed at identifying bank- specific determinants of credit risk. In the study, a balanced panel data of 10 commercial banks both state-owned and private owned for the period 2007 through 2011 has been analyzed using random effects GLS regression. The regression results revealed that credit growth and bank size have negative and statistically significant impact on credit risk. Whereas, operating inefficiency and ownership have positive and statistically significant impact on credit risk. Using secondary data from the audited financial statement of eight senior commercial banks for the period of 14 years Commercial Bank of Ethiopia, Construction and Business Bank, Awash International Bank, Dashen Bank, Wegagen Bank, Nib Bank, Bank of Abyssinia and United Bank, Million (2019) examined determinants of credit risk in Ethiopian commercial banks. The author applied a fixed effect ordinary list square model and found that macro-economic and micro-economic variables affect the level of credit risk in Ethiopian commercial banking industry.

With the aim of observing and identifying the gap on credit risk management practices of private, Yohannes (2016) conducted research in case of Bank of Abyssinia. Primary data was collected by distributing questionnaires to 88 sample respondents. Using quantitative research approach with descriptive design, the author concluded that lack of information system that support the risk management process , absence of risk identification focused tools on customers' business and the associated environment , unsound lending practices associated to credit processing and appraisal activities and lack of accountability, lack of measures associated to non-performing loans, high concentration of loan on sector ,product ,geography are the key drawbacks on credit risk management practices of the Bank.

Tilahun and Tesfaye (2016) investigated determinant factors in credit risk management of microfinance institutions in Ethiopia and found that given Morgan Stanley's rating methodology, Ethiopian microfinance institutions had an excellent performance in terms of credit risk management, profitability, operating efficiency, productivity, liquidity, and leverage. In addition, the regression result has revealed that size of portfolio, return on asset, and operating efficiency have negative and significant impact on credit risk. However, productivity, liquidity, leverage, and age have no effect on credit risk. Thus, size of portfolio, return on asset, and operating efficiency are the important variables that account for variation in credit risk among microfinance institutions in Ethiopia.

With The main objective of assessing credit risk management system in Ethiopian banking industry, Abdul Majeeb and Bayush (2017) conducted research on selected some private and government commercial banks. Using descriptive method of analysis, the authors concluded that banks used different credit risk management tools, techniques and assessment models to manage their credit risk. They further stated that most employees agree on the weakness of credit creation process.

On his empirical study entitled Internal Determinants of Credit Risk Management of Deposit Taking SACCOS in Nairobi County, Elizabeth et al. (2017) found that crdit policy and internal audit are the main determinant factors of credit risk management. GuddeJote (2018) studied the determinants of loan repayment (non-performing loans and deferred loans) and used the logistic model. The results indicated that six variables had a statistically significant impact on the probability of loan repayment. These important variables are: the education level, the type of loan,

the degree of relationship and proximity of the borrower to the institutions, family size, and income from financial activities of loans and education. Mohammadi et al. (2019) conducted a study to investigate the factors affecting the probability of default of loans to bank customers. They found that the variables of the customer's monthly income, the type of relationship between the borrower and the guarantor, the guarantor's guaranteed capital, the customer's experience and job stability, the repayment term of the loan, and the history of the customer's relationship with the bank had an inverse effect on the probability of default, and also the variable of the loan value had a direct effect on the possibility of loan default.

Fikremariam (2018) conducted a study entitled "factors affecting credit risk management practices, a case of private commercial banks in Ethiopia". In the study, credit delivery process, the credit risk assessment process and the monitoring process, market risks, operational risks, legal risks, the establishment of a credit risk environment were explanatory variables. By applying merger equity method of analysis on the data gathered from 106 respondents from four private banks, namely; Oromia, Birhan, Debub global and Anbessa banks, the author found that all variables are statistically significant for credit risk management and are well aligned with the risk management strategies of the private banks.

Mignot (2019) conducted research on Factors Affecting Credit Risk Management of Development Bank of Ethiopia using primary data from the sample of 30 members of staff in development head managers and Credit department staff. The process of accessing, Administration and monitoring, Operational efficiency, Credit granting process and marketing risk analysis were considered as explanatory variables. Using descriptive analysis on respondents' views on determinants of each credit risk management components, the author found that, credit processing and approval, credit monitoring and control, operational efficiency analysis, and market analysis were well developed and implemented by development bank of Ethiopia. However the study didn't show the relationship between credit risk management and explanatory variables.

Using data from 115 sample of Microfinance Institutions, Agegnew and Gujral (2021) investigated Determinants of Credit Risk Management. The result of multiple liner regression on primary data showed that five variables such as use of collateral, credit risk identification, credit monitoring, and credit policy and credit analysis have positive and statistically significant effect on credit risk management system. On the same year and title, using data from 141employees of 17 commercial

banks, Asnakech (2021) examined determinants of credit risk management. She applied both descriptive and multiple regression method of data analysis. From descriptive analysis, the researcher found that the bank has ineffective credit information, credit approval, and credit disbursement but effective monitoring and follow up. Moreover, from the result of the multiple regression the researcher found that credit information, credit approval, credit disbursement and monitoring and follow up has a positive and significant effect on the effectiveness of credit risk management system.

HatefiMajoomard et al. (2021) conducted a study to determine the factors affecting credit risk management in banks listed in Tehran Stock Exchange. They came to the conclusion that credit performance, inflation, equity ratio, as well as GDP growth to assets ratio variables have significant relationship with credit risk. Also, equity to assets ratio and net profit to assets ratio have no significant relationship with credit risk, and GDP growth rate has a significant relationship with assets and credit risk. In the same year, Moqaddaseh et al. (2021) investigated the impact of demographic variables on the responsibility of bank customers. The results showed that age, income, education level, property, gender, current ownership, and the value of facilities received have a significant impact on credit risk and the distinction between two groups of good and bad customers.

S.N. Singh (2021) conducted a research on Credit Risk Management Practices in Dashen Bank of Mettu Branch. By applying qualitative research approach with descriptive statistics techniques on the data from 15 employees, the researcher found that the bank has well organized credit policy, good credit granting practice ,suitable credit risk assessment tools and techniques and good credit monitoring and follow-up process.

Tewodroes (2022) conducted a study on Assessment of Credit Risk Management Practices; the Case of Development Bank of Ethiopia. Using descriptive statistics on the data obtained from the 58 respondents the author found that development Bank has a documented policy, strategies and guidelines to manage credit risk. Further the author stated that, the bank has effective credit assessment, credit granting, monitoring and follow up process guided by policies and strategies.

In the most recent date, Bhatt et al. (2023) examined the Determinants of Credit Risk Management and Their Relationship with the Performance of Commercial Banks in Nepal. Environmental risk,

credit appraisal measurement, and market risk analysis were considered as explanatory variables for credit risk management. By applying Partial least squares structural equation modeling (PLS-SEM) on the data from 211 respondents, the author found that all explanatory variable i.e. environmental risk, credit appraisal measurement, and market risk analysis have statistically significant positive influence on effectiveness of credit management.

The study looked into how credit risk management affects the financial performance of commercial banks in Ethiopia was conducted by Kassahun (2023) on ten commercial banks. In the study, Non-Performing Loans (NPLs), Capital Adequacy Ratio (CAR), Loan Loss Provision Ratio (LLPR), and Loan and Advance to Deposit Ratio were utilized as credit risk indicators while Return on Equity (ROE) was used as a stand-in for financial performance indicators. By applying a multiple regression model on secondary data spanning ten years from 2012 to 2021 from national bank, the result showed that non-performing loans and the capital adequacy ratio have a negative, significant effect on ROE. The relationship between Loan Loss Provision Ratio and ROE is negative but insignificant statistically, while the ratio of loans and advances to deposits significantly improves ROE.

Bhatt et al., (2023) examine the determinants of credit risk management and their relationship with the performance of commercial banks in Nepal. In the study credit appraisal measurement, market risk analysis, and environmental risk analysis were considered as determinant factors of credit risk management. In the study, primary data collected with the help of questionnaires from managers, loan officers, and accountants in 211 selected banks were analyzed through partial least squares structural equation modeling (PLS-SEM). From the regression output results, the authors found statistically significant positive effect of environmental risk, market risk and credit appraisal on effectiveness of credit risk management.

Zheng et al. (2023) conducted a study on the impact of monetary policy on banks' risk-taking behavior in an emerging economy. The main goal of this study was to investigate the impact of monetary policy (MP) on the risk-taking behavior of Bangladeshi banks. It also attempted to examine the role of Basel II in the association between MP and bank risk-taking pre- and post-2010. The study analyzed data from 33 commercial banks in Bangladesh over the 20 years from 2002 to 2021 and uses the two-step system generalized method of moments to address heteroscedasticity and autocorrelation issues. The study confirmed that significant effect of Basel II on the relationship between MP and banks' risk-taking

behavior. The main findings are first that a non-linear U-shaped relationship exists between MP and banks' risk-taking behavior, implying that when bank rate (BR) and cash reserve ratio (CRR) increase, bank credit risk first decreases, and later increases. Second, bank-level characteristics such as liquidity, regulatory capital, and size have a significant effect on risk, whereas bank age has an insignificant effect on risk-taking behavior.

2.4. Research gap

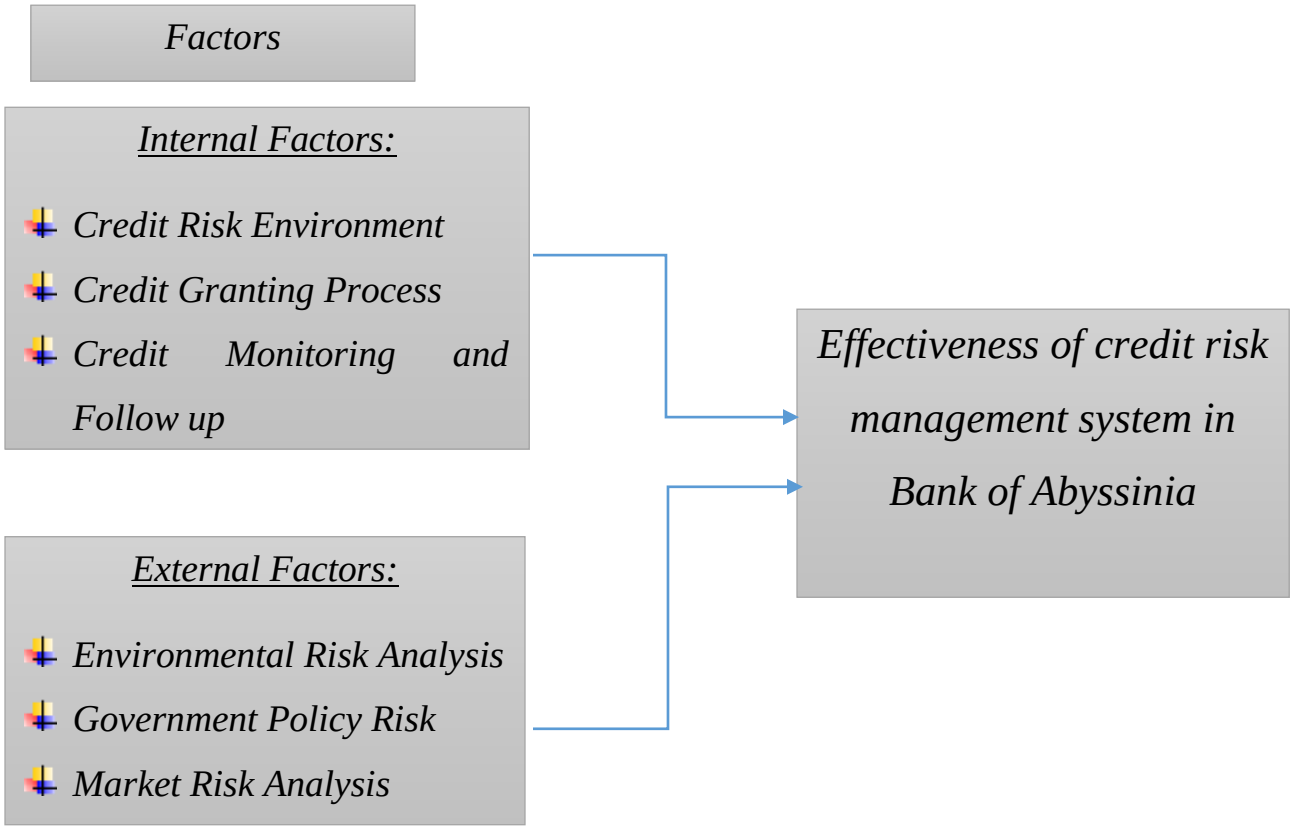
As stated in the literature, a banking system not functioning well hinders the economic growth, aggravate poverty as well as up swells the odds of negative shocks for the entire economy while the well-functioning ones outpace the economic growth which ultimately eradicate the roots of poverty. One of the core component that influence the well-functioning of banks is credit risk. If not effectively managed, it causes non-performing loans or bad assets, reduces a bank's profit margins, erodes capital and in extreme cases, may lead to bank failure. This ultimately would have adverse effect on the country's entire economy. Therefore, credit risk and credit risk management in financial institutions has become crucial for the survival and growth of these institutions as well as the countries' economy as a whole. Based on this underlying fact, the existing literatures indicates that several studies were carried out on credit risk management in case of commercial banks both in abroad countries and in Ethiopian context. Most of the studies were focused on assessment of credit risk management.

However, the scholars studied credit risk management also found inconclusive results. For example, even if Yalemzewd (2013) and Agegnew and Gujral (2021) found credit risk assessment as significant factor of credit risk management; from her empirical analysis, Asnakech (2021) concluded that credit risk assessment is not a factor of credit risk management. In addition, despite the fact that, different banks used different credit risk management tools (Abdul Majeeb and Bayush 2017), as per the researcher's knowledge, no research was conducted on factors and challenges of credit risk management in case of Bank of Abyssinia. Therefore, this study investigated factors affecting credit risk management practices in Bank of Abyssinia and ultimately identify major challenges in the study area.

2.5. Conceptual framework

This conceptual framework shows the conceptual casual relationships between dependent variable and independent variables with the help of diagram. The conceptual framework to this study was developed after extensive consideration of literatures. It depicts the interrelationship between effectiveness of credit risk management and its internal and external factors. Internal factors (credit risk environment, credit granting process, and credit monitoring and follow up) and external factors (environmental risk analysis, governmental policy risk, and market risk analysis) influences effectiveness of credit risk management. Figure 2.1 below shows such relationships of dependent and independent variables.

Figure 2.1: Conceptual framework of the study



Source: Koju, (2018)

Chapter Three: Research Design and Methodology

3.1. Introduction

For scientific researches, research design and methodology is very critically important part. Research design and methodology focused on explanations of research design, target population, sample size and sampling techniques, types of data and data collection techniques, and methods of data analysis.

3.2. Research Approach

To achieve the study objective, both quantitative and qualitative data were collected and analyzed. Thus, this study was applied both qualitative and quantitative method which is named as mixed research method. Mixed approach is a triangulation research method which helps to clarify concepts, characteristics, descriptions, counts and measures to demonstrate implications of the issue under objectives. According to Creswell (2014) mixed method research is a methodology for conducting research that involves collecting, analyzing and integrating quantitative and qualitative research. As many scholars explained as quantitative methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires and surveys or by manipulating pre-existing statistical data using computational techniques. Quantitative study describes as a research approach explaining phenomena by collecting numerical data that are analyzed using statistical approaches. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or to explain a particular phenomenon.

On the other hand, qualitative research basically involves the use of words, picture description and narratives. It aimed to understand how people live, how they talk, how they behave and what captivates or distress them. The most effective evaluation research is one that combines qualitative and quantitative components, making statistical comparisons is useful and so is gaining an in depth understanding of the processes producing the observed results or preventing the expected results from appearing.

3.3. Research Design of the study

Research design is a plan and structure that specifies appropriate methods and procedures for data collection and analysis. The overall objective of this study is to assess the effectiveness credit risk management practices and to investigate factors and challenges affecting it using both quantitative and qualitative data those collected through self-administered questionnaire and interviews as primary data collection techniques. Therefore, descriptive survey and explanatory research designs are believed to be appropriate for this study. According to Muranaga and Ohsawa (2002) descriptive research is used to obtain information concerning the current status of the phenomena to describe "what exists" with respect to the conditions or variables in a situation. This research approach is used to describe behavioral real events which are not possible to control and contemporary and complex social phenomenon whose boundary is not clear. Its ability to incorporate different methods and techniques in the collection and analysis of data to describe various issues of the study in scientific way, make descriptive design preferable. On the other hand, explanatory method was used to explain the relationships that exists between credit risk management practice and its factors.

3.4. Type and Sources of Data

Primary and secondary data are the two types of information typically employed in scientific research. Primary data does not exist until they are generated through the research process as part of a consulting engagement, dissertation, or project. Typically, it is gathered through experimentation, interviews, observations, and surveys. Secondary data, on the other hand, refers to information that already exists in some form but was not initially collected for the purpose of the consultancy exercise at hand. In fact, primary data is frequently the starting point for data collection because it is the first type of data collected (Lancaster, 2005). This study mainly utilized primary data sources. The sources of primary data were employees of Bank of Abyssinia in risk management and credit management departments. Both quantitative and qualitative primary data were collected from selected participants.

3.5. Target population, Sample size and Sampling Techniques

Population is defined as “the complete set of units of analysis that are under investigation while element is the unit from which the necessary data is collected.” (Davis 2000). Employees of the Bank of Abyssinia working at the head office in Addis Ababa are the target population for this study. 1,470 employees are working at the head office. To select a sample from the target population, multiple stage sampling techniques was used. First, credit management and risk management departments were selected using purposive sampling. Second, census method was applied to consider all employees in these two departments as a sample. In the selected departments there were total number of 84 active employees during the study period (30 employees from risk management department and 54 employees from credit management department).

3.6. Data Collection Instrument

The research employed structured close-ended questionnaires to obtain necessary data from employees. The questionnaires that were given to participants were divided into two sections. The first section was designed to collect demographic information about the participants. The second part employed a five-point Likert scale-type questionnaire. The questionnaires those prepared in the form of a Likert-Scale type (showing respondents ‘level of agreement or disagreement) by constructed into five-point scale where the lowest scale represents strongly disagree and the highest scale represent strongly agree (Likert, 1932) was distributed to the employees of Bank of Abyssinia working in risk management and credit management departments. In addition, interviews were conduct to managers to obtain qualitative data. The question items for internal factors (credit risk environment, credit granting process and credit monitoring and follows up process) were developed from the guidelines established by the Basel committee of bank’s supervisions and regulations (Basel, 1999). Whereas, the questions for the three external factors were adopted from other researchers (Bhatt et al., 2023). The questionnaire to collect data about challenges of credit risk management implementation was developed based on the critical analysis conducted by Kansiime et al. (2020) who found nine significant challenges. Similarly, interview questions were also developed from the concepts discussed by these scholars.

3.7. Validity and Reliability

3.7.1. Validity

Validity is the credibility or believability of the research. There are theoretical concepts related to the research and the questionnaires for this study was adopted from earlier researches. According to Ndekugri, I. (2013) validity refers to the ability of the instrument to measure what it is designed to measure. Additionally, the validity is verified by the advisor of this research who looks the appropriateness of the questions and scale of measurement. In doing so, validity of the questionnaires and interviews were investigated so that unnecessary errors removed from the questionnaire and from interview guidelines. This was done using content validity by consulting the advisor regarding the content of the questioner either it measures the predetermined objective of the study to avoid those errors might occur in questionnaires and interviews.

3.8. Method of Data Analysis

After the relevant data are gathered and prepared; the researchers applied multiple step statistical techniques and procedures that help to examine research hypotheses. These techniques include descriptive statistical analysis to describe the nature and level of variables used in the study, correlation analysis to see the relationship between dependent and independent variables and between independent variables before detail regression analysis, test validity of classical linear regression model assumptions, reliability and validity test to determine appropriateness of the regression model and linear regression analysis to see the significant relationship of dependent variable and identified independent variables. All statistical procedures were estimated using Statistical Package for Social Sciences (SPSS) version 27.

3.9. Model specification

The study was on factors affecting credit risk management practice. In the study dependent and independent variables were considered. The dependent variable was effective credit risk management system while independent variables were sound credit environment, credit granting process, credit monitoring and follow up, environmental risk analysis, government policy risk, and market risk analysis. In multiple linear regressions, the relationship between the dependent variable and the independent variables was represented by the following equation:

$$CRM = \beta_0 + \beta_1 CRE + \beta_2 CGP + \beta_3 CRF + \beta_4 ERA + \beta_5 GPR + \beta_6 MRA + \varepsilon$$

Where:

CRM = Effectiveness Credit Risk Management system

CRE = Credit Risk Environment

CGP = Credit Granting Process

CRF = Credit Monitoring and Follow up

ERA = Environmental Risk Analysis

GPR = Government Policy Risk

MRA = Market Risk Analysis

β_0 = Constant of the regression

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$= Regression coefficients

ε = Error term/Regression Residual

3.10. Ethical Consideration

To establish trust and credibility; in designing cover letters of survey instrument, the researchers was clearly introduce themselves, before putting forward reason for gathering data and research being study to participants. In addition to legalize their every movement regarding the research work the researchers was used a formal letter from the research office of the university. Furthermore, the researchers was attempted her best to avoid misleading or deceptive statements in the questionnaires and interviews. After the consent and willingness are granted from respective participants, the researchers distributed questionnaires and conduct interviews at their office address. In order to keep the confidentiality of the data that was obtained from respondents; the respondents were not required to write their name and they were informed that the information he/she provide kept confidential, if necessary, and needed purely for academic purpose.

CHAPTER FOUR

DATA ANALYSES AND DISCUSSION OF RESULTS

4. Introduction

In the preceding chapters, relevant literatures helped to understand research problem under consideration and to develop appropriate research methodology were reviewed and presented. This chapter of the study focused on the analysis, and discussion of findings. Relevant data for the variables under consideration were collected from selected respondents. The data collected through questionnaires were analyzed using various statistical tools. Basically regression analysis was conducted using Software Package for Social Science (SPSS), version 27, and inferences were taken from it. Descriptive statistics and regression results from the SPSS version 27 output were presented in a tabular form, from where detailed analysis and discussion of the result was given. Interview responses were analyzed qualitatively.

4.1. Response rate

To obtain relevant data, 84 survey questionnaires were distributed to sample respondents by researcher. Out of this distributed questionnaires, 80 were properly filled and returned which implies that a response rate was about 95%. High response rate indicates appropriateness to conduct research. According to Mugenda (1999), a response rate of 50% is adequate for analysis and reporting, a rate of 60% is generally good while a response rate of above 70% is excellent. Therefore this study was conducted on excellent response rate.

4.2. Reliability Test

According to Carmines and Richard, (1979), Reliability concerns the extent to which an experiment, test or any measuring procedure yields the same results on repeated trials. Ghiselli, (1981), has stated that Reliability of a study is a per-requirement for the result to be interpretative and help for generalization. Before conducting any descriptive and inferential analysis, conducting a reliability test is very important to check the dataset consistency. The process is to check the reliability of questionnaire items used to collect the necessary information. Like other most studies,

consistency test in this study, was conducted using Cronbach Alpha. The threshold value 0.7 is used to judge on the reliability of data collection instruments. Greater than 0.7 value of Cronbach's Alpha indicates the reliability of data collection instruments. Result of Cronbach's Alpha test of the study is summarized in table 4.1 below.

Table 4.1: Reliability Test Statistics

	Cronbach's Alpha	No. of items
CRM	.810	8
CGP	.834	8
CRF	.856	8
ERA	.839	8
GPR	.860	8
MRA	.844	8
CCRM	.864	8
CRE	.834	8
Total	.860	8

Source: Own SPSS Output, 2024

As we can see from table 4.1 above, the recorded scores of Cronbach's Alpha values for groups as well as in total is greater than the threshold value of 0.7, resulting that all questionnaire items can be considered as reliable as a group as well as in total.

4.3. Demographic profile

The back ground information of respondents is necessary because the ability of the respondents to give satisfactory information on the study variables greatly depends on their background. In this study, the demographic information of respondents as presented in table 4.2. Below includes; gender, age, field of study, education levels, and length of service in their organization.

Table 4.2. Demographic Characteristics of Respondents

S.No.	Items		Frequency	Percent
1.	Gender	Male	33	41.2%

		Female	47	58.8%
		Total	80	100%
2.	Age	23 to 29	7	8.8%
		30 to 39	17	21.3%
		40 to 49	47	58.8%
		50 to 59	9	11.2%
		Total	80	100%
3.	Field of study	Accounting	36	45.0%
		Management	44	55.0%
		Total	80	100%
4.	Level of education	Bachelor‘s degree	11	13.8%
		Master’s Degree	69	86.2%
		Total	80	100%
5.	Work experiences	1 to 5	5	6.2%
		6 to 10	7	8.8%
		11 to 15	44	55.0%
		16 to 20	24	30.0%
		Total	80	100%

Source: Own SPSS Output, 2024

Table 4.2 above provides the summary of demographic information for sample respondents. As this table shows, out of the 80 sample respondents, the majority 47 (58.8%) were female, while the remaining 33 (41.2) were male. From this we can conclude that the employees of Bank of Abyssinia is dominated by females.

The second demographic characteristic information as indicated in table 4.2 above is age of respondents. Regarding to this demographic factor, the results showed that out of the total 80 respondents, majority of participants 47 (58.8%) were under the age category of 40 to 49 years old followed by age category of 30 to 39 years 17 (21.3 %) and 50 and 59 years 9 (11.2 %). The remaining 7 (8.8) respondents were under the age category of 23 to 29 years old. From this we can conclude that, the majority of the respondents are matured enough to manage things well.

The table (table 4.2. above) also showed summary information for respondents' field of study. Accordingly, majority 44 (55.0%) of the respondents studied management and the remaining 36 (45.0%) respondents were from Accounting field of study. This implies that, the employees are from only management and accounting fields, and may impair the diverse skill required for risk management of the organization.

Furthermore, table 4.2, display information regarding respondents' level of education. As shown in table 4.2 above, from the total of 80 participants in the research, majority 69 (86.2%) of the respondents are second degree holders, while the remaining 11 (13.8%) of the respondents have master's degree. Thus, one can conclude that approximately all the respondents have good education background which enable them to understand the concept of credit risk management and provide relevant information on it.

The final item reported in table 4.2 above is related with work experiences of sample respondents. The result on this demographic factor showed that 44 (55.0%) of the respondents served the bank 10 to 15 years and 24 (30.0%) respondents have 16 to 20 years work experiences in the bank. Out of the remaining 12 sample respondents, 7 (8.8%) have 6 to 10 years experiences, while 5 (6.2) participants have 1 to 5 years work experiences. From this, we can conclude that majority 68 (85.0%) of the respondents have more than 10 years' work experiences, thus, they know credit risk management process of the bank. This may enable them to provide reliable data.

4.4. Descriptive statistics

The objective of the study was to examine effectiveness of credit risk management system and the factors affecting it. To achieve this objectives, employees of Bank of Abyssinia worked in credit management and risk management departments were requested to express their perceptions on effectiveness of credit risk management system and its factors (i.e. credit risk environment, credit granting process, credit monitoring and follow up, environmental risk analysis, government policy risks, and market risk analysis).For each variable, five question items were prepared and distributed to the respondents using a Likert-scale format. The respondents were requested to rate each item using five scale Likert-scaling, ranging from strongly disagree to strongly agree. In addition, the respondents were requested to show their level of agreement on the items of credit risk management challenges. Before examining the internal and external factors considered in the

model, their descriptive statistics were presented and discussed in this section. Particularly mean and standard deviations were calculated for each item those were used to measure the variables. The scale were rearranged as follows to facilitate understanding and discussions of these descriptive statistics.

Table 4.3: Five Scaled Likert Criterion

N o	**Mean Range**	**Response Option**
1	1 to 1.80	Strongly Disagree
2	1.9 to 2.6	Disagree
3	2.7 to 3.4	Neutral
4	3.5 to 4.20	Agree
5	4.3 to 5.00	Strongly Agree

Source: Al-Sayyad et al. (2006, as cited by Bassam, 2023)

4.4.1. Assessment of Credit Risk Management

Banking business survival mainly depends on an effective credit risk management system. Credit risk management system of a bank is effective if and only if the bank operates in a sound credit risk environment, establish appropriate credit granting process and have adequate credit risk monitoring and follow up process. Credit granting process is effective when it incorporates external environment risk, government policy risks and market risks. On this notion, five question items those measure effectiveness of credit risk management from such perspectives were prepared and distributed to respondents. Selected employees from Bank of Abyssinia were requested to express their level of agreement on the items. The following table disclosed the survey questionnaires responses on effectiveness of the bank's credit risk management system.

Table 4.4: Descriptive Statistics of Assessment of credit risk management

	N	Mean	Std. Deviation
Bank of Abyssinia has formal documents related to credit and credit risk management.	80	3.4500	1.02993
The existing work force composition in skill variety and level in credit appraisal is competent enough with the banks credit risk exposure.	80	3.7125	.65976
The board of directors set and periodically review effective credit risk strategy and significant credit risk policies.	80	3.9750	.69309
The top management transform and communicate credit risk strategies within the bank in the shape of policies and procedures	80	4.1250	.60326
The bank has an effective credit risk policies and procedures that clearly guides the credit granting process.	80	4.1750	.82332
Valid N (listwise)	80		
Average Mean		3.8875	.28077

Source: Own SPSS Output, 2024

The table 4.4 above disclosed the mean and standard deviation summary for the items used to evaluate the overall effectiveness of credit risk management process in Bank of Abyssinia. As per Five Scaled Likert Criterion table, the mean of 3.45 and standard deviation of 1.03 indicate the respondents agree that, Bank of Abyssinia has formal documents related to credit and credit risk management. The mean 3.71 and 3.98 in table 4.4 above revealed that respondents agree on the adequate competency of existing work force in composition of skill variety and level and that, The board of directors set and periodically review effective credit risk strategy respectively. Similarly, the respondents also agree that, the top management the transformation and communication of credit risk strategy and on the existence of effective credit risk policies and procedures that clearly guides the credit granting process, the mean of these items were 4.13 and 4.18 respectively. The average mean 3.89 indicate the respondents agree on the overall effectiveness of credit risk management system in Bank of Abyssinia.

In addition to data collected through questionnaires interview were conducted by the researcher with four (4) managers worked in the head office of Bank of Abyssinia. These interviewees were

requested to explain the overall credit risk management in practices in their bank. To surprise all the interviewees were responded that they believe the bank have effective credit risk management system. One of the interviewee said that "credit risk management practices in the bank are guided by credit management policies and procedures". He further stated that "since credit management strategies and policies sets clear requirements and criterion for credit risk assessment, credit approval process and credit monitoring and follow up process and responsible persons adequately follows them, credit risk management system in the bank is effective". The other side of the interview was focused on timely communication of new and updated credit risk management strategies to staffs. Regarding to this interview question, all respondents confirmed that the bank uses electronic system to notify new/modified policies and strategies timely. One of the interviewee said "the bank uses two electronic system to notify new/modified strategies and policies." He further explained that one system called outlook to attach the full document of new/modified policies and strategies only to staffs in loan and credit risk management department and the other system called portal is used to attach the full document of new/modified strategy and policy to the other all employees of the bank.

The result is in contrary to the results of some prior studies (Meseret2010; Yohannes 2016) who found in effective credit risk management in the banking sector. However the result is consistent with the findings of S.N. Singh (2021) and Tewodroes (2022) who found effective credit risk management in the same economic sector.

4.4.2. Internal Factors of Credit Risk Management

4.4.2.1 Credit Risk Environment

Banks should identify and manage credit risk inherent in all products and activities. Establishing an appropriate credit risk environment is one of important infrastructure to manage credit risk. Establishing an appropriate credit risk environment requires the active participation of board of directors and management to develop and implement credit risk strategies. On this concept five items were prepared and distributed to respondents to obtain their level of agreement on credit risk environment of the bank. The summary of descriptive statistics for participants' response to credit risk environment items was presented in table 4.5 below.

Table 4.5: Descriptive Statistics of credit risk environment

	N	Mean	Std. Deviation
The policies and procedures developed by top managers helped to address credit risk in all of the bank's activities.	80	3.4000	.60796
The bank developed a system to ensure that the risks of its new products and activities are subject to adequate risk management procedures and controls	80	3.7375	.70699
Credit risk strategies and policies are approving and periodically reviewed by board of directors	80	3.7625	1.07024
Senior managers develop appropriate policies and procedures from credit risk strategies for identifying, measuring, monitoring and controlling credit risk.	80	3.8625	.54526
Senior managers properly implementing the credit risk strategy approved by the board of directors.	80	3.9250	.91090
Valid N (listwise)	80		
Average Mean		3.7550	.25848

Source: Own SPSS Output, 2024

The study examined the level of agreement concerning with the credit risk environment using five question items. As shown in table 4.5, above the mean of 3.40 and with 0.61 standard deviation implies that the respondents were neutral on the contribution of credit risk policies and procedures developed by top management to address credit risk in all of the bank's activities. The table also revealed that the respondents were agreed on the development of a system to ensure adequate credit risk management procedures and controls for the bank's risk related with new products and activities (mean 3.74 and standard deviation of 0.71). Mean value of 3.76 with standard deviation of 1.07 in table 4.5 above, implies that respondents were agreed on the approval and periodic reviews of credit risk strategies, by boards of directors. Furthermore, the survey results (means of 3.93 and 3.86) also shows that respondents were agreed on the proper implementation of credit risk strategies by the top management through developing proper credit risk policies and procedures from credit risk strategies for identifying, measuring, monitoring and controlling credit

risk. The average mean 3.76 reported in table 4.5 above also revealed that respondents agreed that the bank established appropriate credit risk environment.

Once data on credit risk environment were collected from 80 employees of Bank of Abyssinia, the researcher also asked an interview question "Does Bank of Abyssinia has separate board approved credit risk management strategy?" to four mangers of the bank. For this question majority of the interviewees were responded yes. One of the interviewee said "the bank has separate board approved strategies for credit risk assessment, credit approval process and credit monitoring and follow up process". Regarding the role of the board of directors, majority of the interviewees were also stated that the board sets business level credit risk strategies and the periodically review them.

In line with Basel, (1999) requirement, this study found sound credit environment practice in Bank of Abyssinia. Accordingly to Basel requirement establishing and operating under a sound credit environment should be the first principal in the credit risk management process of organizations specially in banking sectors.

4.4.2.2 Credit Granting Process

According to Basel committee (1999), operating under a sound credit granting process is the second principle or standard that the banks must apply to manage their credit risk. According to this principle, Banks must operate within sound, well-defined credit-granting criteria. Credit granting process incorporates three important activities: obtaining quality information about borrowers, assessing their creditworthiness, and decide whether to extend credit or not. On this ground the study examined Bank Abyssinia employees' level of agreement using five question items designed to proxy the soundness of the bank's credit granting process. Table 4.6 below discloses the summary of descriptive statistics for the credit granting process.

Table 4.6: Descriptive Statistics of credit Granting Process	N	Mean	Std. Deviation
The bank has information systems and analytical techniques that enable management to measure the credit risk.	80	3.3000	.97305
Credit Approvals are made in accordance with the bank's written guidelines and granted by the appropriate level of management.	80	3.5250	.50253
The bank's credit granting policy provides a framework to assess the purposes and structures of its credits.	80	3.5875	.86703
The bank receives sufficient information to enable a comprehensive assessment of the true risk profile of the borrower or counterparty	80	3.6750	.75933
The bank assess borrower's repayment history and current capacity to repay before credit approvals.	80	4.0500	.54888
Valid N (listwise)	80		
Average Mean		3.7825	0.24483

Source: Own SPSS Output, 2024

The average mean 3.78 with St. Deviation of .24 reported in table 4.6 above implies that the respondents were agreed on the bank's appropriate credit granting process. The bank assess borrower's repayment history and current capacity to repay before credit approvals (mean 4.05). The mean 3.68 with St. Deviation of .76 implies that respondents were agreed on the receipt of sufficient information to enable a comprehensive assessment of the true risk profile of the borrower or counterparty by the bank. The result also revealed that respondents were agreed on that, the bank's credit granting policy provides a framework to assess the purposes and structures of its credits and credit approvals are made in accordance with the bank's written guidelines and granted by the appropriate level of management, since the means were 3.59 and 3.53 respectively. However, the respondents were neutral on whether, the bank has information systems and analytical techniques that enable management to measure the credit risk or not. In support to this descriptive statistics while the interviewees were asked to explain the overall credit risk management process, majority of interviewees responded that in credit granting process, creditworthiness of the applicant is carefully assessed by the concerned body and credit approval is based on the bank's well-defined approval criteria. One of the interviewee said "loan is provided by product and sector divisions as per the limit set by the bank's credit risk management strategy".

This result (overall effectiveness of credit creation process) is in contrary with the result of previous researchers (Abdul Majeeb and Bayush 2017; Asnakech 2021) who found under developed credit creation process. In the study conducted by Abdul Majeeb and Bayush (2017) using data from selected private and governmental commercial banks, most of the employees in such banks as a principal respondents were agreed on the weakness of credit creation process. Using descriptive research analysis, Asnakech (2021) also found in effective credit information and credit approval practices in banking sector of Ethiopia. However the result of this study support the result by Tewodroes (2022) who found effective credit assessment and credit granting practices in case of Development bank of Ethiopia.

4.4.2.3 Credit Risk Monitoring and Follows up

Maintaining an appropriate credit administration, measurement and monitoring process is the other principles to assess banks credit risk management. As per this principles, banks should have in place a system for the ongoing administration of their various credit risk-bearing portfolios and a system for monitoring the condition of individual credits, including determining the adequacy of provisions and reserves. Therefore, understanding the monitoring and follow up process is important in order to implement appropriate credit risk management system. Descriptive statistics for credit risk monitoring and follow up process is disclosed in table 4.7 below.

Table 4.7: Descriptive Statistics of credit Risk Monitoring and Follow up

	N	Mean	Std. Deviation
A bank has in place a system for the ongoing administration of their various credit risk -bearing portfolios.	80	3.4750	.92743
A bank has in place a system for monitoring the overall composition and quality of the credit portfolio	80	3.8750	.84756
A bank has in place a system for monitoring the condition of individual credits, including determining the adequacy of provisions and reserves.	80	3.8875	.65591
A bank encourages to develop an internal risk rating system in monitoring and controlling credit risk.	80	3.8875	.67494

A bank has a system of independent, ongoing assessment of the bank's credit risk management processes.	80	4.0000	.69355
Valid N (listwise)	80		
Average Mean		3.8425	.23100

Source: Own SPSS Output, 2024

The above table (table 4.7) disclosed the summary of descriptive statistics concerning the respondents' perceptions on credit risk monitoring and follow up. The result shows that the respondents were agreed on that a bank has in place a system for the ongoing administration of their various credit risk -bearing portfolios (approximate mean value of 3.48). as shown in table 4.7 above, respondents were also requested to indicate their level of agreement on the development of a system for monitoring the condition of individual credits as well as monitoring the overall composition and quality of the credit portfolio, encouragement of the bank to develop an internal risk rating system in monitoring and controlling credit risk, the existence bank's system of independent, ongoing assessment of the bank's credit risk management processes. The result revealed that respondents were agreed on all the items since the means were approximately 3.88, 3.89, 3.89 and 4.00 respectively. The average mean 3.84 in table 4.7 above also indicate that respondents were agreed on the bank's appropriate credit risk monitoring and follow up process. While conducting interview with bank managers, one interviewee also said "as per the banks credit management policy, the bank monitor the quality of its credit portfolio on continuous basis".

This agreement of most of employees in Bank of Abyssinia on appropriate credit risk monitoring and follow up practice is in line with medical study result by Asnakech (2021) who found ineffective credit information, credit approval, and credit disbursement but effective monitoring and follow up in case of micro finance institutions. The result also support the finding by S.N. Singh (2021) who found good credit monitoring and follow-up process in case of Dashen bank.

4.4.3 External Factors of Credit Risk Management

4.4.3.1 Environmental Risk Analysis

Environmental risk is one of the elements that have a variety of effects on credit risk (direct, indirect, or reputation). In certain affluent nations, banks may be immediately in danger because they are directly liable under the law for clearing up any pollution left behind by bankrupt borrowers. If borrowers participate in environmentally harmful activities that result in financial penalties that raise expenses or decrease income, banks may be exposed to indirect risks because financial penalties can harm their profitability and cash flow, which reduce borrowers' capacity to repay their loans. Even if a bank complies with the law to the letter, its image might suffer if it is perceived as supporting or being otherwise connected to projects and borrowers that are judged to be environmentally harmful (Bhatt et al., 2023).For this reason, the creation of environmental credit risk management (ECRM), which incorporates standardized environmental risk assessment techniques into the credit rating process, is crucial for banks' risk management. Banks, business borrowers, and environmental agencies may all benefit from effective environmental credit risk management. Based on this, respondents were requested to indicate their level of agreement concerning environment risk analysis in their organization and summary of descriptive statistics was reported in table 4.8 below.

Table 4.8: Descriptive Statistics of Environmental Risk Analysis

	N	Mean	Std. Deviation
Bank of Abyssinia incorporated environmental risk analysis in its credit risk assessment process.	80	3.6375	.91740
Credits are primarily extend to Businesses to provide an opportunity to create innovative business ideas.	80	3.6500	.67693
The bank prioritize credits to businesses to help with improving entrepreneurial skills.	80	3.6625	.65495
Credits are provided to Businesses to play an important meditating role between access to finance and entrepreneurship development.	80	3.7375	.99038

The credits are primarily extend to businesses to help with improving business skills	80	3.7750	.84156
Valid N (listwise)	80		
Average Mean		3.8925	.27364

Source: Own SPSS Output, 2024

The participants of the survey were asked to reflect their level of agreement concerning environmental risk analysis incorporation in credit risk assessment process. The above table 4.8 shows that respondents were agreed on the items that states Bank of Abyssinia incorporated environmental risk analysis in its credit risk assessment process (Mean of 3.64, with Std. Deviation 0.91), credits are primarily extend to Businesses to provide an opportunity to create innovative business ideas. (Mean of 3.65, Std. Deviation of 0.68), the bank prioritize credits to businesses to help with improving entrepreneurial skills (Mean=3.66, Std. Deviation=0.65), credits are provided to Businesses to play an important meditating role between access to finance and entrepreneurship development (Mean of 3.74, with Std. Deviation=0.99) and The credits are primarily extend to businesses to help with improving business skills (Mean of 3.78, and Std. Deviation of 0.84).The average mean of the environmental risk analysis for the five item questions was 3.89 with St. deviation of .27 implies that respondent were agreed on that, the bank incorporates standardized environmental risk assessment techniques into the credit rating process.

Based on the notion that that environmental risk is one of the elements that have a variety of effects on credit risk (direct, indirect, or reputation) the researcher also asked interviewees to explain the extent to which their organization incorporated environmental. Majority of the respondents responded that environmental risk analysis is very important to credit risk management, but not emphasis is given to environmental risk analysis. However, one interviewee said “there is only one statement in the bank’s credit risk management strategy and believe the bank should develop well detailed strategy to manage environmental risk.

4.4.3.2 Government Policy Risk

Incorporating government policy risk in credit risk management is also considered as important factor of credit risk management process. Descriptive statistics of respondent perceptions on government policy risk was summarized in table 4.9 below.

Table 4.9: Descriptive Statistics of Government Policy Risk

	N	Mean	Std. Deviation
Stress tests for potential government policy risks are part of the bank's credit risk assessment process.	80	3.3625	.93109
The bank's overall policy risk exposure is maintained at prudent levels consistent with the available capital.	80	3.5000	.76307
The bank has effective policies and procedures to manage governmental policy related risks.	80	3.6375	.73336
In the bank, the board of directors set government policy risk strategies in the risk management documents.	80	3.8250	.82332
Policy risk strategies are effectively implemented by top management through issuing policies and procedures.	80	3.8500	.65796
Valid N (listwise)	80		
Average mean		3.8125	.26308

Source: Own SPSS Output, 2024

As shown in table 4.9 above, from government policy risk items respondents were agreed on policy risk strategies are effectively implemented by top management through issuing policies and procedures, the board of directors set government policy risk strategies in the risk management documents, the bank has effective policies and procedures to manage governmental policy related risks, the bank's overall policy risk exposure is maintained at prudent levels consistent with the available capital with a mean values of 3.85, 3.83, 3.64, and 3.50 respectively. The result also shows that respondents were neutral or indifference about stress tests for potential government policy risks are part of the bank's credit risk assessment process (mean 3.36). The average mean of 3.81 implies that the respondents were agreed the bank incorporate government policy analysis in its credit risk assessment process. To this end, the researcher requested interviewees to explain the importance of governmental policy risk in their credit risk management. Majority of the interviewees responded that governmental policy is critical issue to credit risk management. One of the interviewee stated that "governmental policy affects credit risk management process of Bank of Abyssinia". He further elaborated for instance the recent directive during last 2022 limited the banks credit limit only to 14% of their capital and when the borrowers have such information since

they believe that they will have no credit from banks and they become unwilling to repay their debt.

4.4.3.3 Market Risk Analysis

Market risk is the risk associated with balance sheet positions, managed accounts, derivative transactions, and risk fluctuations in option prices as a result of shifting market circumstances. In 1993, the Basel Committee on Banking Supervision (BCBS) stressed the significance of market risk. Market risk, according to the BCBS, is "related to fluctuations in market pricing (including interest rates, currency rates, rates, and stock values)". Table 4.9 below summarized the descriptive statics of market risk analysis in the bank's credit rating process.

Table 4.10: Descriptive Statistics of Market Risk Analysis

	N	Mean	Std. Deviation
The output of the tests are reviewed periodically by senior management and appropriate action is taken	80	3.7750	.63595
The bank's credit risk assessment enable to identifying possible events or future changes in economic conditions that could have unfavorable effects on a bank's credit exposures.	80	3.7875	.63033
The output the stress test is incorporated into the process for assigning and updating policies and limits.	80	3.8250	.54599
Scenario analysis and stress testing are continuously undertaken for assessing areas of potential problems.	80	3.8375	.60470
When assessing individual credits and their credit portfolios, the bank take into consideration potential future changes in economic conditions.	80	4.1250	.55972
Valid N (listwise)	80		
Average Mean		3.8650	.32417

Source: Own SPSS Output, 2024

On the importance of market risk analysis in credit risk management of banks, the study sought to find out the extent to which the respondents agree with the statement that the bank has incorporated

market risk analysis in its credit rating process. Table 4.10 above shows that respondents were agreed on the question items those states; when assessing individual credits and their credit portfolios, the bank take into consideration potential future changes in economic conditions (Mean of 4.13, Std. Deviation of 0.56), Scenario analysis and stress testing are continuously undertaken for assessing areas of potential problems (Mean of 3.84, Std. Deviation of 0.60), the output of the tests are reviewed periodically by senior management and appropriate action is taken (Mean of 3.83, Std. Deviation of 0.56), the bank's credit risk assessment enable to identifying possible events or future changes in economic conditions (Mean of 3.79, Std. Deviation of 0.63), the output of the tests are reviewed periodically by senior management and appropriate action is taken (Mean of 3.78, Std. Deviation of 0.64). The overall average mean value 3.88 shows that all items of the market risk analysis activities are incorporated in the bank's credit rating process.

4.4.4 Challenge of credit risk management

Having appropriate credit risk management strategies, policies and procedures alone is not a guarantee for credit risk management. Implementing them is critical aspect for effective credit risk management. However, as stated by Kansiime et al., (2020) implementation of credit risk management have been effecting by different challenges like increasingly complex regulatory requirements, data quality and availability, lack of skilled personnel, rapidly changing market conditions, counterparty risk, cybersecurity risks, economic downturns, business strategy alignment, and balancing risk and return. Therefore, understanding particular challenges of the bank is important and thus, the study sought to find out the extent to which the respondents agree on selected challenges. Table 4.11 below disclosed summary of the descriptive statistics for challenges of credit risk management.

Table 4.11: Descriptive Statistics of Challenge of credit risk management

	N	Mean	Std. Deviation
Lack of a team of personnel with diverse skills is significant challenge in credit risk management practices.	80	3.4000	.90847
Data quality and availability is significant challenge of credit risk management practices.	80	3.9500	.87004

Rapidly changing market condition is significant challenge of credit risk management practice	80	4.0250	.44933
Aligning credit risk management strategies with broader business goals is significant challenge of credit risk management practice.	80	4.0500	.61418
In the bank, increasingly complex regulatory requirement is one of the most significant challenge of credit risk management.	80	4.3125	.62831
Valid N (listwise)	80		
Average Mean		3.8525	.32099

Source: Own SPSS Output, 2024

As shown in table 4.11 above, increasingly complex regulatory requirement is one of the most significant challenge of credit risk management (mean of 4.31, st. deviation .63). In addition, aligning credit risk management strategies with broader business goals, rapidly changing market condition, and data quality and availability are also significant challenges in the bank's credit risk management with mean of 4.05, 4.03, and 3.95 respectively. However, the respondents were neutral on whether lack of a team of personnel with diverse skills is significant challenge in credit risk management practices in the bank or not (mean 3.40). This particular result is in line with the respondent's agreement on the question item that states the existing work force composition in skill variety and level in credit appraisal is competent enough with the banks credit risk exposure in 4.4.The overall result also supports prior study conducted by Kansiime et al., (2020) who found that increasingly complex regulatory requirements, data quality and availability, rapidly changing market conditions and business strategy alignment are the most significant challenges of credit risk management.

In addition to date by questionnaires, the final, interview question was focused on challenges of credit risk management practices faced by the bank. The interviewees were requested to list the major challenges they are facing in credit risk management implementation process. According to the responses of the interviewees, the following are the major challenges of credit risk management implementation process in Bank of Abyssinia.

- Unwillingness of applicants to provide appropriate information,

- Dynamic economic and political conditions,
- Increasingly complex regulatory requirement,
- Cybersecurity risk, and
- To some extent lack of skilled labor.
- Balancing risk and return

The result supported the result of critical analysis on challenges and strategies of credit risk management by Kansiime et al., (2020) which found increasingly complex requirement, data quality and availability, lack of skilled personnel, rapidly changing market condition, counterparty risk cybersecurity risk, economic downturns, business strategy alignment, balancing risk and return as the major challenges of credit risk management implementation in the banking sector.

4.5. Correlation test

Before taking regression analysis, test of correlations between variables was conducted. The correlation between two variables measures the degree of linear association between them. If it is stated that dependent variable and independent variables are correlated, it means that dependent variable and independent variables are being treated in a completely symmetrical way. It is simply stated that there is evidence for a linear relationship between the two variables, and that movements in the two are on average related to an extent given by the correlation coefficient.

The value for this correlation coefficient ranged between negative one and positive one. Negative one correlation coefficient indicates perfect negative relationship between dependent variable and independent variables; and positive one correlation coefficient tells us perfect positive relation; while zero correlation coefficient implies that there is no relationship between the two variables.

The purpose of correlation test in this particular study was to analyze the relationship between credit risk management system and its determinant factors considered in the model, and table 4.4, below show the correlation coefficient of these variables.

Table 4.12: Correlation Matrix Results

			CRE	CGP	CRF	ERA	GPR	MRA	CRM
Spearman's rho	CRE	Correlation Coefficient	1.000	.601**	.288**	.398**	.322**	.401**	.679**

	Sig. (2-tailed)	.	.000	.010	.000	.004	.000	.000
	N	80	80	80	80	80	80	80
CGP	Correlation Coefficient	.601**	1.000	.376**	.349**	.470**	.474**	.847**
	Sig. (2-tailed)	.000	.	.001	.002	.000	.000	.000
	N	80	80	80	80	80	80	80
CRF	Correlation Coefficient	.288**	.376**	1.000	.280*	.236*	.380**	.451**
	Sig. (2-tailed)	.010	.001	.	.012	.035	.001	.000
	N	80	80	80	80	80	80	80
ERA	Correlation Coefficient	.398**	.349**	.280*	1.000	.109	.363**	.543**
	Sig. (2-tailed)	.000	.002	.012	.	.337	.001	.000
	N	80	80	80	80	80	80	80
GPR	Correlation Coefficient	.322**	.470**	.236*	.109	1.000	.193	.477**
	Sig. (2-tailed)	.004	.000	.035	.337	.	.087	.000
	N	80	80	80	80	80	80	80
MRA	Correlation Coefficient	.401**	.474**	.380**	.363**	.193	1.000	.591**
	Sig. (2-tailed)	.000	.000	.001	.001	.087	.	.000
	N	80	80	80	80	80	80	80
CRM	Correlation Coefficient	.679**	.847**	.551**	.543**	.577**	.591**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.
	N	80	80	80	80	80	80	80

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

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Own SPSS Output, 2024

The results were analyzed based on correlation analysis rule as follows: -1 to -0.5 or 1.0 to 0.5 strong, -0.5 to -0.3 or 0.3 to 0.5 moderate, -0.3 to -0.1 or 0.1 to 0.3 weak and -0.1 to 0.1 none or very weak. As shown in table 4.4 above, the Pearson correlation coefficient values for credit risk environment, credit granting process, credit risk monitoring and follow up, environmental risk analysis, government policy risk, and market risk analysis with effectiveness of credit risk

management were 0.679, 0.847, 0.551, 0.543, 0.577 and 0.591 respectively. This indicates that there is strong positive relationships between dependent and independent variables.

4.6. Regression Analysis

In order to examine the association between effective credit risk management and its factors (credit risk environment, credit granting process, credit risk monitoring and follow up, environmental risk analysis, government policy risk and market analysis), multiple linear regression model was applied. The results of this model is presented in table 4.15 below from where detailed analysis and discussion of the result was given. Regression analysis enabled us to examine the effects of independent variables on dependent variables.

The first important linear regression output is goodness of fit statistics. Regarding to how well does the model containing the explanatory variables that was proposed actually explain variations in the dependent variable; quantities known as goodness of fit statistics that, test how well the sample regression function fits the data i.e., how 'close' the fitted regression line is to all of the data points taken together is used(Brooks, 2008).

Table 4. 13: Results of Regression Analysis for model fitness

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.934	.872	.862	.10440	1.913

Source: Own SPSS Output, 2024

R-squared is probably the most popular measure of goodness of fit in statistical modeling. There is a natural appeal for a measure that can be computed for a fitted model, takes values between 0 and 1, becomes larger as the model "fits better", and provides a simple and clear interpretation.

According to table 4.13above, regression result of multiple linear regression model, it is observed that the coefficient of determination of R-squared and Adjusted R-squared were 87.2% and 86.2% respectively. The result of this estimation particularly the adjusted R-squared implies that approximately 86% of the change in effectiveness of credit risk management is successfully explained by the selected internal factors as (credit risk environment, credit granting process and

credit risk monitoring and follow up process) well as external factors (environmental risk analysis, government policy risk and market risk analysis). However, the remaining 14% changes in credit risk management effectiveness were caused by other factors that were not included in the model. This indicates that the model is almost more than an average fit the data from sampled respondents.

In addition regarding to the adequacy of the model, the F-test in ANOVA result, which measures the existence of linear relationship between the dependent and independent variables also used to test the significant of the regression model as a whole. F-ratio is a test of the null hypothesis that the regression coefficients are all equal to zero. The computed F values were then tested for statistical significance and demanding value P=0.05 is mostly taken as marking an appropriate boundary of significance.

Table 4.14: ANOVA result

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.432	6	.905	83.062	.000[b]
	Residual	.796	73	.011		
	Total	6.228	79			

a. Dependent Variable: CRM

b. Predictors: (Constant), CRE, CRF, GPR, MRA, ERA, CGP

Source: Own SPSS Output, 2024

For this data, F= 83.062 which is greater than 1 and P-values = 0.000 which is less than5%; hence, we reject the null hypothesis. Therefore, the regression model is significant that can explain the relationship between dependent variable (effectiveness of credit risk management) and independent variables (credit risk environment, credit granting process, credit monitoring and follow up, environmental risk analysis, governmental policy risk, and market risk analysis) considered in the model.

The second important regression output is results of coefficient statistics. These coefficient statistics indicate the extent to which the independent variables affect the independent variable. Table 4.14 below provide unstandardized coefficients and standardized coefficients.

Table 4. 15: Results of Regression Analysis for coefficients

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	-1.252	.250		-5.006	.000
	CRE	.229	.064	.211	3.598	.001
	CGP	.497	.071	.433	7.012	.000
	CRF	.158	.059	.130	2.657	.010
	ERA	.201	.053	.196	3.806	.000
	GPR	.151	.053	.142	2.881	.005
	MRA	.112	.046	.129	2.440	.017

a. Dependent Variable: CRM

Source: Own SPSS Output, 2024

Standardized beta coefficient explains the amount by which dependent variables change if we change independent variables by one unit keeping other independent variables constant. The regression result in table 4.15 above shows the extent to which the factors considered in the model influences credit risk management effectiveness. From the estimated regression model coefficients (β_1 to β_6) we can rewrite the multiple regression model equation of this particular study;

i.e. $CRM = \beta_0 + \beta_1 CRE + \beta_2 CGP + \beta_3 CRF + \beta_4 ERA + \beta_5 GPR + \beta_6 MRA + \varepsilon$ **as**:

CRM =.-1.252 +.211CRE **+.433**CGP**+.130**CRF**+.196**ERA**+ .142**GPR **+.129**MRA **+ .250**

Regarding to effects of each factors and effectiveness of credit risk management, table 4.15 shows that, all factors have positive significant influence.

Concerning the first internal factor of credit risk management system, the result in the regression table above, revealed that, sound credit risk environment has a positive statistically significant influence on the bank's credit risk management system at 1% level of significance (standardized beta coefficient of 0.211 and P-value 0.001). The standardized beta coefficient indicates that, keeping all other variables constant**,** a unit change in credit risk environment improvement would result in a 21.1% increase in effectiveness of credit risk management system. According to Basel, (1999) establishing sound credit risk environment is the first general principle of credit risk management. When the board of directors approve and periodically review credit risk strategies and significant credit policies, thus, properly implemented by the top management, they provides a bases for the rest credit risk management process. These strategies explain requirement criteria to credit risk assessment, credit approval and credit monitoring and follow up and ultimately improves the overall credit risk management system.

Similarly, for the second internal factor of credit risk management, the table revealed that, appropriate granting process also has statistically significant positive influence on effectiveness of credit risk management at 1% significant level. Standardized beta coefficient 0.433 with p-value of 0.000 implies, every one unit change (keeping other variables constant) in adequate credit granting process, increase effectiveness of credit risk management by 43.3% in Bank of Abyssinia. As explained in the literature, operating under sound credit granting process is the second major principle of credit risk management in the financial sector. Credit granting process incorporates three important activities: obtaining quality information about borrowers, assessing their creditworthiness and decide whether to extend credit or not. These activities therefore improve credit risk management activities and reduces credit risks in the banking sector.

Regarding the third internal factor of the study, the table also revealed that appropriate credit monitoring and follow up process has positive statistically significant influence on effectiveness of credit risk management at 1% significant level. The standardized beta coefficient 0.130 with p-value of 0.001 indicates that a unit change in credit risk monitoring and follow up increase effectiveness of credit risk management system by 13.0%. Through placing a system for the ongoing administration of their various credit risk-bearing portfolios and a system for monitoring the condition of individual credits, including determining the adequacy of provisions and reserves banks reduce credit risks.

Furthermore, on the remaining three external factors (environmental risk analysis, government policy risk and market risk analysis) table 4.14 above also revealed that, the factor have statistically significant influence on effectiveness of credit risk management in Bank of Abyssinia. According to Bhatt et al., (2023) environmental risk is one of the elements that have a variety of effects on credit risks of banks (direct, indirect, or reputation).For this reason, the creation of environmental credit risk management (ECRM), which incorporates standardized environmental risk assessment techniques into the credit rating process, is crucial for banks' risk management. In line with this notion, the standardized beta coefficient 0.196 with p-value of 0.000 indicates incorporation of environmental risk analysis in credit risk management system has statistically significant positive effect on effectiveness of bank's credit risk management process. A unit change in this factor increase effectiveness of credit risk management process by 19.6 at 1% significant level.

Regarding governmental policy risk one of the interviewee stated that "by reducing the amount of loans to clients and affecting clients' willingness to repay their debt, governmental policy affects the banks credit risk". From their empirical analysis Zheng et al. (2023) however, concluded that increase in monetary policy instruments reduce the risk taking behaviors of banks. In line with this conclusion, the regression results table above (table 4.14) also shows that governmental policy risk has positive statistically significant influence on effectiveness of credit risk management (standardized beta coefficient 0.142 and p-value 0.005).The standardized beta coefficient for governmental policy risk indicates, a unit change in improvement of this factor results in increase in effectiveness of credit risk management by 14.2%.

For market risk analysis the regression results table also revealed statistically significant positive influence of market risk analysis on effectiveness of credit risk management (standardized beta coefficient 0.129 and p-value 0.017). The standardized beta coefficient in the above regression results table indicates that a unit change in market risk analysis improvement results a 12.9% increase in effectiveness of credit risk management of Abyssinia Bank.

Generally, the statistically significant influences of both internal and external factors on effectiveness of credit risk management supports the results of recent previous study by Fikremariam (2018) who found statistically significant positive relationships between credit risk environment, credit granting process, credit monitoring and follow up, market risk analysis,

environmental risk analysis and credit risk management effectiveness in case of four private banks in Ethiopia.

4.7. Diagnostics Tests

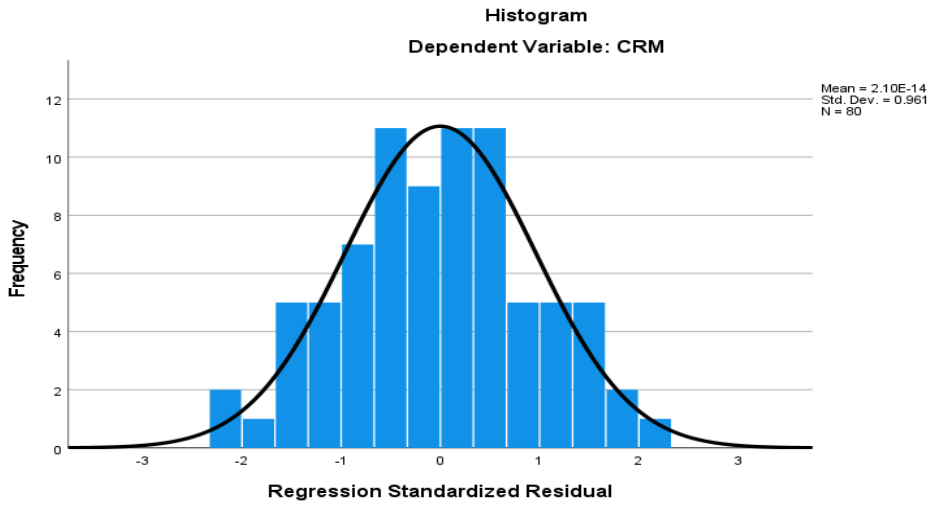
Diagnostics in this context are characteristics of classical linear regression model which are required to show that the estimation technique, classical linear regression, had a number of desirable properties those should be fulfilled, and also so that hypothesis tests regarding the coefficient estimates could validly be conducted (Brooks, 2008). These characteristics are termed as assumptions of classical linear regression model and include the following five assumptions.

4.7.1. Normality Test

The normality assumption is about the mean of the residuals is zero. According to (Brooks 2008) in order to conduct hypothesis test about the model parameter, the normality assumption must be fulfilled. As the result, checking the normality of the residual of the model estimated in the above is important. One of the most commonly applied tests for normality is the uses the property of histogram for a normally distributed random variables. The histogram should be bell-shaped.

As it can be seen from the figure below, the shape of the histogram follows the shape of the normal curve with a bell-shape; there are no residuals out of the normal curve. As the result, we can conclude that the residuals are normally distributed and there is no normality problem.

Figure 4.1: Normality Test Result



Source: Own SPSS Output, 2024

4.7.2. Multicollinearity Test

An implicit assumption that is made when using the OLS estimation method is that the explanatory variables are not correlated with one another. According to Chris Brooks, in any practical context, the correlation between explanatory variables will be non-zero, in the sense that a small degree of association between explanatory variables will almost always occur but will not cause too much loss of precision. However, a problem occurs when the explanatory variables are very highly correlated with each other, and this problem is known as multicollinearity. This poses problems in interpreting regression coefficients. And it also results in large standard errors of the estimated regression coefficients and leads to instability of regression estimates. This is not a problem of model specification, but of data (Hair et al., 2006).

The conventional measures for multicollinearity is variance inflation factor (VIF). If the VIF value lies between 1 and 10, then there is no multicollinearity. However, if the VIF value is less than 1 or greater than 10, there is multicollinearity. Table 4.16 below shows multicollinearity test.

Table 4.16: Multicollinearity Test Result

		Collinearity Statistics	
		Tolerance	VIF
CRE		.508	1.968
CGP		.459	2.178
CRF		.734	1.363
ERA		.658	1.521
GPR		.722	1.386
MRA		.624	1.603

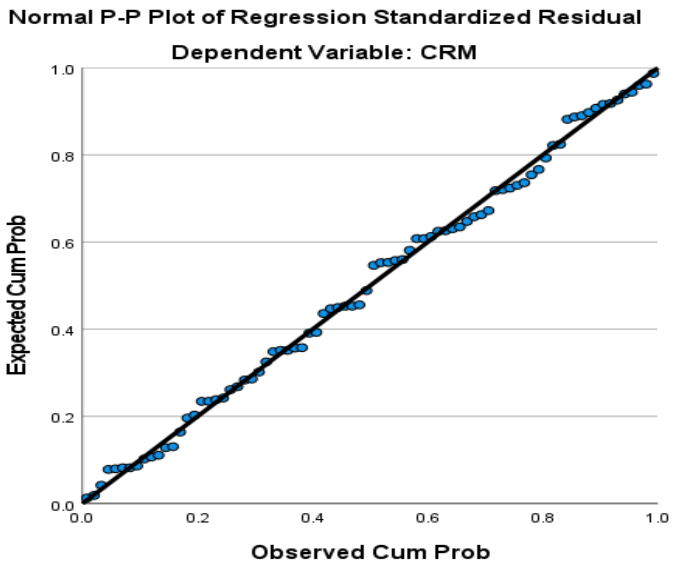
Source: Own SPSS Output, 2024

Collinearity statistics output in table 4.5 above showed that the VIF values are between 1.386 and 2.178, meaning that the VIF value obtained is between 1 and 10 and it can be conclude that there is no multicollinearity problems between the independent variables.

4.7.3. Linearity test

This test is to show the linear relationships of dependent and independent variables. Linearity in the study was tested using normal p-p plot of regression standardized residuals.

Figure 4.2: linearity test result



Source: Own SPSS Output, 2024

As depicted in the above scatter plot, figure, the visual inspections of the scatter plot shows there exists a linear relationship between the predictors (internal and external factors) and the predicted variable (effectiveness of credit risk management). This means that, a unit increase of the one or all predictors causes respective increments for the market share.

4.7.4. Heteroskedasticity test

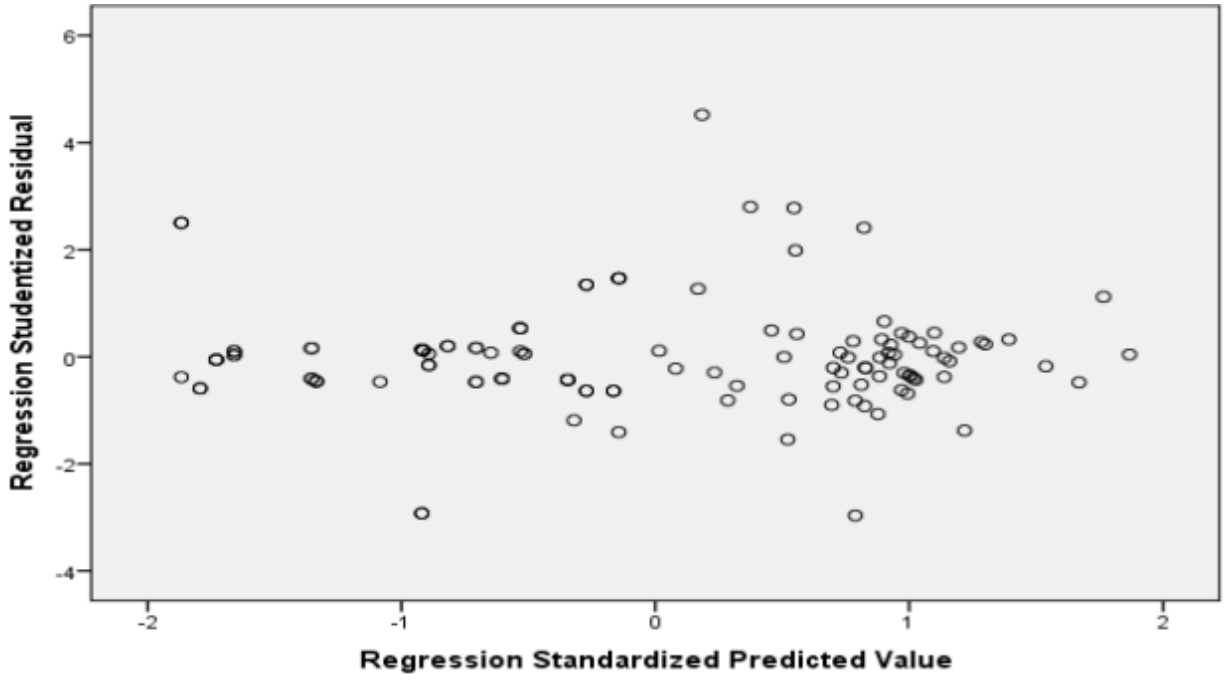
It has been assumed that the variance of the errors is constant; this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic. The presence of heteroscedasticity makes ordinary least square estimators not efficient because the estimated variances of the coefficients (βi) are biased and inconsistent. Thus, the tests of hypotheses are no longer valid. As per Chris Brooks (2008), there are many methods used to test

the existence of heteroscedasticity, in this study the researcher used Scatter plot test. Figure 4.3 bellow presents the Scatter plot graph of the test.

Figure 4.3: Heteroskedasticity Test Result

Scatterplot

Dependent Variable: CRM



Source: Own SPSS Output, 2024

Based on the Scatter plot output above, it appears that the spots are diffused and do not form a clear specific one pattern, meaning that there was a difference of residuals. So it can be concluding that regression model does not occur heteroskedastisiy problem

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

Starting from problem identification of the study till to this point different document, theoretical perspectives and empirical analysis were analyzed in order to have better understand about research problem, to know what was done on it in previous, and which part needs further investigation. Based on the part of research problem that need more investigation the researcher tried her own best to investigate factors affecting credit risk management practices in the banking sector, particularly in Bank of Abyssinia. Indeed, the researcher obtained primary data from selected employees and finally want to put her final summary of findings, conclusions and recommendations. Therefore this particular chapter of the study deals with summary of findings, conclusions and recommendation of the study which is based on what is discussed in the previous chapters.

5.1. Summary of Major Findings

- The main objective of the study was to examine effectiveness of credit risk management practices in Bank of Abyssinia. For this purpose, question items in Likert-scale format were distributed to 84 respondents from which 80 were properly filled and returned. In addition, interviews were conducted with 4 managers of Bank of Abyssinia working at head office. By applying quantitative data analysis on data collected through questionnaires with the help of SPSS, version 27 and qualitative analysis of interview data, the researcher found the following major findings.
- Before conducting any statistical analysis, the reliability or internal consistency test was conducted using Cronbach Alpha, items in groups and for a total of 40 items. The Cronbach's Alpha recorded scores for items by group as well as in total was greater than the threshold value of 0.7, resulting that all questionnaire items could be considered as reliable as a group as well as in total.
- From frequency distribution table for demographic information, 58.8% of the respondents were female, while 41.2% were male. In the same table, majority of the respondents (58.8%) were under the age of 40 to 49. Regarding to respondents' field of study, 45% were from accounting whereas, 55% were from management. About educational level, majority of the respondents

(86.2%) were Master's degree holders. The study also found that 55% of the respondents have 11 to 15 years work experiences.

- To examine effectiveness of credit risk management and its factors, respondents' level of agreements on variables were obtained by preparing five question items for each variable. Once the data were collected, descriptive statistics (means and standard deviations) were computed as descriptive analysis.
- For credit risk management effectiveness, the study found the average mean value of 3.89 approximately. From descriptive statistics of effectiveness of credit risk management, the study found approximate mean value of 4.18 for the question item "The bank has an effective credit risk policies and procedures that clearly guides the credit granting process", and mean value of 4.13 (approximate) for the item "The top management transform and communicate credit risk strategies within the bank in the shape of policies and procedures". The result also showed the mean values (approximated) of 3.98, 3.71, and 3.45 for the items; "the board of directors set and periodically review effective credit risk strategy and significant credit risk policies", "the existing work force composition in skill variety and level in credit appraisal is competent enough with the banks credit risk exposure" and "the bank has formal documents related to credit and credit risk management" respectively.
- Regarding to credit risk environment, the study found the average mean value of 3.76. Five question items; credit risk strategies and policies are approving and periodically reviewed by board of directors, senior managers properly implementing the credit risk strategy approved by the board of directors, senior managers develop appropriate policies and procedures from credit risk strategies, the policies and procedures developed by top managers helped to address credit risk in all of the bank's activities, and the bank developed a system to ensure that the risks of its new products and activities are subject to adequate risk management procedures and controls were used to measure sound credit environment in Bank of Abyssinia. The study found 3.76, 3.93, 3.86, 3.40 and 3.74 mean values for the items respectively.
- In this study, credit granting process was measured by question items; the bank has information systems and analytical techniques that enable management to measure the credit risk, the bank receives sufficient information about borrowers, the bank assess borrower's repayment history and current capacity to repay before credit approvals, credit approvals are made in accordance with the bank's written guidelines and granted by the appropriate level of management, and

the bank's credit granting policy provides a framework to assess the purposes and structures of its credits. For these items the study found mean values of (approximated) 3.30, 3.68, 4.05, 3.53, and 3.59 respectively. The average mean of credit granting process was 3.78.

- Regarding to credit monitoring and follow up process, the respondents were requested to express their level of agreement on the question items that; the bank has in place a system for the ongoing administration of their various credit risk -bearing portfolios, the bank has in place a system for monitoring the condition of individual credits, the bank has in place a system for monitoring the overall composition and quality of the credit portfolio, the bank encourages to develop an internal risk rating system in monitoring and controlling credit risk and the bank has a system of independent, ongoing assessment of the bank's credit risk management processes. From descriptive analysis the study found approximately 3.48, 3.89, 3.88, 3.89, and 4.00 mean values for each item respectively. The average mean for credit monitoring and follow up process was 3.84.
- The descriptive analysis for environmental risk analysis revealed approximate mean values 3.64, 3.66, 3.65, 3.78 and 3.74 for its question items; the bank incorporated environmental risk analysis in its credit risk assessment process, the bank prioritize credits to businesses to help with improving entrepreneurial skills, credits are primarily extend to Businesses to provide an opportunity to create innovative business ideas, the credits are primarily extend to businesses to help with improving business skills, and credits are provided to Businesses to play an important meditating role between access to finance and entrepreneurship development respectively. The average mean for this variable was 3.89.
- For government policy risk analysis, the descriptive analysis of the study found the average mean of 3.81 approximately. Except the question item "Stress tests for potential government policy risks are part of the bank's credit risk assessment process" for which the mean value was about 3.36, all the items have a mean values between 3.50 and 4.20. Similarly, descriptive analysis for market risk analysis resulted the average mean value of 3.87 and the mean for all question items were lied in the rage of 3.50 to 4.2.
- Regarding to challenges of credit risk management practices, the result of descriptive analysis revealed that increasingly complex regulatory requirement, data quality and availability, rapidly changing market condition and aligning credit risk management strategies with broader

business goals are significant challenges of credit risk management with a mean values of 4.31, 3.95, 4.03 and 4.05 respectively.

- In addition to this to see relationships between effectiveness of credit risk management and its determinant factors, multiple regression was conducted. Overall diagnostic tests indicate that the data is qualified for classical linear regression estimation. The Pearson correlation test result indicates that credit risk environment, credit granting process, credit risk monitoring & follow up, environmental risk analysis, government policy risk and market risk analysis have a positive relationship with the effectiveness of credit risk management system. The Pearson correlation coefficient values for these variables were 0.746, 0.840, 0.551, 0.618, 0.554 and 0.615, respectively. This all reveals that, there is a good relationship between independent variables and dependent variables.
- Based on the multiple regression analysis result, the adjusted coefficient of determination (R^2) shows that the three factors explained approximately 86.2% of the variation in effectiveness of credit risk management system. This gives the regression line a good fit while the remaining 13.8 % of the total variation in the effectiveness of credit risk management is accounted by the factors included in the error term.
- Accordingly, the potential influence factors (independent variables) on the effectiveness of credit risk management system (dependent variable) was estimated. All the variables (credit risk environment, credit granting process, credit risk monitoring & follow up, environmental risk analysis, government policy risk and market risk analysis) have statistically significant positive effect on effectiveness of credit risk management. The estimated standardized beta coefficient values for these variables were 0.211, 0.433, 0.130, 0.196, 0.142 and 0.129, respectively.

5.2. Conclusions

Based on the above findings, the researcher reached on the following conclusions.

The average mean value of 3.89 for effectiveness of credit risk management implies that, majority of the respondents agreed on the presence effective credit risk management in Bank of Abyssinia. Except the question item “the bank developed a system to ensure that the risks of its new products and activities are subject to adequate risk management procedures and controls” for which they were neutral, the participants were also agreed on the items as well as overall sound credit risk

environment in the Bank of Abyssinia. Similarly even if the respondents were neutral about whether the bank has information systems and analytical techniques that enable management to measure the credit risk, they agreed on the other items as well as overall effectiveness of credit granting process. Regarding to credit risk monitoring and follow up, majority of the respondents were agreed that the bank developed appropriate monitoring and follow up system.

For the other external variables (environmental risk analysis, government policy risk and market risk analysis), the respondents were agreed that these variables were effectively incorporated in the bank's credit risk management system.

In bank of Abyssinia, increasingly complex regulatory requirement, data quality and availability, rapidly changing market condition, balancing risk and return, limited usage of technology in credit management, and aligning credit risk management strategies with broader business goals, lack of skilled personnel are significant challenges of credit risk management practices.

All independent variables (credit risk environment, credit granting process, credit risk monitoring & follow up, environmental risk analysis, government policy risk and market risk analysis) have statistically significant positive effect on effectiveness of credit risk management.

5.3. Recommendations

The following recommendations are forwarded with the basis of the research findings.

- Although, the respondents agree on the overall effectiveness of credit granting process, they are neutral about the bank's establishment of an information systems and analytical techniques that enable management to measure the credit risk. Therefore, the bank should robust its credit grating process through establishing of an information systems and analytical techniques that enable management to measure the credit risk.
- Regarding to governmental policy risk, the descriptive analysis of the study found the average mean of 3.81 approximately. However, respondents were neutral on the most important item i.e. whether stress tests for potential government policy risks are part of the bank's credit risk assessment process. Therefore, the bank should improve its overall credit risk management effectiveness by incorporating stress tests for potential government policy risks in its credit risk management system.
- Credit risk environment is the main factor of credit risk management practice. Therefore, Bank of Abyssinia should emphasize on its credit risk environment to attain the effectiveness of credit risk management system.
- To handle major challenges in implementing effective credit risk management, banks must;
    - ✓ Navigate a constantly evolving regulatory landscape, frequently introducing new rules and requirements.
    - ✓ Develop a system designed to fully integrate with an institution's overall business strategy, ensuring that credit risk management always aligns with broader organizational objectives and providing advanced modeling and analytics capabilities that enable them to anticipate and mitigate the effects of an economic slowdown.
    - ✓ Use technology in the process of credit management and manage loan portfolio.
- Finally, the researcher recommends that further studies should have to conduct to identify other factors that affecting the effectiveness of credit risk in the banking sector in Ethiopia. More specifically, conducted research on entire districts and branches of the same bank also provide important information

References

Abdelrahim, K. E. (2013). Effectiveness of credit risk management of Saudi banks in the light of global financial crisis: A qualitative study. Asian Transactions on Basic and Applied Sciences, 3(2), 73–90.

Achou, F. T. and Tegnuh, N. C. (2008) Bank Performance and Credit Risk Management. Master Degree Project School of Technology and Society, University of Skovde Press.

Afriyie, H. O., &Akotey, J. O. (2013). Credit risk management and profitability of rural banks in the BrongAhafo region of Ghana. European Journal of Business and Management, 5(24), 24–33.

Afriyie, H.O. and Akotey, J.O., 2013.Credit risk management and profitability of rural banks in the BrongAhafo region of Ghana. European Journal of Business and Management, 5(24), pp.24-33.

Anteneh (2021). The Impact of Credit Risk Management on the Financial Performance of Ethiopian Commercial Banks. Master's thesis, St. Mary's University, San Antonio, TX, USA.

AregaSeyoum, Hanna Nigussie, TadeleTesfay (2016). Factors Affecting NonPerforming Loans: Case Study on Development Bank of Ethiopia, Central Region.

Basel (2004). "Bank failures in mature economies", Working Paper No. 13, Basel Committee on Banking Supervision, Basel.

Basel committee (July, 1999a) Principles for the management of credit risk

Basel committee,(April 1999b). Credit risk modeling; current practice and applications Basel committee on supervision

Bhatt, Tribhuwan Kumar, Naveed Ahmed, Muhammad Babar Iqbal, and MehfoozUllah. 2023. Examining the Determinants of Credit Risk Management and Their Relationship with the Performance of Commercial Banks in Nepal. Journal of Risk and Financial Management 16: 235. https://doi.org/10.3390/ jrfm16040235

Ciby Joseph (2006) Credit Risk Analysis Tat McGraw hill

Creswell John W. 2009, "Research Design: Qualitative, Quantitative and Mixed Method approach*", 3rd ed,* Thousand Oaks, California, *SAGE Publication Inc.,*

Dean,Cair and RoberKosman (2003) Credit Risk Scoring, www.modelrs.ac.sir

EndaleKiflu (2015). Assessment of Loan Recovery Performance in Development Bank of Ethiopia.

Fikremariam (2018). Factors Affecting Credit Risk Management Practices, The Case Of Selected Private Commercial Banks In Ethiopia. International journal of advanced research, 7(1), 811-849.

Girma (2011). Credit Risk Management and Its Impact on Performance on Ethiopian commercial Banks, Addis Ababa, Ethiopia

Gudde, G. (2018). Determinants of Loan Repayment: The Case of Microfinance Institutions in Gedeo Zone, SNNPRS, Ethiopia. Universal Journal of Accounting and Finance, 6(3), 108-122.

Hagos M. (2010). Credit Management (A Case Study of Wegagen Bank Share Company in Tigray Region), Unpublished Master's Thesis Mekelle University.

Hatefi, A. (2021). Identification of the Effective Factors on Credit Risk Management of Banks Listed on the Tehran Stock Exchange (Unpublished Master Thesis, Yazd University of Science and Art, Iran).

Iqbal, Z. &Mirakhor, A. (2007). An Introduction to Finance: Theory and Practice" John Wiley & Son (Asia) Pte Ltd.

John hull ,IzzayNekien (2004) Merton Model. www.rotamn.utranto.

Kansiime, M. N., Alinda, F., and Saturninus K.M (2020) Towards Effective Management of Credit Risks in Commercial Banks: A Critical Analysis of The Challenges and Strategies for Improvement in Uganda's Commercial Banks. International journal of Economics, Commerce and management, 7(10), pp. 73-89.

Kibrom (2010). Performance of Private Borrowers in Development Bank of Ethiopia, North Region.

Meseret (2010).An Assessment of Credit Risk Management in Bank of Abyssinia, Unpublished Master's Thesis, St. Mary University

Mignot (2019). Factors Affecting Credit Risk Management of Development Bank of Ethiopia, Addis Ababa University

Million G., Matewos K. &Sujata S. (2015). The Impact of Credit Risk on Profitability Performance of Commercial Banks in Ethiopia, African Journal of Business Management, 9(2), 59-66.

Mohammadi, M. H. (2019). Investigating the Factors Affecting the Probability of Default on Loans to Customers of the International Bank of Afghanistan in Herat, Afghanistan (Unpublished Master Thesis, Ferdowsi University of Mashhad, Iran).

Moqaddaseh, M. (2021). The Effect of Literacy Level and Income on Banking Customers' Accountability (Unpublished Master Thesis, Ayatollah Boroujerdi University, Iran).

Mulugeta (2010). The Determinants of Agricultural Loan Repayment Performance. Unpublished Master‟s Thesis, Hramaya University.

Muluken (2014). Factors Affecting Loan Repayment Performance of Floriculture Industries to the Development Bank of Ethiopia, Addis Ababa University

Negera, W. (2012). Determinants of Non-Performing Loans: The case of Ethiopian Banks.

S.k.Bagchi S.K. (2006)" Credit Risk Management-Jaico publishing house

Singh, S.N. (2021). Credit Risk Management Practices in Dashen Bank of Mettu Branch in Ethiopia. Financial Markets, Institutions and Risks, 5(2), 86-106. http://doi.org/10.21272/fmir.5(2).86-106.2021

Solomon G. (2013). Credit Risk Management Practice on NIB International Bank, Unpublished Master's Thesis, St. Mary University.

Tehulu, T. A. and Olana D. R. (2014). Bank-Specific Determinants of Credit Risk: Empirical Evidence from Ethiopian Banks. Research Journal of Finance and Accounting, Vol.5, No.7, PP. 80-85.

Tewodros, Mitiku,Gashu (2022) Assessment Of Credit Risk Managemnt Practices; The Case Of Development Bank Of Ethiopa, Addis Ababa,Unpublished Master's Thesis, St. Mary University

Tibebu (2011).Credit risk management and profitability of commercial banks in Ethiopia, Addis Ababa University

Tseganesh T. (2012). Determinants of Banks Liquidity and their Impact on Financial Performance: empirical study on commercial Banks in Ethiopia.

Velliscig, Giulio, JosancoFloreani, and Maurizio Polato. 2022. Capital and asset quality implications for bank resilience and performance in the light of NPLs' regulation: A focus on the Texas ratio. Journal of Banking Regulation, 1–23.

Wondimagegnehu, Negera. (2012). Determinants of Non-Performing Loans: The case of Ethiopian Banks, Unpublished Master‟s Thesis.

Yalemzewd (2013). Exploring the Credit Management Practice of Bunna International Bank S.C.

YesigatW.Y2009, Value Added tax in Ethiopia: A Study of operating costs and compliance', University of New South Wales, Faculty of Law, January, 2009

Yohannes (2016) Credit Risk Management Practice in Private Banks Case Study Bank of Abyssinia, Unpublished Master's Thesis, St. Mary University

Appendix 1: Research Questionnaire

St. Mary's University

Masters of Business Administration

Dear respondents I Tigist Bechere is second year Msc. Student at St. Mary's University; in Masters of Business Administration. Now, I am conducting a research in titled *"Factors affecting Credit Risk Management: In case of Bank of Abyssinia".*Therefore, the main purpose of this questionnaire is to gather relevant information relating to credit risk management practice in your Bank. Your answers or information gathered will be kept confidently and used only for academic purpose. You are kindly requested to fill all questions properly.

Thank you in advance for your cooperation!!!

Section I: personal information

Please indicate your choice by circling the choice in front of one of the response options:

1. Gender: ( ) Male ( ) Female
2. Age: () 23 to 29, () 30 to 39, () 40 to 49, () 50 to 59 () 60 or above
3. Your field of study: () Accounting, () Management, () Economics, () Others(Specify)_____
4. Level of education: () Technical/Vocational school certificate () College/University diploma ( ) Bachelor's degree ( ) Master's Degree () Phd. and above _____
5. Work experiences: ( ) 1 to 5 ( ) 5 to 10 ( ) 10 to 15 ( ) 15 to 20 ( ) above 20

Section II: Questions Related to Credit Risk Management

Instruction: Below are statements pertaining to credit risk management and its related factors **in your organization**. Please indicate your level of agreement with each statement by ticking (✓) the appropriate one from the options that range from **'strongly Agree',** to **'Strongly Disagree'**.

SD= Strongly Disagree, D=Disagree, N=Neutral, A= Agree and SA= Strongly Agree

***F*. Statements pertaining to Assessment of Credit Risk Management practices of Bank of Abyssinia**	SA	A	N	D	SD
1. Bank of Abyssinia has formal documents related to credit and credit risk management.					
2. The existing work force composition in skill variety and level in credit appraisal is competent enough with the banks credit risk exposure.					
3. The board of directors set and periodically review effective credit risk strategy and significant credit risk policies.					
4. The top management transform and communicate credit risk strategies within the bank in the shape of policies and procedures.					
5. The bank has a credit risk policies and procedures to monitor the quality of the credit portfolio on a day-to-day basis.					
***G.* Statements related to Internal factors of Credit Risk management of Bank of Abyssinia**					
B1. Statements pertaining to credit risk environment of Bank of Abyssinia					
1. Credit risk strategies and policies are approving and periodically reviewed by board of directors.					
2. Senior managers properly implementing the credit risk strategy approved by the board of directors.					
3. The policies and procedures developed by top managers helped to address credit risk in all of the bank's activities.					

4. The bank developed a system to ensure that the risks of its new products and activities are subject to adequate risk management procedures and controls.					
5. Senior managers develop appropriate policies and procedures from credit risk strategies for identifying, measuring, monitoring and controlling credit risk.					
B2. Statements pertaining to credit granting process of Bank of Abyssinia					
1. The bank has information systems and analytical techniques that enable management to measure the credit risk.					
2. The bank receives sufficient information to enable a comprehensive assessment of the true risk profile of the borrower or counterparty.					
3. The bank assess borrower's repayment history and current capacity to repay before credit approvals.					
4. Credit Approvals are made in accordance with the bank's written guidelines and granted by the appropriate level of management.					
5. The bank establish specialist credit groups to analyze and approve credits facilities.					
B3. Statements pertaining to credit risk monitoring and follow up process of Bank of Abyssinia					
1. A bank has in place a system for the ongoing administration of their various credit risk -bearing portfolios.					
2. A bank has in place a system for monitoring the condition of individual credits, including determining the adequacy of provisions and reserves.					
3. A bank encourages to develop an internal risk rating system in monitoring and controlling credit risk.					
4. A bank has a system of independent, ongoing assessment of the bank's credit risk management processes.					
5. A bank has a system of independent, ongoing assessment of the bank's credit risk management processes.					

***H*. Statements Related to External Factors of Credit Risk Management of Bank of Abyssinia**					
C1. Statements pertaining to Environmental Risk Analysis of Bank of Abyssinia					
1. Bank of Abyssinia incorporated environmental risk analysis in its credit risk assessment process.					
2. Credits are primarily extend to Businesses to provide an opportunity to create innovative business ideas.					
3. The credits are primarily extend to businesses to help with improving business skills					
4. Credits are provided to Businesses to play an important meditating role between access to finance and entrepreneurship development.					
5. In credit risk assessment process, stress test and scenario analysis are undertaken to manage potential environmental risks.					
C2 Statements pertaining to governmental policy of Bank of Abyssinia					
1. Stress tests for potential government policy risks are part of the bank's credit risk assessment process.					
2. In the bank, the board of directors set government policy risk strategies in the risk management documents.					
3. Policy risk strategies are effectively implemented by top management through issuing policies and procedures.					
4. The bank has effective policies and procedures to manage governmental policy related risks.					
5. The bank's overall policy risk exposure is maintained at prudent levels consistent with the available capital.					
C3. Statements pertaining to Market Risk Analysis of Bank of Abyssinia					
1. When assessing individual credits and their credit portfolios, the bank take into consideration potential future changes in economic conditions.					

2.	The bank's credit risk assessment enable to identifying possible events or future changes in economic conditions that could have unfavorable effects on a bank's credit exposures.					
3.	Scenario analysis and stress testing are continuously undertaken for assessing areas of potential problems.					
4.	The output of the tests are reviewed periodically by senior management and appropriate action is taken.					
5.	The output the stress test is incorporated into the process for assigning and updating policies and limits.					
I.	**Statements pertaining to Challenges of Credit Risk Management of Bank of Abyssinia**					
1.	In the bank, increasingly complex regulatory requirement is one of the most significant challenge of credit risk management.					
2.	Data quality and availability is significant challenge of credit risk management practices.					
3.	Lack of a team of personnel with diverse skills is significant challenge in credit risk management practices.					
4.	Rapidly changing market condition is significant challenge of credit risk management practice.					
5.	Aligning credit risk management strategies with broader business goals is significant challenge of credit risk management practice.					

Appendix 2: Interview Questions

St. Mary's University

Masters of Business Administration

Open ended questions on the overall credit risk management process (target interviewees-managers and deputy managers)

1. How do you explain credit risk management system in your organization in terms of credit risk assessment, credit approval process and credit risk monitoring and follow up process?
2. Does Bank of Abyssinia has separate board approved credit risk management strategy? How closely the board is exercising its role in monitoring credit risk?
3. How are the credit staffs in the loan and credit risk management office notified of the new policies or any modifications? Are the notifications timely and complete? Was there any loss resulting from inaccurate notification?
4. Could you please tell in details about environmental and market risk analysis as a component of credit risk management? In your opinion, is it helpful to your bank's credit risk management? How do you incorporate these risks in your credit disk management practices?
5. Do you believe that governmental policies (monetary, interest rate, exchange rate) and other regulatory requirements affect your credit risk management activity? How?
6. What are the major challenges of credit risk management implementation in your organization? Please list them.

Thank you for your contribution!!