ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

DETERMINANTS OF NON-PERFORMING LOANS IN COMMERCIAL BANK OF ETHIOPIA.

BY

SARA BENEGA

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ADDIS ABABA ETHIOPIA

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APPROVED BY BOARD OF EXAMINERS

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DECLARATION STATEMENT

I, Sara Benega, , hereby declare Determinants of Non-Performing Loans in Commercial Bank of Ethiopia is my own work, that it has not previously been submitted for any degree or examination to any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

Name ----------

Signature----------

Date----------

As thesis research advisor, I hereby certify that I have read, evaluated, and recommended to the St.Marry's University to accept the thesis submitted by Sara Benega, titled "**Determinants of Non-Performing Loans in Commercial Bank of Ethiopia**" in partial fulfilment of the requirements for the award of a Master's Degree in Business Administration .

Name of Advisor----------

Signature----------

Date----------

St. Mary's University, Addis Ababa **June, 2023**

ENDORSEMENT

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

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Name Signature

St. Mary's **University, Addis Ababa** **June, 2023**

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List of Acronyms/Abbreviations

CBE……Commercial bank of Ethiopia

CAR…….Capital adequacy ratio

SPSS……...Statically Program for Social Studies

NPL…….Non- performing loan

ABSTRACT

Through providing financial and technical support to workable projects in conformity with government policy, CBE has remained committed to assisting the nation's development endeavours as it has for more than a century. However, availing loan to borrower is not an easy task, this is because of the high financial risk of the bank as a result of failure to collect the disburse loan from the customers. It is against this background that this research attempt to examine the factors that affect nonperforming loan at CBE. A well-structured self- administered questionnaire was used as the main tool for data collection and was administered to 120 respondents, out of which 113(94%) were retrieved and appropriately filled. Reliability of the research instrument was calculated and found to be 0.986 *which means all items are reliable and data has internal consistency and hence acceptable for further analysis. The data were analyzed using both descriptive and inferential statistical approach. The findings of the study revealed that capital adequacy, bank efficiency, income diversification and inflation jointly and individually affect the non-performing loan ratio of the bank. The regression analysis the result also indicated that 57.54% of the variation in the dependent variable was explained by independent variables. Among the explanatory variables that affects non-performing loan of the income diversification variable found to be the most dominant factors that effects non-performing loan and followed by capital adequacy. The study recommended that banks should put in place a vibrant credit process that ensures proper customer selection, robust credit analysis, proactive monitoring and clear recovery strategies for sick loans; formulate a clear policy framework that addresses issues of conflict of interest, ethical standard and check and balance in credit process; organizational capacity enhancement of banks; deliberate effort to develop culture*

Key Words: *bank efficiency, income diversification, non-performing loan, policy framework, sick loan*

CHAPTER 1 INTRODUCTION

1.1. Background of the study

A bank is a type of financial institution that primarily conducts lending and taking deposits from the general population. The ability to accept deposits and offer loans sets "banks" apart from other financial institutions. Commercial banks, merchant banks, financial institutions, building societies, and credit unions and savings banks (Saleem, 2005).

Banks play a significant role in the economic development of a country. Both borrowers and lenders have unique preferences for liquidity. When banks combine their resources and make them accessible for investments by issuing loans, liquidity is produced. Bank funding is essential for small businesses because of their limited sizes and capacities Borrowers.

It is nearly impossible for banks to raise money on the open markets because they build connections with clients that provide them crucial information about their business operations. Since the bank has a better understanding of the consumer, it is simpler for small enterprises to obtain financing. Businesses with strong bank ties have a higher chance of acquiring financing to get through challenging periods, such an economic downturn. Banks are in charge of running an economy's vital payment networks. Advances that have not yet been returned are known as NPLs. If a loan doesn't produce income or principal for at least 90 days, it is considered non-performing, according to the International Monterey Fund (IMF). Loans become non-performing loans (NPLs), in accordance with Alton and Hazen (2001), if the principle and interest are not fully paid by the maturity date and are not anticipated to be paid at a later time. The major reasons of high NPLs include excessive markup spreads, lax credit policies, untrained credit experts, lax credit principles, and a lack of borrower monitoring. The nation's banking industry is impacted by NPLs, a key indicator of credit risk. Because they affect the nation's economic growth by limiting credit expansion, Handley (2010) emphasises that NPLs can be used as an indicator of a financial crisis (Ivanovic, 2016).

High markup spreads, liberal credit principles, lax credit processes, inadequately experienced credit experts, and a lack of borrower monitoring practises are the main contributors to high

NPLs. Credit risk, which is primarily reflected by non-performing loans, has an impact on the nation's financial sector. According to Handley (2010), NPLs may be used as an indication of a financial crisis since they have a detrimental effect on the country's economic growth by decreasing credit creation. 2010 (Handley)

The causes of loan default vary from nation to nation and are complex in both developing and industrialized nations. Theoretically, there are several causes for loans to fail. A few of these are a poor economy, a high real interest rate, inflation, adaptable lending conditions, a credit-focused mindset, a quick increase in credit, a strong appetite for risk, and inadequate oversight. Macroeconomic causes or bank-specific variables may contribute to the development of NPLs (Emmanuel, 2014). Given these facts, the purpose of this study is to identify the reasons of non-performing loans in Ethiopian commercial banks using both bank-specific and macroeconomic data.

1.2. Statement of the Problem

The management of bank loans is a crucial problem if banks are to succeed and maintain their operations. However, according to Peterson and Wadman (2004), non-performing loans are a problem in a number of nations. If the loan is well handled, it will boost the bank's profitability and sustainability in the future, but if it is not, it will pose a serious danger to their survival (MacDonald, 2016). In order to avoid future problems, institutions and their supervisors should be able to learn from previous errors as credit risk exposure is still the leading source of problems in banks globally. Bank credit is the main source of available finance for the majority of clients. Good loans are the most lucrative assets for banks. Providing loans to organizations and people entails incurring risks, just as with any investment (Scott & Timothy, 2006).

The nonperforming loan rate is the most critical factor in a bank's ability to survive.

As a result, the problem of non-performing loans has drawn more attention because bank collapse is an immediate result of a high level of NPLs in the banking sector. According to Caprio and Klingebiel (2002), referenced in Wanjau K et al. (2011), the amount or percentage of non-performing loans (NPLs) is frequently linked to bank collapses and financial crises in both developing and developed nations.

Many studies have looked at the reasons for non-performing loans in various nations throughout the world, but little research has focused on the reasons behind NPLs in Africa (Onsarigo et al., 2013). Like most Africa countries, in Ethiopia, to the best knowledge of the researcher, there has

not been much research which is conducted on determinants of non-performing loan except for the study of Daniel (2010), Geletta (2012), Tesfaye (2015), Habtamu (2015), Anisa (2015), Mesay (2017), Sitina (2018) and Rediet (2020). Moreover, the results of the variables used are different and also some variables are not covered in most of the studies. In addition to this most of the studies didn't show the current impact of the determinants on NPLs and findings regarding NPLS are different and hence mixed conclusion about the impact of bank size, bank efficiency, Inflation and capital adequacy of the bank. In addition, those authors fail to include factors such as bank size and inflation which significantly contribute to the non-performing loan of the banks. Therefore, to overcome some limitations of earlier approaches, this study, however, used correlation and regression analysis with reliability test of study instrument so as to come up with better conclusion and recommendation. To the best of the researcher knowledge, thus far, there has not been any study conducted in Ethiopia that investigated the effects of those explanatory variables using the methodology adopted in this study. The methodological approach used in this study gives better insight for policy inputs. This study, therefore, is motivated by the lack of up-to-date empirical evidence on factors that affect the non-performing loan in current competitive market. Previous studies on this issue in the context of CBE are only few; and even the limited available ones provide mixed evidences which motivated this study for filling this gap in literature. Besides, the researcher has a rich experience in working in CBE for about 3 years with different responsibilities that assisted her to understand the challenges of non- performing loan due to lack appropriate evidence on these issues as most banks, CBE are more interested in profit driving factors than any other factors that hinders non-performing loan

1.3. Research Questions

This study intends to answer following research questions;

- What are the determinants of banks‟ non-performing loans in Ethiopia's commercial banking sector?
- How bank factors affect the NPL?
- How capital adequacies affect the bank NPL?
- How bank sizes affect the bank NPL?
- How income diversifications affect the bank NPL?

- How inflation affect the bank NPL?
- How bank efficiency affect the bank NPL?

1.4. Objectives of the Study

1.4.1. General Objective

The general objective of this study is investigating the effect of bank specific and macroeconomic factors on the non-performing loans of commercial bank of Ethiopia.

1.4.1.1. Specific Objectives

The specific objectives of the study are;

- To examine the effect of capital adequacy (CAR) on banks NPLs.
- To examine the effect of bank size on banks NPLs.
- To examine the effect of income diversification on banks NPLs.
- To examine the effect of inflation on banks NPLs.
- To examine the effect of bank efficiency on banks NPLs

1.5. Significance of the Study

NPL is an indicator of the health of the banking system within a country and hence the economic health of that country, both in the short term and in the long term due to its implications for investment. Commercial banks can monitor and manage their non-performing loans with the help of this study. Therefore, reducing NPL is a prerequisite for enhancing economic growth. Knowing the cause of a problem is the first step towards solving it. The research's findings provide significant recommendations for managers and bank regulatory bodies in dealing with NPL management by identifying the primary causes of NPLs in the banking sector. Furthermore, the outcomes of the study may minimize the literature gap in the area of study particularly in Ethiopia.

1.6. Scope of the Study

This study is limited to both bank specific and macroeconomic determinants of NPLs of

Commercial banks in Ethiopia from the period 2015-2021.The study is limited to commercial Bank of Ethiopia. These periods are selected so as to increase the cross section and it is senior bank which are expected to have more experience on the lending activity.

1.7. Organization of the Paper

This paper contains five chapters. The first chapter deals with background information, statement of the problem, objective of the study, significance of the study, scope of the study and organization of the study. The second chapter deals wither view of related literature. The third chapter discusses the methodology to be applied to collect and interpret the data. In the fourth chapter, data presentation, analysis, interpretation and summary of major findings will be discussed. The last chapter contains the conclusion and recommendation parts. Finally reference and appendix (contains interview questions and questionnaire) are presented.

1.8. Limitation of the study

This study's scope is constrained, as was already mentioned. The results of this survey may not indicate a general non-performing loan in Ethiopia's commercial banks because the outcome of the study is purely based on the replies of the respondents who participated in the study..

CHAPTER 2 LITERATURE REVIEW

Researchers have identified various elements that affect the NPLs, including capital adequacy, bank size, income diversification, bank efficiency and inflation. Still, the relationship between NPLs and these factors isn't clear. Some experimenters concluded that these factors have positive connections, while others reject their results.

2.1. Theoretical Literature Review

2.1.1. Concepts and Definitions

Non-performing loans have different meanings in different nations. In one nation, a loan could be regarded as non-performing, while it might not be in another. Thoughts occasionally do align, though. As a result, the International Monetary Fund's (IMF) Compilation guide on financial soundness indicators (2015) offers the following definition: "A loan is non-performing when interest and/or principal payments are 90 days or more past due, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or when payments are less than 90 days past due, but there are other good reasons, similar as a debtor form for ruin, to mistrustfulness that payments will be made in full." According to Basel Committee on Banking Supervision(2001) as cited in Kargi(2011), loan is considered dereliction when bank declares that a borrower(that is, debtor) cannot meet his/ her obligation and repay the loan, or also to the first description, the borrower past due further than 90 days on any payment of the bank credit. These definitions offer a sensible framework for identifying non-performing loans, which the repose of the report is based on.

Bank non-performing loans might be interpreted broadly or specifically. relates generally to a bank's assets in the asset business when the risk of running those assets exceeds the pre-estimation and part or all of those assets are lost; specifically, it relates to a bank's conventional credit business where borrowing is not possible for a number of different reasons. a loan that is forfeited to the bank if the principle or interest is paid back.

Banks are directly impacted by non-performing loans, and the entire nation is indirectly impacted. Failure of a bank triggers a crisis and has a detrimental effect on the economy (Sheefeni, 2015). the research must consider how non-performing loans affect the bank in order

to comprehend how they might lead to a bank's failure. Loans are the primary source of income for banks, and a rise in non-performing loans would unquestionably reduce their interest income (Sheefeni, 2015). A research was conducted in the USA by Ghosh (2017) to determine the effects of non-performing loans. According to the report, a bank's capacity to provide new loans is hampered by the rise in non-performing loans, which demonstrate credit supply limits for banks. Therefore, banks with a high level of non-performing loans will find it difficult to provide more loans for their customers and may end up losing customers.

Non-performing loans were defined as defaulted loans for which banks could not make a profit by Asari et al. (2011). The majority of the time, a loan becomes due if the interest is not paid within 90 days, however various nations may have varied experiences with this. The long-term relationship made it very evident that interest rates have a big influence on non-performing loans. Conversely, there is little correlation between the rate of inflation and nonperforming loans.

The same way, loans are seen as in default when they are put on non-accrual status or when the conditions are considerably changed during a restructuring, according to Martha (2017).

Non-accrual refers to the practice of banks deducting all reported but unpaid interest on loans.

When debt payments were more than 90 days overdue, banks customarily ceased to accrue interest. The definition of when loans were considered past due, however, varied greatly. If debts were brought under 90 days past due before the conclusion of the reporting period, many banks did not put them on non-accrual. Moreover, non-performing loans include loans and advances; that is not earning income; on which full payment can no longer be expected and payments are more than 90 days delinquent; and total credits to the accounts are insufficient to cover interest charges over a three-month period; or the maturity date has passed and impaired loans and they are considered as these types of loans as “problem loans”. As a consequence, these explanations are used interchangeably throughout the study. Loans that payment have not been made.

According to Fofack (2005), the phrases "bad loans" and "nonperforming" are interchangeable, and nonperforming loans are those that have been in default on their principal and interest payments for an extended period of time in violation of the terms and circumstances of the loan contract. For this reason, it follows from the concept of performing loans that any credit facility that is past due in terms of both principle and interest payments

According to the Ethiopian banking business direction, non-performing loans are advances or

loans whose credit quality has declined to the point that full repayment of the principle and/or interest under the agreed-upon conditions of the loan or advances in issue is no longer possible (NBE, 2008).

Additionally, it indicates that advances or loans with predetermined repayment plans are nonperforming when the principle and/or interest are past due and not collected for 90 days in a row or according to the Determinants of Non-Performing Loans in Ethiopian Commercial Banks. Beyond the due date or maturity (Page 11 more) (NBE, 2008)

2.1.2. The impact of NPL on the Operation of Commercial Banks

The rate of NPLs is by far the biggest factor that negatively affects bank profitability and survival. This is true since NPLs significantly lower loan growth rates, lowering bank profitability because they coincidently lower loan quantities and interest profit. 2016(Ugoani). The lending institution must regard credit losses(bad debt/ impairment) and charge for them in agreement with National Bank of Ethiopia norms, which ultimately lowers the position of profit. Away from this, the incapability to return loans' principal and interest on time and in full reduces the interest profit that banks admit from extending additional credit, which has a negative impact on their capacity to remain profitable. In the banking assiduity, NPLs are mischievous to the bank's character. A diminished character will drive down important guests and force them to seek out other institutions. This will really lead to smaller deposits, which will reduce lending. (Onchomba, 2014). In addition, NPL can beget bankruptcy Banks kept only some plutocrat deposits as a reserve; the rest is advanced out. However, the bank will effectively be insolvent, If the bowed character due to NPLs results in a pullout of deposits of big guests.

2.2. Empirical Reviews

According to empirical studies, there are two orders of causes of non-performing loans macroeconomic factors and bank-specific factors. Although some exploration focuses solely on macroeconomic or bank-specific issues, the maturity of studies includes the two sets of variables

2.2.1. Bank specific factors

Bank-specific variables are the elements that defined particular banks. These variables can be affected by managerial choices, which are typically linked to the unique policy decisions made by a certain bank in an effort to increase efficiency and enhance risk management. The distinctive features of the banking sector and the policy choices of each particular bank with

respect to their efforts for maximum efficiency and improvements in their risk management are expected to exert a decisive influence on the evolution of NPLs (Onchomba, 2014). Some of the bank specific determinants of NPLs are as follow;

2.2.2. Capital Adequacy Ratio

Bank-specific variables are the rudiments that defined particular banks. These variables can be affected by directorial choices, which are generally linked to the unique policy opinions made by a certain bank in trouble to increase effectiveness and enhance threat operation. The distinctive features of the banking sector and the policy choices of each particular bank with respect to their sweats for maximum effectiveness and advancements in their threat operation are anticipated to ply a decisive influence on the elaboration of NPLs (Onchomba, 2014). Some of the bank-specific determinants of NPLs are as follow Capital is the difference between all means and all arrears. It's the quantum of our own plutocrats that's on hand to support the bank's operations and serve as a safety net in delicate times. The capability of the company to have privileged liability is demonstrated. The quantum of capital that banks must have in order to be suitable to repel pitfalls including credit, request, and functional pitfalls they're exposed to in order to absorb possible losses and guard the bank's debtors is known as capital acceptability. A measure of a bank's overall fiscal health is its capital acceptability. It's vital for maintaining soundness of the banking system since it acts as a bumper against fear or bank run or misgivings (Keovongvichith, 2012). Capital acceptability is a measure of the overall fiscal Strength of a bank. The acceptability of capital is judged on the base of the rate of total capital equity to total means (capital/ asset). It's extensively accepted in literature that low capital acceptability rate is associated with advanced probability of loans dereliction, because it induces the bank directors to involve in more parlous systems. The evidence of this statement was set up in(Berger and DeYoung, 1997) USA banks analysis result of thinly subsidized banks takes increased portfolio threat, which results in advanced situations of problem loans in the future, which supports moral hazard proposition developed by them. Still, Louzis etal.(2010) in his study examined the determinants of NPLs in the Greek fiscal sector using dynamic panel data model and set up as capital acceptability rate had insignificant effect on NPLs. According to Makri etal.(2014), there's negative relationship with NPLs indicating a parlous loan portfolio is marked by a high NPL(original to high credit threat). Still, Djiogap and Ngomsi(2012) set up positive association between NPLs and capital acceptability rate. Ahmad and Ariff(2007) in theirmulti-country study of bank credit threat determinants reported that in Japan, Malaysia, and Mexico,

capital is significantly appreciatively related to credit threat. They attribute their finding to the demand from banks to increase their capital as a bumper to absorb implicit losses that might arise from an increase in credit threat. On the other hand, the experimenters report a significant negative relationship between bank credit threat and capital in Australia and India. This result shows that relationship between capital and bank credit threat is controversial and not invariant in each country.

2.2.3. Efficiency of bank

We may state that a bank is doing its duties effectively if all of its business operations are carried out at a reasonably cheap cost. According to Berger and DeYoung (1997), the cost effectiveness of commercial banks in the United States has declined.

States would have an impact on the rise of upcoming loan defaults. Managers that struggle with operating expenditure and loan portfolio management encounter this problem.The caliber of a bank's assets may affect efficiency and stability and is a strong predictor of bankruptcy signs. Mester (1996) and Berger and DeYoung (1997) have both written on the significance of non-performing loans. These studies all show how NPLs affect banks' efficiency. According to Berger and DeYoung (1997), the primary flaw in research that analyzes the effects of NPLs is their presumption that NPLs are a controllable variable as opposed to an unfavorable outcome that directly influences the manufacturing process.

When efficient banks are examined, however, an increase in cost efficiency is followed by a spike in loan defaults, supporting the skimping hypothesis (a spike in loan defaults occurred when banks chose to spend less money on underwriting and have a close look at loans in the short term at the risk of having loan performance issues in the near future). Ekanayake and Azeez (2015) investigated the variables influencing NPLs in Sri Lanka's banking industry from 1999 to 2012 and came to the conclusion that NPLs are positively correlated with bank efficiency and size. Benthem (2017) looked at the connection between operational efficiency, capitalization, and NPLs in commercial banks. The findings show that operating efficiency rises with NPL levels, suggesting that management practises have an impact on NPLs. Fiordelisiet al. (2011) looked at a number of variables that raised the risk level in EU banks and came to the conclusion that declining efficiency raises banks' risk levels going forward. NPLs in the Greek banking industry are also impacted by efficiency and performance variables (Louzis et al., 2012).

According to Rachman et al. (2018), operating efficiency has no impact on NPLs.

2.2.4. Income diversification

The banks obtain two different sources of income: one from loan operations and the other from noninterest activities, such as trading and derivatives.Banks that earn more money from sources other than interest are more cautious and aim to reduce their risk by making very few investments in high-risk assets. Because of this, these banks' loan performance is better, demonstrating the aforementioned inverse link between NPLs and income diversification (Ghosh, 2015). Contrarily, Hu (2002) asserted that there is no connection between NPL and income diversification. Income diversification, bank capital, and other banking characteristics were all examined by Rachman et al. (2018) in relation to the NPLs in Indonesia.

Their research showed that these parameters have no bearing on NPLs, although there was a bad connection found between NPLs and income diversification.

2.2.5. Inflation Rate

For the average population, inflation is something they deal with on a daily basis. Even if the rate of fall or growth fluctuates, the degree of inflation occasionally generates unrest. Inflation, according to Coibion (2020), already has a defined concept in the literature on monetary science. What is often referred to as inflation (inflation) is a range of circumstances resulting from a persistent rise in the level of all prices. The short-term 'moment' changes of the overall price level are not the same as inflation in this sense. The population of a country and how production elements are distributed may all be impacted by inflation. The equity effect is the impact on income distribution, whereas the allocation of production factors and the impact on national income are a negative correlation between the both the quantity of problematic loans as well as inflation, a gauge of price stability. This is due to the fact that during inflationary periods, the real value of payments a borrower must make to settle their debts to credit institutions reduces. (Kurumi and Bushpepa, 2017) Periods.

However, Anjom and Karim (2015) discovered that inflation had a negative association. According to Nkusu (2011), inflation can have a positive or negative impact on a borrower's ability to repay a loan. Higher inflation can improve a borrower's ability to repay a loan by lowering the real value of their outstanding debt; however, higher inflation can also worsen a borrower's ability to repay a loan by lowering their real income when their salaries are fixed.

2.2.6. Bank size

Salas and Saurina (2002) found that fast credit expansion, bank size, capital ratio, and market strength all contribute to the diversity in problem loans in Spanish commercial and saving banks. Credit expansion has a very substantial and advantageous effect on issue loans, according to Das and Ghosh's 2007 research.

The findings of Misra and Dhal (2010) and Das and Ghosh (2007) are comparable. They have discovered a benefit associated with bank size. Their defence is that because of the balance sheet limitation, large banks are more likely to have proportionately more NPAs. However, Hu et al. (2006) found that the size of the bank had a negative correlation with NPLs.

2.3. Conceptual framework

For the phenomenon of non-performing loan and factors affecting its performance to be studied empirically, there is the need for a conceptual framework that pulls together the concepts of non-performing loan and factors affecting its performance. Non-performing loan assumed to influence by factors such Efficiency of bank, Capital Adequacy ratio of bank, income diversification of the bank, Inflation rate and bank Size. The conceptual framework gives the study's focus on certain variables a foundation. These variables were selected based on the literature reviewed from pervious similar studies in different context. Therefore, the conceptual framework portrayed the relationship between dependent and independent. The conceptual frame work which describes the relationship between NPL with internal bank factors based on the theoretical and empirical perspectives will be formulated as follows:

INDEPENDENT VARIABLES **DEPENDENT VARIABLE**

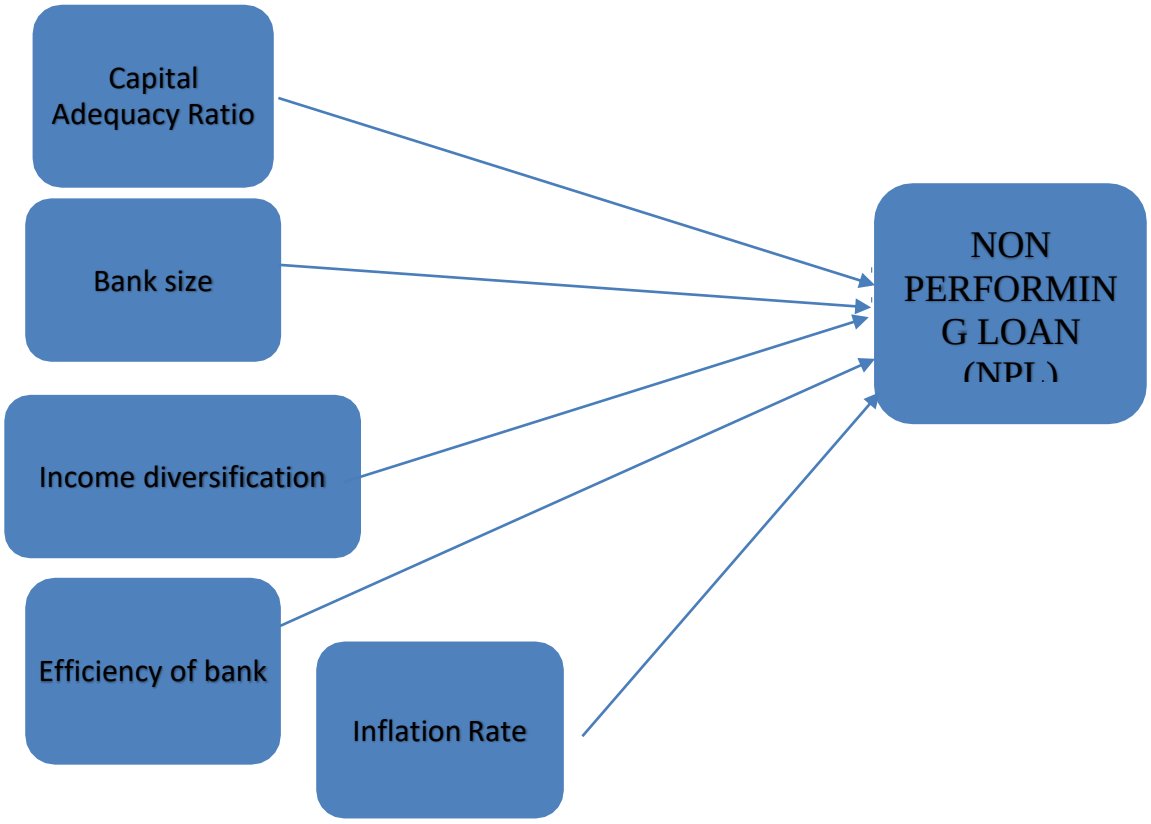

Figure 1 conceptual framework

2.4. Literature Gap and Hypothesis Development

The hypotheses of this study were formulated by referring to the existing theories and past empirical studies that have been conducted on the determinants of banks loan repayment performance. The majorities of the studies have identified determinants of NPL in commercial bank of Ethiopia. But the results of the variables used are different and also some variables are not covered in most of the studies. In addition to this most of the studies didn't show the current impact of the determinants on NPLs. Beside to this the study formulated the following hypotheses

H_1: Bank capital has a positive association with NPLs.

H_2: Bank efficiency has a positive association with NPLs.

H_3: Size of the bank has positive effect on NPL

H_4: Income diversification has a positive association with NPLs.

H_5: Inflation has a positive association with NPLs.

CHAPTER 3 METHODOLOGY

3.1 . Introduction

The techniques and research methodologies used during the whole data gathering process are described in this section. It also demonstrates the methods employed and the justifications behind them. This chapter focuses on the research design, population and sample design, data sources and types, data collecting tools, model formulation, and ultimately, a description of the study variables and their anticipated sign for the variable employed in this particular study.

3.2 . Background of CBE

The State Bank of Ethiopia was founded in 1942, and that is when the Commercial Bank of Ethiopia (CBE) began. In 1963, CBE became a legally recognized share corporation. The privately held Addis Ababa Bank and CBE amalgamated in 1974. Since then, it has significantly contributed to the nation's progress. CBE was the first organization to provide modern banking to the nation. Over 1280 of its branches are spread out over the nation. Having assets of 565.5 billion Birr as of June 30, 2018, the largest bank in Africa plays a catalyst function in the nation's development & economic growth.. The first bank in Ethiopia to introduce ATM service for local users. Currently, CBE has more than 18.8 million account holders and the number of Mobile and Internet Banking users also reached more than 1,736,768 as of June 30th 2018. Active ATM cardholders reached more than 4.4 million. As of June 30, 2018, 1708 ATM machine and 11,796 POS machines were available.

It has a strong correspondent relationship with more than 50 renowned foreign banks like Commercial Bank A.G., Royal Bank of Canada, City Bank, HSBC Bank... CBE has a SWIFT bilateral arrangement with more than 700 others banks across the world.

CBE combines a wide capital base with more than 33,000 talented and committed employees. Pioneer to introduce Western Union Money Transfer Services in Ethiopia early 1990s and currently working with other 20 money transfer agents like Money Gram, Atlantic International (Bole), Xpress Money.

CBE has opened four branches in South Sudan and has been in the business since June 2009. CBE has reliable and long-standing relationships with many internationally acclaimed banks throughout the world

3.3. Research Design and Approach

That can be the focus for future research. It also helps to collect detailed and information that describe an existing phenomenon. Secondly, an explanatory method was selected since it seeks to determine the relationship between explanatory variables (factors group) non-performing loan, and how non-performing loan affects profit of CBE. A quantitative approach was used because it is relatively economical, easier to render and quicker for respondents to answer. The other reason is that the data gathered can be numerically measured using statistical tools, resulting in sharp, clear findings. The study has also used an unstructured interview to get data from human resource expert.

Qualitative approach also used in this particular research. Qualitative approach usually emphasizes words rather than quantification in the collection analysis of data (Bryman and Bell, 2011). It predominantly emphasizes an inductive approach to the relationship between theory and research, in which the emphasis is placed on the generation of theories; has rejected the practices and norms of the natural scientific model and positivism in particular in preference for an emphasis on the ways in which individuals interpret their social world; and embodies a view of social reality as a constantly shifting emergent property of individuals‟ creation.. Mixed methods approach is the type of research approach in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and for the broad objectives of breadth, depth, and corroboration (including both qualitative and quantitative views, data collection, analysis, and inference methodologies) (Burke et al., 2007). To this end, the mixed research approach is chosen to obtain information on the non-performing loan. In addition, empirical evidence from the CBE's human resource directorate was used for the following reasons: triangulation, complementarily, and expansion. Triangulation is the process of examining and evaluating data from several sources such that a study's conclusions are based on the convergence of that data. When two things are complementary, "overlapping and different facets of a phenomenon may emerge and expansion adds scope and breadth to a study" (Cress well, 1994) are meant.

3.4. Unit of Analysis

The main thing being analysed in a research is called the unit of analysis. It is the 'what' or 'who' that is being investigated. In terms of the analytical unit, this study primarily focuses on CBE

workers, particularly those who work in lending and associated fields..

3.5. Target Population and sample

A population is defined as "the entire group of people, events, or thing of interest that the researcher wishes to investigate" by (Sekeran, 2001), as referenced in (Hirut S.2015). The target population of this study is employees working at CBE particularly employees working in Addis Ababa with bank engaged in loan and related activities. The respondents of the study include the lower and middle working group of employees as well as the top managers of the bank. The banks with CBE particularly those banks engaged in loan and related activities were selected purposely due to its convenient for data collection and analysis. The study was conducted on all employees working within CBE particularly those of employees involved in credit analysis and appraisal, credit monitoring and credit risk management and consists of 120 employees that 65 selected from grade 3, grade 4 and grade 5 while the remaining 55 were selected from head office. It fundamentally covered a panel data of Commercial Bank of Ethiopia (CBE) with grade 3, 4 and 5 is selected as a sample. It expected that all respondents have ample experience and level of education implying that the respondents have enough knowledge about the CBE and issues relating to loan and related activities.

3.6. Data Source and Type

Both primary and secondary data sources will be used in this research. According to Leed & Ormrod (2005) data is said to be primary if it is collected first hand by researcher for a Determined purpose. The primary data was collected by use of questionnaires that was administered to 120 employees who expected to possess the requisite knowledge of the subject matter. According to Saunders et al., (2007) secondary data are data that originally collected for some other purpose. The secondary data will be obtained from up-to-date information from articles, websites, publications, books and presentations among others. These secondary sources did help the researcher to identify how others have defined and measured key concepts; how this research works is related to the work of others. It also helps the researcher to interpret, analyze and draw conclusions about events described in primary sources

3.7. Method of Data Collection

Before embarking on the data collection, the researcher made preliminary contacts with the respondents to explain the rationale for the exercise. The respondents will be informed the

exercise is for academic purposes and confidentially will be assured and no one will fall a victim because of any adverse findings in connection with their professional duties. This is done in order to motivate them to give their responses without reservation. Proper data for the study was collected via the use of data collection instruments such as questionnaire and interviews guide.

3.8. Data Collection Instruments

According to Ahmed (2014), questionnaire is a powerful evaluation tool in behavioral sciences. A well-designed tool has the potential to be highly dependable and effective. The questionnaire forms will be structured to facilitate easy and short answering of questions by the respondents and respondents were given enough time to give their feedback. Employees of the bank were approached for their views on the effect of explanatory variables by using well-structured questionnaire. The open- ended section of the questionnaire served to explore any additional factors that they thought were important, but not included in the questionnaire. Besides that, the respondents were also asked to highlight their recommendations and comments on factors that that affects the non-performing loan through an open-ended question in addition to factors grouped stated in questionnaire.

3.9. Method and Data Analysis

All completed research instruments were put together once the data collection activity was over, coded, summarized, input into the computer, and then analyzed using the Statistical Package for Social Science (SPSS version 27), STATA, and MS-Excel. As part of its aim, this study analyses the effect of capital adequacy, bank size, income diversification bank efficiency and inflation on non-performing loan. To achieve this aim, descriptive and inferential statistical techniques were used. Descriptive statistics such as frequency and percentage were used to analyze the data. The data gathered are also presented using tables and figures. The analysis of data is followed by descriptive interpretation of findings. In addition, the data which has been collected through the key informant interview is summarized and presented with descriptive report. Inferential statistical analysis such as correlation and multiple linear regression analysis were also use to determine the relationship between the independent variable and dependent variable.

3.10. Operationalization of Variables

As per conceptual framework in figure 1 above, motivation and the factors influencing motivation can be considered as the independent variables while improved organizational

performance as the depend invariable. The independent variables will influence the dependent variables which is organizational performance. The assumption is that when there is good leadership, conducive working environment, opportunity for career development, attractive compensation and benefit packages, there will be enhanced employee performance and Improved organizational performance due to reduced work stoppages, improved service delivery, reduced absenteeism, reduced employee turnover.

3.10.1. Independent Variables (factors affecting non-performing loan)

The independent variables include bank size, bank efficiency, inflation, income diversification and capital adequacy. For brief explanation each independent variable sees section 2.3.

3.10.2. Model Specification

A statistical method known as multiple regression analysis is used to calculate the association between one or more independent variables and one dependent variable. To determine significant a factor from possible explanatory variables, a Multiple Linear Regression (MLR) model was adopted. The variables were regressed using a model and all coefficients were interpreted. The MLR model for this specific research is given by:

NPL = f (BE, CAR, DIV, INFL, and BZ).....(1)

Specifically

$$Y = \beta_0 + \beta_1 (BE) + \beta_2 (CAR) + \beta_3 (DIV) + \beta_4 (INFL) + \beta_5 (BZ) + \varepsilon \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (2)$$

Where: Y = Dependent Variable (NPL = Nonperforming loan ratio of bank), BE = Efficiency of bank, CAR = Capital Adequacy ratio of bank, DIV= income diversification of the bank, INFL = Inflation rate of bank, BZ = Bank Size.

In the model, β_0 = Constant, β_1 to β_6 = Regression coefficients represent the mean change in the dependent variable for one unit of change in the independent variable while holding other independent variables in the model constant and ϵ = Error term which captures the unexplained variation in the model.

For Multiple linear regression models to valid the following assumptions should be fulfilled

- The regression model is linear in the coefficients and the error term
- The random error term ε is normally distributed and has an expected value of zero and a constant variance σ^2.

- Observations of the error term are uncorrelated with each other
- No independent variable is a perfect linear function of other explanatory variables (there is no multicollinearity problems)

3.10.3. Diagnostic and Stability Test

Test for Serial Correlation

Kirchgassner and Wolters (2007) argue that serial correlation occurs when error terms from previous periods affect future time periods. To test for serial correlation of the residuals, the Breusch-Godfrey test, also known as the Lagrange Multiplier test, will be used. This is a test of the null hypothesis that there is no serial correlation up to lag order p.

Test for Autocorrelation

Autocorrelation will be examined to determine the level of correlation between the values of the same variables across different observations in the data. The residuals (prediction errors) from a regression analysis will be tested for the presence of autocorrelation at lag 1 using the Durbin-Watson statistics

Test for Heteroscedasticity

Basically, heteroscedasticity refers to a situation in time series data where the error terms have different scatterplots irrespective of the value of the explanatory variable (X). ARCH test, which involves the auxiliary regression of the squatted residuals on the original regresses and all their squares, was used to test for hereroscedasticity. This test simply determines whether or not the estimated variance of the error (residual) terms is dependent on the values of the regresses explanatory variables (Harvey, 1990).

Test for Correct Model Specification

In order to test for the likelihood of incorrect model specification, that is, whether the model has omitted certain variables, has incorrect functional form, or there is correlation between explanatory variables and the residuals, the Ramsey Regression Error Specification test (RESET) will be used.

Test for Normality

One important assumption that underpins classical linear regression is that of normality in the residual terms. As other parametric testes in statistic and econometric tests, the collected data is

assumed to be normally distributed, i.e., bell-shaped, symmetric density curved and single-peaked. Indeed, these error terms are expected to be normally distributed around a zero mean and constant variance. The Jarque-Berra statistic for normality was used to determine whether the sample data have the skewness and kurtosis matching a normal distribution.

Multicollinearity

When two or more explanatory variables in a multiple regression model are significantly linearly connected, or when one can be linearly predicted with a significant degree of accuracy from the others, this is referred to as multicollinearity. While it is good to have a relationship between dependent and independent variables, it is not recommended to have relationship between independent variables (Asthana & Bhushan, 2016). VIFs exceeding 10 are a sign of serious multicollinearity requiring correction and VIF results exceeding 4 needs further investigation for further multicollinearity (Asthana & Bhushan, 2016).

3.11. Validity and Reliability of the Research Instruments

The validity and reliability of the questionnaire were tested. According to Watling, as reported in WWinter (2000), reliability and validity are instruments of an epistemology that is inherently positivist. The relevant literature indicates divergence in the definitions of reliability and validity on the grounds that

reliability tests show whether the result is replicable while validity tests show how accurate the means of measurement is and whether they are actually measuring what they are intended to measure. A validity test shows the extent to which a measure or a set of measures correctly represents the concept of the study (Buttle, 1995). According to Golafshani (2003), research validity evaluates if it accurately measures what it set out to assess or whether the findings are accurate. Does the research instrument enable you to strike "the bull's eye" of your study object, in other words? A reliability test was performed on the data that was gathered. Field (2005) interprets a Cronbach's α greater than or equal to 0.7 as implying the instrument provides a relatively good measurement tool hence reliable. In this research the most popular test of interterm consistency reliability that is the Cronbach's coefficient alpha will be used as part of the reliability test to assess how valid the results were and should produce similar generalized results if the sample size were increase. The Alpha value ranges from a maximum of 1.0 for a perfect score to minimum of zero. Scales with a coefficient alpha between 0.80 and 0.96 are regarded as having very good reliability, those with a coefficient alpha between 0.70 and 0.80 are

regarded as having good reliability, those with a coefficient alpha between 0.60 and 0.70 have regarded as having fair reliability, and those with a coefficient alpha below 0.60 are regarded as having poor reliability, according to William and Barry (2010).

Two validity tests were assessed; face validity test and internal construct validity. Keeping in mind that respondents have ample knowledge about the subject matter under consideration, questionnaire will be developed based on past model and literature review to ensure the validity of the result. A pilot survey was conducted to test the face validity of the study instrument. To this end, first draft questionnaire will be administered to 15 employees and they were asked to make any comments on questions or terms which were unclear or ambiguous. Then the questionnaire was adjusted and administered to research advisor and an expert in research to ascertain the items suitability in obtaining the required information as per the objective of the study. This process will assist in eliminating any potential problems of the research instrument. Their feedback will be used to remove vague questions, double barreled questions and to improve the research instrument that was then adopted in the survey. Finally, a pre-tested translated questionnaire was be available to make sure that respondents who use local language are involved without any problem. The data will be collected in a short period of time to guarantee of no big change happened on the related topic under close supervision of researcher.

The degree to which a test or assessment captures what we truly want to capture is known as validity (Kothari, 2004). To check the validity, the researcher first reviewed an extensive literature to develop survey questionnaire. The survey questionnaire and research method are also revised and commented by loan officer and business administration to ascertain the items

Suitability in obtaining the required information as per the objective of the study. In addition, the Prior to using the questionnaire, pilot test was conducted on 15 respondents to check the questionnaire structure, sequence, meaning and ambiguity of developed questionnaire. The observations from pilot test and feedback obtained from the loan officer and business administration as well as research supervisor was incorporated and the final questionnaire was developed. Reliability refers to the extent to which the data collection techniques or analysis procedures will yield consistent findings (Saunders et al, 2007). In this research the most popular test of interitem consistency reliability that is the Cronbach's coefficient alpha was used as part of the reliability test to assess how valid the results were and should produce similar generalized results if the sample size were increase. The Alpha value ranges from a maximum of 1.0 for a

perfect score to minimum of zero Scales with a coefficient alpha between 0.80 and 0.96 are regarded as having extremely excellent reliability, according to William and Barry (2010)., between 0.70 and 0.80 are considered to have good reliability, and alpha value between 0.60 and 0.70 indicates fair reliability and when the coefficient alpha is below 0.60, the scale has poor reliability. The Cronbach's alpha value of each variable is listed in below. As indicated in table 3.1 below the Cronbanch's alpha value for each variable and overall Cronbach's Alpha Value is greater than 0.7, which means all items are reliable and data has internal consistency and acceptable for further analysis.

Table 3.1: Cronbach's Alpha Value Summary

Variables	Cronbach's Alpha Value	Items Cronbach's Alpha
Capital Adequacy	0.897	5
Bank Size	0.723	5
Income Diversification	0.79	5
Bank efficiency	0.993	5
Inflation	0.995	5
Non-performing Loan	0.692	5
Overall **Cronbach's Alpha Value**	0.986	6

CHAPTER 4 DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1. Introduction

This chapter presents a detailed analysis of data collected from a field survey via the administration of the questionnaire Its goal was to examine the characteristics unique to particular banks that determine non-performing loans in align with the research objectives, questions, and hypothesis. The collected data were classified, organized and analyzed using SPSS, STATA and MS-Excel.

4.2. Response Rate

A total of 120 questionnaires were distributed to employees of the Commercial Bank of Ethiopian working city Addis Ababa particularly Banks that engaged in loan and related activities out of which 113, representing 94.16% of the respondents were returned properly and adequately completed. It was clearly supported within literature that response rate 50% is adequate, 60% response rate is good and 70% rate or higher is very good (Crimp and Wright, 1995). Therefore, the analysis is done on the 94.16 % of response rate is considering sufficient to conduct the study.

4.3. Demographic Analysis of Respondents

This section provides a brief review of respondents' profile to give a summarized picture of the respondents. The respondents' profiles are aggregated by sex, age, level of education, experience and basic salary of workers. The output obtained from the analysis is indicated in table 4.2 below.

Table 4.2: Summary of Respondents' Profile

Variables	Category	Frequency	Percentage
Sex of Respondents	Male	66	58.407
	Female	47	41.593
Current Position in CBE	Loan Officer/Senior Officer	34	30.088
	Appraisal Officer	11	9.735
	Credit principal	24	21.239
	Credit process manager	29	25.664
	Rehabilitation Officer	15	13.274
	Vice President of Credit	0	0.000
Experience in banking Industry	1-5 years	31	27.434
	6-10 years	40	35.398
	11-15 years	37	32.743
	above 15 years	5	4.425

41.6% of the 113 valid replies had a female and 58.4% a male gender breakdown. This demonstrates how primarily male personnel work in the CBE's credit process. In light of this, it may be said that the Bank favors hiring men for positions connected to loan progression. With regard to current position in CBE for personnels working in Loan and related activities, the survey indicated that 30.1% ,9.7%, 21.2 %, 25.7 % and 13.3 % of the respondents were loan officers, Appraisal office, credit principal, Credit process manager and rehabilitation officers. the output of the analysis showed that 27.4% respondents have 1 to 5 years of banking experience while the survey results indicated that 35.7 percent of respondents said they had worked in banking for 6 to 10 years, 32.7 % said they had worked in banking for 11 to 15 years, and 4.4 % said they had worked in banking for more than 15 years. This indicates that the survey's respondents had good experience in the banking industry.

4.4. Analysis and Interpretation of Data

In this section, the data collected from respondents are discussed and interpreted to identify the prevailing problems and forward possible recommendations based on the findings of the study Below are statements, tables and showing frequency, percentage, correlation and regression analysis output with their explanation.

4.4.1. Capital Adequacy, bank size, income diversification, bank efficiency and inflation and non-performing loan

This sub-section highlights the relationship between independent (i.e., Capital Adequacy, bank size, income diversification, bank efficiency and inflation) and dependent (i.e non-performing loan) variables. The output obtained from the analysis regarding Capital Adequacy is indicated in table 4.3.

Table 4.3: Responses regarding Capital Adequacy, bank size, income diversification, bank efficiency and inflation and non-performing loan

Variables	Level of Agreement	Frequency	Percentage
Capital Adequacy	Strongly Disagree	3	0.53
	Disagree	35	6.21
	Neutral	145	25.71
	Agree	236	41.84
	Strongly Agree	145	25.71
Bank Size	Disagree	33	5.86
	Neutral	164	29.18
	Agree	244	43.41
	Strongly Agree	122	21.71
Income Diversification	Strongly Disagree	2	0.44
	Disagree	13	2.88
	Neutral	109	24.17
	Agree	213	47.23
	Strongly Agree	114	25.28
Bank Efficiency	Strongly Disagree	1	0.18
	Disagree	16	2.84
	Neutral	127	22.52
	Agree	232	41.13
	Strongly Agree	188	33.33
Inflation	Disagree	19	4.90
	Neutral	132	34.02
	Agree	237	61.08
Nonperforming loan	Strongly Disagree	1	0.18
	Disagree	2	0.35
	Neutral	153	27.08
	Agree	268	47.43
	Strongly Agree	141	24.96

The respondents were asked to indicate whether non-performing loans is influenced by the bank's capital adequacy position and the results indicated in table 4.3 more than two-third of respondents (67.51% - 41.84% agree and 25.71% agreed) indicated that bank capital adequacy ratio affects non-performing loan of the bank. However, the capital adequacy ratio depends on the size of bank. In our study, the majority of the respondents (43.41%) agrees and strongly agrees (21.71%) that the size of the bank is a crucial determinant in assessing their NPLs. The analysis result the response obtained from the respondents regarding income diversification also indicated in table 4.3. It is essential to consider the effect of income diversification on non-performing loan. As shown in table 4.3, 72.51(47.23 % agree, 25.28 % strongly agree) of the respondents believed income diversification reduces non-performing loan of CBE. In addition to income diversification, the bank efficiency is the major factors that affects non- performing loan. In our study the efficiency in processing loans has an impact on CBE's non-performing loan ratio. In this regard 41.13% respondents agreed that the bank efficiency affect non performing; meanwhile 33.33% strongly agreed, 2.84 % disagreed, 0.18 % strongly disagreed and 22.52% are neutral with the statement. Moreover, as shown in table 4.3, 61.08 % respondents agreed that the bank's non-performing loans are affected by inflation; meanwhile, 4.90% disagreed and 24.17 % are neutral.

4.4.2. Rank of factors group (explanatory variables

In this study, 25 causes of non-performing loan were identified and categorized under five major factor groups (Bank Efficiency, Inflation. Capital Adequacy, Income Diversification and Bank Size factors group). Table 4.4 shows the ranking of causes (groups) of non-performing loan by all respondents (combined) with their corresponding average and standard deviation. Bank Efficiency factor group was ranked highest by all respondents with an average of 3.31 and standard deviation = 1.46. This is followed by Inflation factor group, which is ranked second with an average 2.63 and standard deviation = 1.62. Capital Adequacy factors group, and Income diversification factors group factors group were ranked third, and fourth with an average of 2.35, and 2, respectively. The last group ranked was Bank Size factors group with an average and 1.82 and standard deviation =1.45.

Table 4.4: Ranking the factors group at CBE

Variable	Mean	Standard Deviation	Rank
Bank Efficiency	3.13	1.46	1
Inflation	2.63	1.62	2
Capital Adequacy	2.35	1.61	3
Income Diversification	2	1.54	4
Bank Size	1.82	1.45	5

4.5. Inferential statistics

The inferential analysis section includes correlation and regression analysis to assess the relationship between independent variables (Capital adequacy, Bank size, Income Diversification, Bank efficiency and Inflation) and dependent variable (non-performing loan).

4.5.1. Correlation between independent and dependent variables

Correlation is a statistical measure that indicates the extent to which two or more variables move together. A positive correlation shows how much those variables change simultaneously, whereas a negative correlation shows how much one variable changes when the other does, or vice versa. The values of the correlation coefficients range from -1 (negatively correlated) to 1(positively correlated). The sign of the correlation coefficient defines the direction of the relationship. The absolute value indicates the strength of the correlation (Field, 2009). Dancey and Reidy (2004) stated that a correlation result which is 0 indicates zero correlation, a result between 0.1 and 0.3 indicates a weak correlation among variables, a result which is between 0.4 and 0.6 shows a moderate correlation, a result between 0.7 and 0.9 indicates a strong correlation among variables while a result which is equal to 1 indicates a perfect correlation. To this end correlation between relationship between independent variables (Capital adequacy, Bank size, Income Diversification, Bank efficiency and Inflation) and dependent variable (non-performing loan) were performed using Pearson correlation analysis to see if there is the association between

variables. And the result is indicated in table 4.5.

Table 4.5: Pearson Correlation Matrix between independent variables and dependent variable (non- performing loan)

	Nonperforming Loan	Capital Adequacy	Bank Size	Income Diversification	Bank Efficiency	Inflation
Nonperforming Loan						
Capital Adequacy	0.55					
Bank Size	0.47	0.60				
Income Diversification	0.57	0.27	0.54			
Bank efficiency	0.47	0.48	0.27	0.21		
Inflation	0.41	0.31	0.14	0.17	0.15	

As shown in Table 4.5, all explanatory variables have a positive relationship with non-performing loan although the strength of the relationship varies across the six motivational factors. All explanatory variables have moderate correlation with dependent variable (non-performing loan). The strongest correlation being shown between Income Diversification and non-performing loan (0.57); followed by Capital Adequacy (0.55). The remaining two factors namely Bank Size and Bank efficiency have 0.47 (moderate) relationships with non-performing loan each respectively. Thus, it is possible to conclude that explanatory variables have a positive relationship with non-performing loan which indicates that the lower capital adequacy, bank size, income diversification and Bank efficiency the CBE has the lower non-performing loan.

4.5.2. Diagnostics tests

Based on previous models, literature reviews and experts' opinion in research we identified 25 explanatory variables and categorized them into seven factors group. To confirm our assumptions (hypothesis) that those factors group have impact on non-performing loan in group (jointly) and individually we carried out regression analysis. Regression analysis is a statistical approach used to estimate the relationship between one or more independent variables and a single dependent variable. To determine significant factors from possible explanatory variables, a multiple linear regression analysis was adopted. To determine the validity of the regression model, a residual analysis need to be performed (Field 2005). It is, therefore, necessary to examine the validity and reliability of all model-based inference procedures before the regression

model is used to determine the impact of independent variables on the dependent variable. The following tests were conducted so as to ensure the appropriateness of data to assumptions regression analysis.

4.5.2.1. Linearity Test

Linearity defines the dependent variable as a linear function of the predictor (independent) variables (Darlington, 1968). When the link is linear in character, multiple regressions can properly predict the relationship between the dependent and independent variables (Osborne & Waters, 2002). According to some academics, this assumption is crucial since it directly affects how biassed the whole study' conclusions would be (Keith, 2006).If linearity is violated, all the estimates of the regression including regression coefficients, standard errors, and tests of statistical significance may be biased (Keith, 2006). If the relationship between the dependent and independent variables is not linear, the results of the regression analysis will under- or over- estimate the true relationship and increase the risk of errors (Osborne & Waters, 2002). For this purpose, we use of theory method that can easily be adopted, considering sufficient empirical evidences (in the literature) that link between independent variable (factors group) and non-performing loan. To this end we calculated standardized residuals from the regression model and plot them against versus the predicted values so as to detect the violations in linearity. The linearity assumption can best be tested using quantile-quantile(q-q) and percentile- percentile(p-p) plot. Figure 2 visually demonstrates linear relationships between independent and dependent variable since there is no a random scatter of residuals about the vertical line implying that the relationship, we are attempting to predict is linear.

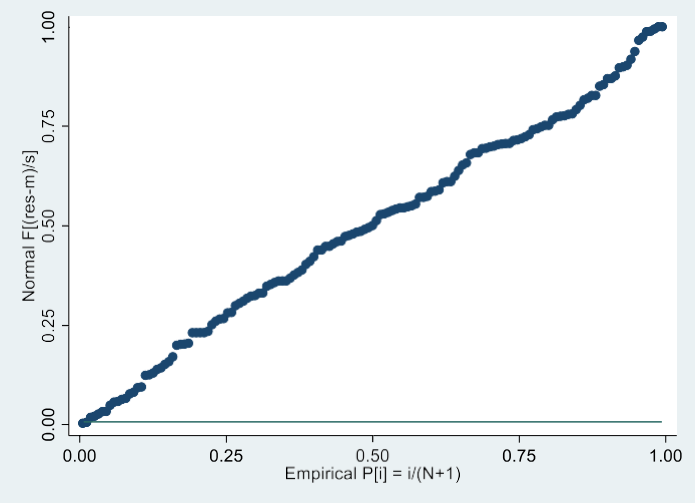

Figure 2 P-P plot of residuals.

4.5.2.2. Normality

According to the central limit theorem, if the sample size is 30 or more; the sampling distribution would tend to be normal irrespective of the population distribution (Field, 2009). Primarily, the large enough sample size (113) of respondents used in this study satisfies the requirement of normality. However, in order to examine the suitability of data for further analysis, graphical methods, such as histograms and normality plots and Jaqbra normality test can be conducted to test whether the current data follows normal distribution or not. Tabachnick & Fidell(2007) indicated that normality test need to be conducted prior to further interpretation of the regression analysis. To this end and histograms an p-p plot of the residual shown in figure 2(above) and figure 3 (below) indicated that the data follows normal distribution. In addition, a visual inspection of the normal.

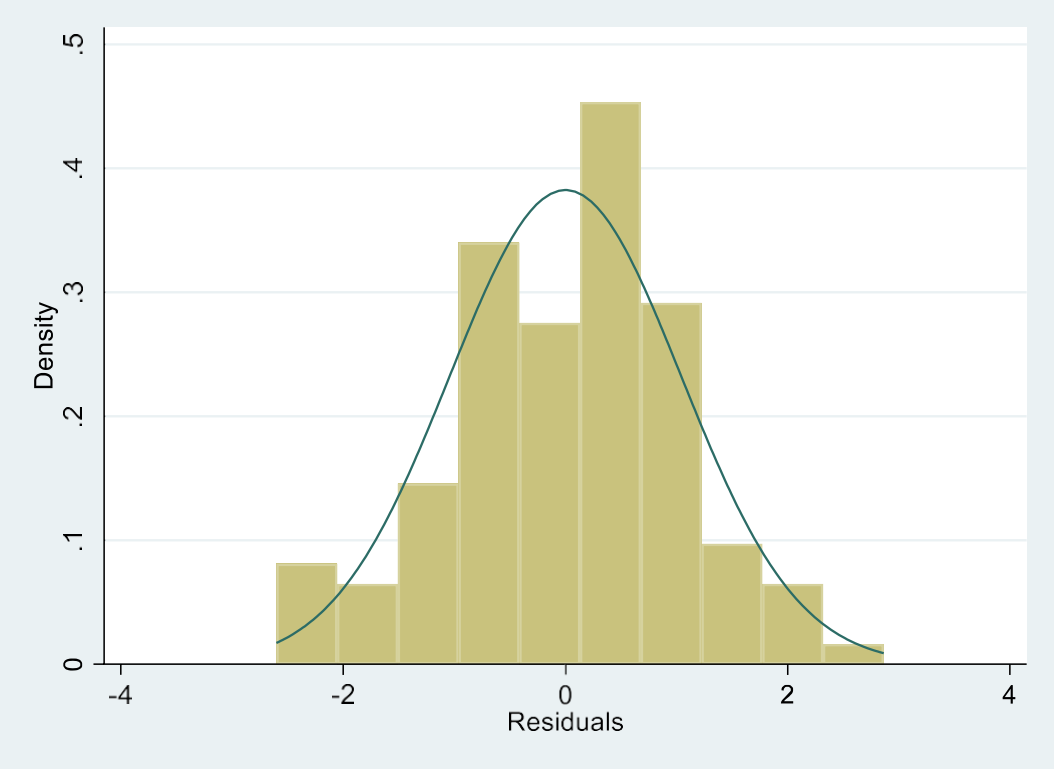

Figure 3 histogram of residuals.

Probability plot (P-P plot) suggested that the residual was almost close to the normal straight diagonal line indicating that the residuals roughly followed a normal distribution (figure 3). However, since visual inspection in most cases are subjective, it is important to conduct formal test. To this end we conducted the Jarque-Bera normality test. The test confirms that residuals were normally distributed (Chi (2) = 1.19, P-value = 0.55 > 0.05). Therefore, no violations of the normally distributed error term assumptions.

4.5.2.3. Multicollinearity

When two or more explanatory variables in a multiple regression model are significantly linearly connected, meaning one can be linearly predicted from the others with a significant degree of accuracy, this is referred to as multicollinearity. While it is good to have a relationship between dependent and independent variables, it is not recommended to have relationship between independent variables (Asthana & Bhushan, 2016).

Table 4.6 Multicollinearity Test Coefficient

Variable	VIF	1/VIF
Bank Size	2.1	0.477028
Capital Adequacy	2.06	0.484369
Income Diversification	1.46	0.682819
Bank efficiency	1.31	0.761168
Inflation	1.14	0.880245
Mean VIF	1.62	

VIFs exceeding 10 are a sign of serious multicollinearity requiring correction and VIF results exceeding 4 needs further investigation for further multicollinearity (Asthana & Bhushan, 2016). The Multicollinearity tests in Table 4.6 above shows the variables with their respective Variance Inflation Factors (VIF) values ranging from 2.1 to 1.14. Therefore, regressions results were assumed to be free from the problem of multicollinearity.

4.5.2.4. Autocorrelation test

The Durbin-Watson, d-statistic (6, 113) = 1.911 is between the two critical values of 1.5 < d < 2.5, so we can conclude that our data does not have a linear first-order autocorrelation problem. However, this test has limitation in testing autocorrelation problem within the data since it only

considers the first order autocorrelation between residuals. Hence to make more reliable generalization we conducted the Breusch-Godfrey LM test. The LM test result indicated that there is no auto correlation problem within our data

Table 4.7. Breusch-Godfrey LM test for autocorrelation

lags(p)	chi2	df	Prob > chi2
1	0.076	1	0.7821

Ho: no serial correlation

4.5.2.5. Heteroscedasticity

The assumption of homoscedasticity refers to equal variance of errors across all levels of the independent variables (Osborne & Waters, 2002). This indicates that researchers take the position that mistakes are uniformly distributed across the variables (Keith, 2006). Berry and Feldman (1985) and Tabachnick and Fidell (2007) contend that while slight heteroscedasticity has little impact on significance tests, marked heteroscedasticity can seriously weaken the analysis and distort results, increasing the likelihood of error. The homoscedasticity assumption can be checked by visual examination of a plot of the standardized residuals against standardized predicted value (Osborne & Waters, 2002). The approach for testing this assumption is to create scatterplots of residuals using independent variables in statistical software (Keith, 2006). In a perfect world, residuals would be evenly distributed and randomly distributed about zero (the horizontal line) (Osborne & Waters, 2002). However, visual inspection is subjective, it is advisable to conduct formal test such as Breusch- Pagan test of heteroskedasticity. To this end, we conducted the test and the Breusch-Pagan test fail to reject the null hypothesis that states constant variance implying that there is no problem of Heteroscedasticity implying equal variance of errors across all levels of the independent variables which is an indication that the assumption of homoscedasticity for the variables has been met (Hair et al., 2010). Therefore, based on tests carried out above it can be safely concluded that there are no major data problems that would lead to a violation of the assumptions of classical multiple regressions. So, for further study, we can use our regression model.

4.6. Regression Analysis Results

4.6.1. Overall test

In Table 4.8, the model summary and overall fit statistics were presented. As shown in this table, the explanatory power of the regression model as indicated by R^2 was 0.5754, which shows that 57.54% of the variation in the dependent variable (non-performing loan) was explained by independent variables.

Table 4.8: Model Summary

Source	SS	df	MS	Number of obs.	=	113
				F (5 .107)	=	29.00
Model	165.15	5	33.01	Prob > F	=	0.000
Residual	12.88	107	1.134	R-squared	=	0.5754
				Adj R-squared	=	0.5555
Total	287.0356	112	2.563	Root MSE	=	1.0673

Moreover, the overall test (F-test) was shown in Table 4.8. The linear regression's F-test conducted to test the null hypothesis that states there is no linear relationship between the dependent and independent variables (in other words $R^2 = 0$). As indicated in Table 4.12, the overall F statistics value of the model (29.00) proved that the model is significant at Prob > F = 0.000 < 0.001 indicating there is strong relationship between independent and dependent variables, that is, explanatory variable jointly affects non-performing loan.

4.6.2. Individual regression coefficient (Beta) test

Furthermore, five factors group (explanatory variables) were entered into the regression equation, with non-performing loan as the dependent variable to test whether an individual effect of factors group is significant or not. Accordingly, the multiple linear regression coefficient estimates, including intercept and significance levels, are shown in Table 4.9. The results show that in the final regression model, all variables except bank size factors group were statistically significant ($P < 0.05$). Parameters must differ significantly from zero (Shumway et al., 2010), and all significant parameters have to be included in the model. Having this reality in mind, our regression model would be:

Non-performing loan (Y) = -0.42 + 0.27* Capital Adequacy + 0.43*Income diversification + 0.24*bank efficiency + 0.21* Inflation

Table 4.9 Regression result of explanatory variables (Factors group) and dependent variable (non-performing loan)

Non-performing loan	Coef.	Std. Err.	T	P>t	[95% Conf. Interval	
Capital Adequacy	0.27	0.09	2.96	0.004	0.09	0.44
Bank Size	-0.01	0.10	-0.06	0.952	-0.21	0.19
Income Diversification	0.43	0.08	5.46	0	0.28	0.59
Bank Efficiency	0.24	0.08	3.09	0.003	0.09	0.40
Inflation	0.21	0.07	3.24	0.002	0.08	0.35
_cons	-0.42	0.28	-1.48	0.143	-0.98	0.14

The most dominant variable affecting non-performing loan is income diversification factor group whose effect is significant and has the largest standardized β coefficient value (0.43). Based on table-4. Income diversification factors group is a variable that has the most dominant effects on non-performing loan. A unit increase in income diversification factor group would lead to a 0.43 increase in non-performing loan, if all other variables kept constant. Similarly, a unit increase in capital adequacy factors group would lead to a 0.27 increase in non-performing loan of a CBE, if all other variables kept constant.

CHAPTER 5 SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS

This chapter comprises discussions associated with the findings of the entire research. This includes a summary of the findings, conclusions, recommendations, and suggestions for further study and contribution to knowledge.

5.1. Summary of Findings

This section comprises a summary associated with findings related to theoretical and empirical findings based on the objectives of this study. The primary objective of this study is to identify factors that affect non-performing loan ratio in case of CBE. Based on the analysis and interpretation made in the previous chapter, the major findings are summarized as follows:

Regarding demographic findings of respondents, the majorities of the respondents are males, degree holders and hold the position of senior credit officer and credit process manager.

The respondents were asked to indicate whether non-performing loans is influenced by the bank's capital adequacy position and the results indicated in table 4.3 more than two-third of respondents (67.51% - 41.84% agree and 25.71% agreed) indicated that bank capital adequacy ratio affects non-performing loan of the bank. However, the capital adequacy ratio depends on the size of bank. In our study, the majority of the respondents (43.41%) agree and strongly agree (21.71%) that the size of the bank is a crucial determinant in assessing their NPLs. The analysis result the response obtained from the respondents regarding income diversification also indicated in table 4.3. It is essential to consider the effect of income diversification on non-performing loan. As shown in table 4.3, 72.51(47.23 % agree, 25.28 % strongly agree) of the respondents believed income diversification reduces non-performing loan of CBE. In addition to income diversification, the bank efficiency is the major factors that affects non- performing loan. In our study the efficiency in processing loans has an impact on CBE's non-performing loan ratio. In this regard 41.13% respondents agreed that the bank efficiency affect non performing; meanwhile 33.33% strongly agreed, 2.84 % disagreed, 0.18 % strongly disagreed and 22.52% are

neutral with the statement. Moreover, as shown in table 4.3, 61.08 % respondents agreed that the bank's non-performing loans are affected by inflation; meanwhile, 4.90% disagreed and 24.17 % are neutral. Moreover, correlation was conducted to see if there is association between independent variable and dependent variable. Regression analysis was also conducted to identify significant factors that affect non-performing loan. However, before using multiple regression model for further analysis, we conducted model diagnostics test to ensure the appropriateness of our regression model. The results indicated that all assumptions of the model were fulfilled implying that there are no major data problems that would lead to a violation of the assumptions to multiple regression model. The output from the regression analysis indicated that there is strong relationship between independent and dependent variables, that is, explanatory variables jointly affect non-performing loan. The analysis also indicated that 57.54% of the variation in the dependent variable (non-performing loan) was explained by independent variables. Moreover, the regression analysis results showed that all explanatory variables except bank size were statistically significant and positively affect the non-performing loan.

5.2. Conclusion

There are many internal factors that influence bank. These factors as used by previous researchers include bank size, capital adequacy ratio, income diversification and inflation. The effect of these factors on non-performing loan ratio is not uniform in the sense that some of the variables lead to a positive relationship while others also lead to a negative relationship. The current study focuses on identifying determinants of non-performing loans and its effect on bank profitability. In this regard, the overall result showed that capital adequacy, bank size, income diversification and inflation has a significant and positive effect on non-performing loan. . This study concludes that those explanatory variables jointly and individually have significant effect on non-performing loan ratio of the bank.

5.3. Recommendations

Based on the research findings, the following recommendations are made to reduce Nonperforming loan in Commercial Bank of Ethiopia.

- Banks should put in place a vibrant credit process that would encompass issues of proper customer selection, robust credit analysis, proactive monitoring and recovery strategies for risk loans.
- CBE should apply detail and adequate risk assessment. Therefore, latest assessment procedure should be adopted on selection of customers, credit analysis and sanctioning process. The Bank has to ensure timely and proper follow up and technical support for all financed projects that help for strengthen the collection and realize the smooth implementation and operation of the projects.
- For all individuals involved in the loan process, banks should provide a clear policy framework that tackles concerns of conflict of interest, ethical standards, and check and balance in decision-making
- Banks should pursue a balanced approach of profit maximization and risk management lest they engage in aggressive lending and unhealthy competition that would lead to selecting borrowers that would default.

REFERENCES

Ahmad, F. and Bashir, T. (2013), "Explanatory power of bank specific variables as determinants of non-performing loans: evidence from Pakistan banking sector", World Applied Sciences Journal, Vol. 22 No. 9, pp. 1220-1231.

Akinola, E. and Mabutho S. (2016), "The Determinants of Non-Performing Loans in the 'MINT' Economies", Journal of Economics and Behavioral Studies (ISSN: 2220-6140) Vol. 8, No. 5, pp. 39-55.

Arouri, M.E.H., Jawadi, F. and Nguyen, D.K. (2012) 'MODELING NONLINEAR AND HETEROGENEOUS DYNAMIC LINKS IN INTERNATIONAL MONETARY MARKETS', Macroeconomic Dynamics, 16(S2), pp. 232–251.

Berger, A. N., & DeYoung, R. (2001). The Effects of Geographic Expansion on Bank Efficiency. SSRN Electronic Journal.

Carlos A. B. (2012) ''Macroeconomic determinants of the Non-Performing Loans in Spain and Italy". Development Bank of Ethiopia (2015). Credit policy adopted bay National Bank of Ethiopia, Addis Ababa, Ethiopia.

Caprio, G. and Klingebiel, D. (1999) 'Bank insolvencies: Cross-Country experience', Policy Research Working Papers

Chavan, P. and Gambacorta, L. (2018) 'Bank lending and loan quality: an emerging economy perspective', Empirical Economics, 57(1), pp. 1–29.

De Gooyert, V. and Größler, A. (2018) 'On the differences between theoretical and applied system dynamics modeling', System Dynamics Review, 34(4), pp. 575–583.

Dereje A. (2021), "Determinants of non-performing loans in ethiopian commercial banks", St. Mary's University College Faculty of Business and Economics, Addis Ababa, Ethiopia

Dimitrios, Anastasiou, Helen, Louri, & Mike, Tsionas. (2016). Determinants of non-performing loans: Evidence from Euro-area countries. Finance Research Letters, 18, 116-119.

Djiogap, C. F. (2016). Public Debt and Economic Growth: New Evidence of the Non-Linearity. SSRN Electronic Journal.

ECB (2011). ECB Financial Stability Review. European Central Bank, Frankfurt, Germany

Ekanayake, E. and Azeez, A. (2015), "Determinants of non-performing loans in licensed commercial banks: evidence from sri lank", Asian Economic and Financial Review, 2015, 5(6):868-882

Fofack, H. (2005), non-performing loans in sub-Saharan Africa: Causal Analysis and Macroeconomic Implications. World Bank Policy Research Working Paper n° 3769.

Golafshani, N. (2003) 'Understanding Reliability and Validity in Qualitative Research', The Qualitative Report, 8(4), pp. 597–606.

Ghosh, A. (2017) Pricing and performance of initial public offerings in the United States.

Gunsel, N. (2012), Micro and Macro determinants of bank fragility in North Cyprus economy, African Journal of Business Management, 3 (6), 1323-1329.

Handley, S. (2010) 'Serotonin by proxy', New Scientist, 207(2777), p. 31.

Hu, J. (2002), "Ownership and loans: evidence from Taiwanese banks and non-performing loans: evidence from Taiwanese banks", Wiley Online Library, Vol. 3, pp. 405-420.

Issa, AG 2009 „Analysis of non-performing loans in the Libyan state-owned commercial banks: perception analysis of the reasons and potential methods for treatment", PHD thesis, Durham University.

Keovongvichith, P. (2012). An Analysis of the Recent Financial Performance of the Laotian Banking Sector during 2005-2010. International Journal of Economics and Finance, 4(4).

Kirui, S. (2014), "The effect of non-performing loans on profitability of commercial banks in Kenya", Research Submitted for Master Degree Programme, University of Nairobi, Kenya

Kokotović, F. & Kurečić, P. (2016), The MINT Countries: A Regression Analysis of the Selected Economic Features. In 14th International Scientific Conference on Economic and Social Development.

Koju, L., Koju, R. and Wang, S. (2018) 'Macroeconomic and Bank-Specific Determinants of Non-Performing Loans: Evidence from Nepalese Banking System', Journal of Central Banking Theory and Practice, 7(3), pp. 111–138.

Louzis, D. P. (2016). Macroeconomic Forecasting and Structural Changes in Steady States. SSRN Electronic Journal.

Lewis-Beck, M.S. and Skalaban, A. (1990) 'The R-Squared: Some Straight Talk', Political Analysis, 2, pp. 153–171.

Malenfant, G. (2014) 'Emmanuel Levinas', Philosophy [Preprint].

Maseke, B.F. and Swartz, E.M. (2021) 'Risk management impact on non-performing loans and profitability in the Namibian banking sector', OALib, 08(06), pp. 1–20.

Marijana Ć., Sandra P. and Klime P. (2013). "Determinants of non-performing loans – evidence from Southeastern European banking systems. Banks and Bank Systems", Journal of Banks and Bank Systems, Volume 8, Issue 1.

McCarthy M.G; Schneider, D.K. and Tibb, S.L. 2010, Investments and loans reported by the 10 largest U.S banks, Journal of Bank accounting and Finance Dec 2009- Jan 2010: P19-24.

McManus S. 2000: A Guide to Credit Management in South Africa. Durban: Butterworths.

Mesay T. (2017) "determinant of non-performing loan in ethiopian private commercial banks: with emphasis on manufacturing sector", Addis Ababa University Acconting And Finance Department College Of Business And Economics, Addis Ababa, Ethiopia

Minsky, Hyman 1986. Stabilizing an Unstable Economy. New Haven: Yale University Press

Muhammad, A. , Asima S. and Zahid S. (2020), "Determinants of non-performing loans in the banking sector in developing state", Asian Journal of Accounting Research Vol. 5 No. 1,

pp. 135-145 Emerald Publishing Limited 2443-41.

Mueller, C., 2000, A simple multi-factor model of corporate bond prices, Doctoral Dissertation, University of Wisconsin-Madison.

Murphey LB. 2004a: Focusing on the Fundamentals (Again). The RMA Journal, 86(8): 18- 19.

Murphey LB. 2004b: Prudent Lending: As Easy as A-B-C. The RMA Journal, 86(8): 20-21.

Nathenson JL. 2004: A Primer on Deals for Middle-Market Bankers. The RMA Journal, 86(8): 46-54.

Nkusu, M. (2011) 'Nonperforming loans and macrofinancial vulnerabilities in advanced economies', IMF Working Papers, 2011(161), p. 1.

NBE, 2008, Asset classification and Provisioning Directive No. SBB/43/2008.National Bank of Ethiopia, Addis Ababa Ethiopia

NBE, 2010. Conference Proceedings on National Payment System.

Nkusu, M. (2011). Nonperforming loans and macrofinancial vulnerabilities in advanced economies. IMF Working Papers, 1-27.

Ozili, P.K. (2019) 'Non-performing loans and financial development: new evidence', The Journal of Risk Finance, 20(1), pp. 59–81.

Radha, M & SV. Vasudevan.1980. A Text Book of Banking: Law, Practice and Theory of banking, S, Chand &Co. Ltd: New Delhi.

Rajan, R. G. 1994. Why bank credit policies fluctuate: A theory and some evidence. Quarterly Journal of Economics, 109(2), 399–441.

Rajan, Rajiv & Sarat C. Dhal.2003. Non-performing Loans and Terms of Credit of Public Sector Banks in India: An Empirical Assessment.

Rajan, Rijiv and Dhal,C (2003), Non-performing loans and terms of credit of public Sector Banks in India: An Empirical Assessment,Occasional Paper, Reserve Bank of India.

Rediet G. (2020), "Determinants of Non-performing loan: A case of Development bank of Ethiopia" ST. MARY'S UNIVERISTY College Faculty of Business and Economics Addis

Ababa, Ethiopia

Reidy, J. (2004) ‘Thought domain scale’, PsycTESTS Dataset.

Salas, V. and Saurina, J. (2002) Journal of Financial Services Research, 22(3), pp. 203–224..

Sitina A. (2018) “Determinants of Non-performing Loans in Ethiopian Commercial Banks” Addis Ababa University College of Business and Economics, Addis Ababa, Ethiopia

Sheefeni, J.P.S. (2015) Evaluating the Impact of Bank Specific Determinants of Non-Performing Loans in Namibia. Journal of Emerging Issues in Economics, Finance, and Banking,

Sinaga, J.S., Muda, I. and Silalahi, A.S. (2020) ‘The effect of Bi rate, exchange rate, inflation and Third Party Fund (DPK) on credit distribution and its impact on non performing loan (NPL) on XYZ Commercial Segment Bank’, Universal Journal of Accounting and Finance, 8(3), pp. 55–64..

Smith, R.L., Ager, J.W. and Williams, D.L. (1992) ‘Suppressor Variables in Multiple Regression/Correlation’, Educational and Psychological Measurement, 52(1), pp. 17–29..

Stokes, D. and Bergin, R. (2006) ‘Methodology or “methodolatry”? An evaluation of focus groups and depth interviews’, Qualitative Market Research: An International Journal, 9(1), pp. 26–37.

Partovi, Elmira and Matousek, Roman (2019) Bank efficiency and non-performing loans: Evidence from Turkey.

Ugoani, J.N. and Ugoani, A. (2017) ‘Business process reengineering and nigerian banking system efficiency’, Independent Journal of Management & Production, 8(4), p.

Zeng, S. (2012). Bank non-performing loans (NPLS): A dynamic model and analysis in China.

Modern Economy, 3, 100-110

APPENDIXES

QUESTIONAIRE

(Please tick appropriate boxes)

SECTION ONE – BACKGROUND INFORMATION

1. Gender

A. male ☐

B. Female ☐

2. Your current position in CBE

A. Loan Officer/senior officer ☐

B. Appraisal officer ☐

C. Credit principal ☐

D. Credit process manager ☐

E. Rehabilitation officer ☐

F. Vice president of credit ☐

3. Indicate your experience in the banking industry

A. Less than 1 year ☐

B.1-5 year's ☐

D.11-15 years ☐

C.6-10 yea ☐

E. above 15 y ☐

SECTION TWO – QUESTIONS ON THE DETERMINANTS OF NON PERFORMING LOANS

Capital adequacy

	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
Non-performing loans is influenced by the bank's capital adequacy position					
Maintaining a higher CAR than regulated minimum requirements reduces the likelihood of non-performing loan					
The bank's capital adequacy ratio affects its ability to lend to borrowers with higher credit risk.					
The bank has a sufficient level of capital to cover potential losses from non-performing loans.					
The bank's capital adequacy ratio is closely monitored by regulatory authorities to prevent non-performing loans.					

Bank size

	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
The size of the bank is a crucial determinant in assessing their NPLs					
CBE's size influences its ability to manage credit risk effectively					
Large banks have economies of scale that enable them to offer better loan products and services.					
Larger banks can absorb losses from non-performing loans more effectively than smaller banks.					
Loans default rate is directly related to banks' size					

Income diversification

	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
It is essential to consider the effect of income diversification in the presence of non-performing loans					
A diverse income stream reduces the probability of non-performing loans.					
CBE's mix of lending products is diverse enough to mitigate credit risk.					
Income diversification reduces concentration risk in loan portfolios.					
A diversified income stream helps the bank to better manage potential losses from non-performing loans.					

Bank efficiency

	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
The efficiency in processing loans has an impact on CBE’s non-performing loan ratio.					
Well-trained and experienced staff can minimize the default risk associated with non-performing loans at CBE.					
Inefficient credit rating practices can lead to increased NPL ratios for CBE.					
Effective loan recovery mechanisms contribute positively towards managing non-performing loan ratios at CBE.					
Inefficient credit rating practices can lead to increased NPL ratios for CBE.					

INFLATION

	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
The bank's non-performing loans are affected by inflation.					
Rapid increases in inflation rate can affect CBE's ability to accurately price and forecast credit risk.					
Fluctuating inflation rates can impact the quality of loan collateral and increase credit risk for CBE.					
Uncontrolled inflation rates have a negative impact on the overall economy, increasing the likelihood of NPLs in CBE's portfolio.					
Inflation can impact borrowers' ability to generate sufficient income to repay loans, leading to higher non-performing loans for CBE.					

NON PERFORMING LOAN

	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
Rapid loan growth by bank					
Bank Size					
Weak credit risk valuation					
Inflation					
Poor monitoring/follow					