

DETERMINANTS OF NON-PERFORMING LOANS IN ETHIOPIAN COMMERCIAL BANKS.

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Declaration

I declare that this is my first work and that no other university/institution has submitted it for consideration. This research paper was supplemented by referenced sources duly accepted. Where text, data, and graphics, including the internet, are collected was referred to accordingly.

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THESIS APPROVAL SHEET

This is to certify that the thesis prepared by Abraham Animut, titled "Determinants of Non-Performing Loans in Commercial Banks in Ethiopia," and submitted in partial fulfillment of the requirements for the degree of Master of Science in Business Administration, complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Abstract

Non-Performing Loans (NPLs) present a persistent, systemic challenge to the operational stability, profitability, and credit-mediating capacity of banking institutions globally and within Ethiopia. This study evaluates the macroeconomic, institutional, and political determinants of NPLs within the Ethiopian commercial banking sector by employing a robust mixed-methods triangulation framework. Primary perceptual data was gathered via structured questionnaires from 162 credit professionals, risk managers, and branch executives across ten selected banks. Concurrently, secondary longitudinal panel data spanning a 10-year period (2016–2025) across the same ten commercial banks was modeled utilizing a Linear Mixed Model (LMM) with a First-Order Autoregressive [AR(1)] covariance structure and Huber-White robust standard errors. The descriptive and correlation analyses of the primary data reveal that credit specialists strongly perceive macroeconomic shocks (inflation, exchange rate devaluations, volatile GDP shifts) and political instability as dominant catalysts for borrower defaults. However, the multi-variable econometric panel analysis demonstrates a stark divergence: when controlling for longitudinal dependencies, all external macro-environmental variables become statistically non-significant, whereas internal Credit Risk Management practices emerge as the singular, overwhelmingly dominant determinant of asset quality ($\beta = -1.5705$, $p < 0.001$). A one-unit optimization in internal credit appraisal, underwriting, and post-disbursement tracking yields an estimated 1.57% contraction in the NPL ratio, effectively neutralizing environmental shocks. These findings imply that credit distress in Ethiopia is fundamentally driven by administrative underwriting stringency and governance quality rather than exogenous cyclicality. The paper recommends that commercial banks institutionalize rigorous early-warning diagnostics, decouple underwriting from collateral dependency, and enhance sectoral diversification, while regulatory organs should tighten macroprudential oversight on internal bank asset classifications.

Table of Contents

CHAPTER ONE: INTRODUCTION 1
1.1. Background of the Study 1
1.2. Statement of the Problem 2
1.3. Objective of the study 4
1.3.1. General Objective 4
1.3.2. Specific Objectives 4
1.4. Research Questions 5
1.5. Significance of the Study 5
1.6. Scope of the Study 5
1.7. Limitations of the Study 6
1.8. Organization of the Study 6
CHAPTER TWO: LITERATURE REVIEW 7
2. Introduction 7
2.1. Definition of Non-Performing Loans (NPL) 7
2.2. Determinants of Banks Non-performing loans 9
2.4. Theoretical framework 11
2.3. Empirical Studies 13
2.5. Research gap 16
2.6. Conceptual framework 16
2.7. Research Hypothesis 17
CHAPTER THREE:RESEARCH METHODOLOGY 18
3.1. Research Approach 18
3.2. Research Design 18
3.3. Data Sources 19
3.4. Population of the study 19
3.5. Variables and Measurement 20
3.6. Econometric Model Specification 21
3.7. Method of Data Collection 21
3.8. Methods of Data Analysis 21
3.9. Validity and Reliability of the Study 23
3.10. Ethical Considerations 24
CHAPTER FOUR: DATA ANALYSIS, PRESENTATION, AND DISCUSSION 25
4.1. Introduction 25
4.2. Response Rate 25
4.3. Econometric Model Tests and analysis for primary data's 25
4.4. Econometric Model Tests and analysis for secondary data's 35
4.5. Overall Combined Conclusion ..... **Error! Bookmark not defined.**
CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS 46
5.1. Introduction 46
5.2. Conclusions 46
5.3. Recommendations 47
6.Appendix 49
7.References: 52

ACRONYMS

AR	Auto-Regressive
ARDL	Auto Regressive Distributed lag
BTI	Bertelsmann Transformation Index
CAR	Capital Adequacy Ratio
CLT	Central Limit Theorem
CPI	Consumer Price Index
DBE	Development Banks of Ethiopia
ECR	Error Correlation Model
FEXR	Foreign Exchange Rate
GDP	Gross Domestic Products
IMF	International Monetary fund
LMM	Linear Mixed Model
LTA	Loan to Asset Ratio
NBE	National Bank of Ethiopia
NIM	Net Interest Margin
NPL	Non-performing loan
PI	Political Instability
PSTR	Pannal Smooth Transition Regression
ROE	Return On Equity
SGMM	System Generalized Method of Moment
UM	Unemployment
VIF	Variance Inflation Factor

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Non-Performing Loans (NPLs) are a continuing challenge for the financial banking industry globally. It was defined as loans on which the borrowers are unable to meet the scheduled repayments for an additional period beyond the contract period; this leads to the overall stability of the financial institutions, like its ability to convert its assets to marketable securities within a short period of time, and it affects the profitability of the financial firm. The impact was not restricted only to the individual banks, but it also affected the broader financial sector and the national economy. (Dorsaf Elbir Merhbene 2021; Md. Kamal Uddin, 2022).

The theme of "non-performing loans" (NPL) has attracted more attention in recent decades. Several studies examined bank failures and find that asset quality is an indicator of insolvency (Demirguc-Kunt, 1989; Barr and Siems, 1994). Banks still have a high level of impaired loans before the bankruptcy. Therefore, the large amount of bad loans in the banking system generally results in a bank failure. The NPL are among the main causes of the problems of economic stagnation. Each impaired loan in the financial sector increases the possibility to lead company to difficulty and unprofitability.

In Ethiopia, the banking sector plays a vital role by driving economic growth through facilitating investments and also transferring funds from those who have it to those who can't get the funds. But the sector was affected by the increasing factor of NPLs, which negatively affects the chance to maintain financial stability. The country's financial sector industry was commanded by commercial banks, which operated under a tough environment. And also, it was characterized by limited diversification and external weakness. (Muhammad, Ammara, and Abrar, 2012)

In the Ethiopian banking sector, there were many factors that led to the frequency of NPLs. Some of the macroeconomic factors are inflation, low GDP (gross domestic product), high level of unemployment rate, and volatility of exchange rate. From institutional factors, the weak credit economic policy of the banking firm, poor governance, and limitation of effective regulatory framework increase the level of the problem. In addition to the above, there were borrower-specific factors like limited financial awareness, insufficient repayment capacity, and overdependence on collateral value. Deribie et al. (2013)

Despite the importance of -Performing Loans (NPLs), there is not much research on what causes them in Ethiopia. Most studies look at developed countries or other developing countries. They do not focus on Ethiopians economy and institutions. Understanding what drives NPLs in Ethiopia is key to making policies improving banks and keeping the financial system stable.

This study wants to find out what causes NPLs in banks. It would look at the economy, institutions and borrowers. By studying this issue, the researcher helped to create plans to manage credit risk and make Ethiopia's financial sector stronger. Their impact on the economy. NPLs are a problem for banks.

Loans that are close to being in default and are in default are called non-performing loans, which are a concern for commercial banks everywhere. Non-performing loan affects the banks' asset by making the asset go down and hurts the profit and financial health by unable to collect the debts from the borrowers. It also affects the economy by reducing money for people and businesses to borrow and use for growth. So, understanding what were the causes for non-performing is crucial to know how stable the financial sector is and to predict the economic crises. (Dorsaf Elbir Merhbene 2021; Md. Kamal Uddin, 2022).

Several factors, such as the economic conditions in which the bank operates, how the bank manages issues, and the financial literacy of the people, affect the performance of bank loans. There are external factors, which are beyond the bank's control, that affect loan assets; these issues also impact the industry, the country, and even globally. Nevertheless, it is important to note that the management of bank assets is greatly influenced by decisions made by bank management. In the context of Ethiopian commercial banks, this study focuses on the factors that lead loans to default or become non-performing loans. Many studies have been conducted to determine these factors by analyzing macroeconomic, bank-specific, and borrower-specific variables. For example, researchers such as Adino Andarige (2022), Dereje Abebe (2021), Tirumebet Belay (2020), Delil Akmel (2019), and Meseret Amsalu (2018) have examined this relationship. Based on this background, the thesis aims to establish an empirical link between non-performing loans and both bank-specific and macroeconomic factors in Ethiopian commercial banks. Consequently, this study focuses on identifying the variables that influence non-performing loans in these banks.

1.2. Statement of the Problem

NPL was one of the most significant challenges facing the banking industry by affecting the stability of financial sectors through reducing profitability and their ability to extend credit services. It is considered one of the primary causes of financial crises, banking failures, and impairing the profitability of banks. Thus, NPLs are likely to hurt economic expansion and lower bank performance (Muhammad Asif Khan, et al., 2020). Universally, defaulted loans are observed as the main indicator of a bank's financial stability, indicating the capability of loan risk management and the overall stability of the financial system (Dorsaf Elbir Merhbene, 2021). In Ethiopia, the issue has become critical; it was prompted by the merging effects of borrower-specific, institutional, and macroeconomic factors. Even though different efforts have been made by financial institutions and regulatory authorities to mitigate the risk, the increasing NPL levels still affect the sector's performance, undermining the stability of financial institutions and the wider economy.

The Ethiopian economy is really fragile when it comes to problems that can make the issue of non-performing loans worse. For instance, the COVID-19 pandemic and political situations in the northern part of Ethiopia had an impact on the borrowers' businesses and people's ability to pay back their loans. (Getachew & Kassa, 2019; World Bank, 2020). Furthermore, the countries dependance on the agriculture economy makes the borrowers for weather related problems and this in turn affects the ability to meet their repayment obligations. Macroeconomic instability,

including fluctuating interest rates and inflation, further constrains the repayment capacity of borrowers, increasing the risk of loan default (Beck, Jakubik, & Piloiu, 2013).

Bank specific factors have an impact on the rising level of non-performing loans. Challenges faced by the bank was like, deficient assessments on credit risks, unsatisfactory governance structure, weak internal control, and insufficient regulatory implementation. The above listed factors diminish the bank's ability to identify credit-challenged borrowers and follow-up loan performance with due care (Louzis, Vouldis, & Metaxas, 2012; Alshatti, 2015).

The occurrence of non-performing loans in developing countries is derived from borrower related factors- including limited financial literacy, weak income-generating capacity, and inadequate collateral, further complicate the problem. Studies have shown that a combination of these macroeconomic, institutional, and borrower-specific factors (Dash & Kabra, 2010; Isam Saleh & Malik Abu Afifa, 2020).

The Ethiopian financial system is different from other countries. It has a financial market lending practices that focus on a few areas and risk management systems that are still improving. Most studies on loans also known as Non-Performing Loans or NPLs have been done in other countries. There is not research on the causes of loan defaults in Ethiopian commercial banks. The banking sector in Ethiopia has its set of challenges. These include a developed financial sector, not enough diversification in loans and a reliance on using collateral to secure loans. Because of these differences research findings from countries may not explain why loans default in Ethiopia. These unique features mean that what we learn from other countries might not totally apply to Ethiopia, which shows us that we need to do research that's specific to the country (Berhanu, 2018; Getachew & Kassa, 2019).

Non-performing loans constrain the bank's lending capacity, boost the cost of lending, and reduce confidence of investors, eventually affecting the national economic growth of the country. Because of this reason, the banking industry should understand the major factors of non-performing loans, as this can enable to empower to improve the financial effectiveness of banks but also inspiring the economic stability; by identifying the causes for the loan defaults, banks can improve the credit analysis, appraisal and monitoring processes. In addition, regulatory bodies can implement effective policies, and Policy makers- can design strategies to balance the financial sector (Berger & DeYoung, 1997; Dash & Kabra, 2010).

The number of Non-Performing Loans in Ethiopia is going up. This is a big problem for the banking sector. Because of changes in the economy problems with institutions and issues with the people borrowing money we need to look really closely at why this is happening. It is not about learning something new it is about helping the people who make decisions the bank managers and the regulators. If we know what is causing the non-performing loans, we can make plans to reduce the risk make decisions about who to lend money to and make the banking system safer. There is not a lot of information about what's happening in Ethiopia specifically. So, this research is

important because it gives us facts and ideas that're necessary for the banks to work well and for the economy to grow in Ethiopia. The Non-Performing Loans in Ethiopia need to be understood so that we can deal with them. The people who are making decisions about the banking sector in Ethiopia need to know about the Non-Performing Loans.

The research about Non-Performing Loans is helpful for the banking sector in Ethiopia. The Non-Performing Loans are a problem and we need to know what is causing them. We need to look at the economy the institutions and the people who are borrowing money to understand the Non-Performing Loans. This helps us to make the banking system in Ethiopia stronger and safer. The information about the Non-Performing Loans, in Ethiopia is very important. We need to know what is happening with the Non-Performing Loans so that we can make decisions. The Non-Performing Loans are an issue and we need to deal with them.

Even though there were various studies carried out by Adino Andarige (2022), Alemu Tafes (2022), Dereje Abebe (2021), Tirumebet Belay (2020), Delil Akmel (2019), Hiwot Jemal (2019), Meseret Amsalu (2018) and Yosef Fikadu (2018)) on the factors influencing nonperforming loan in Ethiopian banks had been more focusing on macroeconomic variables and to some extent on bank-specific variables, the authors gave a little focus on the important variables like political instability and exchange rate change due to macro-economic policy changes that should have been included in the model, relied on a limited set of bank-specific variables. In order to implement proactive and effective measures, it is crucial to have a comprehensive understanding of bank non-performing loan (NPL) and the factors influencing it. The researcher has employed different methods, study designs, and geographic locations as well as integrating related theories. Therefore, this study was intended to fill the aforementioned existing gap by examining the various determinants of NPL in the study area.

1.3. Objective of the study

1.3.1. General Objective

The general objective of the study was to examine the determinants of non-performing loans in commercial banks in Ethiopia.

1.3.2. Specific Objectives

- To evaluate the effect of macroeconomic factors (GDP growth, inflation, exchange rates, Political instability and economic shocks) on non-performing loans in Ethiopian commercial banks.
- To examine the influence of bank-specific characteristics (particularly credit risk management procedures), affect non-performing loans (NPLs) in commercial banks in Ethiopia.

1.4. Research Questions

1. To what extent macroeconomic variables (GDP growth, inflation, exchange rates and political instability) influence non-performing loans in Ethiopian commercial banks?

2. To what extent bank-specific factor (credit risk management practice) affect the level of non-performing loans?

3. What policy and managerial measures can reduce non-performing loans in Ethiopian banks?

1.5. Significance of the Study

This study is important for several reasons. First, this study helps us learn more about what affects -performing loans in Ethiopian commercial banks. Not many studies have looked into this topic in Ethiopia. Second, the results can help bank managers make decisions about lending money. They can improve how they assess credit risk keep an eye on loans and lend money in a way. Third, people who make rules, for banks and financial regulators can use our findings to create policies. These policies can help reduce the risk of people not paying back their loans making the banking sector safer. Finally, the study's findings may support other practitioners in grasping necessary data which may contribute to developing guidelines to generate possible remedies for the affected bank industries. Besides, the study provides empirically based data and information for program developers support economic development efforts by promoting a more stable banking system capable of expanding credit to productive sectors of the economy.

1.6. Scope of the Study

This study examines the determinants of Non-Performing Loans (NPLs) in Ethiopia’s banking industry, focusing on commercial banks operated in both urban and rural areas. The study's scope involves by using ten years (10) of audited and provisional financial statements of commercial banks that are registered with the National Bank of Ethiopia (NBE). As a result, the study would limit to 10 commercial banks (one government owned and nine privately owned commercial banks) based on concentration and accessible data that goes back at least ten years. The study uses non-performing loans (NPLs) as the dependent variable, credit management practice, foreign exchange, inflation rate, political instability and gross domestic product as the five independent variables.

1.7. Limitations of the Study

This study on the determinants of Non-Performing Loans (NPLs) in Ethiopia's banking sector faces several limitations. Besides Primary data, the researcher also intended to collect secondary data, which the researcher faced difficulty on issues like data inconsistency and incomplete disclosures of a few banks due to confidentiality concerns. The government has introduced a system where the exchange rate can float. This means that the exchange rate of money is not fixed by the government. However, people are having trouble figuring out what the foreign exchange rate is after the government made this announcement. The new floating exchange rate system is causing problems because it is hard to know what the foreign exchange rate will be. The government made this change. Now it is unclear what the foreign exchange rate is after they announced it. Additionally, the study's time constraints hindered the gathering of long-term trends or the full impact of macroeconomic or institutional changes. The focus on commercial banks excludes other financial institutions like microfinance institutions, limiting the scope of the findings. And in addition, political instability report for the year 2025 was not released, due that we make the study of political instability until 2024. The study is constrained by its use of year-end snapshots of bank financial statements, because banks may restructure or renegotiate non-performing loans prior to the fiscal year-end, the data does not account for the active movement of loans between 'non-performing' and 'normal' categories throughout the year, potentially leading to an underestimation of credit distress.

1.8. Organization of the Study

This study on Non-Performing Loans (NPLs) in the banking industry is organized into five chapters. The first part tells us about the study. It talks about what the study's about what problem it is trying to solve what it wants to achieve and what it can and cannot do. The second part looks at what other people have said about Non-Performing Loans (Literature review). It explains what Non-Performing Loans are. It looks at what can cause them. It also looks at what other people have found out about Non-Performing Loans. The third part explains how the study was done. It says what methods were used to collect information how the information was analyzed and what rules were followed to make sure everything was done fairly. The fourth part talks about what the study found out. It looks at the numbers and what they mean. The last part sums up what the study found out about Non-Performing Loans. It says what the study thinks should be done to help with - Performing Loans. It also says what the study has added to what we know about Non-Performing Loans and what should be studied next about Non-Performing Loans.

CHAPTER TWO: LITERATURE REVIEW

2. Introduction

This chapter discusses empirical and theoretical studies and factors that determine non-performing loans. Review of both empirical and theoretical studies is about past and present studies that have been done on the area of study/focus. The factors that determine non-performing loans illustrate how macroeconomic and bank-specific factors affect the assets of Ethiopia's commercial banks.

2.1. Definition of Non-Performing Loans (NPL)

According to Banke and Yitayaw (2022) commercial banks perform specific tasks in the country's financial system, such as the mobilizing savings, allocating resources, diversifying risks, monitoring borrowers and exerting corporate control. The progression of the financial sector positively affects economic growth of every country. It means that the growth rates of a country's economy are higher when the Banks have the ability to perform their tasks in the financial systems effectively. Commercial banks, through their intermediary function, play a crucial role in country's economic development. It has also significant role in allocating and mobilizing country's efficient resources for economic activity.

Aside from resource allocation, excellent bank performance provides shareholders with a satisfactory return on their investment. Whenever a profit is generated, there will be an investment, which will empower the economic growth. Poor banking performance, conversely, has a negative impact on economic growth and development. However, in contrast; money loss and crises can be resulted from poor performances (Banke and Yitayaw, 2022).

The macroeconomic environment has an impact on the assessment borrowers and their ability to have a loan. An economy in growth is favorable to an increase in revenues and a decrease in financial distress. As a result, real GDP growth and employment are negatively associated with the NPL. Conversely, unemployment is positively related to the NPL. Several empirical studies have found a negative association between NPL and real GDP growth (Salas and Saurina 2002; Fofack, 2005; Jimenez and Saurina, 2006; Khemraj and Pasha, 2009; Dash and Kabra, 2010). The justification provided in the empirical literature of this association is that higher positive level of real GDP growth habitually entails a higher level of income. This improves the capacity of the borrower to pay its debts and contributes to reduce bad debts. When there is a downturn in the economy (slowed or negative growth of GDP) the level of bad debts will increase.

Taking into consideration the aggregate level of NPLs, the determinants of NPLs can be categorized into two main elements: firm-specific and system-wide/macroeconomic factors. Although some researchers have concentrated on only one of the two categories (Bofondi and Ropele, 2011; Beck et al., 2013; Rinaldi and Sanchis-Arellano 2006), both categories are considered significant in explaining NPLs in other studies (Salas and Saurina; 2002; Epinoza and Prasad, 2010; Louzis et al., 2012; Messai and Jouini, 2013; Klein; 2013; Kauko, 2012; Makri et al., 2014). Some studies on firm specific factors, Podpiera and Weill (2008) show that cost

efficiency has negative impact on NPLs. In the same vein, in case of Greek banking system for the period 2003-2011, Louzis et al. (2012) also provide the similar result that inefficiency of bank is positively related with NPLs. Management efficiency level leads to a decrease in NPL. Efficient management gives the loans more consciously to the right borrower what reduces the possibility of default, on the other hand, management inefficiency leads to decrease in NPL because of poor credit scoring, bad control of borrowers, and lack of collaterals (Podpiera and Weill, 2008).

As far as the researcher reviewed the existing literature, the term "non-performing loans" (NPLs) lacks a universally accepted definition. It is significant to remember that different jurisdictions may have different definitions or classifications for non-performing loans (NPLs). This indicates that from one country to another country or from one regulatory body to another identification and classification was varied. Due to that, it was necessary to consider the specific guideline and criteria used in such jurisdiction when analyzing and comparing data related to NPL. NPLs are defined within the specific context using the following three institutional approaches, which are widely used:

The International Finance Institute working group

A working group at the International Finance Institute has defined loan quality and classified the loans into 5 groups: standard, watch, substandard, doubtful, and loss. The last three categories were (substandard, doubtful, and loss) grouped as non-performing loans (NPLs), amount of principal and interest not paid as per the repayment schedule for exceeding ninety days, 180 days, and 365 days.

The International Monetary Fund (IMF)

According to the International Monetary Fund (IMF) loans that fulfil any of these criteria's are considered as non-performing loans: (a) if the principal and interest payments are not paid (Overdue) by 90 days or more; (b) if interest payments equivalent to 90 days or more have been reinvested, refinanced, or delayed by mutual agreement; or (c) if there is evidence to reclassify them as NPLs, even without a 90-day overdue payment, such as when the borrower notified bankruptcy after the loan has already been classified as an NPL.

The Basel Committee on Banking Supervision

According to the Basel Committee on Banking Supervision, non-performing loans (NPLs) occur when a default is determined to have happened with a specific borrower due to one or both of the following events: (1) the borrower is overdue by more than 90 days. The Basel Committee provides a precise definition for NPLs, stating that a default is deemed to have occurred regarding a particular borrower if one or both of these events have transpired. It is important to follow this definition when assessing the status of loans to determine whether they fall under the category of bad loans. The countries with healthier financial systems achieve higher rates of economic growth and the statistical data clearly demonstrates that the origins of financial crises in the countries could be noticed by incompetent or inefficient operations of banks. Banking crises can lead to financial crises, which can lead to economic collapse, as happened in the United States in 2007. That is why

governments use their central banks to supervise the financial sector in order to promote a sound and healthy financial system that avoids banking crises and protects depositors and the economy (Aditya, 2023).

Credit Risk Management theory provides a framework for understanding the ways in which banks manage credit risk, including loan appraisal, loan monitoring, and loan recovery. According to the theory, banks can reduce the number of non-performing loans by managing credit risks well. For a bank, 8 loans and advances are essential resources and main sources of income. In order to avoid a crisis, non-performing loan management needs to receive sufficient attention (Catherine, 2020; Naili & Lahrichi, 2022).

2.2. Determinants of Banks Non-performing loans

Bank loans are the main resource that banks rely on to obtain their revenues, despite this, there is no sure guarantee of their collection, as there are some customers who do not pay at the agreed time, and there are those who refuse to pay completely, and thus these loans turn into non-performing. With the existing finance literature, most of which are based on country-specific studies and researches, it is widely believed that NPLs problem arises due to two components, which are macroeconomic and microeconomic factors. For instance, those both bank-specific and macroeconomic factors are the main causes of bad debt in the Ethiopian Banks. The internal factors are diversified and become specific to a particular bank, individually influencing the level of NPLs. They are most likely to be driven bank's management and performance, while macroeconomic factors, which can vary widely in terms of sector, industry, country, or even continent, are beyond a bank's control loans (Burdimat & Mirimit, 2022).

2.2.1 Bank Specific /Internal Factors

Several factors can influence the level of non-performing loans (NPLs) in the banking industry. However, previous researchers mostly focused on studying variables specific to individual banks and macroeconomic conditions. This study highlights a set of independent bank-specific and macroeconomic variables that are believed to impact NPLs. These variables have been chosen based on previous studies and data availability. As mentioned earlier, internal factors are characteristics unique to each bank that affect its assets. These factors can be changed by the bank itself and vary from one bank to another. Most of those internal factors was analyzed in the previous research's made by different authors.

2.2.2 Macroeconomic/External Factors

Macroeconomic or external factors encompass the wider economic conditions and events that can affect the overall economy and business environment. These factors are usually outside the control of individual businesses but can greatly affect their operations and performance. External or macroeconomic factors are those variables that management cannot control. On the other hand, macroeconomic determinants are variables that are not related to bank management but represent the environment that is influenced by the economy and laws that influences the stability of the financial system (Akhter, 2023; Hamza & Mohamed, 2023; Alnabulsi et al., 2023).

2.2.2.1. Inflation rate (IFR)

Inflation is a supported build in the normal cost of all merchandise and administrations processed in an economy. Money loses buying force throughout inflationary periods since every unit of money purchases dynamically fewer merchandise. Swelling is an ascent in the general value level. There are two real reasons for expansion: Demand change, and supply change. Powerless and vacillating recuperation needs is a great solid dosage of swelling published ahead of time by the Fed/Treasury. The thinking behind that solution is that expansion and the desire of swelling might activate organizations sitting on crowds of money and families attempting to shore up their asset reports to begin using some of their money on ventures and shopper durables instead of watch the money devalue. Additionally, climbing costs, and the desire of climbing costs, might energize organizations, hesitant to grow yield and livelihood as a result of deficient interest, to do only that in the desire that costs might climb sufficiently to permit them to offer the included yield at a benefit. Inflation is defined as the percentage increases of a reference index, the Consumer Price Index (CPI), which is a representative of a common basket of goods and services (Mercurio, 2004).

According to, Fofack (2005) in a study shows that inflationary forces influence the high level of compromised loans in African countries with variable exchange rate systems. According to this author, inflation is accountable for the prompt destruction of the equity of commercial banks and therefore, higher credit risk in the banking regions of these African countries.

2.2.2.2. Foreign Exchange rate (FEXR)

Foreign exchange risk occurs when a bank holds assets or liabilities in foreign currencies, and fluctuations in exchange rates impact the bank's earnings and capital. It is impossible to predict future exchange rates as they can move in either direction, regardless of calculations and expectations. Foreign exchange rates play a crucial role in various ways. They influence international trade, investment, and the profitability of companies operating in different currencies. Due to the newly approved market based free exchange rate policy there was some difficulties for banks and borrowers because the price of any item was increased by around 100% because of devaluation of Birr. This also the factor Exchange rate changes also affect the value of assets and liabilities in different currencies, as well as the cost associated with borrowing and lending in different currencies.

Governments and central banks have a lot of control over exchange rates. They use fiscal policies to do this. Central banks can increase interest rates and his makes a countries currency more attractive to investors. Because of the interest was high, investors want to invest in that country, this indicates that more people want to buy that currency, so its value goes up compared to other currencies. Government also beneficiary from this by selling the currency to the forging exchange markets. It also important for investors and business (Kenzari & Ben Romdhane, 2020; Kepli et al., 2021; Muqorrobina et al., 2021).

2.2.2.3 Gross Domestic Product (GDP)

Finished goods and services produced by a country was expressed on the form of monetary value by gross domestic products (GDP) to determine the market value of it. It also uses as a comprehensive assessment tool for evaluating a nation's economic growth. The total monetary worth of completed products and services produced inside a nation's boundaries over a specific time period is represented by GDP. This includes both material goods and intangible services and also It measures economic activity within a country and is a widely used indicator of the size and overall health of an economy. The worth of all finished goods and services produced inside a nation's boundaries over a specified time period is added together to determine GDP. This includes a variety of industries, such as government spending, manufacturing, construction, services, and agriculture (Opusunju, M.I, Akyuz, M. & Aku, S.A. 2021; Zawadzki, A. 2023).

2.2.2.4 Political Instability (PI)

Ethiopian political condition is one of the main obstacles to the growth of the banking sector. Ethiopian domestic politics have fostered violence and ongoing tension over the years. Ethiopia has witnessed an explosion of violence and conflict (Jima, 2021). The main reason for Ethiopia's political instability is that the conventionally ruling government wants to stay in power forever (Arriola, 2009). War and ethnic conflicts leading to lower investor and consumer confidence, trade disruption, and undermining incentives to save could lead to momentous economic stagnation, with adverse effects and endanger entire economies of a given nation (Rother et al., 2016; Polache , 2010). It also increases the inflation rate and negatively affects bank performance (Alyousfi 2020; Castro & Veiga 2004).

Although IMF, (2019) and (Rother et al., 2016) underlined that war and conflict can lead to lower performance in the banking sector, and deteriorate banks' capacity to sustain financial intermediation and payment systems. Huang, (2019) initiate that political instability influence banks 'income statement and balance sheet. As a result, the financial soundness of the banking sector in Ethiopia is not a bargaining issue, and investigating the factors that can influence the industry is a vastly researchable area (Hailegebreal, 2016). The above serious issues motivated the researcher to put some sort of contribution to the Impacts of political instability on financial institution performance from Ethiopia's banking sector.

2.3. Theoretical framework

2.3.1. Credit Risk Theory

In the 1960s and 1970s, credit Risk Theory emerged as a cornerstone of financial risk management in as banks and financial institutions sought to systematically understand and manage the risk of borrower default. Early work by Altman (1968) introduced quantitative models for forecasting corporate bankruptcy, emphasizing the role of financial ratios in assessing creditworthiness. Saunders and Allen (2002) later formalized the broader concept of credit risk, defining it as the potential that a borrower will not able to meet contractual loan obligations, including the expected principal and interest payments. This theory provides a structured approach to evaluating and mitigating the risks associated with lending.

Credit Risk Theory posits that loan default is not random but influenced by a combination of borrower-specific, bank-specific, and macroeconomic factors. Key borrower-specific factors include financial capacity, income stability, repayment behavior, and collateral adequacy. Bank-specific factors, such as credit risk assessment practices and loan monitoring, also play a crucial role. Externally, macroeconomic conditions like inflation, interest rates, and economic shocks affect borrowers' repayment ability. The theory emphasizes that understanding these determinants allows banks to predict default probabilities and implement strategies to minimize losses. This theory provides a framework for understanding the ways in which banks manage credit risk, including loan appraisal, loan monitoring, and loan recovery. According to the theory, banks can reduce the number of non-performing loans by managing credit risks well. For a bank, loans and advances are essential resources and main sources of income. In order to avoid a crisis, non-performing loan management needs to receive sufficient attention (Catherine, N. 2020; M. Naili, & Y. Lahrichi, 2022).

In the context of Ethiopian commercial banks, Credit Risk Theory explains why Non-Performing Loans (NPLs) occur and persist. Rising NPLs indicate that borrowers are unable to meet their financial obligations due to weak financial capacity, inadequate credit assessment, or unfavorable economic conditions. By applying credit risk principles, banks can systematically evaluate loan applications, set appropriate lending terms, monitor borrowers, and restructure loans when necessary. This approach directly addresses the research problem by linking observable determinants to the likelihood of loan non-performance. This theory provides a theoretical foundation for analyzing why loans become non-performing. The theory connects the independent variables macroeconomic factors, bank-specific characteristics, and borrower-related factors to the dependent variable, NPLs. It offers a practical framework for both empirical analysis and policy recommendations, guiding banks on risk mitigation strategies and supporting the study's goal of enhancing financial stability and loan performance.

2.3.2. Financial Intermediation Theory

Financial Intermediation Theory was developed in the mid-20th century by scholars such as Gurley and Shaw (1960) and later Diamond (1984), focusing on the role of financial institutions in channeling funds from savers to borrowers. The theory highlights how banks reduce transaction costs, mitigate information asymmetry, and allocate capital efficiently in the economy. It explains the economic function of banks beyond mere deposit-taking and lending, emphasizing their role in monitoring borrowers and facilitating financial stability.

The core argument of Financial Intermediation Theory is that banks serve as intermediaries, performing functions that individual savers or investors cannot do efficiently. These include pooling deposits, evaluating credit risk, monitoring loan performance, and managing liquidity. The theory asserts that weaknesses in intermediation such as inadequate borrower assessment or poor loan monitoring can lead to inefficient resource allocation and higher default rates. Effective intermediation thus depends on strong institutional practices, risk management systems, and regulatory oversight.

This theory explains NPLs by highlighting the consequences of weak financial intermediation. When banks fail to properly evaluate borrowers, diversify portfolios, or monitor repayment, loan defaults increase. In Ethiopia, challenges such as reliance on collateral based lending, limited credit risk modeling, and inadequate portfolio monitoring illustrate gaps in intermediation, which contribute to the rising NPL problem. By strengthening intermediation practices, banks can reduce loan defaults, enhance credit quality, and improve sector resilience. It enables to understanding NPLs in terms of institutional processes and banking efficiency. It provides insight into bank-specific determinants, such as governance, loan monitoring, and credit allocation, and explains how weaknesses in these areas lead to non-performing loans. While it offers a broader institutional perspective, it is less focused on borrower-specific or macroeconomic factors compared to Credit Risk Theory. Therefore, it complements the study by explaining the institutional and systemic aspects of NPLs.

While both theories are important, Credit Risk Theory is the most directly relevant to the research title. The study focuses on the determinants of non-performing loans, which include borrower-specific, macroeconomic, and bank-specific factors. Credit Risk Theory explicitly links these determinants to the likelihood of loan default, providing a stronger theoretical foundation for empirical analysis. Financial Intermediation Theory is complementary, helping explain institutional and systemic factors, but it is less precise for analyzing borrower behavior and macroeconomic effects, which are central to the study.

2.4 Empirical Studies

This part provides so many evidences which identify the key elements that affect bank loans, with a specific focus on nonperforming loans. Hence many researchers have conducted extensive research on this topic, including studies from both single countries and panels of countries. The significance of nonperforming loans for bank failures has prompted many researchers to investigate the determinants of NPLs. In this study, I begin by reviewing empirical literature from studies conducted internationally before delving into single country studies. This part provides valuable insights into the determinants of non-performing loans in Ethiopia's commercial banks.

Vellanita et al., (2019) Studied the impact of bank specific factors on non-performing loans of Pt. Bank Central Asia by taking quarterly data from 2014-2018. The study utilized non-performing loans (NPLs) as the dependent variable, while the independent variables included capital adequacy ratio (CAR), loan-to-asset ratio (LTA), return on equity (ROE), natural logarithm of total loans, and natural logarithm of net-interest margin (NIM). Through the use of ordinary least squares regression, the results indicated an insignificant negative relationship between CAR and NPLs. The study also revealed a negative relationship between the loan-to-asset ratio and NPLs, indicating that as this ratio decreases, NPLs tend to increase. Additionally, the total loan level was found to positively influence NPLs, meaning that an increase in loan level leads to a higher level of NPLs.

Wang, K. (2019), studied the Comparative Analysis of Business Management of Chinese and Foreign Commercial Banks based on the Perspective of Non-Performing Loans of Commercial Banks. The study revel that, the high non-performing loan ratio of the European banking industry is closely related to its economic weakness, sovereign debt crisis and structural barriers to the disposal of non-performing loans. In contrast, the causes of nonperforming loans in China‟s banking industry are mainly due to external macroeconomics, government intervention, and internal banking factors.

Alnabulsi Khalil et al., (2023), studied Nonperforming Loans and Net-Interest Margin in the MENA Region using linear and Non-Linear Analyses. The study examines a sample of 74 banks in MENA countries from 2005 to 2020. It utilizes the SGMM regression and PSTR model as empirical strategies. The results of the SGMM regression indicate a significant and negative association between non-performing loans (NPLs) and bank profitability. On the other hand, there is a positive and significant relationship between bank size and profitability. Furthermore, the study finds that bank concentration in MENA countries has a negative and significant impact on profitability. In terms of macroeconomic and financial factors, the global financial crisis is found to have a negative and significant effect. The findings of the PSTR model indicate the presence of a threshold effect. Below the threshold of 4.42%, the impact of NPLs on profitability is negative but insignificant. However, surpassing these thresholds leads to a negative and significant effect. Similarly, to the SGMM results, bank size has a positive and significant effect, while bank concentration decreases profitability. From the macroeconomic factors GDP was only that has a significant impact but on the other hand, inflation rate does not any significant impact.

Hiwot J. (2019), Studied factors impacting non-performing loans (NPLs) using a combination of primary and secondary data. To achieve this, the researcher employed a mixed-methods research approach, combining documentary analysis (a structured review of documents) with in-depth interviews. The study focused on analyzing the financial records of six private commercial banks in Ethiopia, spanning the years 2004 to 2018, and also considered relevant macroeconomic factors. The collected data underwent rigorous analysis using descriptive statistics, correlation analysis, and multiple linear regressions. The findings reveal that, variables such as business profit margin, deposit interest rate, loan growth rate, and loan-to-deposit ratio were found to have a statistically significant impact. Conversely, variables such as exchange rate & inflation rate were determined to be statistically insignificant in relation to NPLs. These findings provide valuable knowledge for the banking industry, policymakers, and researchers with regards to comprehending the intricacies of non-performing loans (NPLs) in private commercial banks in Ethiopia. This paves the path for the development of more efficient approaches and policies to address this problem.

Daniel Muluneh, (2020), in a comprehensive study of factors influencing nonperforming loans (NPLs) in Development Bank of Ethiopia (DBE), By utilizing secondary data and used advanced statistical methods such as Auto-regressive distributed lags (ARDL) and Error correction model (ECM) to analyze the determinants of NPLs. The results of the empirical analysis revealed some noteworthy findings. Firstly, it was found that return on asset, GDP, bank size, and interest rate

displayed a significant negative impact on NPLs within the Development Bank of Ethiopia. Secondly, the study indicated that variables such as loan-to-deposit ratio, inflation rate, and credit to private sector were found to have an insignificant effect on NPLs within the DBE.

Adino Andargie (2022), Studied the causes of nonperforming loans in Ethiopian commercial banks were thoroughly examined. The research focused on selected commercial banks, employing a descriptive research design & mixed research approach. The collected data underwent both quantitative & qualitative analysis. The results highlighted three primary factors influencing non-performing loans in Ethiopian banks. Higher risk appetite, poor portfolio diversification, and inadequate due diligence, those are bank specific factors were found to significantly contribute to this issue. Furthermore, including fund diversion and poor business management- borrower-related factors, played a significant role in increasing non-performing loans. External factors, such as political unrest, restrictive laws, and market problems, further exacerbated the problem.

Alemu Tafese (2022) investigated the impact of determinants on nonperforming loans (NPL) in 10 private commercial banks in Ethiopia. The study utilized a quantitative research approach with balanced panel data from 80 observations collected over eight years. Descriptive statistics, correlation, and regression analyses were conducted, revealing that the unemployment rate, return on equity, and GDP had a positive & significant effect on nonperforming loans in private banks. Conversely, bank size, inflation rate, capital adequacy ratio, & return on assets were found to have a negative & significant impact. Lending rate and loan-to-deposit ratio were deemed insignificant.

Dereje Abebe (2021) examined the determinants of non-performing loans in commercial banks of Ethiopia using panel data analysis from 2010 to 2019. Descriptive and econometric analyses were conducted, mainly utilizing a multiple regression model. The findings showed a decline in non-performing loans over the course of the study. The study also revealed that inflation rate had a negative and significant effect on nonperforming loans, while loan growth, lending rate, and operational efficiency had a positive & significant effect.

Tirumebet Belay (2020), examined determinants of nonperforming loans (NPLs) in commercial banks in Ethiopia by using seven senior commercial banks. Secondary sources of data from 2004 to 2017 were used. The study utilized a fixed-effect model to analyze the determinants of NPLs. Findings revealed that capital asset adequacy have a positive & significant impact on NPLs, while bank size and loan-to-deposit ratio had a negative but significant impact on NPLs.

Yosef Fekadu (2018), analyzed determinants of nonperforming loans (NPLs) in commercial banks in Ethiopia. Data from the National Bank of Ethiopia, Central Statistical Agency, and financial statements of 9 commercial banks from 2006-2017 were utilized. Descriptive and random effect multiple regression analysis were conducted on the unbalanced panel data. The results showed that while loan loss provision and loan to deposit ratio had a positive and significant relationship with NPLs, return on equity and capital adequacy had a negative and significant impacts on NPLs.

When it came to NPLs, variables like GDP, NIM, and UM was shown to be statistically insignificant.

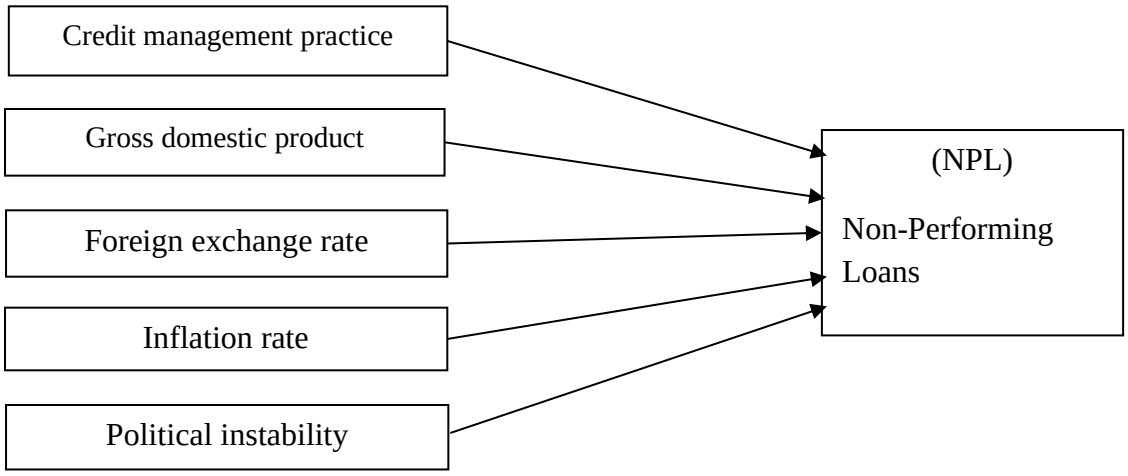
2.5. Research gap

The presence of a research gap can be seen from an examination of the relevant literature relating to the determinants of NPL‟s. Even though studies on the determinants of NPL‟s that influence Ethiopian banking industry have been conducted by Adino Andarige (2022), Alemu Tafes (2022), Dereje Abebe (2021), Tirumebet Belay (2020), Daniel Muluneh (2020), Hiwot Jemal (2019), and Yosef Fekadu (2018), To the knowledge of the researcher, authors have given little attention on the important variables which can significantly affects bank's assets such as current political instability(PI), Foreign exchange rate (FEXR)-like the recent macroeconomic policy changes, and Credit risk management practice, that should have been incorporated into the analysis and used a small sample size of Ethiopian commercial banks that are in operation, which are not indicative of the sector as a whole. It can be implying that the above researches did not consider a broader range of factors that could potentially impact NPLs and its findings. This means that the existing research should have included the major factors that can influence NPL to draw conclusive insights and understand of NPL. To address this gap, the research under study incorporates decisive variables and utilizes representative sample size, encompassing data from multiple commercial banks to provide a more accurate data, comprehensive and generalized understanding of the factors influencing NPLs in the Ethiopian banking sector. Therefore, this research intended to fill the gap by assessing the influence of these variables and others on the occurrence of nonperforming loans.

2.6. Conceptual framework

The conceptual framework for the research presents the relationship among the dependent variable and independent variable. The independent variables are gross domestic product level of the country, Inflation rate, Credit management practice, Political instability and foreign exchange rate that expected to level of NPL in Ethiopian commercial banks.

Figure 2.1 Conceptual framework



2.7. Research Hypothesis

The following hypotheses was tested in this study:

Hypothesis 1: Gross domestic product level of the country has negative significant effect on non-performing loans in case of Ethiopia's Commercial Banks;

Hypothesis 2: Inflation rate of the economy has significant positive effect on non-performing loans in case of Ethiopia's Commercial Banks;

Hypothesis 3: Foreign exchange rate has significant positive effect on non-performing loans in case of Ethiopia's Commercial Banks;

Hypothesis 4: Political instability has significant positive effect on non-performing loans in case of Ethiopia's Commercial Banks;

Hypothesis 5: Credit risk management practice of the banks has significant negative effect on non-performing loans in case of Ethiopia's Commercial Banks.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Research Approach

Quantitative research method is a way to study Non-Performing Loans, in Ethiopian commercial banks. It allows the person doing the study to get an understanding of Non-Performing Loans by looking at numbers (Quantitative). This way the person can get an understanding of what makes Non-Performing Loans happen in Ethiopian commercial banks. Quantitative data help identify measurable relationships between variables, while qualitative evidence from interviews enriches interpretation and strengthens validity (Creswell & Plano Clark, 2018).

The quantitative approach uses panel data collected from selected commercial banks and macroeconomic databases over a 10-year period. Econometric analysis, specifically panel regression models, that was applied to examine the relationship between macroeconomic and institutional variables and NPL levels. The questionary approach complements the quantitative analysis through questions with bank managers, credit officers. This approach provides contextual understanding of institutional practices and risk management mechanisms. The integration of the two approaches improves the reliability of findings and provides a deeper understanding of credit risk dynamics within commercial banks.

3.2 Research Design

The study employed descriptive and explanatory research design. According to Haslam and Mc Garty (2009) explanatory research is conducted for a problem which was not well researched before, demands priorities, generates operational definitions and provides a better-researched model. It is actually a type of research design which focuses on explaining the aspects of your study in a detailed manner (Setia, 2016).

The explanatory design enabled the researchers to examine cause-and-effect relationships between independent variables (macroeconomic and institutional factors) and the dependent variable (NPL). The quantitative component follows a panel research design allowed to analyze bank-level data across time (bank-year observations) and the examination of cross-sectional as well as time-series variations. The study employed a descriptive research design because the study also aims to describe the current status of non-performing loans and examine how macroeconomic, bank-specific, and external (Political instability) factor are associated with loan performance. Descriptive research is useful when a researcher intends to systematically document relationships, trends, and institutional practices without manipulating study variables (Kothari, 2004). In the context of banking studies, such a design allows for the assessment of credit risk conditions as they exist in practice.

3.3. Data Sources

The study used both primary and secondary data sources to ensure comprehensiveness and triangulation. Primary data was collected through structured questionnaires distributed for bank employees involved in credit operations.

Secondary data obtained from Annual reports of the selected commercial banks, Publications of the National Bank, Macroeconomic indicators from international financial institutions. Combining both data types strengthens the study by improving accuracy and reducing single-source bias (Saunders et al., 2019). Its components have been described below: -

3.3.1 Quantitative Data Sources

Secondary data was collected from:

1. Annual financial statements of selected banks
2. National Bank of Ethiopia reports
3. Macroeconomic data collected from:
    - World Bank
    - International Monetary Fund
    - Ethiopian national statistical publications
    - BTI = Bertelsmann Transformation Index from Bertelsmann Stiftung org (For political instability report).

3.4. Population of the study

The target population of the study would be all licensed commercial banks operating in Ethiopia, regulated by the National Bank of Ethiopia. hence, the study population consists of employees and management staffs, whose positions and jobs were related with bank credits or loans in ten systematically selected public and private commercial banks operating in Ethiopia.

3.4.1. Sample Size and Sampling Technique

A. Sample of Banks

From the total population, 10 commercial banks were selected by using purposive sampling. Selection criteria by considering asset size, market share, loan portfolio size, availability of consistent financial data and geographic branch coverage. Those selected banks are Commercial bank of Ethiopia, Awash bank, Dashen bank, Abysinia Bank, Anbessa Bank, Buna Bank, Hibret Bank, Nib International Bank, Abay Bank and Wogagen Bank. The unit of analysis for the quantitative study was bank-year observations.

A. Sample of questionary respondents

Participant Sample Size: A total of 200 respondents were surveyed. This consists of 20 staff members from each of the 10 selected banks, specifically targeting credit officers, risk managers, and branch managers who handle loan processing and monitoring.

3.5 Variables and Measurement

3.5.1 Dependent Variable

Non-Performing Loan Ratio (NPLR)

$$= \frac{\text{Non-Performing Loans}}{\text{Total Gross Loans}} \times 100\%$$

This measures the proportion of loans classified as non-performing. This is a common way to see how much risk there is with lending money. Loans that are not doing well are a problem because they do not generate income. (Louzis et al., 2012).

3.5.2 Independent Variables

A. Macroeconomic Variables

- Inflation rate
- GDP growth rate
- Political instability
- Exchange rate

These variables influence borrowers' repayment capacity and economic stability.

B. Bank-Specific Variables

- Credit monitoring efficiency/Credit risk management practices

These reflect institutional capacity, management practices, and risk exposure.

Variable	Measurement	Source	Expected Relationship
GDP Growth	Annual % in GDP	World Bank / IMF	Negative
Inflation Rate	Annual % in CPI	National Statistics, World Bank / IMF	Positive
Exchange Rate	Annual average Foreign $ in terms of Br	NBE/World Bank / IMF	Positive
Credit Risk Management	Composite score (1–5 Likert scale from questionary)	Primary data through questionary	Negative
Political Stability	Political Stability Index (out of 10 from best to worst)	World Bank Governance Indicators, Bertelsmann Transformation Index from Bertelsmann Stiftung org	Positive

Clear operational definitions enhance measurement validity and comparability across banks (Gujarati, 2004)

3.5.3 Measurement of Credit Risk Management

A structured scoring system Would be developed based on Loan appraisal procedures, Collateral requirements, Monitoring mechanisms and Recovery processes

Responses would rate using a 5-point Likert scale from senior staffs who served about ten (10) years and have good understanding of credit risk management practice of the bank during the study years and aggregated into a composite index.

3.6 Econometric Model Specification

The panel regression model is specified as:

$$NPL_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 INF_{it} + \beta_3 EXR_{it} + \beta_4 CRM_{it} + \beta_5 POL_{it} + \varepsilon_{it}$$

Where:

- *GDP*=gross domestic product
- *INF*=Inflation rate
- *EXR*=Exchange rate
- *CRM*=Credit risk management
- *POL*=Political instability
- i= bank
- t= time period
- ε_{it}= error term

Mixed of both Fixed Effects and Random Effects models were estimated. Diagnostic tests included: Multicollinearity (VIF test), Heteroskedasticity test, Serial correlation test would conduct by employing statistical software SPSS.

3.7 Method of Data Collection

3.7.1 Quantitative Data Collection

1. Obtain bank financial statements (10 years).
2. Extract NPL and loan portfolio data (Gross loans).
3. Collect macroeconomic indicators from national and international databases.
4. Organize and clean data

3.8 Methods of Data Analysis

Quantitative method of data analysis was employed to interpret the gathered data from different data sources. Quantitative data was gathered from these secondary sources (financial annual reports, economic indicators, bank data) were analyzed using statistical tools to identify the factors that influence the NPL levels in Ethiopian banks. The researcher presented the data in a descriptive and reflexive manner while preserving its original content (data) as follows:

a) **Descriptive Statistics**

Descriptive statistics was summarized and provide an overview of the main features of the data. These statistical measures supported to understand general trends in NPLs and their distribution across different banks and macroeconomic conditions.

Steps:

Central Tendency: the study to be Calculate the mean, median, and mode for key variables such as NPL ratios, GDP growth rates, exchange rates, inflation rates, and GDP growth rates.

Dispersion: the study Calculated the standard deviation and variance for NPL levels and other relevant variables to assess the spread or variability of the data.

b) **Correlation Analysis**

To explore the relationships between different factors and NPL levels, correlation coefficient/linear relationship coefficient were used. This helped to identify which macroeconomic factors, institutional factors, and loan characteristics were strongly correlated with NPLs. Steps: Calculated the correlation coefficients between NPLs and potential determinants such as:

Macroeconomic factors: GDP growth, inflation rate and exchange rates.
Bank-specific factors: credit risk management practices.
Political instability

c) **Regression Analysis**

Multiple regression analysis used to identify the causal relationships between NPLs and a set of independent variables (determinants). This method enabled to assess how changes in independent variables such as economic indicators, bank performance metrics, and loan characteristics impacted the likelihood of loans becoming non-performing.

Steps:

Dependent Variable: The NPL ratio (the ratio of non-performing loans to total loans) and

Independent Variables: The independent variables were included:

Macroeconomic indicators: GDP growth, inflation and foreign exchange rate.

Bank-specific variables: credit management Practice.

External factor; Political instability

Model Formulation: A multiple linear regression model constructed to explain the variance in NPL levels based on these independent variables. The regression model was formulated as:

$$NPL_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 INF_{it} + \beta_3 EXR_{it} + \beta_4 CRM_{it} + \beta_5 POL_{it} + \varepsilon_{it};$$

: Non-Performing Loan ratio of bank at time (NPLs)

: GDP growth (GDP)

: Inflation rate (INF)

: Foreign exchange rate (EXR)

: Credit risk management practices (CRM)

: political instability (POL)

: Error term(E)

d) **Panel Data Analysis**

As long as different data for multiple banks was available over several years, panel data analysis (combining cross-sectional and time-series data) would be used. This method helped to control for both time-invariant and time-varying factors, providing a more comprehensive understanding of the determinants of NPLs.

The study employed a Linear Mixed Model (LMM) to analyze the determinants of non-performing loans in Ethiopian commercial banks. The choice of the LMM was motivated by the panel nature of the data, which consisted of repeated observations collected from the same banks over a ten-year period (2016–2025). The model allows for the inclusion of both fixed effects, representing the influence of macroeconomic and institutional variables, and random effects, capturing unobserved differences among banks. In addition, an AR(1) covariance structure was incorporated to account for serial correlation among observations recorded across consecutive years. The LMM was preferred because it effectively handles repeated measurements, controls for bank-specific heterogeneity, accommodates unbalanced panel data, and provides more reliable estimates in the presence of temporal dependence.

3.9 Validity and Reliability of the Study

Validity refers to the accuracy and trustworthiness of instruments, data, and findings in research (Bernard, 2011). There are four types of validity; face, content, construct, and criterion validity. After reviewing instruments by experts in the field of research as well as conducting a thorough literature review to come up with existing knowledge and its content, audited financial statements, Data cross-verification across sources and Use of standardized macroeconomic indicators, the researcher used content validity. Besides, content validity is attained when an instrument has appropriate content to provide sufficient coverage of the topic under study. If the instrument comprehends a representative sample of the whole, the content validity is good (Bernard, 2006; Kothari, 2004).

Before collecting data, the researcher followed several measures; an appropriate questionnaire and secondary data collection guidelines were prepared to avoid sensitive, ambiguous and repetitive

questions. Besides, systematic methodologies were used for data gathering tools to produce the appropriate results. As a result, it benefits to maintain the efficacy and ability to generalize the findings in order to measure the intended study topic and achieve consistency as well as reliability of the study findings.

3.10 Ethical Considerations

In this study, the issue of ethics kept in a professional manner. The researcher took official letter from the department of Business administration so as to present pre- data collection. As a result, before conducting the research, the researcher pursued some procedures to get the consent of the participants. Therefore, the researcher introduced himself and then clarified the study's topic, aim, delimitation and expected results. This was to have their consent and to make sure that the respondents' anonymity and confidentiality would be secured such as Bank-level data were only used for academic purposes and sensitive financial data were securely stored and password-protected. The study was conducted with full consent of the participants.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, AND DISCUSSION

4.1 Introduction

This chapter presents the statistical analysis, empirical results and contextual discussions of the data collected from both primary (Questionary) and secondary sources (Banks Annual reports, World Bank Data Indicators, BTI reports and IMF reports). The study aims to investigate the internal (bank-specific-credit risk management practice) and external (macroeconomic-inflation, rate, Exchange rate Gross Domestic Products and political instability) determinants of Non-Performing Loans (NPLs) within Ethiopian commercial banks. Primary data was gathered using structured questionnaires distributed across a sample of 200 bank professional staffs those are direct work relation to non-performing loans, to evaluate institutional operational perceptions. Concurrently, secondary data was compiled across an observation panel tracking 10 commercial banks over a 10-year period (2016–2025).

4.2 Response Rate

This research aimed to reach out to banking employees of ten (10) commercial banks that existed in Ethiopia. Out of a total of 200 questionnaires distributed, only 162 were successfully filled out, making a total response rate of 81%.

4.3 Econometric Model Tests and analysis for primary data's

4.3.1 Descriptive statistics

The descriptive statistics summarize the average responses and standard deviations of the study variables.

Table 4.1 Descriptive Statistics of Primary Data

Variables	Mean	Std. Deviation	N
Inflation Rate	3.0463	0.60714	162
GDP Growth Rate	2.9660	0.58717	162
Exchange Rate	2.9877	0.59168	162
Credit Risk Management	2.9712	0.65111	162
Political Instability	3.0074	0.66720	162

Source: SPSS Output (2026).

From the descriptive statistics, it is clear that most of the participants agree that macroeconomic and bank specific factors have a significant influence on the level of non-performing loans in Ethiopian Commercial Banks. From the average values provided, the respondents agreed that the inflation rate negatively influences the borrowing ability of borrowers. In times of inflation, the price of goods and services rises making it hard for borrowers to repay loans as per the agreed repayment schedule. Foreign exchange variation has been identified as one of the factors contributing to non-performance. when it was appreciation in the exchange rate, it increases the

cost of importing raw material for manufacturing and other economic activities making businesses face difficulties in repaying their loans.

Another important factor that influences the non-performing loans in commercial banks is political instability by disrupting business activities, investments, transport and affect business operations making it difficult for borrowers to earn money and fulfil their obligations.

The average score for credit risk management is 2.9712 meaning that most of the respondents agreed that credit management is an important factor in controlling non-performing loans. Credit risk management involves evaluating the creditworthiness of potential borrowers and following up the status of the loans after borrowing. Growth rate of GDP had an average value of 2.9660, suggesting that GDP growth is a positive determinant of repayment behavior among borrowers. An expansion in the economy implies increased business operations, employment creation, and improved income levels among borrowers, which make them less likely to default on their loans.

All the standard deviation values obtained were quite small, suggesting that respondents had uniform views on what determined non-performing loans.

4.3.2 Correlation Analysis

Correlation analysis was conducted to examine the relationship between independent variables and the non-performing loan ratio.

Table 4.2 Correlation Analysis

Variables	Correlation with NPL
Inflation Rate	0.631
GDP Growth Rate	-0.570
Exchange Rate	0.577
Credit Risk Management	-0.591
Political Instability	0.632

Source: SPSS Output (2026).

Correlation analysis was done to establish the strength and nature of the relationship between the dependent variables and explanatory (Independent) variables. From the results of the analysis, there is a strong positive correlation between inflation rate and non-performing loans (r = 0.631). An increase in the level of inflation would lead to increased loan default rates because inflation affects real income levels and increases cost of operations and, therefore, reduces repayment ability of borrowers. There was a positive correlation between political instability and non-performing loans (r = 0.632). In this case, the positive correlation means that political disturbances cause adverse impacts on economic activities and performance of businesses, thus causing loan defaults in banks. The exchange rate was positively correlated with non-performing loans (r = 0.577). Therefore, the depreciation of the local currency affects businesses and borrowers, thus leading to loan defaults. On the contrary, GDP growth rate had a negative relationship with non-performing

loans (r = -0.570). Increased income levels and economic activities, as well as improved profitability of businesses, due to GDP growth decreases the likelihood of borrowers defaulting on their payments.

Credit risk management has a negative relationship with non-performing loans (r = -0.591). In addition, from the result of correlation analysis, it is clear that all the independent variables are significant determinants of non-performing loans because they were found to be significantly correlated with non-performing loans at the level of significance less than 5%.

4.3.3 Model Summary

Table 4.3 Model Summary

R	R Square	Adjusted R Square	Durbin Watson
0.725	0.525	0.510	1.993

Source: SPSS Output (2026).

R Square = 52.5%

The summary model output in regression analysis shows the strength of the explanatory power and fitness of the regression model. The R-Squared in the coefficient of determination was 0.525, which means that 52.5 percent of the variance of non-performing loans is originated from the combined effect of the inflation rate, GDP growth rate, exchange rate, credit risk management and political stability in Ethiopian commercial banks. As a consequence, this outcome shows that the selected independent variables have significant explanatory power in explaining the changes in non-performing loans in these commercial banks. The remaining percentage of the variation of the NPLs (47.5%) could be affected by other factors that are not included in the regression analysis, it may be interest rates, ROA, borrowers' literacy level, unemployment, management effectiveness, customer behavior and regulatory requirements.

And in addition, the adjusted R-square was 0.510, which shows the fitness of the regression equation even when the adjustment is made according to the number of predictors included in the model. The Durbin-Watson statistic was 1.993, which is almost equal to two. This statistic shows the lack of any problem in terms of auto-correlation in the regression residuals. Consequently, it can be concluded that the regression assumptions are fulfilled.

4.3.4 ANOVA Test

Table 4.4 ANOVA Results

Source	Sum of Squares	df	Mean Square	F	Sig
Regression	312.705	5	62.541	34.487	0.000
Residual	282.898	156	1.813		
Total	595.603	161			

Source: SPSS Output (2026).

The combined significance value of the variable was less that 0.05(which is p=0.000), this result was indicated on the ANOVA model. Because of this the overall regression model was statistically significant, this approves that the listed independent variables on the model jointly affected non-performing loans in Ethiopian commercial banks.

4.3.5 Regression Coefficient Analysis

Table 4.5 Regression Coefficients

Variables	Beta Coefficient	t-value	Sig.
Inflation Rate	0.603	1.983	0.049
GDP Growth Rate	-0.498	-1.882	0.062
Exchange Rate	0.549	2.094	0.038
Credit Risk Management	-0.431	-1.799	0.074
Political Instability	0.615	2.278	0.024

Source: SPSS Output (2026).

On the above table 4.5 regression significance and beta coefficient value of all independent variables on the model was disclosed. From that the interpretation for each variable was as of below;

- **Inflation Rate**

Significance value of inflation rate was 0.049 and value of beta coefficient was positive (β = 0.603), this indicates that, Inflation rate had a positive and statistically significant effect (Because its Sig value was below 0.05) on non-performing loans. This means increasing inflation in 1 unit reduces borrowers' repayment capacity and increases loan default rates by 0.0603 units.

- **GDP Growth**

Significance value of Gross domestic product (GDP) was 0.062, which is insignificant but the value was slightly above 0.05 and value of beta coefficient was negative (β = -0.498). Even though, the significance level was slightly above 5%, the negative coefficient implies that economic growth helps reduce NPLs by improving business performance and income generation of the borrowers. When GDP growth rate increased by 1 unit, on the reverse NPL ratio (dependent variable) was decreased by 0.498 unit.

- **Exchange Rate**

Exchange rate had a positive (β = 0.549) and significant effect on NPLs (p = 0.038). Exchange rate depreciation increases borrowing costs and affects import-dependent businesses, thereby increasing loan defaults. The positive beta coefficient indicates that there was direct relationship between exchange rate and NPL amounts, like when value of birr in terms of foreign currency (in this context dollar $) was decreased by 1 unit, on turn the value of NPL was decreased by 0.549 unit.

- **Credit Risk Management**

Credit risk management had a negative relationship with NPLs (β = -0.431, p = 0.074). This suggests that strong credit risk management practices help reduce loan default problems. When the banks credit risk management practice goes from very bad to bad, bad to satisfactory, satisfactory to good and good to very good, the value of non-performing loans decreased.

- **Political Instability**

Political instability positively and significantly affected NPLs (β = 0.615, p = 0.024). Political disturbances negatively affect business operations, investment, and borrower repayment capacity. During the northern war which is took place from 2020 to 2022, many loans fell into non-performing loan status, because borrowers were unable to carry out day to day/normal business operations. Due to this, borrowers were unable to pay their repayment obligations according to their payment schedule. When the political situation changed from best to worst, non-performing amount was increased.

4.3.6 Multicollinearity Test

Table 4.6 Multicollinearity Test

Variables	Tolerance	VIF
Inflation Rate	0.331	3.025
GDP Growth Rate	0.467	2.141
Exchange Rate	0.468	2.138
Credit Risk Management	0.464	2.157
Political Instability	0.347	2.878

Source: SPSS Output (2026).

The multicollinearity test result on the Table 4.6 for each independent variable indicates that there is no serious multicollinearity(relationship) problem among the independent variables included in the regression model. This conclusion is supported by the Variance Inflation Factor (VIF) and tolerance values obtained from the analysis.

According to regression assumptions, the value of variance inflation factor VIF) and tolerance value was greater than 10 and less than 0.1 respectively, it indicates the existence of serious multicollinearity problems. In this study, all VIF values ranged between 2.138 and 3.025, which are below the maximum acceptable edge of 10. In the same way, all tolerance values extended

from 0.331 to 0.468, which are above the minimum acceptable level of 0.10. This implies that the independent variables do not extremely relate with each other and each variable contributes unique information to the regression model. Then, the regression coefficients can be reliably estimated and interpreted without distortion caused by multicollinearity. Hereafter, the model on this research satisfies the multicollinearity assumption of multiple regression analysis.

4.3.7 Normality Test

The normality assumption of the regression model was examined using the Kolmogorov-Smirnov test, Shapiro-Wilk test, histogram, and Normal Q-Q Plot of standardized residuals.

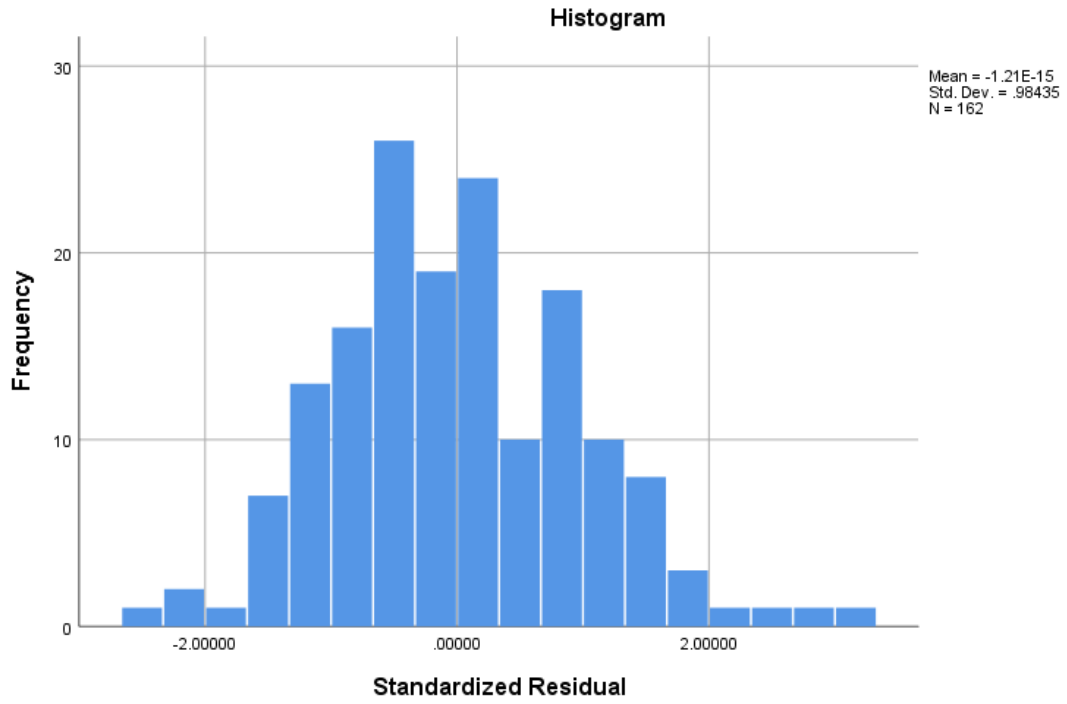
Table 4.7 Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Standardized Residual	.062	162	.200*	.989	162	.219
*. This is a lower bound of the true significance.						
a. Lilliefors Significance Correction						

Source: SPSS Output (2026).

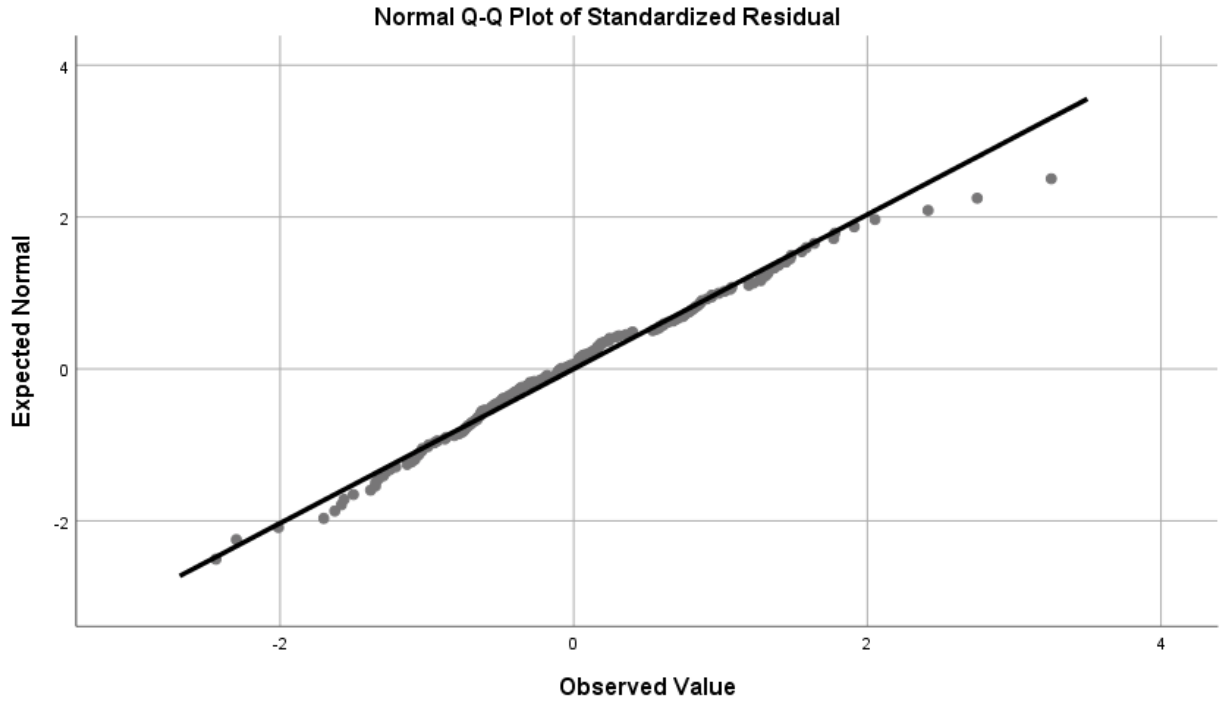
The outcomes from the normality test were significant at the level of 0.200 for Kolmogorov-Smirnov test and 0.219 for Shapiro-Wilk test. In both cases, since the significant value is above the significant level, the assumption on the null hypothesis cannot be rejected. Thus, the residuals show the properties of a normal distribution. Furthermore, the histogram of the standardized residuals shows a bell shape distribution around the point zero. The same result was observed in the normal Q-Q Plot, where most observations fall along the diagonal except for some deviation at the ends

Figure 4.1: Histogram Q-Q Plot of Model Residuals



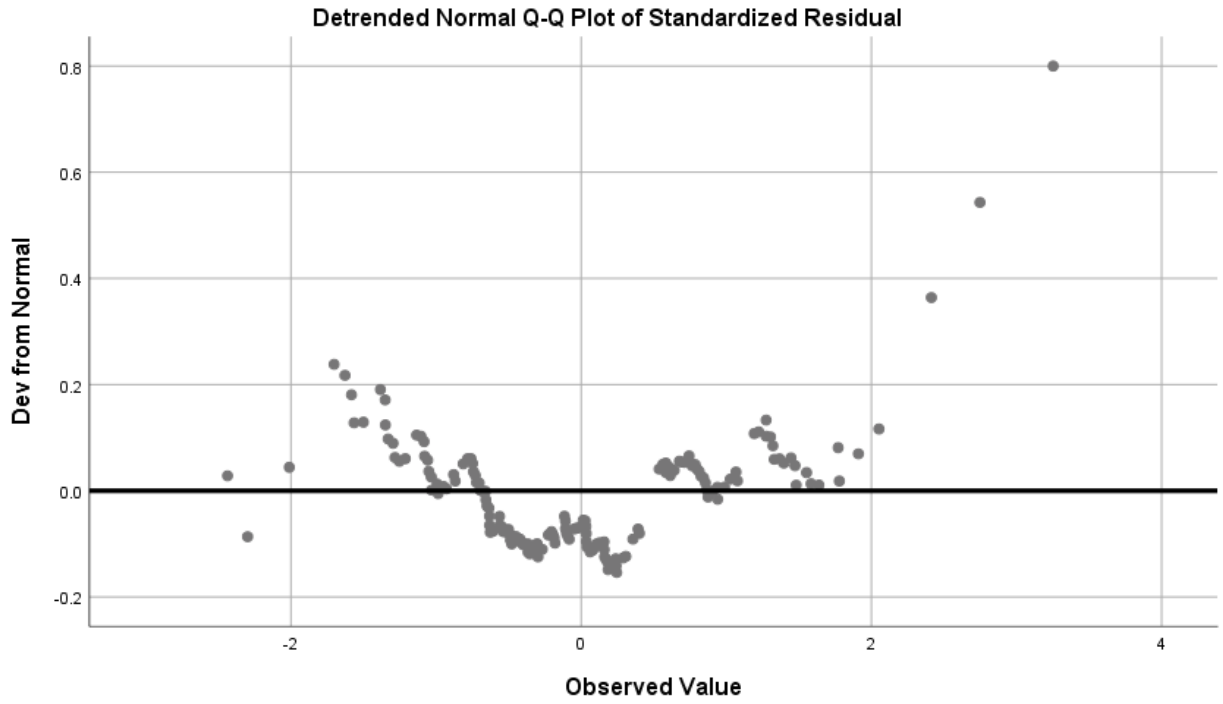
Source: SPSS Output (2026).

Figure 4.2: Normal Q-Q Plot of Model Residuals



Source: SPSS Output (2026).

Figure 4.3: Boxplot of Residual Distributions and Outliers



Source: SPSS Output (2026).

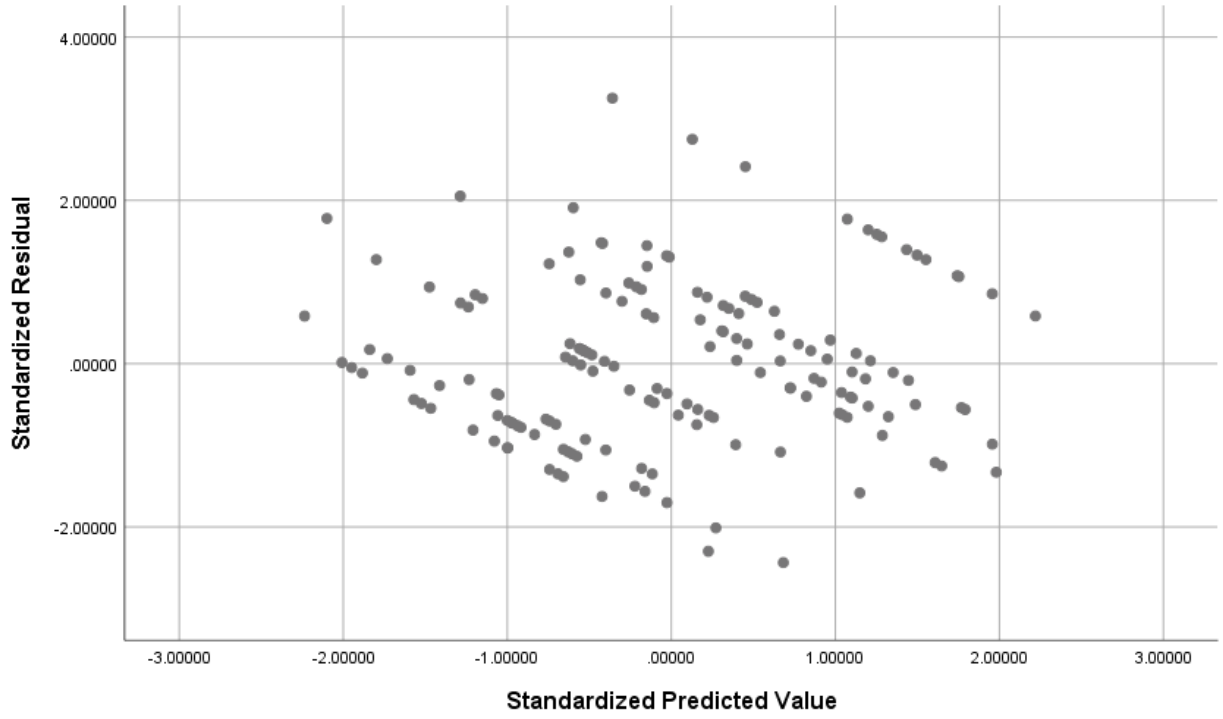
In addition, the skewness value of 0.375 and kurtosis value of 0.259 were within the acceptable range, it indicates that the residuals do not suffer from substantial departures from normality.

4.3.8 Homoscedasticity Test

Test for homoscedasticity was done by plotting standardized residuals against standardized predicted values in a scatterplot. The justification behind conducting this test is to see if the variance of the residuals stays relatively constant at different predicted values. As depicted by the scatterplot, there is a random distribution of residuals on the scatterplot, with no visible pattern or funnel-shaped distribution. Additionally, the dispersion of residuals remains reasonably constant across all ranges of predicted values.

Based on these observations, we can conclude that the variance of error terms is fairly consistent across observations. Hence, there is no significant heteroscedasticity problem, and our regression model satisfies the homoscedasticity assumption for multiple regression.

Figure 4.4: scatter of residual and predicted value



Source: SPSS Output (2026).

4.3.9 Test of Autocorrelation

To test the autocorrelation among the residuals of the regression model, Durbin-Watson test was applied. The test (Durbin-Watson) checks for autocorrelation which is when errors depend on each other. The result of the test was 1.993 which is shown on the table below, and it was between the range of 1.5 and 2.5 the regression model was no autocorrelation among residuals

The Durbin-Watson statistic value is also close, to 2.0. So, the residuals do not depend on each other. This means the regression model does not have any autocorrelation issue, due to this the regression model is fine because the Durbin-Watson test says so.

Table 4.8 Tests of autocorrelation

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.725[a]	.525	.510	1.34664	1.993
a. Predictors: (Constant), Political_instablity, Exchange_rate, Credit_risk_managment, Gross_domestic_product, Inflation_rate					
b. Dependent Variable: Actual_NPL_ratio					

Source: SPSS Output (2026).

Table. 4.9 Summary of Tests for the Questionnaire Data (N = 162)

Assumption	Test Used	Result	Conclusion
Normality	Kolmogorov-Smirnov & Shapiro-Wilk	0.200 and 0.219	Satisfied
	Histogram & Q-Q Plot	Approximately normal	Satisfied
Multicollinearity	VIF & Tolerance	VIF < 10, Tolerance > 0.10	Satisfied
Homoscedasticity	Scatterplot (ZRESID vs ZPRED)	Random distribution	Satisfied
Autocorrelation	Durbin-Watson	1.993	Satisfied

4.4 Econometric Model Tests and analysis for secondary data's

4.4.1 Secondary Data Descriptive Analysis

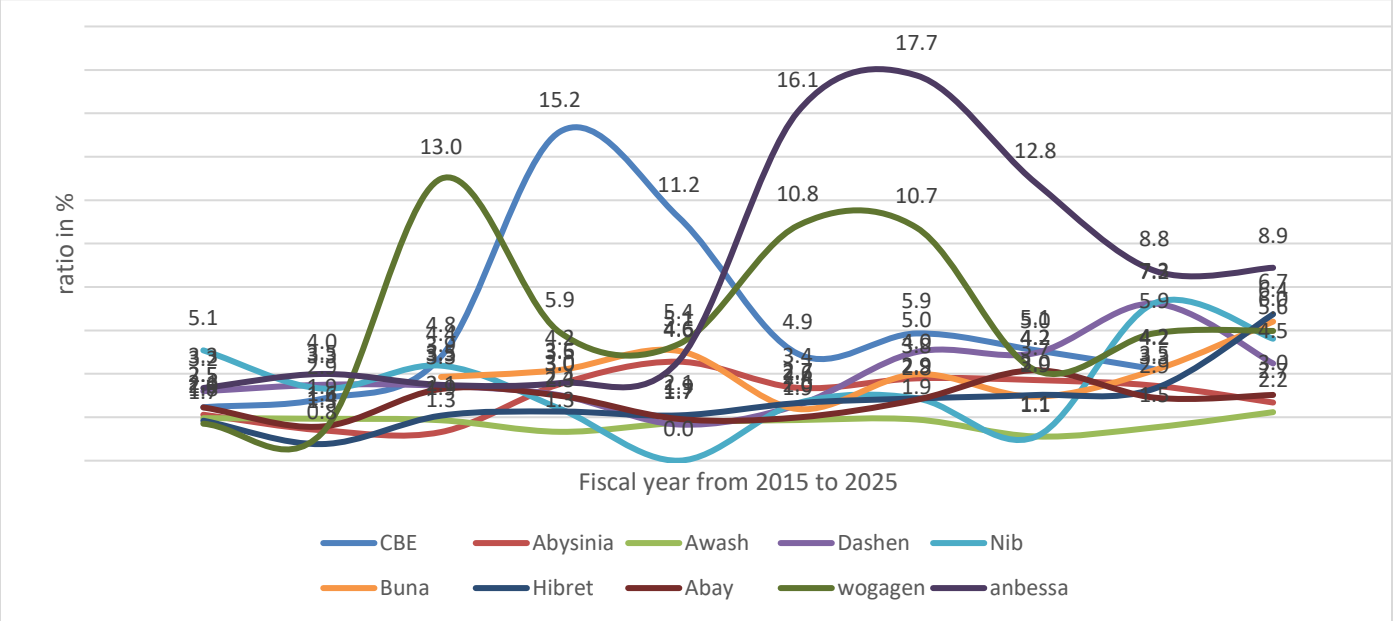
For obtaining information about physical attributes and behavioral traits of the secondary series used for financial and macroeconomic purposes, descriptive measures such as the Mean, Standard Deviation (SD), Min, and Max have been calculated.

Table 4.10: Summary of Descriptive Statistics (Secondary Data sources)

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Actual NPL Ratio (%)	96	0.76	17.74	4.31	3.29
GDP Growth Rate (%)	100	6.10	10.20	7.82	1.30
Inflation Rate (%)	100	6.60	33.90	19.24	8.45
Exchange Rate (Annual Change %)	100	0.72	4.60	2.67	1.23
Credit Risk Management	100	2.00	5.000	3.187	0.718

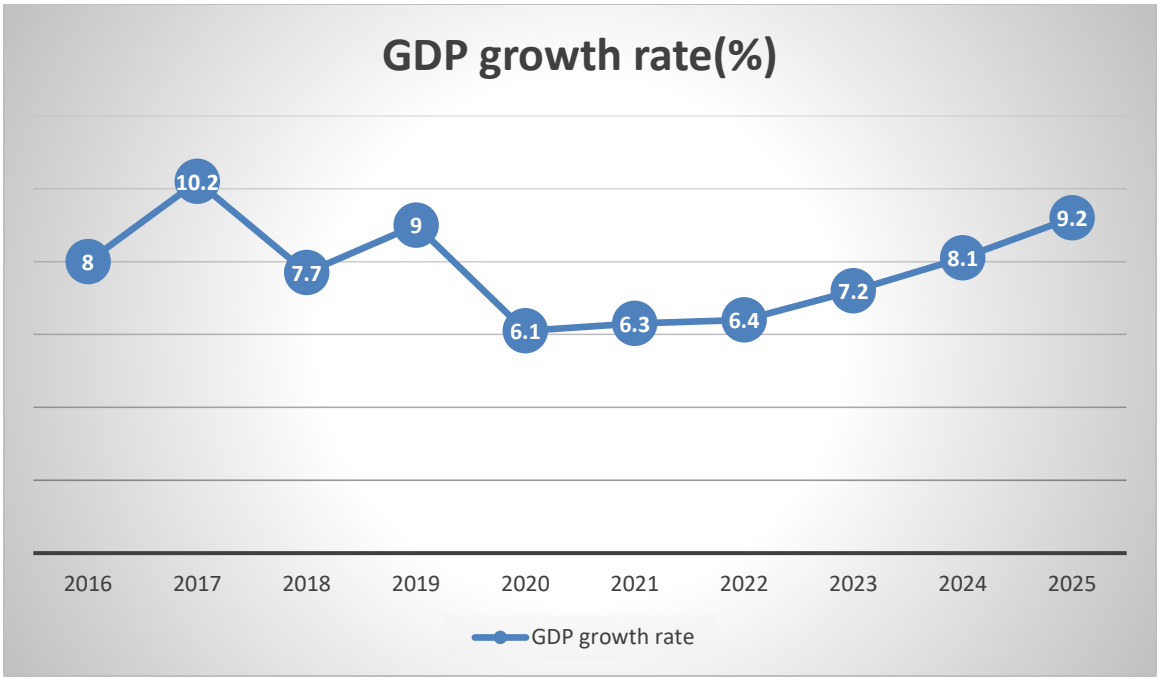
Source: SPSS Output (2026).

Figure 4.5, NPL ratio trend of 10 commercial banks during the study period (2016-2025)



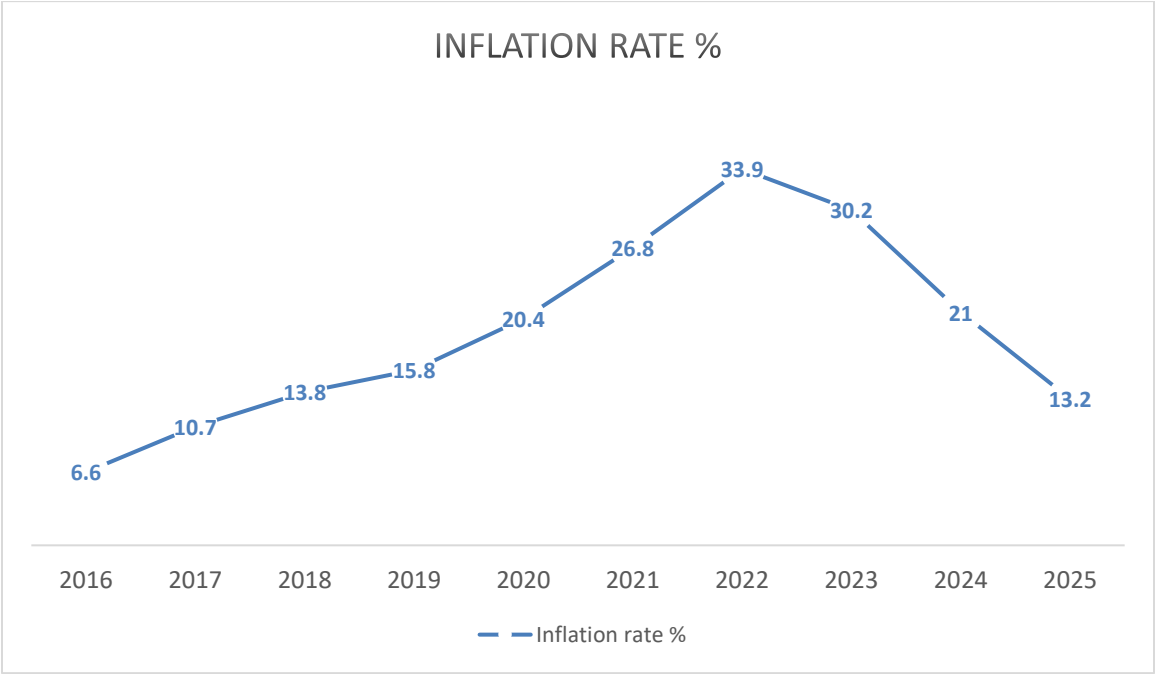
Source: Banks Annual statements published in every year (2016-2025)

Figure 4.6 Trend of Gross domestic product (GDP) Rate During the Study Period



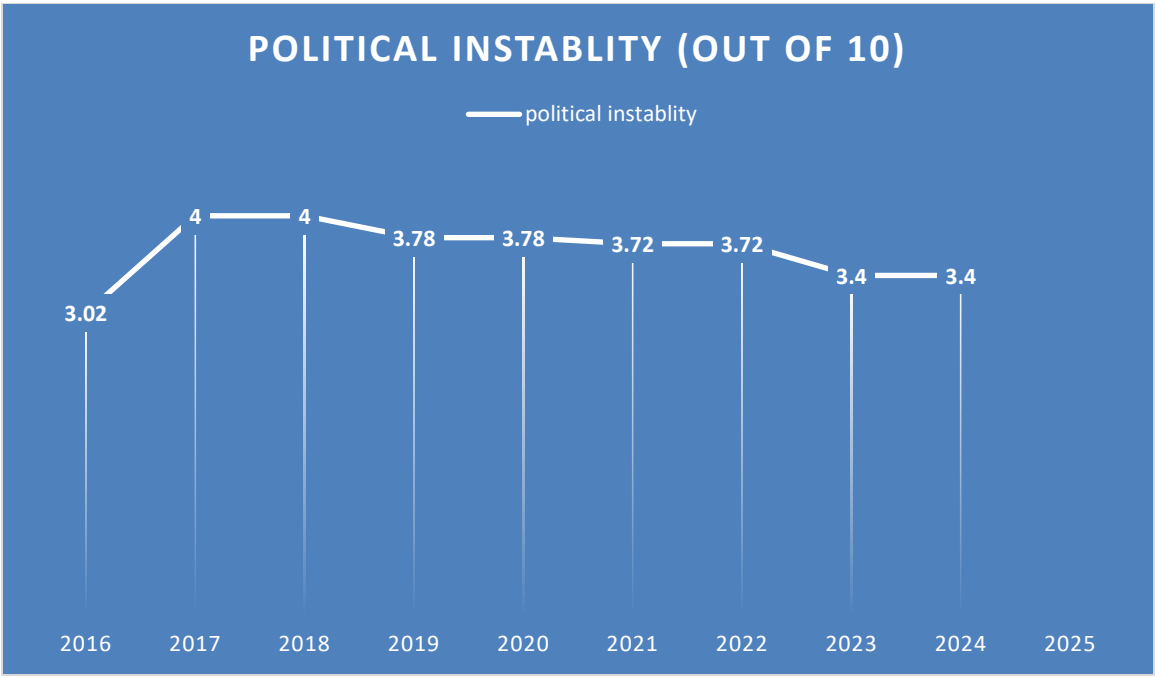
Source: IMF and World data indicator reports (2016-2025)

Figure 4.7 Trend of Inflation Rate During the Study Period



Source: IMF and World data indicator reports (2016-2025)

Figure 4.8 Trend of Inflation political instability During the Study Period



Source: Bertelsmann Stiftung (BTI) report 2016-2024

NPLs ratio is measured by non-performing loans divided by total gross loans, ranging from 0.76 to 17.74 % the minimum amount of NPL registered by Hibret bank in 2017 and the maximum NPLs rate registered by Anbessa Bank in 2022-reveals that certain banks experienced substantial credit deterioration events over the decade. Its standard deviation is 3.29% and its mean is 4.31% which indicate that from the total loan that the banks disbursed an average of 4.31 were being defaulted. **4.31%** was the approximate average actual NPL ratio value of the selected 10 banks during the study period, this indicates selected banks experience moderate level in their actual non-performing loans. This indicates that, on average, the sampled commercial banks managed to keep asset quality with in the **5.0%** maximum regulatory threshold mandated by the National Bank of Ethiopia (NBE). However, the maximum observation of **17.74**

Average inflation rate during the study period was 19.24% which fluctuation from a low of 6.6% and to a maximum of 33.90%, during this time commercial banks operated within highly volatile and unstable economic situation. Similarly, foreign exchange rate movements and political instability indicators exposed fluctuations during the study period, reflecting macroeconomic uncertainty in the banking sector. GDP growth rate also varied across the years, indicating changing economic conditions that potentially affected borrowers' repayment capacity.

The mean score of **3.420** for credit risk management practice suggests that credit policies and risk monitoring internal controls across the banking sector are generally perceived as moderate to sound, though variation exists (SD) = 0.727). All banks have its own policy and procedure

regarding to non-performing loans, but its effectiveness and matter of implantation was varied from bank to bank. Due to that credit risk management scale was different.

Political instability report of the country ranges from the low 3.02 to 4 on the year 2015/2016 and 2017/2018 respectively, and the mean value 3.65 indicates that the situation was not worst but it has its obstacles.

4.4.2 Multicollinearity Test

Multicollinearity occurs when independent variables are highly correlated with one another, which can inflate standard errors and destabilize coefficient signs. Variance Inflation Factors (VIF) were calculated for all independent variables.

Table 4.11: Tests of multicollinearity

Coefficients[a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	GDP_growth_rate	0.505	1.980
	Inflation_rate	0.184	5.427
	Exchange_rate	0.249	4.012
	Political_instability	0.856	1.168
	Credit_risk_management	0.972	1.029

Source: SPSS Output (2026).

The results indicated that all VIF values were well below the standard econometric threshold of 5.0 (ranging between 1.03 and 5.43), confirming the absence of severe multicollinearity among the explanatory variables.

4.4.3 Normality of Residuals Test

The distribution of the model's error terms was evaluated using the Shapiro-Wilk and Kolmogorov-Smirnov formal normality tests.

Table 4.12: Tests of Normality

Variable	**Kolmogorov-Smirnov (Statistic)**	**df**	**Sig. (p-value)**	**Shapiro-Wilk (Statistic)**	**df**	**Sig. (p-value)**
Residuals	.209	87	.000	.804	87	.000

Source: SPSS Output (2026).

If you look at Table 4.12 you will see that the Kolmogorov-Smirnov and Shapiro-Wilk tests both gave us a significance value of $p < 0.001$. This means that the null hypothesis of residual normality is not true.

The pictures we made to check the data also show that something is not right. In the Normal Q-Q Plot, which's Figure 4.9 the actual data points do not follow the perfect line like they should.

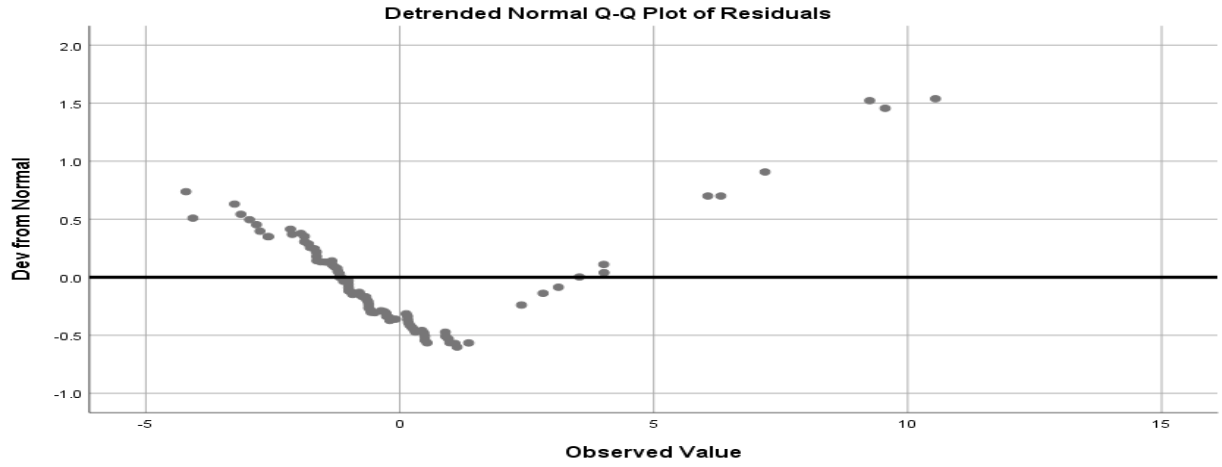
Instead, they curve upwards on the side. This makes sense when we look at the Boxplot also Figure 4.9 because it shows us some big outliers, on the positive side like cases 70, 31 60 29 and 41.

Figure 4.9: Normal Q-Q Plot of Model Residuals



Source: SPSS Output (2026).

Figure 4.10: Boxplot of Residual Distributions and Outliers



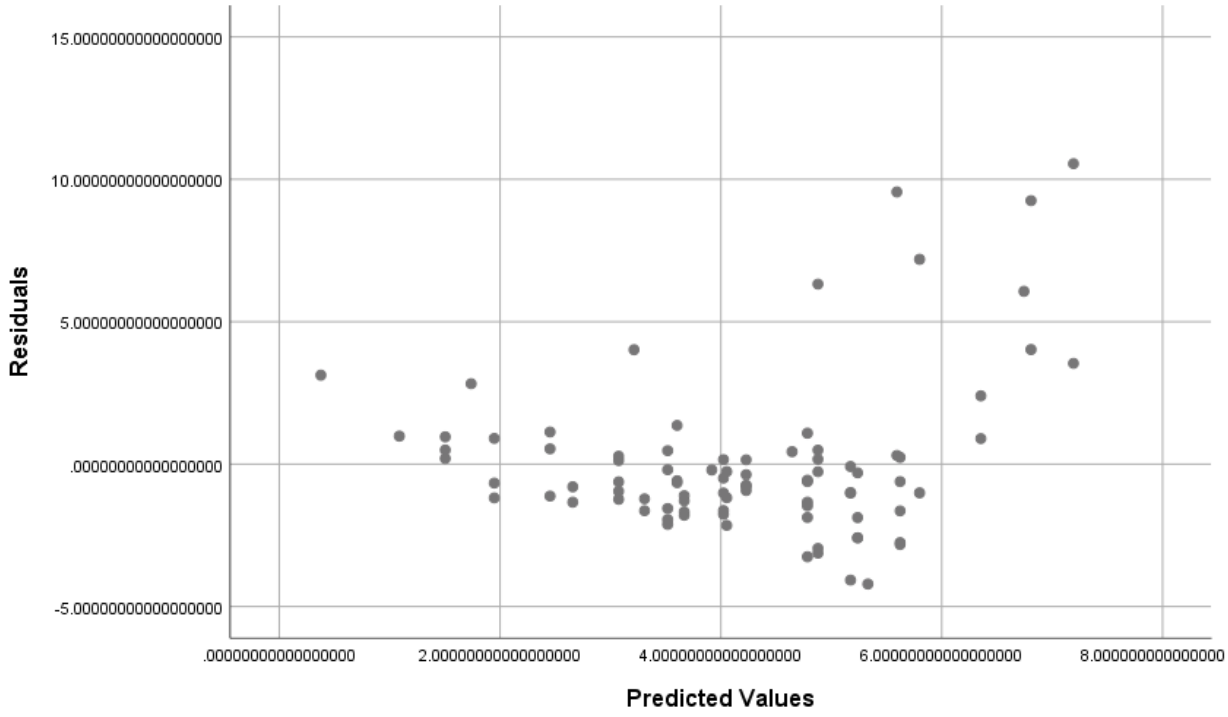
Source: SPSS Output (2026).

This right-skewed distribution is typical for bank-level Non-Performing Loan (NPL) data, which are naturally bounded by zero and tend to experience isolated spikes during poor credit cycles. According to the Central Limit Theorem (CLT), when a panel dataset sample size is sufficiently large (N > 30 or N > 50), parametric linear estimations remain highly robust to normality violations. Given that this study utilizes a panel of 87 observations (df = 87), the deviation from normality does not compromise the validity or unbiasedness of the regression parameters.

4.4.4 Homoscedasticity Test

The assumption of constant variance among error terms (homoscedasticity) was checked by plotting the Standardized Residuals against the Standardized Predicted Values.

Figure 4.11: Heteroscedasticity Residual Scatterplot



Source: SPSS Output (2026).

The residual scatterplot (Figure 4.11) exhibits a distinct funnel-shaped pattern. At low predicted NPL levels (the left side), the error variance is small and tightly clustered; however, as the predicted NPL value increases past 5.0, the residuals fan out widely between -4.0 and 10.0. This clear non-constant variance indicates the presence of heteroscedasticity.

To neutralize this violation and protect the empirical findings from standard error bias, the final baseline model was estimated using Robust Standard Errors (Huber-White Sandwich Covariance Estimator) via the SPSS syntax COVB matrix execution. This adjustment explicitly corrects the standard errors, ensuring all subsequent hypothesis testing and p-values are valid and unaffected by heteroscedasticity.

4.4.5 Serial Correlation (Autocorrelation) Treatment

Because longitudinal bank panel data frequently exhibit serial dependency within subjects over time, an unadjusted model would violate the assumption of independent errors. To address this, a First-Order Autoregressive [AR(1)] covariance structure was directly integrated into the Linear Mixed Model.

Table 4.13: Estimates of Repeated Measures Covariance Parameters

Parameter	Estimate	Std. Error	Wald Z	Sig. (p-value)	95% Confidence Interval
AR1 diagonal (Variance)	3.513524	0.814981	4.311	.000	[2.222718, 5.553957]
AR1 rho (rho)	0.481409	0.111818	4.305	.000	[0.233008, 0.671049]

Source: SPSS Output (2026).

As presented in Table 4.13, the autoregressive parameter reveals a highly significant serial correlation coefficient of 0.481409 ($p < 0.001$). This confirms that a bank's NPL ratio in a given year is moderately and significantly dependent on its historical NPL performance in the preceding year. The application of the AR (1) structure successfully controls for this dependency, removing autocorrelation bias from the baseline errors.

4.4.6 Results of the Linear Mixed Model Regression Analysis

Table 4.14: Estimates of Fixed Effects (Dependent Variable: Actual_NPL_ratio)

Parameter	Estimate (β)	Std. Error	df	t	Sig. (p-value)	95% Confidence Interval
Intercept	8.439204	3.904542	74.090	2.161	.034	[0.659391, 16.219017]
Inflation_rate	0.043206	0.065804	73.989	0.657	.513	[-0.087911, 0.174323]
Exchange_rate	-0.264140	0.482956	80.214	-0.547	.586	[-1.225213, 0.696933]
Political_instability	0.551469	0.967191	79.320	0.570	.570	[-1.373557, 2.476494]
Credit_risk_management	-1.570509	0.374021	72.994	-4.199	.000*	[-2.315932, -0.825085]
GDP_growth_rate	-0.173681	0.242111	56.220	-0.717	.476	[-0.658647, 0.311284]

** Significant at the 1% level ($p < 0.01$). Source: SPSS Mixed Model Output (2026).*

This section presents the empirical findings regarding the macroeconomic and bank-specific determinants of Non-Performing Loans across commercial banks. The model's baseline fitness was monitored utilizing information criteria optimization, yielding a Hurvich and Tsai's Criterion (AICC) of 407.095 and a Schwarz's Bayesian Criterion (BIC) of 411.730.

4.4.7 Discussion of Empirical Findings

The empirical findings from the robust linear mixed model reveal a stark contrast between internal institutional mechanisms and external environmental conditions regarding NPL asset quality.

4.4.7.1 The Impact of Credit Risk Management

The regression results demonstrate that Credit Risk Management has a negative and highly significant impact on the Non-Performing Loan ratios of commercial banks ($\beta = -1.570509$, $t = -4.199$, $p < 0.001$). This outcome provides strong empirical evidence to reject the null hypothesis at the 1% significance level.

The negative coefficient indicates an inverse relationship; holding all other factors constant, a one-unit improvement in a bank’s internal credit risk management score decreases its non-performing loan ratio by approximately 1.57%. This highlights that internal institutional choices—such as rigorous credit appraisal processes, stringent loan underwriting standards, consistent post-disbursement monitoring, and aggressive collateral evaluations—serve as the primary defenses for maintaining credit quality. Banks executing superior internal risk frameworks consistently insulate their loan portfolios from defaults.

4.4.7.2 The Impact of Macroeconomic and Political Factors

The model reveals that exogenous macroeconomic and political environmental indicators do not exercise statistically significant influences on NPL variations over the sampled period:

GDP Growth Rate ($\beta = -0.173681$, $p = .476$)
Inflation Rate ($\beta = 0.043206$, $p = .513$)
Exchange Rate Volatility ($\beta = -0.264140$, $p = .586$)
Political Instability ($\beta = 0.551469$, $p = .570$)
Because the p-values for all four environmental variables exceed the standard 0.05 threshold, the study fails to reject their respective null hypotheses.

While traditional economic theory assumes that macro shocks automatically weaken borrowers' repayment capacities, these variables are completely overshadowed by internal credit risk control practices within this model. This indicates that within the specific timeline and banking structure evaluated, variations in non-performing assets were predominantly driven by internal institutional management quality and administrative credit stringency, rather than broader national economic cyclicality or political fluctuations.

4.5.1 Triangulation Matrix: Primary vs. Secondary Data

Explanatory Variable	Primary Data (Questionnaire Perceptions)	Secondary Data (Linear Mixed Model Panel)	Triangulation Assessment
Credit Risk Management	**Significant & Negative** (r = -0.591, Mean = 2.97) *Perceived as crucial for controlling defaults.*	**Highly Significant & Negative** (β = -1.570, p < 0.001) *Confirmed as the single strongest anchor of asset quality.*	**Convergence (Full Agreement):** Both data points strongly validate that rigorous appraisal, underwriting, and post-disbursement tracking directly drive down NPL ratios.
Inflation Rate	**Significant & Positive** (r = 0.631, Mean = 3.05) *Staff believe inflation heavily erodes borrower repayment capacity.*	**Insignificant & Positive** (β = 0.043, p = 0.513) *When controlling for other factors, inflation variations do not directly shift NPL levels.*	**Divergence (Disagreement):** Staff view inflation as an immediate threat, but hard bank data proves that robust risk management neutralizes its operational impact.
Political Instability	**Significant & Positive** (r = 0.632, Mean = 3.01) *Staff cite events like the Northern War (2020-2022) as severe triggers.*	**Insignificant & Positive** (beta = 0.551, p = 0.570) *System-wide, it fails to achieve statistical significance over the 10-year period.*	**Divergence (Disagreement):** While isolated political crises create real operational disruptions noted by staff, the baseline banking system remains resilient over the longer longitudinal horizon.
GDP Growth Rate	**Significant & Negative** (r = -0.570, Mean = 2.96)	**Insignificant & Negative** (beta = -0.174, p = 0.476)	**Divergence (Disagreement):** General economic expansion creates a

	Staff believe a expanding economy naturally cushions borrowers.	*Economic growth does not automatically minimize defaults across the panel.*	positive business sentiment among professionals, but it does not substitute for sound, individualized bank lending criteria.
Exchange Rate	**Significant & Positive** (r = 0.577, Mean = 2.99) *Staff state currency depreciation spikes raw material costs for importers.*	**Insignificant & Negative** (beta = -0.264, p = 0.586) *Exhibits zero system-wide statistical influence on NPL shifts.*	**Divergence (Disagreement):** Perceived correlation does not equal causation when subjected to a robust multi-variable model controlling for serial dependency.
Credit Risk Management	**Significant & Negative** (r = -0.591, Mean = 2.97) *Perceived as crucial for controlling defaults.*	**Highly Significant & Negative** (β = -1.570, p < 0.001) *Confirmed as the single strongest anchor of asset quality.*	**Convergence (Full Agreement):** Both data points strongly validate that rigorous appraisal, underwriting, and post-disbursement tracking directly drive down NPL ratios.

4.6 Discussion of the findings

The findings of the study indicate that internal institutional factors, particularly credit risk management practices, are the most significant determinant of non-performing loans in Ethiopian commercial banks. The Linear Mixed Model (LMM) panel regression revealed that effective credit risk management has a statistically significant negative effect on NPLs ($\beta = -1.570$, $p < 0.001$), implying that improvements in loan appraisal, borrower screening, monitoring, collateral management, and recovery mechanisms substantially reduce the occurrence of non-performing loans. This finding is consistent with previous empirical studies by Kenzari and Ben Romdhane (2020), Syazwani Kepli et al. (2021), and Yahya Muqorrobina et al. (2021), who concluded that sound credit risk management practices play a critical role in minimizing loan defaults and improving asset quality. The finding is also supported by Information Asymmetry Theory, which emphasizes that effective borrower screening and continuous monitoring reduce information gaps between lenders and borrowers, thereby lowering credit risk.

The study also revealed a notable divergence between the perceptions of banking professionals and the empirical evidence obtained from the panel data. Although respondents perceived macroeconomic variables, including inflation, exchange rate fluctuations, GDP growth, and political instability, as major contributors to loan defaults, the longitudinal panel regression analysis demonstrated that these external factors did not have a statistically significant effect on NPLs during the study period. This suggests that well-established internal credit risk management systems can mitigate the adverse effects of macroeconomic and political shocks. Similar conclusions have been reported in previous studies, which argue that strong institutional governance and prudent lending practices enhance banks' resilience to external economic disturbances (Opusunju, Akyuz, & Aku, 2021; Zawadzki, 2023).

Overall, the findings suggest that asset quality in Ethiopian commercial banks is influenced more by the effectiveness of internal managerial practices than by external macroeconomic conditions. Therefore, strengthening institutional credit risk management systems is likely to have a greater impact on reducing non-performing loans than relying solely on improvements in the macroeconomic environment. This conclusion contributes to the existing literature by providing recent empirical evidence from Ethiopian commercial banks over the period 2016–2025 and reinforces the growing body of research that identifies internal bank management practices as the primary determinant of credit portfolio quality.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the recommendation and conclusion drawn from the findings of the study based on the empirical results obtained from both primary and secondary data sources.

5.2 Summary of finding

In summary, the present study adopted a mixed-methods triangulation framework, assessing primary perceptual data of 162 banking specialists with a secondary longitudinal panel of 10 commercial banks for a period of 10 years (2016-2025). Institutional perception and empirical reality are clearly mismatched as shown by the triangulation analysis. However, the robust Linear Mixed Model panel regression depicts otherwise. The descriptive and correlation analyses of the primary data show that external macroeconomic variables (inflation, exchange rates, GDP) and political instability are viewed by professionals as heavy drivers of loan defaults. After 10 years of tracking hard financial data, all exogenous macro-environmental factors become statistically insignificant. Internal Credit Risk Management is the dominant and main determinant of asset quality (beta = -1.570, $p < 0.001$).

5.3 Conclusions

The main objective of the study was to examine the effect of macroeconomic (exchange rate, GDP growth rate, inflation rate and political instability) and institutional factors on non-performing loans in selected commercial banks.

The conclusion of this study is that internal institutional factors—specifically Credit Risk Management practices—are the absolute primary and most robust determinant of Non-Performing Loans (NPLs) in Ethiopian commercial banks. While banking professionals strongly perceive that external economic shocks (inflation, currency shifts) and political crises drive defaults, the empirical panel regression reveals that macroeconomic and political variations become statistically insignificant when banks enforce aggressive, sound, and systematic internal credit oversight. Finally, asset quality in the Ethiopian banking sector is determined internally at the management level rather than externally by macroeconomic cyclicality. The questionnaire respondents strongly perceived macroeconomic instability as a major contributor to loan default problems, while the panel regression analysis emphasized the importance of internal credit risk management systems.

The following conclusion was made based on the finding of the study; those are the following below.

5.2.1 Effect of Gross Domestic Product on Non-performing loans

The findings indicated that inflation rate positively and significantly affected non-performing loans and high inflation increases the cost of living and operational costs of businesses, reducing borrowers' repayment ability and increasing the probability of loan default due that, the study

therefore concludes that macroeconomic instability in the form of inflation contributes significantly to the deterioration of loan quality in commercial banks.

5.2.2 Effect of Inflation Rate on Non-performing loans

It was found out that inflation rate positively and significantly impacted the non-performing loans where increases in the levels of inflation make life difficult for people as well as business operations. The result is that people become less able to service their debts making them vulnerable to default, hence it may be concluded that macroeconomic instability in the form of inflation leads to poor loan quality in commercial banks.

5.2.3 Effect of Exchange Rate on Non-performing loans

An increase in the exchange rate had a positive effect on the growth of non-performing loans; the depreciation of the exchange rate leads to higher costs in the importing process, cost of production, and burden on businesses dealing with foreign currencies. And it will also have a negative impact on the ability of borrowers to repay their loans and lead to an increase in non-performing loans.

5.2.4 Effect of Credit Risk Management Practice on Non-performing loans

The study found that credit risk management practice had a negative relationship with non-performing loan ratio, the effective credit appraisal, borrower monitoring, loan supervision, collateral management, and follow-up systems help reduce non-performing loans. The findings indicate that banks with stronger credit risk management practices experience relatively lower levels of loan default.

Therefore, the study concludes that effective credit risk management systems are essential for maintaining loan portfolio quality and reducing credit risk exposure.

5.2.5 Effect of Political Instability on Non-performing loans

Political instability was found to positively affect non-performing loans by disrupting economic activities, investment decisions, business operations, and income generation activities of borrowers, thereby weakening repayment performance, so we can conclude that political instability contributes significantly to the growth of non-performing loans in the banking sector.

5.3 Recommendations

Based on the findings and conclusions of the study, the following recommendations are forwarded.

5.3.1 Recommendations for Commercial Banks

Strengthen Credit Risk Management Practices

Commercial banks should strengthen their credit risk management systems through, rigorous borrower screening, continuous loan monitoring, effective collateral management, proper credit appraisal, timely loan recovery mechanisms. Banks should also improve employee training programs related to credit risk management and loan supervision.

Improve Loan Monitoring Systems

Banks should establish strong early caution systems capable of identifying borrowers with declining repayment capacity before loans become non-performing and frequent follow-up and monitoring of borrowers should be strengthened to minimize loan default risks.

Diversify Loan Portfolios

Commercial banks should diversify their lending portfolios across sectors and customer categories to reduce concentration risk and minimize exposure to sector-specific shocks.

5.3.2 Recommendations for Government and Policy Makers

Promote Macroeconomic Stability

The government and relevant economic authorities should implement policies aimed at maintaining stable inflation rates, Stable exchange rates and sustainable economic growth. Macroeconomic stability helps improve borrowers' repayment capacity and supports financial sector stability.

Improve Political Stability

Government institutions should work toward maintaining political stability and peaceful economic environments that encourage investment, business activities, and financial sector confidence. Stable political conditions contribute significantly to reducing loan default risks in the banking sector.

5.3.3 Recommendations for Regulatory Authorities

The National Bank and other financial regulatory institutions should strengthen supervision of commercial banks' credit risk management systems.

Regulators should ensure that banks maintain proper credit administration procedures, adequate loan loss provisions, effective risk management frameworks and strong internal control systems.

5.3.4 Recommendations for Future Researchers

Future researchers are encouraged to include additional bank-specific variables such as profitability, capital adequacy, liquidity, and bank size, use larger sample sizes and longer study periods, apply advanced econometric techniques such as fixed effect and random effect panel regression models, Conduct comparative studies across different countries and banking systems.

Future studies may also examine additional macroeconomic and institutional factors affecting non-performing loans.

6.Appendix

PART I: QUESTIONNAIRE (29 ITEMS)

Questionnaire

Research Title: ***Determinants of Non-Performing Loans (NPLs) in Ethiopian Commercial Banks.***

Dear respondent,

This questionnaire is designed to collect data for academic research titled *"Determinants of Non-Performing Loans (NPLs) in Ethiopian Commercial Banks."* The objective is to identify and analyze the key factors contributing to NPLs within the Ethiopian commercial banking sector. Your responses will be kept strictly confidential and will be used solely for research purposes. Please answer all questions honestly and to the best of your knowledge.

Thank you for your time and cooperation.

Please indicate your level of agreement with the following statements:
1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

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Section A: Demographic Information ***(5 questions)***

1. Your role in the bank:

☐ Credit Officer ☐ Branch Manager ☐ Risk Manager ☐ Other (Specify): _____

2. Years of experience in the banking sector:

   ☐ <2 years ☐ 2–5 years ☐ 6–10 years ☐ >10 years

3. Type of bank:
   ☐ Public ☐ Private

4. Does your bank operate in rural, urban, or both areas?
   ☐ Urban ☐ Rural ☐ Both

5. Have you directly dealt with non-performing loans in your role?
   ☐ Yes ☐ No

No	Questions	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Section 1: GDP Growth and Loan Repayment Performance						
1	GDP growth of the country has a direct influence on loan repayment performance of the borrowers.					
2	A higher GDP growth rate supports to lower levels of non-performing loans in commercial banks.					
3	Strong GDP performance promotes overall creditworthiness in the economy.					
4	Loan portfolio quality improves during periods of strong GDP growth.					
5	During periods of GDP decline, banks expertise higher credit risk.					
6	Tracking GDP trends is crucial for predicting non-performing loan levels					
Section 2: Inflation and Loan Repayment						
7	Inflation reduces the borrowers' ability/capacity to pay in line with the repayment schedules.					
8	Inflation reduces the real value of income, which leads to higher loan defaults.					
9	During periods of high inflation, commercial banks encounter greater credit risk.					
10	The purchasing power of borrowers decreases with inflation, increasing the chance of loan default.					
11	Inflation irregularity creates uncertainty that affects borrowers' financial planning and repayment behavior.					
12	High inflation undermines the stability of loan contracts, leading to more non-performing loans					
Section 3: Foreign Exchange Rate and Loan Repayment						
13	Exchange rate inconsistency affects borrower's ability to meet their loan obligations.					
14	The recent devaluation due to government macroeconomic policy increased loan defaults in our bank.					
15	Monitoring foreign exchange trends helps to manage credit risk.					
16	Commercial banks must adjust lending strategies accordingly on foreign exchange movements.					
17	Changes in exchange rates cause problems for businesses that trade internationally making it harder for them to repay loans.					
18	A weak currency causes bad loans in sectors that rely on foreign exchange.					

Section 4: Institutional factors and loan repayment						
19	Our bank follows strict credit analysis and appraisal procedures before loan approval.					
20	Weak internal controls contribute significantly to NPLs.					
21	Over-reliance on collateral amount and type rather than creditworthiness leads to more NPLs.					
22	Insufficient borrower financial literacy increases the risk of NPLs.					
23	A stronger institutional framework is necessary to effectively reduce NPLs.					
24	The size and age of a bank influence how it manages NPLs.					
Section 5 Political Factors and Loan repayment.						
25	Political instability has disrupted loan repayment in your bank's service area.					
26	Ethnic or regional conflict has directly led to non-performing loans.					
27	Political risk to be happened on the country is considered when evaluating loan applications from the applicant.					
28	Government interventions or regulatory shifts (macro-economic policy change) often affect loan repayment behavior of the borrower.					
29	Political instability is the last 5 years has more significant contributor to NPLs than macroeconomic factors.					

Overall Assessment of Credit Risk Management Practice

- For respondents with 10 or more years of banking experience, please provide an overall assessment of your bank's credit risk management practices over the past ten (10) years. In making your assessment, consider key aspects of credit risk management, including loan appraisal procedures, collateral requirements, credit monitoring mechanisms, and loan recovery processes.

Please indicate your rating by selecting one of the following options:

☐ 1 = Not Good

☐ 2 = Satisfactory

☐ 3 = Good

☐ 4 = Very Good

Overall Rating of Your Bank's Credit Risk Management Practice During the Last 10 Years: _

Y1=------	Y2=------	Y3=------	Y4=------	Y5=------	Y6=------	Y7=------	Y8=------	Y9=------	Y10=----

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