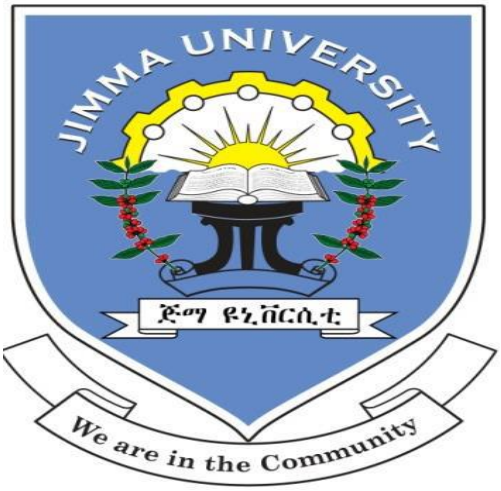
# *The Effect of Credit Risk on Financial Performance of Selected Private Banks in Ethiopia*




A Research Report Submitted to the School of Graduate Studies of Jimma University in Partial Fulfillment of the Requirements for the Award of Master

Of Science Degree in Accounting and Finance

*By: Eskindr Assefa*

*JIMMA UNIVERSITY*

*COLLEGE OF BUSINESS AND ECONOMICS*

*DEPARTEMENT OF ACCOUNTING AND FINANCE*

June, 2020

JIMMA, ETHIOPIA

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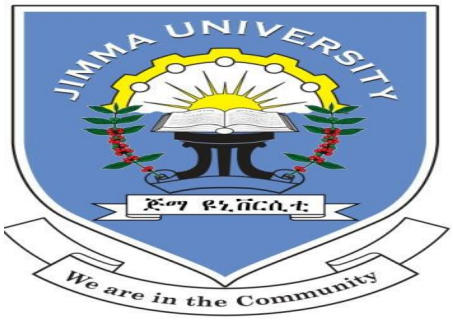


*A Research Report Submitted to the School of Graduate Studies of Jimma University in Partial Fulfillment of the Requirements for the Award of the of Masters of Science Degree in Accounting and Finance*

*By: ESKINDR ASSEFA*

*Under the guidance of*

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***Co-advisor: Mengistu Deyassa***

**JIMMA UNIVERSUTY**

**COLLEGE OF BUSINESS AND ECONOMICS**

**SCHOOL OF GRADUATE STUDIES**

**DEPARTEMENT OF ACCOUNTING AND FINANCE**

June, 2020

JIMMA, ETHIOPIA

DECLARATION

I, the undersigned, declare that this study entitled" The Effect of Credit Risk on Financial performance of selected private banks in Ethiopia" is my original work and has not been presented for a degree in any other university, and that all sources of material used for the study have been duly acknowledged.

Declared by:

Name: Eskindr Assefa

Signature: ----------

*Date*: **----------**

## CERTIFICATE

This is to certify that this study, "***The Effect of Credit Risk on Financial performance of selected private banks in Ethiopia"*** *undertaken by Eskindr Asefa for the partial fulfillment of Master of Science Degree in Accounting and Finance at Jimma University, is an original work and not submitted earlier for any degree either at this university or any other university.*

| ***Research Advisor:*** | ***Research Co-advisor:*** |
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| *Mr. Abiy Getahun* | *Mr. Mengistu Deyassa* |
| *Signature: ----------* | *Signature: ----------* |
| *Date: ----------* | *Date: ----------* |

***JIMMA UNVERSITY***

***COLLEGE OF BUSINESS AND ECONOMICS***

***MSC IN ACCOUNTING AND FINANCE PROGRAM***

***Board of Examination Thesis***

***Approved Sheet***

***Members of the Board of Examiners***

As members of the Examining Board of the final open defense, we certify that we have read and evaluated the thesis prepared by Eskindr Assefa, entitled "***The Effect of Credit Risk on Financial performance of selected private banks in Ethiopia"*** *and recommend that it be accepted as fulfilling the thesis requirement for the award of the degree in Master of Science in Accounting and Finance.*

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| *Name of Internal Examiner* | *Signature* | *Date* |
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| *Name of External Examiner* | *Signature* | *Date* |

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# ABSTRACT

*This study was to investigate the effect of credit risk on financial performance of selected private banks in Ethiopia. In order to investigate these study quantitative research approach was employed based secondary and primary data. Primary data collected through questionnaire and secondary data gathered through NBE annual report. A panel data from six selected private banks covering the ten-year period (2010-2019) was analyzed within the fixed effects model on regression analysis. The study used one dependent variable return on asset (ROA), four independent variables they were: nonperforming loan to total loan and advance ratio (NPLTLA), loan provision to total loan and advance ratio (LPTLA), total loan and advance to total deposit ratio (TLATD) and the ratio of non-performing loan to loan provision (NPLLP) as measures of credit risk. Both descriptive statistics and regression analysis specifically fixed effects model were used to analyze the relationships of the depended variable with explanatory variables. The regression result show that non-performing loan to loan provision and total loan and advance to total deposit positive relation to the dependent variable ROA and non-performing loan to total loan and advance and, loan provision to total loan and advance negatively related to the ROA . The research concluded that credit risk has significant effect on financial performance of selected private banks in Ethiopia. Hence, the study recommend in support of each variable for private banks of Ethiopia should enhance their capacity in credit analysis and loan administration. There is need to strengthen bank lending policy through effective and efficient regulators supervision and monitoring; when facility is give out especially during utilization of the facility by the borrower. Banks should try as much as possible to strike a balanced in their loan pricing decision*



Key words; Private Bank, Credit risk, NPL, Loan, Profit, Financial Performance

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# List of acronyms/abbreviations

| | |
|---|---|
| NBE | National Bank of Ethiopia |
| KYC | Know your customer |
| ROA | Return on Asset |
| TLATD | Total loan and advance to Total Deposit |
| NPLLP | Non-performing loan to loan provision |
| LPTLA | Loan provision to total loan and advance |
| NPLTLA | Non-performing loan and total loan and Advance |
| OLS | Ordinary Linear Regression |
| MLR | Multiple Linear Regression |

# CHAPTER ONE
# INTRODUCTION

## 1.1. Background of the Study

Credit risk is the possibility of losing money due to the inability and unwillingness lines of a counterparty to honor a financial obligation. Whenever there is a chance that counterparty was not pay an amount of money possessed, line up to a financial commitment or honors a claim there is credit risk. Credit management is the way of controlling and collecting payments from customers. A good credit management system helps to decrease the amount of capital tied up with debtor and minimize the exposures to bad debts (Hennie, 2009).

One of the vital factors of economic growth is the formation of strong financial institution. In this regard one of the main objective of financial institution is mobilizing resource and channeling them to investors and generate a profit out of it (Brooks, 2008).

Loans are the most important asset held by banks, and bank lending provides the bulk of bank income, it is equally true that bank loans, as they are profitable, and equally risky.

Among other things, Bank loans are vary and affected by the change in economic policy and the economy in general. Therefore, it is very significant for the banks to formulate their loan policy in order to reduce the risk associated with them. Also sound and complete loan policy has a great advantage to the banks. It helps the officials to handle loan issues uniformly, avoid confusion, reducing misunderstanding and ease management. Transparency in lending practice originates from sound loan policy (zeleke, 2007).

Banks are the most important intermediaries in the financial world. It plays a major role over economic development of a country. For instance, credit formation is the main income generating activity for the banks. However, this activity involves vast risks to both the lender and the borrower (kargi, 2011). When financial institutions issue loans, there is a risk of borrower default and when banks collect deposits and on-lend them to other clients, they put client's savings at risk (Bessie, 2003).

The risk of a trading partner not fulfilling the obligation as per the contract on due date or anytime thereafter can greatly jeopardize the smooth functioning of a bank's business. The default of small number of borrowers may result to large losses for a financial institution which can lead to huge financial distress and disturbing the whole economy (Bessie, 2003)

Credit risk is the potential that a credit borrower/counter party fails to meet the obligations on agreed terms. There is always scope for the borrower to default from his commitments for one or another reason resulting in crystallization of credit risk by the financial institution (Pandy, 2008). These losses could take the form of outright default or alternatively, losses from changes in portfolio value arising from actual or perceived deterioration in credit quality.

Credit Risk management is necessary to minimize the risk and maximize financial institution's risk adjusted rate of return by assuming and maintaining credit exposure within the acceptable parameters (Pandy, 2008).

Credit risk management is a structured approach to manage uncertainties through risk assessment, developing strategies to manage it and mitigation of risk using managerial resources (kargi, 2011). The strategies include transferring to another party, avoiding the risk, reducing the negative effects of the risk, and accepting some or all of the consequences of a particular risk (kargi, 2011).

Effective credit risk management is the process of managing an institution's activities which create credit risk exposures; in a manner that significantly reduces the probability that such activity that affect negatively on a bank's earnings and capital (NBE, 2008). Credit risk is not confined to a bank's loan portfolio, but can also exist in its other assets and activities. Similarly, such risk can exist in both a bank's on-balance sheet and its off-balance sheet accounts (NBE, 2008). Credit or default risk is the risk that the promised cash flows from loans and securities held by financial institutions may not be paid in full. The borrower default of both the principal loaned and the interest payments expected are at risk (Saunders's, 2007).The potential loss a financial institution can experience suggests that financial institutions need to collect information about borrowers whose assets are in their portfolios and to monitor those borrowers overtime (Saunders's, 2007). Credit risk is the uncertainty associated with borrower's loan repayments. In general when borrowers' asset values exceed their indebtedness they repay loans but when

borrowers' assets values are less than loan values, they do not repay and they could therefore exercise their option to default (Sinkey, 2002).

To minimize credit risk, banks are encouraged to use the KYC "know your customer" principle as expounded by the Basel Committee on Banking Supervision (Kunt-Demirgue and Detragiues, 1997, Parry,1999, Kan and Rich,1998). Knowledge of the customer means that credit shall be granted only to those customers whom those Bank fully understands their business operations.

The National Bank of Ethiopia (NBE) developed risk management guidelines for the purpose of providing minimum direction to banks on risk management and create a working framework consistent with international standards and best practices which require banks to have a fully independent credit risk management responsible for capital adjustment and provision for escalating non-performing loans (National bank of Ethiopia, 2003). (Girma, 2011). Declared that in developing country like Ethiopia, the financial sector is still in the development phase and customer services are still in their infancy and banks revenue depends greatly on lending activities and credit growth is chief to any banking organizations profit. Therefore, appropriate credit risk management system is the requirement of all banks, adjusting all complication of their credit portfolio. Originations of loan system have importance, so there is a need for suitable analysis of borrower's credit worthiness (Girma, 2011).

## 1.2. Statement of the problem

The Ethiopian banking industry is regulated by the National Bank of Ethiopian and comprises two state-owned and 16 private-owned banks. The bank industry is one of the sectors with ownership limited to Ethiopian citizens only. The aim of every banking institution is to operate profitably in order to maintain its stability and advance in growth and expansion. Even if banking industries are very important for the growth and developments of Ethiopia; they are highly constrained by credit risk based on NBE Annual report 2016/2017. Credit risk happened due to of lack of risk control tools and techniques, inefficient data management and shortage of lending eligible criteria and credit experience. In addition, banking sectors highly affected by economic fluctuation due to political crisis in Ethiopia in recently.

Bank credit can be defined as money provided by the banks for eligible customers to support execution of legally formed profitable business or investment activity that have economic importance with an agreement to pay back the principal with interest with the specified period in the loan contract (kargi, 2011).

Loans are the most important resource held by banks, lending activities require bank to make judgment related to the credit worthiness of a borrower. However, the judgments do not always prove to be accurate and the credit worthiness of borrower may decline due to various factors, consequently banks face credit risk. Credit risk is the risk that obligation was not be repaid on time and fully as expected or contracted, resulting in a financial loss or non-performing loans. The borrower may fail to meet the terms of the underlining loan agreement (Tesfaye, 2018). Weak credit risk management is the primary cause of many financial institution failures, (MC-memonies, (1999) and Hempl et al (1994)). Carried out studies and found out that the consistent elements in the failures are the inadequacy of the bank and credit risk management systems in controlling of loan qualities.

(Saunder's, 2007) indicated that the very nature of the banking business is so sensitive because more than 85% of their liability is deposits from depositors; banks use these deposits to generate credit for their borrowers, which in fact are revenue generating activities for most banks.

This credit creation process exposes to highly default risk which might led to financial distress including bankruptcy, all the same beside, banks must create credit for their clients to make some money grow and survive stiff competition at the market place (Saunders's, 2007).

According to NBE Currently in Ethiopia more than sixteen private banks based on their paid up capital categorized in to different groups; large, medium and small sectors. Therefore, in Ethiopia private banks are playing an important role for country in general and social life.

Nowadays, credit risk is highly impose banking institution in the operation of their day-to-day activities and affecting the long term growth, profit and making them to waste their time and essential resource. In getting back the lent money, equipment's and other resources. In fact, the effect of credit risk on financial performance of private banks in Ethiopia is not well studied. Therefore, so as an accountant, the author attempted to study those constraints and gave possible solution. Therefore, those constraints in banking industries initiate the author to set management strategies for credit risk. As far as my knowledge information obtained from private banks is important to reduce credit risk and for providing a practical solution.

## 1.3 Objective of the study

### 1.3.1. General objective

The main objective of the research is to investigate the effect of credit risk on financial performance of selected private banks of Ethiopia.

### 1.3.2. Specific objectives

This study attempted to achieve the following specific objectives

**1.** To analyze the effect of non-performing loan to loan provision ratio on performance of selected private banks of Ethiopia

**2**. To examine the effect of loan provision to total loan and advance ratio on performance of selected private banks of Ethiopia

**3**. To scrutinize the effect of non-performing loan to total loan and advance ratio on performance of selected private banks of Ethiopia

**4.** To examine the effect of total loan and advance to total deposit ratio on performance of selected private banks of Ethiopia

## 1.4 Research Hypothesis

Therefore, the research hypothesis of this study was developed and tested the following hypothesis with the help of empirical studies on selected Banks.

**H1**: Non-performing Loan to Loan provision ratio has negative and significant effect on the performance of selected private banks of Ethiopia.

**H2**: Loan Provision to Total Loan and Advance ratio has negative and significant effect on the performance of selected private banks of Ethiopia.

**H3**: Non-performing Loan to Total Loan and Advance ratio has negative and significant effect on the performance of selected private banks of Ethiopia.

**H4**: Total Loan and Advance to Total Deposit ratio has a positive and significant effect on the performance of selected private banks of Ethiopia.

## 1.5. Scope/delimitation of the study

In terms of time sphere this study confined itself and only considered a time series data of 10 years (2010 - 2019) on the identified proxy performance indicators of return on asset and proxy credit risk indicators of non-performing loan to loan provision, loan provision to total loan and advances, non-performing loan to total loan and advances and total loan and advances to total deposit. Considering the above mentioned circumstances, the results of the study are limited to selected private banks of Ethiopia. However, financial risk are not discussed in this study, because the researcher only used return on asset as a performance measure and four proxy credit risk indicators to measure the performance of selected private banks of Ethiopia due to it is difficult to study all private banks financial performance, so the study are bounded to as a sample base as well as restricted to banking sectors as a result of this is considered as a delimitation. Finally, the study used the quantitative approach and focus on the description of the outputs from software and give the researcher own explanation.

## 1.6. Limitations of the study

During the period of study there were different constraints. Among those the current pandemic viral disease was become the big problem. Disconnection of internet was not undermined obstacle at the study time. Therefore, this piece of paper obliged to analyze the effects of credit risk on financial performance of selected private banks of Ethiopia.

## 1.7. Significance of the study

The study is very important for private banks of Ethiopia, credit risk managers and policy makers about credit risk and its impact on performance. In general, the study has a great importance for those banks in order to make adequate control over credit management system to make profit sustainable. This work help the coming researchers as a bridge for those intend to carry out further research on the effect of credit risk on financial performance with specific reference to banking institutions.

## 1.8. Organization of the paper

This research report paper consists of five chapters. The first chapter deals with introductory part which consists of background of the study, statement of the problem, objective of the study, significance of the study, and scope and limitation of the study. The second chapter deals with review of theoretical and empirical literature. The third chapter deals with methodology of the study. The fourth chapter presents the analysis and discussions of the results of the study and finally, in the fifth chapter based on the analysis summary of major findings, conclusions and recommendation have forwarded.

# CHAPTER-TWO

# REVIEW OF RELATED LITERATURE

Risk provides the basis for opportunity. The terms risk and exposure have subtle difference in their meaning. Therefore to the probability of loss, while exposure is the possibility of loss, although they are often used interchangeably. Risk arises as a result of exposure. (Horcher, 2005).

Risk is the existence of uncertainty about future outcomes. Risk is a key factors in economic life every financial institution because, people and firms made irrevocable in research and product development, plant and equipment, inventory, and human capital, without knowing whether the future cash flow from these investment was sufficient to compensate both debt and equity holders. If such real investment does not generate their required returns, then the financial claims on these return was decline in value (Nash, 2000).

Risk is part of every human endeavor. From the moment we get up in the morning , drive or take public transportation to get to school or to work until we get back into beds (and perhaps even afterwards), In 1921 Frank Knight summarized the risk and uncertainty thus:". .uncertainty must be taken in a sense radically distinct from the family notion of Risk, from which it has never been properly separated….The essential fact is that "risk" means in some cases a quality susceptible of measurement, while at other times it is something distinctly not of this character: and there are far-reaching and crucial difference in the bearings of the phenomena depending on which of the two is really present and operating….It will appear that a measurable uncertainty, or "risk" proper, as we shall use the term, is so far different from an un-measurable one that it is not in effect an uncertainty at all" (Frank Knight,1921).

## 2.2 Meaning of credit risk

A credit risk is the risk of default on the debt that may arise from a borrower failing to make required payments. In the first resort, the risk is that of the lender and includes lost principal and interest, disruption to cash flows, and increased collection costs. The loss may be complete or partial. In an efficient market, higher level of credit risk will be associated with higher borrowing costs. Because of this, measures of borrowing costs such as yield spreads can be used to infer credit risk levels based on assessments by market participants (Wikipedia).

Financial institutions are exposed to a variety of risks among them; interest rate risk, foreign exchange risk, market risk, liquidity risk, operational and financial risks (Yusuf,2003: Cooperman, Gardener and Mills, 2000).

Credit risk means that payments may be delayed or ultimately not paid at all, which can in turn cause cash flow problems and affect liquidity (Hennie Van Greuning, 2003). Credit risk is the risk of a loss resulting from debtor's failure to meet its financial obligations to the bank in full when due under the terms agreed (Raghavan, 2003). Credit risk is the potential that a bank borrower or counterparty was failed to meet its obligations in accordance with agreed terms. In general credit risk is associated with traditional activity of banks and it is simply described as risk a loan not being repaid in part or in full (Hennie V.G Coleman and Simon, D , 2002).

All banks have their own credit philosophy established in a formal written loan policy and procedures that must be supported and communicated with an appropriate credit culture (Hennie V.G Coleman and Simon, D , 2002).

### 2.2.1 Types of credit risk

Concerning the classifying of credit risk, different writers have expressed various criteria. For example, (Hennie Van Greuning, 2003).list in his book that the three types of credit risk are personal or consumer, company or corporate and sovereign or country risks, while (Culp and Neves, 1998).pointed out realized default risk and resale risk being the two types of credit risk.

What is adopted here is part of the views from (Horcher, 2005),who defines more types of credit risk, including default risk, counterparty pre-settlement risk, and counterparty settlement risk, legal risk, country or sovereign risk and concentration risk that are six. According to (Mickinley and Barrikman, 1999).credit risk also contains transaction risk, intrinsic risk &concentration risk.

**1. Transaction Risk**: It focuses on the volatility in credit quality and earnings resulting from how the bank underwrites individual loan transactions. Transaction risk has three scopes: selection, underwriting and operations (Mickinley and Barrikman, 1999).

**2. Intrinsic Risk:** It focuses on the risk inherent in certain lines of industry and loans to certain industries. Commercial real estate construction loans are inherently more risky than consumer loans. Intrinsic risk addresses the susceptibility to historic, predictive, and lending risk factors

that symbolize an industry or line of business. Historic elements address prior performance and stability of the industry or line of business. Predictive elements focus on characteristics that are subject to change and could positively or negatively affect future performance. Lending fundamentals focus on how the collateral and terms offered in the industry or line of business affect the intrinsic risk (Mickinley and Barrikman, 1999).

**3. Concentration Risk**: Concentration risk is the aggregation of transaction and intrinsic risk within the portfolio and may result from loans to one borrower or one industry, geographic area, or lines of business. Bank must define acceptable portfolio concentrations for each of these aggregations. Portfolio diversify achieves an important objective. It allows a bank to avoid disaster. Concentrations within a portfolio will determine the magnitude of difficulties a bank will experience under adverse conditions (Mickinley and Barrikman, 1999).

Financial institution such as banks having a significant credit exposure due to their emphasis on lending and trading

**How credit risks arise**

When a financial obligation is not fully discharged, either because the counterparty cannot or will not fulfill its obligation a loss may result.

- Poor economic condition and high interest rate contribute to the likelihood of default for many organizations are:-
    i. Default risk
    ii. Counterparty pre-settlement risk
    iii. Counterparty settlement risk-exchange of payment
    iv. Legal risk
    v. Sovereign or country risk
    vi. Concentration risk

"Banking supervision, like counter intelligence, is hard to judge from the outside, because the success stories don't get told and the failures are on the front page" (Martin mayer New Work free press, Simion and Schuster,2001 PP,237).

### 2.2.2 Credit Risk Management

Credit risk management refers to management of the probability of the loss that a company may suffer if any of its borrower defaults in their repayment and is done by implementing various Risk control strategies in the company to mitigate the same. In a Bank or NBFC, the loan loss reserve and the capital adequacy ratio plays a vital role in the credit risk management policy of the same.

The main purpose of the credit risk management is to reduce the rising quantum of the Non-performing assets from the customers and recovering the same in due time with appropriate decisions.

Credit default has a significant impact on the financial performance of the company since if one Borrower does not pay his dues on time, It leads to higher provisioning, Legal Cost, Collection/Recovery Cost Rises in order to get the money back and the company's Cash flow also is been impacted.

Default risk and credit spread risk are the two types of credit risk which the company needs to manage on a daily basis to run the company in the long term.

It is also useful to find ways to increase the credit rating of thee company with regards to the credit Agencies like S&P, Fitch, Moody's etc. ( Wallstreet,Mojo).

**Credit Risk Management Strategies**

**1. Risk-based pricing**

In this, the lender generally charges a higher rate of interest to the borrower where they sense a risk of default seeing the financial condition or the past history of the borrower. Hence in this types of credit risk management strategy, different rates will be applicable for different borrowers depending upon the risk appetite and the ability to pay back the loan.

The company may charge higher rate of interest for the loans disbursed to start-up companies and relatively decrease the interest rate as and when the company starts performing. In this, any default to a good customer with a lower rate of interest gets compensated with the other customer to whom the loan is been given at a higher rate.

**2. Inserting covenants**

The lender may insert certain provision or debt covenants in the loan agreements before disbursing the funds to borrower. They can be divided into financial covenants, operation covenants, technical covenants and business level covenants. Any breach in the covenant as per the agreement will trigger a warning signal for the lender that there is a default that is going to happen in near future and appropriate action needs to be secure the loan amount.

**3. Periodic MIS reporting**

In this lender asks the borrower to submit the financial statement in a predefined format for analysis? It can be monthly, quarterly or annual depending upon the type and amount of exposure. A monthly MIS gives the full picture on the cash flows of the borrower and whether he is financial sound enough to repay the debt obligation on time.

**4. Limiting sectors exposure**

In this, the lender may decide the sectors in which he will be active in lending the funds to the borrower as it will have a massive impact on the NPA ratios of the company. Since many defaults are happening in the jeweler sectors in India due to the (Nirav Modi Scam), the lender may decide not to take any exposure in this segment to any kind of borrower as the chances of the borrower becoming insolvent are more.

Hence sector exposure is one of the most important credit risk management techniques to minimize the loan loss reserves.

Experiences elsewhere in the world suggest that the key risk in a bank has been credit risk. Indeed, failure to collect loans granted to customers has been the major factor behind the

collapse of many banks around the world (NBE, 2008).Banks need to manage credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions. Additionally, banks should be aware that credit risk does not exist in isolation from other risks, but is closely intertwined with those risks (NBE, 2008).

Effective credit risk management is the process of managing and institution's activities which create credit risk exposures, in a manner that significantly reduces the likelihood that such activities will impact negatively on a bank's earnings and capital. Credit risk is not confined to a bank's loan portfolio, but can also exist in its other assets and activities. Likewise, such risk can exist in both a bank's on-balance sheet and its off-balance sheet accounts (NBE, 2008).

Credit risk management maximizes bank's risk adjusted rate of return by maintaining credit risk exposure within acceptable limit in order to provide framework for understanding the impact of credit risk management on banks' profitability (kargi, 2011). (Girma, 2011),in a small country like Ethiopia, the financial sector is still in the development phase and customer services are still in their infancy and banks revenue depends heavily on lending activities and credit growth is central to any banking organizations profit (kargi, 2011). (Girma, 2011), in his research paper supposed that nature of Ethiopian banking industries is, so sensitive because more than 85% of their liability is deposits from depositors, all banks aggressively use these deposits to generate credit for their borrowers to make some money, grow and survive stiff competition at the market place and this credit creation process exposes the banks to high default risk.

### 2.2.3 Source of credit risk

The main sources of credit risk include, limited institutional capacity, inappropriate credit policies, volatile interest rates, poor management, inappropriate laws, low capital and liquidity levels, directed lending, massive licensing of banks, poor loan underwriting, reckless lending, poor credit assessment., non-executive directors, poor loan underwriting, laxity in credit assessment, poor lending practices, government interference and inadequate supervision by the central bank (Coyle, 2000). To minimize these risks, it is necessary for the financial system to have well-capitalized banks, service to a wide range of customers, sharing of information about borrowers, stabilization of interest rates, reduction in non-performing loans, increased bank deposits and increased credit extended to borrowers. Loan defaults and nonperforming loans need to be reduced (Bank Supervision Annual Report, 2006; Laker, 2007; Sandstorm, 2009).

Theoretically there are so many reasons as to why loans fail to perform. Some of these include depressed economic conditions, high real interest rate, inflation, lenient terms of credit, credit orientation, high credit growth and risk appetite, and poor monitoring among others. (Bercoff et al. (2002)).Categorizes causes of nonperforming loans to bank specific and macroeconomic conditions.

**Source of credit risk for FI (Financial Institution)**

**Potential defaults by**

- Borrowers
- Counterparties in derivate transaction.
- Corporate and sovereign bond issuers
- Banks are motivated to measure and manage credit risk
- Regulators requires banks to keep capital reflecting the credit risk they bear (Basel II)

### 2.2.4. Credit Risk Exposures in Banks

Generally, credit risk is related to the traditional bank lending activities, while it also comes from holding bonds, interbank transactions, trade financing, foreign exchange transactions, in the extension of commitments and guarantees, and the settlement of transactions. Various financial instruments including acceptances, interbank transactions, financial futures, guarantees, etc. also increase banks' credit risk (Bercoff et al. (2002)).

### 2.2.5. General Principles of Sound Credit Risk Management in Banking

Credit risk is most simply defined as the potential that a bank borrower or counter party will fail to meet his obligations in accordance with agreed terms (Adams &Mehran, 2009. ) (Boateng 2004). asserts that the goal of credit risk management is to maximize a bank's risk adjusted rate of return by maintaining credit risk exposure within acceptable parameters of not more than five (5%) of default rate. Banks therefore need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions. Banks should also consider the relationships between credit risk and other risks. According to (Machiraju 2004), the effective management of credit risk is a critical component of a comprehensive approach to risk management and essential to the long-term success of any banking organization.

The Basel Committee on Banking Supervision (1999; 2000; 2001)having assessed the challenges associated with banks management of credit globally, issued some guidelines that have come to be regarded as benchmark credit risk management practices in order to promote sound practices for managing credit risk. The report of the Basel Committee on Banking Supervision (2000) on credit risk focused on some four main areas as critical in every credit management process. These areas are establishing an appropriate credit environment, operating a sound credit granting process, ensuring adequate controls over credit risk and evaluation and enforcement of protective covenants.

**A. Establishing an appropriate credit environment**

According to (Wheehem& Hunger , 2008), the controlling and directing mind of every organization is the board of directors. As with all other areas of a bank's activities, the board of directors has a critical role to play in overseeing the credit granting and credit risk management functions of the bank. The board of directors, according to the report of the Basel Committee (2000), should have responsibility for approving and periodically (at least annually) reviewing the credit risk strategy and significant credit risk policies of the bank.

According to (Saunder's, 2007), these strategies should reflect the bank's tolerance for risk and the level of profitability the bank expects to achieve for incurring various credit risks.

Each bank should develop a credit risk strategy or plan that establishes the objectives guiding its credit-granting activities and adopt the necessary policies and procedures for conducting such activities (Machiraju 2004). The board needs to recognize that the strategy and policies must cover the many activities of the bank in which credit exposure is a significant risk.

The strategy should include a statement of the bank's willingness to grant credit based on exposure type (for example, commercial, consumer, and real estate), economic sector, geographical location, currency, maturity and anticipated profitability (Matyszak, 2007).This might also include the identification of target markets and the overall characteristics that the bank would want to achieve in its credit portfolio (including levels of diversification and tolerances).

Again, (Boateng 2004), study shows that the credit risk strategy of a bank should give recognition to the goals of credit quality, earnings and growth. Every bank, regardless of size, is in business to be profitable and, consequently, must determine the acceptable risk-return trade-off for its activities, factoring in the cost of capital. A bank's board of directors should approve the bank's strategy for selecting risks and maximizing profits. The board should periodically review the financial results of the bank and, based on these results, determine if changes need to be made to the strategy. The board must also determine the degree of the bank's capital adequacy (Boateng 2004).

According to (Wilson, 1998), the credit risk strategy of any bank should provide continuity in approach. Therefore, the strategy will need to take into account the cyclical aspects of the economy and the resulting shifts in the composition and quality of the overall credit portfolio.

Although the strategy should be periodically assessed and amended, it should be viable in the long-run and through various economic cycles (Machiraju 2004). (Fotoh, 2005), state that the credit risk strategies and policies should be effectively communicated throughout the organization. All relevant personnel should clearly understand the bank's approach to granting and managing credit and should be held accountable for complying with established policies and procedures. The board should ensure that senior management is fully capable of managing the credit activities conducted by the bank and that those activities are done within the risk strategy, policies and tolerances approved by the board (Basel Committee, 2001). The board should also regularly (i.e. at least annually), either within the credit risk strategy or within a statement of credit policy, approve the bank's overall credit-granting criteria (including general terms and conditions). In addition, it should approve the manner in which the bank will organize its credit-granting functions, including independent review of the credit granting and management function and the overall portfolio (Wilson .. , 1998).

While members of the board of directors, particularly outside directors, can be important sources of new business opportunities for the bank, once a potential credit is introduced, the bank's established processes should determine how much and at what terms credit is granted (Machiraju 2004).In order to avoid conflicts of interest, as asserted by (Wilson, 1998), it is important that board members do not override the credit-granting and monitoring processes of the bank. (Fotoh, 2005),states that once the board of directors has come out with a sound credit

management environment, senior management, led by the Chief Executive Officer, should have responsibility for implementing the credit risk strategy approved by the board of directors and for developing policies and procedures for identifying, measuring, monitoring and controlling credit risk. Such policies and procedures should address credit risk in all of the bank's activities and at both the individual credit and portfolio levels. Senior management of a bank is responsible for implementing the credit risk strategy approved by the board of directors. The responsibility for implementing the strategy includes ensuring that the bank's credit-granting activities conform to the established strategy, that written procedures are developed and implemented, and that loan approval and review responsibilities are clearly and properly assigned (Fotoh, 2005). Senior management must also ensure that there is a periodic independent internal assessment of the bank's credit-granting and management functions.

According to (Boateng 2004), a cornerstone of safe and sound banking is the design and implementation of written policies and procedures related to identifying, measuring, monitoring and controlling credit risk. Credit policies establish the framework for lending and guide the credit-granting activities of the bank. Credit policies should address such topics as target markets, portfolio mix, price and non-price terms, the structure of limits, and approval authorities (Basel Committee, 2001).Such policies, according to (Harper 2008), should be clearly defined, consistent with prudent banking practices and relevant regulatory requirements, and adequate for the nature of the bank and this may be difficult for very small banks.

However, there should be adequate checks and balances in place to promote sound credit decisions. The policies should be designed and implemented within the context of internal and external factors such as the bank's market position, trade area, staff capabilities and technology. Policies and procedures that are properly developed and implemented enable the bank to: (i) maintain sound credit-granting standards, (ii) monitor and control credit risk, (iii) properly evaluate new business opportunities; and (iv)identify and administer problem credits (Machiraju 2004).

According to (Sinkey, 2002), banks consider the involvement of the Chief Executive Officer (CEO), information generation and processing, and supervision as key elements of their risk management and reporting systems. The components of a bank's overall risk management and reporting system focuses on such factors as: corporate organization structure, organization of risk

management, organization of lending, approval process, credit administration, risk management function and loan quality reporting.

The Chief Executive Officer must be involved in the formulation and implementation of credit policies that should incorporate the overall risk management and reporting system of the bank. According to, (Sinkey, 2002), every bank must have a credit policy that will guide the credit activities and thereby reduce credit risk and improve profitability. Generally, a loan policy consists of five major components:

General Policies: - Management, Trade area, Balance loan portfolio, Portfolio administration,

Loan-to-deposit ratio, Legal loan limit, Lending authority, Loan responsibility, Interest Rates, Loan repayment, Collateral, Credit information and documentation, Delinquency ratio, Loan loss Reserves, Charge-offs, Extensions of renewals of past due loans, Consumer laws and regulations (Sinkey, 2002). Specific Loan Categories: - Commercial loans, Agricultural loans, Mortgage loans, Installment and branch bank loans, VISA and revolving credits, Mortgage banking subsidiary, Personal loans (Sinkey, 2002).Miscellaneous Loan Policies: - Loan to Executive Officers, directors and shareholders, Employee loans, Mortgage- Banking subsidiary, Conflict of interest Quality Control: Credit Department, Loan Review Department, Recovery Department Committees: - Directors loan committee, Officers loan committee, Loan Review Committee.

**B. Operating a sound credit granting process**

The (Basel Committee, 2001) , asserts that in order to maintain a sound credit portfolio, a bank must have an established formal transaction evaluation and approval process for the granting of credits. Approvals should be made in accordance with the bank's written guidelines and granted by the appropriate level of management. There should be a clear audit trail documenting that the approval process was complied with and identifying the individual(s) and/or committee(s) providing input as well as making the credit decision. (Machiraju 2004).According to (Wilson, 1998), banks often benefit from the establishment of specialist credit groups to analyze and approve credits related to significant product lines, types of credit facilities and industrial and geographic sectors.

Banks should invest in adequate credit decision-making resources so that they are able to make sound credit decisions consistent with their credit strategy and meet competitive time, pricing and structuring pressures (Khambata, 1996).

Each credit proposal should be subjected to careful analysis by a qualified credit analyst with expertise commensurate with the size and complexity of the transaction. According to (Boateng 2004), an effective evaluation process establishes minimum requirements for the information on which the analysis is to be based. There should be policies in place regarding the information and documentation needed to approve new credits, renew existing credits and/or change the terms and conditions of previously approved credits.

According to (Machiraju 2004), one of the management principles that banks have employed in their customer information gathering process is screening. Screening involves the process of identifying only reliable and creditworthy customers from a pool of numerous applicants for financial assistance. Banks screen "good" credit risk from "bad" ones so as to make profitable loans. Screening is usually carried out before a loan is granted.

Effective screening requires banks to collect accurate and reliable information from potential borrowers. The aim is to evaluate the default risk of their customers. The potential borrower is normally required to supply the loan officer with information about their background, income and net worth. Different credit risk models ranging from qualitative to quantitative ones may be used to facilitate the screening process to arrive at an informed decision. (Schonbucher, 2000) (Machiraju 2004), assert that banks have traditionally focused on the principles of five Cs to estimate borrowers' creditworthiness.

**These five C's are:**

**i. Character**. This refers to the borrower's personal characteristics such as honesty, willingness and commitment to pay debt. Borrowers who demonstrate high level of integrity and commitment to repay their debts are considered favorable for credit (Schonbucher, 2000 and Machiraju, 2004).

**ii. Capacity**. This also refers to borrowers' ability to contain and service debt judging from the success or otherwise of the venture into which the credit facility is employed. Borrowers who

exhibit successful business performance over a reasonable past period are also considered favorable for credit facility (Schonbucher, 2000 and Machiraju, 2004).

**iii. Capital.** This refers to the financial condition of the borrower. Where the borrower has a reasonable amount of financial assets in excess of his financial liabilities, such a borrower is considered favorable for credit facility (Schonbucher, 2000 and Machiraju, 2004).

**iv. Collateral**. These are assets, normally movable or unmovable property, pledged against the performance of an obligation. Examples of collateral are buildings, inventory and account receivables. Borrowers with a lot more assets to pledge as collateral are considered favorable for credit facility (Schonbucher, 2000 and Machiraju, 2004).

**v. Condition.** This refers to the economic situation or condition prevailing at the time of the loan application. In periods of recession borrowers find it quite difficult to obtain credit facility (Schonbucher, 2000 and Machiraju, 2004).

In addition to the five Cs, (Machiraju 2004), asserts that bankers and analysts have employed many different models to assess the default risk on loans and bonds. These vary from relatively qualitative to highly quantitative models. Further, these models are not mutually exclusive, in that a financial institutions manager may use more than one to reach a credit pricing or loan quantity rationing decision.

The information received will be the basis for any internal evaluation or rating assigned to the credit and the accuracy and adequacy of the information are critical to management for making appropriate judgments about the acceptability of the credit. Banks must develop a corps of credit risk officers who have the experience, knowledge and background to exercise prudent judgment in assessing, approving and managing credit risks. A bank's credit-granting and approval process should establish accountability for decisions taken and designate who has the absolute authority to approve credits or changes in credit terms (Machiraju 2004).

**C. Ensuring adequate controls over credit risk**

In order to ensure adequate controls over credit, (Ganesan, 2000), asserts that there must be credit limits set for each officer whose duties have something to do with credit granting.

Material transactions with related parties should be subject to the approval of the board of directors (excluding board members with conflicts of interest), and in certain circumstances (e.g. a large loan to a major shareholder) reported to the banking supervisory authorities.

Banks must also consider the time frame for granting credit since time is of particular importance to borrowers. Borrowers usually require credit within a given time, and for such credits to be worthwhile they must be granted within the period the facility is required.

According to (Hubbard, 2000), if a borrower requires a credit within, say, one month, the lending bank must meet such time period without undue delays. This implies that lending institutions must make known in unequivocal terms to the borrowers the terms and conditions to granting the credit. Having granted credit there is the need for maintaining an appropriate credit administration, measurement and monitoring process. Again, banks must establish a system of independent, continuous assessment of clients' operational results, looking out for early warning signs of operational difficulties (Mueller, 1998; Rachev, Schwartz &Khindanova, 2000).

**D. Maintaining an Appropriate Credit Administration, Measurement and Monitoring**

**Process**

Credit administration is a critical element in maintaining the safety and soundness of a bank.
Once a credit is granted, it is the responsibility of the bank to ensure that credit is properly maintained. This includes keeping the credit file up to date, obtaining current financial information, sending out notices and preparing various documents such as loan agreements, and follow-up and inspection reports (Wesley, 1993).

Credit administration, as emphasized by (Wesley, 1993), can play a vital role in the success of a bank, since it is influential in building and maintaining a safe credit environment and usually saves the institution from lending sins. Therefore, banks should never neglect the effectiveness of their credit administration operations. Then talking about credit risk measurement in banks, it is required that banks should adopt effective methodologies for assessing the credit risk inherent both in the exposures to individual borrowers and credit portfolios, and this will be explained in details later (Wesley, 1993).The last focus in this area of principles is related to credit risk monitoring, which is definitely a must in banks' risk management procedure. Banks should keep track on the borrowers' current financial conditions and ensure their compliance with the

covenants. Both cash flows and collateral adequacy should be ensured and the potential problem credits should be considered. In this way, banks are well in control of their credit qualities as well as all the related situations, and can react to any future changes timely and readily (Wesley, 1993). A proper credit monitoring system will provide the basis for taking prompt corrective actions when warning signs point to deterioration in the financial health of the borrower. The bank has to assess the credit worthiness of the borrower and even after the loan is granted, interim monitoring is required until when the borrower has finished repaying the loan. This monitoring is very important because with the uncertainty in the future, any potential event that can cause a borrower to default payment can be fast identified or, a mechanism can be put in place on time to reduce the frequency and/or intensify of a loss should it occur (Wesley, 1993).

**E. The role of supervisors**

Although the board of directors and senior management bear the ultimate responsibility for an effective system of credit risk management, supervisors should, as part of their ongoing supervisory activities, assess the system in place at individual banks to identify, measure, monitor and control credit risk. This should include an assessment of any measurement tools (such as internal risk ratings and credit risk models) used by the bank. In addition, they should determine that the board of directors effectively oversees the credit risk management process of the bank and that management monitors risk positions and compliance with and appropriateness of policies (Wheehem& Hunger, 2008 ).To evaluate the quality of credit risk management systems, supervisors can take a number of approaches. A key element in such an evaluation is the determination by supervisors that the bank is utilizing sound asset valuation procedures. Most typically, supervisors, or the external auditors on whose work they partially rely, conduct a review of the quality of a sample of individual credits. In those instances where the supervisory analysis agrees with the internal analysis conducted by the bank, a higher degree of dependence can be placed on the use of such internal reviews for assessing the overall quality of the credit portfolio and the adequacy of provisions and reserves. Supervisors or external auditors should also assess the quality of a bank's own validation process where internal risk ratings and/or credit risk models are used.

Supervisors should also review the results of any independent internal reviews of the credit granting and credit administration functions. Supervisors should also make use of any reviews conducted by the bank's external auditors, where available (Wheehem& Hunger, 2008 ).

### 2.2.7 Profitability and risk of banks

(Berger and DeYoung 1997), banking profitability may also reflect the risk taking behavior of managers. Banks with high profitability are less pressured to revenue creation and thus less constrained to engage in risk credit offerings. At the same time, inefficient banks are more likely to experience high level of problem loans. Poor management can imply weak monitoring for both operating costs and credit quality of customers, which will include high levels of capital losses. Under this bad management hypothesis advances by (Berger and DeYoung 1997), mangers lack competencies to effectively assess and control risks incurred when lending to new customers. (Garciya-Marco and Robels-Fernendz 2007), found that profit maximizing policies will be accompanied by higher level of risk. The acceptance and management of financial risk is inherent to the business of banking and banks roles as financial intermediaries. Risk management as commonly perceived does not mean minimizing risk; rather the goal of risk management is to optimize risk-reward trade-off. Notwithstanding the fact that banks are in the business of taking risk, it should be recognized that an institution need not engage in business in a manner that unnecessarily imposes risk upon it nor should it absorb risk that can be transferred to other participants. Rather it should accept those risks that are uniquely part of the array of bank's services. An important aspect regarding various risk categories is their correlation (Garciya-Marco and Robels-Fernendz 2007).

### 2.2.8. Classification of loan and advances

National Bank of Ethiopia asserted that banks' advances can be classified into five categories, depending on their performance in terms of possibility of repayment. These categorizations are:

**1. Pass**

Advances in these categories are those for which the borrower is up-to-date with repayment of both principal and interest. Indications that an overdraft or loan is current indicate regular activity on the account with no sign that a hardcore of debt is building up. NBE asserts that a minimum of 1% of the aggregate outstanding balance of current advances should be provided

against possible future defaults. This enables the bank to set aside part of current profits or earnings to offset any future default by beneficiaries of current advances.

**2. Sub Mention**

The loans and advances with pre-established repayment programs past due 30(thirty) days or more but less than 90(ninety) days, or overdraft and loan or advances that do not have pre-established re payment program, NBE asserts that minimum of 3% of aggregate outstanding of the current advances should be provided against possible future defaults.

**3. Substandard advances**

The loans and advances with pre-established repayment programs past due 90(ninety) days or more but less than 180(one hundred eighty) days, or overdraft and loan or advances that do not have pre-established re payment program, Substandard advances display well-defined credit weaknesses that jeopardize the liquidation of the debt. These categories of advances are advances for which the borrower's cash flow is not significant enough to meet current maturing debt, as well as the borrower lacking sufficient working capital to meet his operating needs. For substandard advances, a provision of about 20% of the aggregate net unsecured outstanding amount should be provided against current profit NBE (SBB/43/2008)

**4. Doubtful advances**

The loans and advances with pre-established repayment programs past due 180(one hundred eighty) days or more but less than 360(three hundred sixty) days, or overdraft and loan or advances that do not have pre-established re payment program, These categories of advances exhibit all the weaknesses inherent in advances classified as substandard with the added characteristics that the advances are not well secured and the weaknesses make collection or liquidation in full on the basis of current facts, conditions and values highly questionable and improbable. The possibility of loss is extremely high, but because of certain important and reasonably specific pending factors, which may work to the advantage and strengthening of the advance, its classification as an estimated loss is deferred until its exact status is determined. NBE (SBB/43/2008) states that as much as 50% of the aggregate net unsecured outstanding balance of doubtful advances should be provided against current profits to off-set future defaults.

**5. Loss advances**

Non-performing loans or advances with pre-established repayment program past due 360(three hundred sixty) days or more. Advances classified as loss advances are classified uncollectible and of such little value that their continuation as recoverable advances is not worthwhile. Non-performing advances which are overdue for 360 or more days are classified as loss advances. According to the NBE (SBB/43/2008) as much as 100% of the aggregate net unsecured outstanding balance is provided for against current profits.

## 2.3 Empirical Review

Credit risk: - is a serious that threats to the performance of banks as a result various researchers has examined the effect of credit risk management on performance on banks in varying dimensions.

(Hakim and Neamile , 2001) as documented in (Ariffin and Kassim , 2009)examine credit risk and bank's performance in Egypt and Lebanon banks in the 1990s, by using data for banks from the two countries over the period 1993-1999, the study estimates an ordinary least squares regression (OLS) model of bank return with varying intercepts and coefficients. The findings show that credit variable is positively related to profitability, while liquidity variable is insignificant across all banks and have no impact on profitability.

(Benson Mwai Karugu , 2015), the study sought to analyze the effect of credit risk management practice on profitability of listed commercial banks at Nairobi Kenya. A descriptive research design was adopted. The results indicate that credit risk governance had a positive and significant on profitability.

(Epure and Lafuente , 2012), examined bank performance in the presence of credit risk for Costa-Rican banking industry during 1998-2007. The results showed that performance improvements follow regulatory changes and that risk explain different in banks and NPLs negative affect efficiently and ROAs while the capital adequacy ratio has a positive impact on the NIM

(Kithinji , 2010), assessed the effect of credit risk management on the profitability of commercial banks in Kenya, Data on the amount of credit, level of NPLs and profits were collected for the

period of 2004-2008. The findings revealed that the bulk of the profits of commercial banks are not influenced by the amount of credit and NPLs, therefore suggesting that other variables other than credit and NPLs impact on profits.

(Ugirase Josiane Magnifique, 2013), examined the effect of credit risk management on the financing performance of commercial banks in Rwanda. The finding of the study conclude that credit risk identification, credit scoring mechanism and credit analysis and assessment are good predictors of the models consequently these three indicators used for credit risk management have shown a positive relationship with the financial performance of commercial banks in Rwanda.

A (deusi etal, 2013), focused on the association of credit risk management practice and bank financial performance in Nigeria, using secondary data for 10 banks and for four years reported an inverse relationship between financial performance of banks and doubtful loans, capital asset ratio was found to be positive and significant, similarly it suggests that the higher the managed funds by banks the higher the performance. The study conclude a significant relationship between banks performance and risk management, hence the need for banks to practice prudent risk management in order to protect the interests of investors.

(kargi, 2011),evaluated the effect of credit risk on the profitability of Nigeria banks, financial ratio as measuring of banks performance and credit risk where collected from the annual reports and accounts of sampled banks from 2004 to 2008 and analyzed using descriptive, correlation and regression techniques. The findings revealed that credit risk management has a significant impact on the profitability of Nigeria banks. It concludes that levels of loans and advances, NPLs and deposits there by exposing them to great risk of illiquidity and distress.

(Liyugi , 2007), examined the determinate of banks profitability and its implications on risk management practice in the United Kingdom. The study employed regression analysis on a time series data between 1999 and 2006. Six measures of determinates of banks profitability were employed. He proxies internal determinates of banks performance as liquidity, credit and capital, GDP growth rate, interest rate and inflation rate where use external determinate of banks profitability the six variables where combined in to one overall composite index of bank

profitability. ROA was used as an indicator of banks performance it was found that liquidity and credit risk have negative impact on banks profitability.

(Poudel , 2012), appraised the impact of credit risk management in banks financial performance in Nepal using time series data from 2001 to 2011. The results of the study indicate that credit risk management is important predictors of banks financial performance.

(Fredrick , 2010), also demonstrated that credit risk management has strongly impact on banks financial performance in Kenya. (Meanwhile Jackson , 2011), towed the line of Fredrick (2010) by using CAMEL indicators as independent variables and ROE as a proxy for banks performance. His findings were also in line with that of Fredrick who also concludes that CAMEL model can use as proxy for credit risk management.

(Mohammed etal , 2012), used descriptive, correlation and regression techniques to study whether credit risk affect banks performance in Nigeria from 2004 to 2008. They also found the credit risk management has a significant impact on profitability of Nigeria banks.

In Ethiopian case studies on the relationship between credit risk and performance of commercial bank in Ethiopian are few through many studies documented that credit risk is among the major challenges of banks in Ethiopia of these studies.

(Tibebeu, 2011), studies the effect of credit risk management on the performance of commercial banks in Ethiopia used secondary data from annual report of the commercial banks showed that there is a negative relationship between credit risk and performance of commercial banks in Ethiopian.

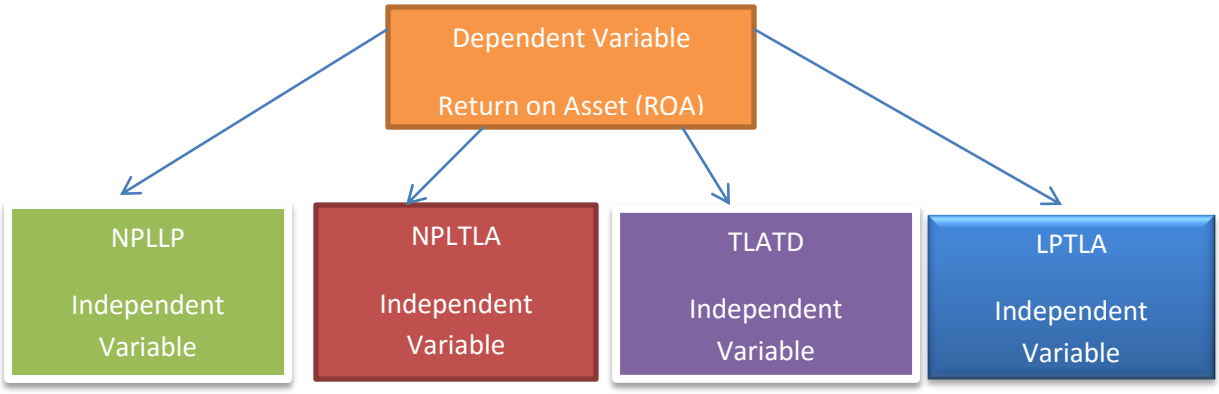
(Hailu, 2016), in their study investigated the impact of credit risk on profitability performance of selected public and private commercial banks of Ethiopian used secondary data from annual report of the selected public and private commercial banks of Ethiopian. Showed that there is a negative relationship between credit risk and performance of commercial banks in Ethiopian

(Agegenehu , 2011), describes credit risk management and performance of Ethiopian commercial banks. This study attempt to reveals the relationship between credit risk and performance of commercial banks in Ethiopian in order to investigate these issues quantitative research approach is utilized based on documents analysis. A panel data from seven selected

commercial bank covering the eleven-year period (2001-2011) is analyzed within the fixed effects framework. The findings of the study showed that NPL (non-performing loan) had statistically significant and negative relation with ROA. (Tesfaye Mulugeta, 2018), examined that the effect of credit risk on financial performance of commercial banks in Ethiopian. The study also shows that performance of banks in Ethiopian mainly negative influence by non-performing loan to loan provision. In other way according to the regression results, the finding indicates that bank credit risk measured in terms of Non-performing loan to loans advance had statically significant and negative relation with ROA.

## 2.5. Conceptual Framework

The main objective of this study is to examine the effect of Credit risk on financial performance of selected private banks. Based on the objective of the study, the following conceptual model is framed. As it described previously in the related literature review parts, bank performance measured by return on asset can be affected by credit risk proxy variables of non-performing loan to total loan and advance (NPLTLA), non-performing loan to loan provision (NPLLP), loan provision to total loan and advance (LPTLA) and total loan and advance to total deposit (TLATD). Thus, the following conceptual model is framed to summarize the main focus and scope of this study in terms of variables included.




ROA= Return on Asset dependent variable or measurement of performance of selected banks.

NPLTLA= Non-performing Loan and Total loan and Advance as independent variable.

NPLLP= Non-performing loan to Loan Provision as independent variable.

LPTLA= Loan Provision to Total loan and Advance as independent variable.

TLATD= Total loan and Advance to Total Deposit as independent variable.

# CHAPTER-THREE

# RESEARCH DESIGN AND METHODOLOGY

## 3.1 Research methodology

In this chapter the research methodology was adopted to investigate the objective of this study. More specifically compressive econometrics model was adopted to measure the effects of credit risk management on performance of selected private banks in Ethiopia.

## 3.2 Research Approach

The purpose of this research is to examine the effect of credit risk on financial performance of selected private banks in Ethiopia, so in order to achieve above-mentioned objective the researcher employed quantitative research approach. Since quantitative research approach emphasize objective measurements and the statically, mathematical or numerical analysis of data collected through questionnaires and pre-existing statistical data using computation technique. That is why the researcher adopts quantitative research approach for this data.

## 3.3 Research design

This research study was employed quantitative research design. Quantitative research involves counting and measuring of events and performing the statistical analysis the body of numerical data.

Under quantitative research design, descriptive research method was employed. Research design is the set of methods and procedures used in collecting and analyzing measures of the variable specified in the research. A research design is a framework that has been created to find answer to research question. Research design refers to the overall strategy that you choose to integrate the different component of the study in coherent and logical way there by ensuring you will effectively address the research problem, it constitute the blueprint for the collection measurement and analysis of data. This research was conducted to examine the effect of credit risk management on financial performance of selected private banks in Ethiopian.

## 3.4Target population and sampling design

The target population of the study was private banks in Ethiopia, Nowadays, in Ethiopia sixteen private banks are operational according to Ethiopia national bank (NBE) reports in 2019, such as Dashen Bank, Awash Bank, United Bank, Bunna International Bank, Wegagen Bank, Nib International Bank, Berhan International bank, Abayssia Bank, Abay Bank, Zemen Bank, Debube Global Bank, Lion International Bank, Oromia international bank, Addis International Bank, Cooperative Bank of oromia. Six private banks were selected depend upon high number of branch, asset quality and to provide the information required were selected at head office level. The selected private banks were Dashen Bank, Awash Bank, United Bank, Lion International Bank, Bunna International Bank and Wegagen Bank. Thus, according to a panel data that comprise annual finnacial report judgemental sampling method was used.

## 3.5Data type and source of data

In this paper the researcher was used quantitative research approach. Both primary and secondary data were used for the research study. The primary data were obtained by questionnaire through distributing to six selected private banks. Sixty observations were participated in order to collect primary data. In this study judgmental sampling technique was used to determine the number of respondents for each selected private banks. Because, judgmental technique allows researcher to select the number of respondents in which researcher rely on their own judgment when choosing respondents who have knowledge to answer the question that delivered from the researcher. The secondary data were collected from the annual report of NBE in selected private bank in Ethiopia at head office level. The author obtained data by considering the proxy credit risk indicators of non-performing loan to loan provision, loan provision to total loan and advance, non-performing loan to total loan and advance and total loan and advance to total deposit and performance indicator of ROA of the period covered from 2010-2019.

## 3.6 Methods of data analysis

The primary data collected through questionnaire were analyzed and interpreted using descriptive statistics tools like tables, figures and percentage. The regression model was employed to analyze and interpret the secondary data regression model used by the researcher. The objective of this study is examined the effect of credit risk on financial performance of

selected private Bank in Ethiopia for the period of 2010-2019. To achieve this objective the OLS regression was used in analysis. The use of linear regression helps to determine the effect of the independent variable(s) on dependent variable(s) and to what degree. In other words, it determines both direction and magnitude of the relationships, data collected were present with the aid of tables. Diagnostic tests such as for normality and unit root were carried out. Panel data is favored for situation often arises in financial modeling for the data comprising both time series and cross-sectional element. In addition, it is possible to address a broader range of issues and tackle more complex problem with panel data then would be possible with pure time-series or pure cross-section data alone (Brooks,2008).

According to the study model focused on panel data techniques that comprise both cross-sectional elements and time series elements, the cross-sectional elements is reflected by different private banks (six) and the time series elements is revealed by the period of (2010-2019).

Therefore, the collected panel data was analyzed by using descriptive statistics, correlation and multiple linear regression analysis. The rational for choosing ordinary linear square (OLS) is that, if the classical linear regression model (CLRM) assumption holds true, the estimators determine, by OLS will have a number of desirable properties and are known as best linear unbiased estimator (brooks, 2008).

Diagnostic checking is done to test whether the sample is consistent with the following assumptions. According to Brooks (2008), the assumptions of ordinary least squares are:

- The errors have zero mean ($E(u_t) = 0$)
- Variance of the errors is constant ($Var(u_t) = \sigma^2 < \infty$)
- Covariance between the error terms over time is zero ($cov(u_i, u_j) = 0$ for $i \neq j$
- Test for Normality ($u_t \sim N(0, \sigma^2)$)
- Multicollinearity Test

If all the above assumptions are consistent with the sample, E-view result will be accurate and reliable. The following tests are done in this research to test the above assumptions.

**I. The errors have zero mean (E (ut) = 0)**

Brooks (2008), the first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated.

**II. Variance of the errors is constant (Var(ut) = σ2 <∞) (** (Heterosedasticity)**)**

According to Brooks (2008), the variance of the errors is constant this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be Heterosedasticity. If Heterosedasticity occur, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid as it will underestimate the variances and standard errors. There are several tests to detect the Heterosedasticity problem, which are Park Test, Glesjer Test, Breusch-Pagan-Goldfrey Test, White's Test and Autoregressive Conditional Heterosedasticity (ARCH) test. In this study, the popular white test was employed to test for the presence of heteroscedasticity.

**III. Covariance between the error terms over time is zero (cov (ui, uj) = 0 for i ≠ j**

(Autocorrelation)

According to Brooks (2008), when the error term for any observation is related to the error term of other observation, it indicates that autocorrelation problem exist in this model. In the case of autocorrelation problem, the estimated parameters can still remain unbiased and consistent, but it is inefficient. The result of T-test, F-test or the confidence interval will become invalid due to the variances of estimators tend to be underestimated or overestimated.

Due to the invalid hypothesis testing, it may lead to misleading results on the significance of parameters in the model. Therefore, the study test for the existence of autocorrelation, the popular Durbin–Watson test and Breusch-Godfrey test were employed.

**VI. Normality (ut~N (0, σ2)**

As per Brooks (2008) normality tests are used to determine if a data set is well-modeled by a normal distribution. With the normality assumption, ordinary least square estimation can be easily derived and would be much more valid and straight forward. This study used JarqueBera Test (JB test) to find out whether the error term is normally distributed or not.

**IV. Multicollinearity**

According to Brooks (2008), Multicollinearity will occur when some or all of the independent variables are highly correlated with one another. If the multicollinearity occurs, the regression model is unable to tell which independent variables are influencing the dependent variable. This study used high pair-wise correlation coefficients method to test the presence of multicollinearity problem in a regression model, because it shows the correlation of independent variables between each other one by one. Malhotra (2007) stated that multicollinearity problems exists when the correlation coefficient among explanatory variables should be greater than 0.75. However, Brooks (2008) mentioned that if the correlation coefficient along with the independent variables is 0.8 and above, multicollinearity problems will be existed.

## 3.7 Model Specification

To investigate the effect of credit risk on financial performance of selected private bank of Ethiopia the following general multiple linear regression models used:-

$Y_i = \beta_0 + \beta_{Xi} + \mu_i$…… (1)

Where:

$^{Y}_{i}$ –Dependent Variable(s)

$\beta_0$ - Constant term,

$X_i$ - Explanatory or independent Variables

$^{\mu}_{i}$ - Disturbance term

Hence, based on the above general multiple linear regression models and on the basis of select variables for the study the specific empirical model presented as follows:

ROA =f (NPLTLA, LPTLA, NPLLP, TLATD)

$Y= \alpha + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \ldots\ldots\ldots\ldots\ldots\ldots \mu$

Where: Y= Return on Asset (dependent variable) - performance measure Proxy credit risk indicators

$X_1$= Non-Performing Loan to Total Loan and Advances

$X_2$= Loan Provision to Total Loan and Advance

$X_3$= Non-Performing Loan to Loan Provision

$X_4$= Total Loan and Advance to Total Deposit

μ= disturbance term

Also α is an intercept and β is the parameter of explanatory variable and it measures by what amount the dependent variable (ROA) increases or decreases when the specific explanatory variables increases or decreases by a unit.

## 3.8 Variable description

In this section explain the variable used as dependent and independent variables in this study. The definition and measurement are used these variables are described and accordingly with the help of empirical data hypothesis developed as follow.

| **Dependent variable(s)** | **Independent variable(S)** |
|---|---|
| Return on asset (ROA) | Non-performing loan to loan provision |
| | Loan provision to total loan and advance |
| | Non-performing loan to total loan and advance |
| | Total loan and advance to total deposit |

### 3.8.1 Dependent variables

**Return on Asset (ROA):-**

There are different ways to measure profitability such as return on asset (ROA), return on equity (ROE) and return on invested capital (ROIC). ROA is indicator of how profitability a company is relative to its total assets. It gives us ideas as to how efficient management is in using its assets to generate earnings whereas ROE measures a company's profitability which reveals how much profit a company generates with the money shareholders have invested. The return on asset shows the percentage of how profitable a company asset are in generating revenue. ROA can be

computed as below: this number tells you what the company can do with what it has therefore how many dollars of earning they derived from each dollar of asset they control.

The return on asset ratio formula is calculated by divided net income by average total asset:

$$ROA = \frac{\text{Net income}}{\text{Total Asset}}$$

(Girma 2011; Agegnehu, 2013), it is defined as profit after tax divided by total asset reflected how will bank manager are using the banks real investment resource to generating profit. It shows the profit earned per dollar of assets and most important. Many regulatory believe return on asset is the bank measure of bank efficiency from the two major alternative measurement of profitability namely ROA and ROE. As highlighted by (Athanasoglou etal , 2008), many scholars suggest that ROA is the key ratio for the evaluation of bank performance given that ROA is not distorted by high equity multipliers, while ROE disregarding the risk associated with high leverage and financial leverage. Thus, ROE did not make it possible to identify the best performing banks in terms of sustainability of their results. ROE is short-term indicators and must be interpreted as a snapshot of current shape of institution. So, for this study purpose the researcher was used Return on Asset (ROA) as dependent variable this due to measure of performance of a bank is relative to its total assets.

ROA are measure for selected private banks in Ethiopia profitability, the data used to calculate these ratios are retrieved from the annual reports and financial statement of the selected private banks between the period 2010 and 2019.

## 3.8.2 Independent variables

**Non-performing loan to loan provision :-( NPLLP)**

Non- performing loan NPL is a loan that is default or close to being in default, many loan become non-performing after being default for 90 days, but this can depend on the contract terms. Non-performing loan categories i) substandard (overdue> 90 days), ii) Doubtful (180-360 days), iii) Lost (>360 days).

Loan provision is an expense set aside as an allowance for uncollected loan and loan payments. This provision is used to cover a number of factors associated with potential loan loss including

bad loans, customer defaults, and renegotiated terms of loan that incur Lowe-previously estimated payment.

$$\text{NPLLP} = \frac{\text{NPL ratio}}{\text{Loan provision}}$$

The ratio of non-performing loan to loan provision, which measure how much a bank is suffer default in years relative to its reserved loan provision, it's used to measure the effect of non-performing loan to loan provision on performance of selected private banks in Ethiopia.

**Loan provision to total loan and advance: - (LPTLA)**

Loan loss provision is a non-cash expense for banks to calculates, Banks assume that certain percentage of loan will default or become slow- paying, Banks enter a percentage as an expense when calculating heir pre-tax income. $\text{LPTLA} = \frac{\text{LP}}{\text{TLA}}$

The ratio of loan provision to Total Loan and Advance used as a measure for credit risk, it indicates banks' ability to generate income before the expectation of default occur (Tesfaye Mulugeta, 2018).

**Non- Performing loan to Total loan and Advance: - NPLTLA**

NPLTLA is loan that is in default or close to being default, many loans become non-performing after being in default for 90 days, but this can depend on the contract terms.

Money provide by the bank to entities for fulfilling their short term requirements is known as Advance loan is a kind of debt while Advance are credit facility granted to customer by banks, loan can be secured or unsecured whereas advance are generally secured by asset or by guarantee from a surety,

The researcher has collected the non-performing loan amount provision in balance sheet of the banks submitted for NBE from 2010-2019.

**Total Loan and Advance to Total Deposit:-TLATD**

TLATD: total deposit is terms included in the balance sheet of banks, demand deposit, term deposit and interest and non-interest bearing deposit are the cumulative examples of deposit items that are summed to get the value of total deposit. Deposit in banks comes from the customer it is the first objective of the banks to encourage the society to saving habit and then lend them to add some amount of percentage.

$$TLATD=\frac{TLA}{TD}$$

Loans give to its customers are mostly not considered liquidity meaning that they are investment over a lower period of times. The researcher collect the total deposit of each bank NBE report from 2010 to 2019 financial statement published from secondary data source.

# CHAPTER-FOUR

# DATA PRESENTATION AND ANALYSIS

As discussed in the previous chapters the major objective of this study was to investigate the effect of credit risk on financial performance of selected private banks. Therefore, this chapter deals about the result and analysis of the finding, as well as it contain three sections. The first possess primary data analysis; the second section present descriptive or summary statistics and correlation analysis on variable of the study; the third section present fulfillment of classical linear regression model (CLRM) assumptions and laid down the result of regression analysis.

## 4.1 Primary data analysis

The primary data was analyzed using the attached questionnaire with the effect of credit risk on financial performance of selected six private banks in Ethiopia, which cover a sampling size of above 10% of the population.

**Response rate**

| No. Selected banks | Sample | Response |
|---|---|---|
| 1. Dashen Bank S.C | 14 | 14 |
| 2. Awash Banks S.C | 12 | 12 |
| 3. United Bank S.C | 10 | 10 |
| 4. Lion international Bank S.C | 9 | 9 |
| 5. Bunna international Bank S.C | 8 | 8 |
| 6. Wegegen Bank S.C | 7 | 7 |
| Total | 60 | 60 |

Table 4.1 Respondents rate

The researcher distributes the questionnaire to respondents for each selected private banks and collect primary data in order to analyze (Table 4.1).

**Educational background**

| Educational qualification | Number |
|---|---|
| Diploma | 7 |
| Degree | 45 |
| MA/MSC | 8 |

Table 4.3: show that educational background

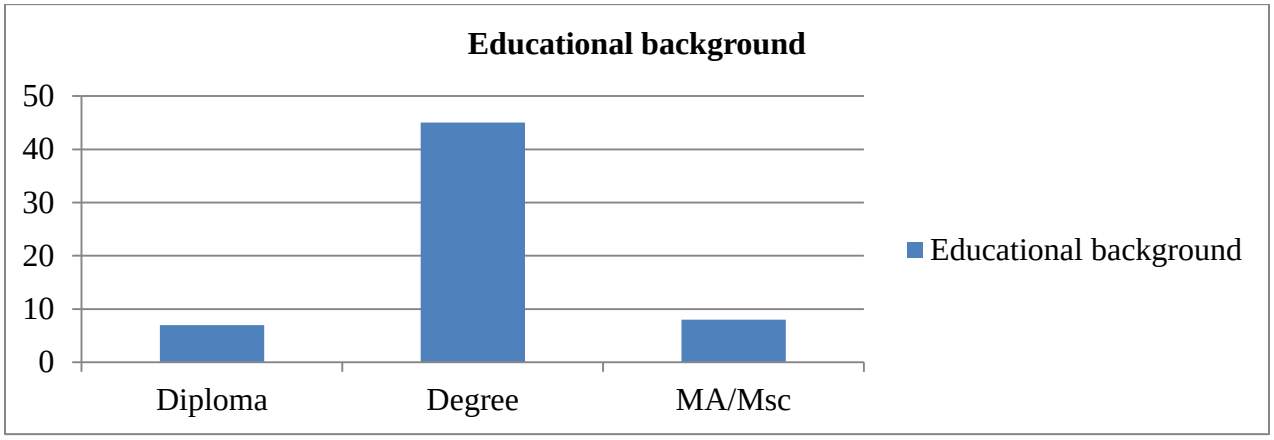



Figure 4.2: Educational background of the respondent

Educational level was categorized into three levels. From the entire respondents this indicates that the respondent educational qualification among 60 observation 7 respondents are diploma holder, 45 of them are degree holder and 9 MA/MSC (Figure 4.2)

**Work experience of the respondents**

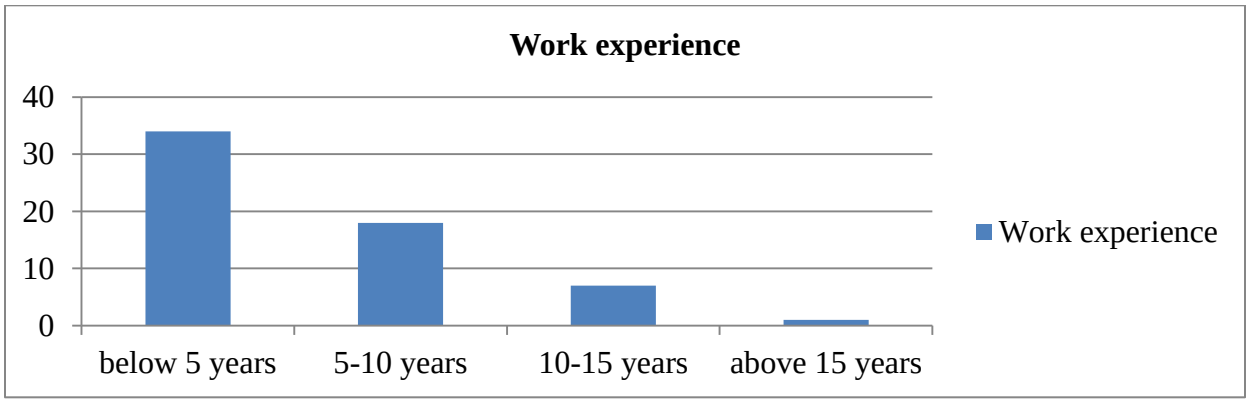


Figure 4.4: work experience of the respondent (Questionnaire)

As figure 4.4 among 60 observations 34 of them have below 5 years, 18 of them have 5-10 years, 7 of them have 10-15 years and one of them has above 15 years work experience. Majority of the respondent have below 10 years work experience in bank sectors.

## 4.2. Factors directly related to Research Work from the Questionnaire

### 4.2.1. Effect of credit risk on financial performance of selected private banks in Ethiopia

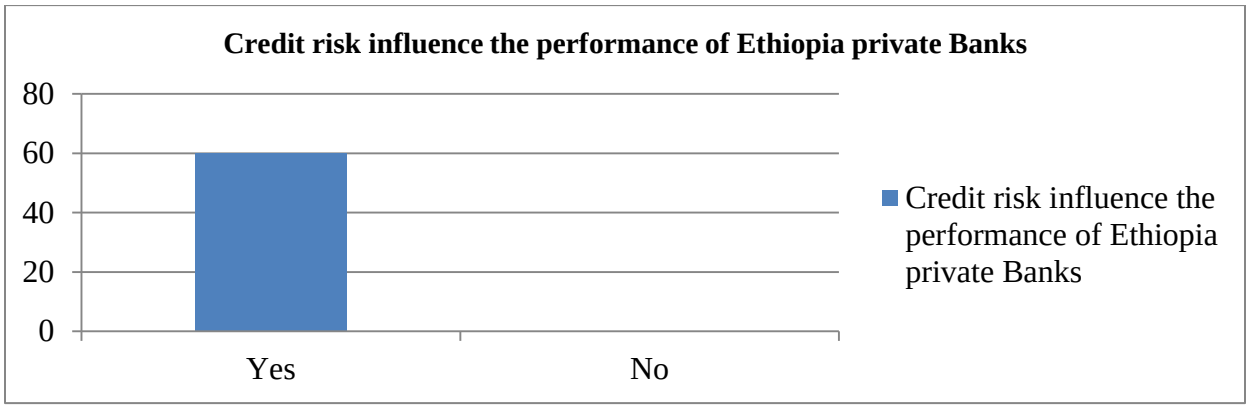



Figure 4.5 indicate that credit risk influence the performance of selected Ethiopia private banks (Questionnaires)

The researcher asked respondents the influence of credit risk on the performance of selected private banks and their response were "yes" as it was yes or no question. Therefore, all of the respondent's answers were yes for the question raised from the author. In fact, the response of the respondents were agrees with the finding of different scholars (figure 4.5).

### 4.2.2. The Linkage of Credit risk management policy and overall strategy of bank

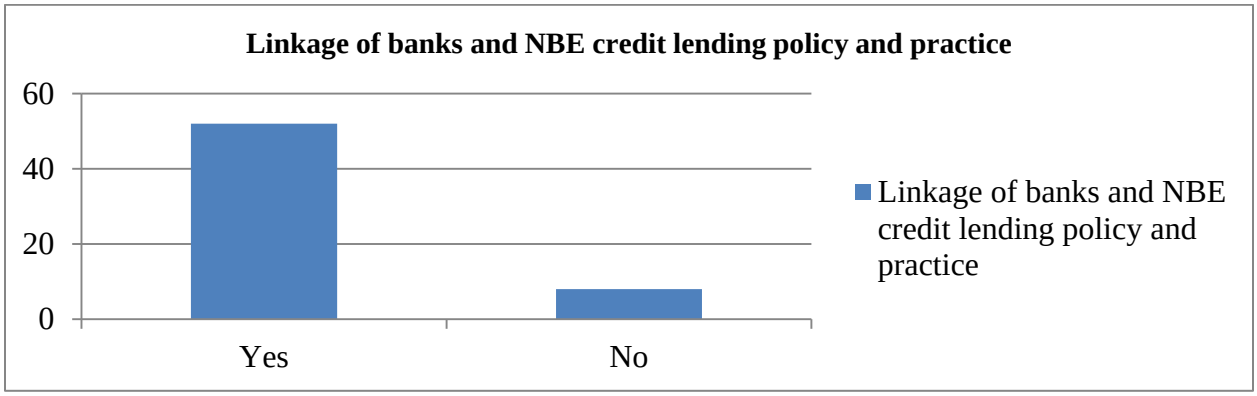


Figure 4.6: linkage of banks and NBE credit lending policy and practice (Questionnaries)

The researcher asked respondents their opinion on credit risk management policy and practice in line with the overall strategy of the bank. Since the question was yes or no; out of 60 observations 52 of them responses were “yes” and 8 of them response were “no” (figure 4.6).

### 4.2.3. The care of banks for NBE credit lending policy and procedure

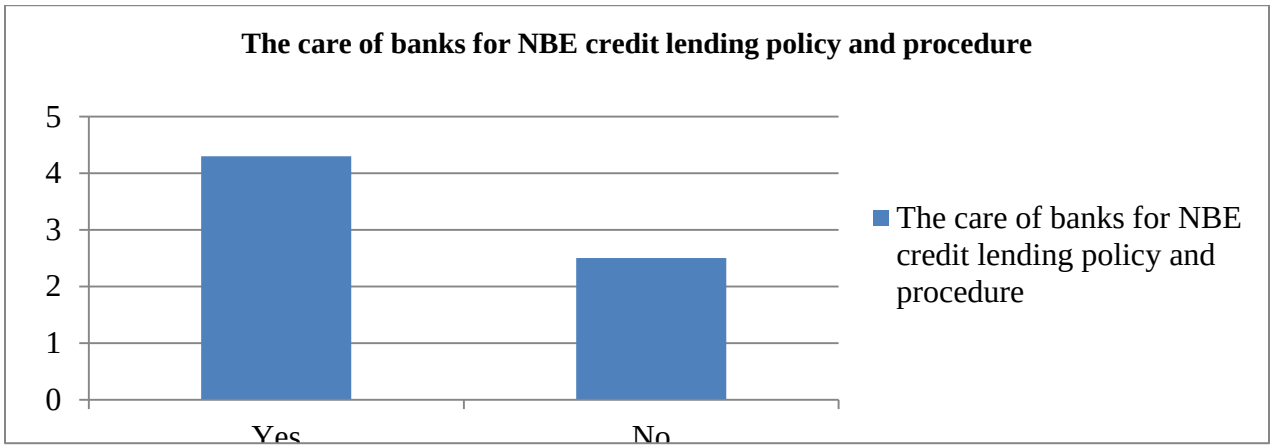



Figure 4.7 the care of banks for NBE credit lending policy and procedure (Questionnaire)

According to the assessment conducted the view of all of the respondent on whether the banks follow or not the NBE credit landing policy and procedure their answer were “yes” for it was yes or no question (Figure 4.7).

### 4.2.4. The follow-up mechanisms of customers after granting a loan in private banks

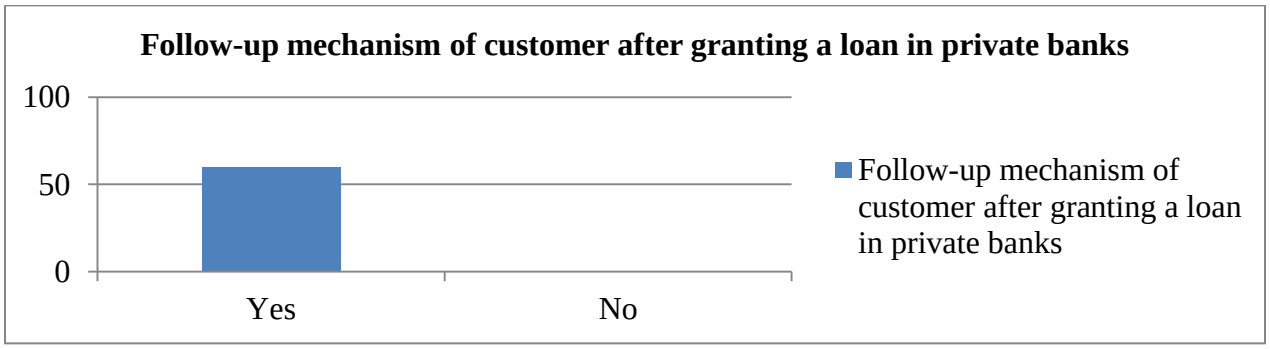



Figure 4.8 indicate that follow-up mechanisms of customers after granting a loan in selected private banks (Questionnaire)

In the data collected the view of all of the respondents on whether the banks follow-up or not their customers after granting a loan in private banks their answers were “yes” for it was yes or no question (figure 4.8). All of the respondents said as they have been followed-up their customers by the customer demands and credit type.

### 4.2.5. The effect of total deposit on credit

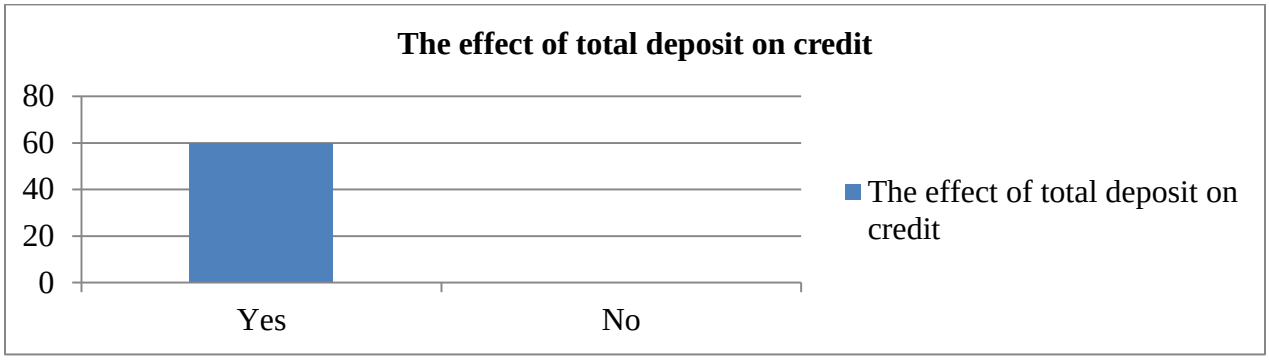



Figure 4.9 show that the effect of total deposit on credit on selected private banks (Questionnaire)

In this study 100% of the respondents replied “yes” if credit is affected by total deposit, for it was yes or no question (figure 4.9). Indeed, total deposits highly affect amounts of credit.

### 4.2.6. The influence NPL (Nonperforming loan) on the performance of banks

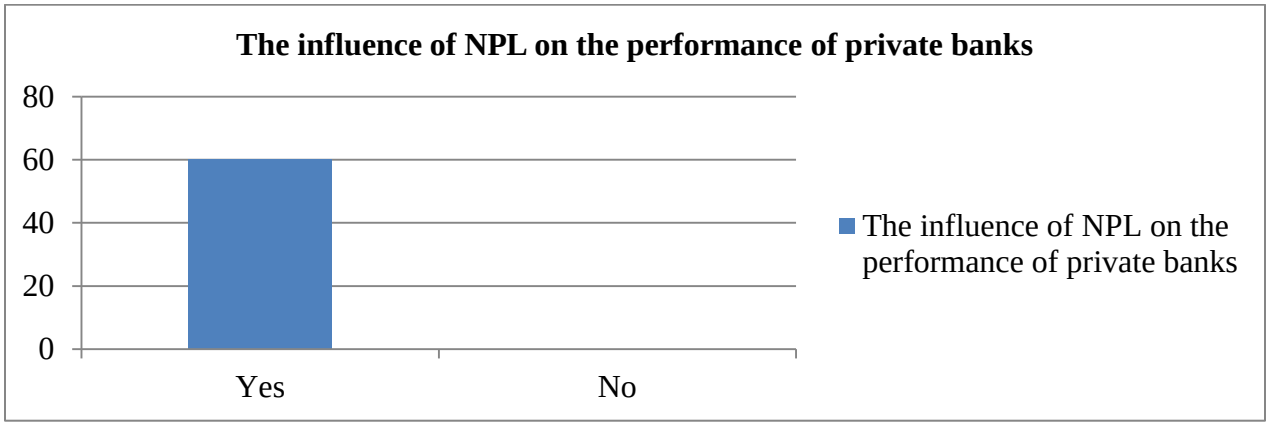



Figure 4.10 indicate the influence of NPL on the performance of selected private banks in Ethiopia (Questionnaire)

According to the present research work all of the respondents answered “yes” for whether NPL (Nonperforming loan) influence or not on the performance of banks, since it was yes or no

question (figure 4.10). Undoubtedly, NPL significantly influence on the performance of banks (NBE, 2008). Non- performing loan NPL is a loan that is default or close to being in default, many loan become non-performing after being default for 90 days, but this can depend on the contract terms. Non-performing loan categories i) substandard (overdue> 90 days), ii) Doubtful (180-360 days), iii) Lost (>360 days).

**4.2.7. Training of employees by selected private bank**

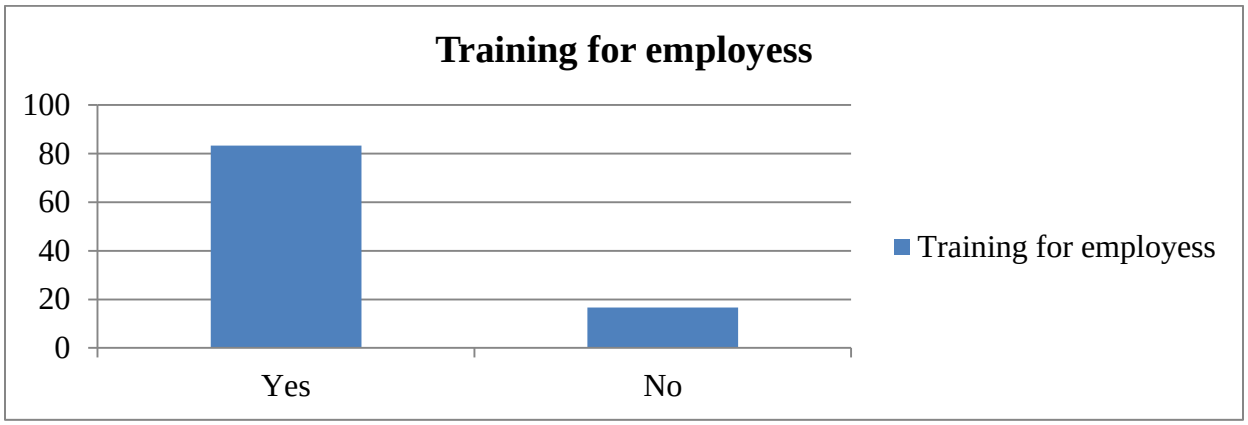



Figure 4.11 indicate that organization offer training for employees (Questionnaire)

When the respondent asked as they have been trained on credit risk management most (83.3%) of them replied “yes”. And some (16.7%) of them replied “no” that means their organization is not grant training on credit risk management.

Since the purpose of training is to improve knowledge, skill and attitudes to job satisfaction it is better to know how frequent the organizations provide training for employees. According to Figure 4.11 it can be concluded that the organizations give training to employees ‘one times per year. This is short be period and enables employees to understand the credit risk management practices and to do better effort in the behalf of the organization benefit.

**4.2.8. Internal credit rating system**

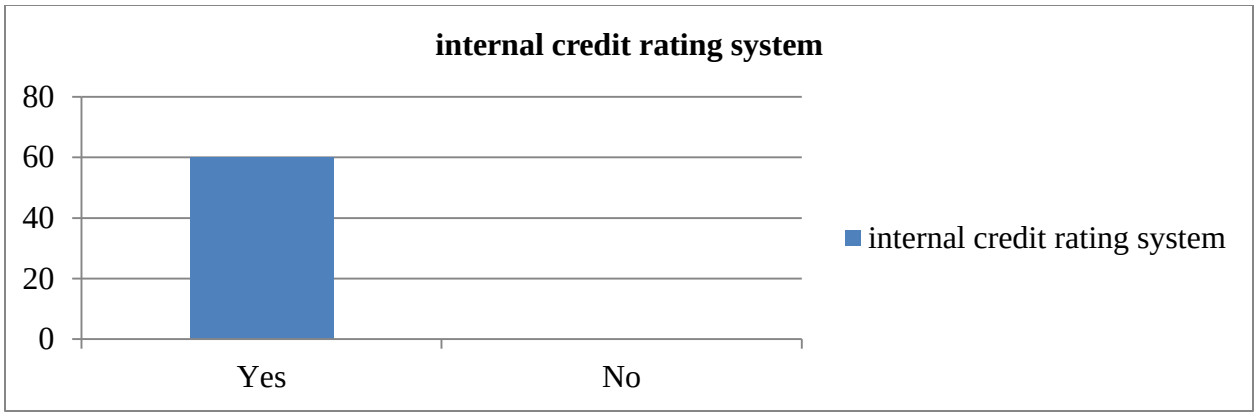



Figure 4.12 internal credit rating systems (Questionnaire)

The results show that 100% of the respondents responded “yes”, their organization does have internal credit rating systems. The internal credit rating system has been established by looking different issues like term loan, merchandise loan, letter of guarantee, trade bill discount, advance on export bill, type of financial statement (financial standing), quality of management and banking relationship are some of them. From the above figure can be decided the financial institution have established internal credit rating to manage their credit risk. Well-managed credit risk rating systems promote bank safety and soundness by facilitating informed decision making. Rating systems measure credit risk and differentiate individual credits and groups of credits by the risk they pose. This allows bank management and examiners to monitor changes and trends in risk levels.

Banks need to manage the credit risk inherent in the entire portfolio as well as the risk in individual borrower transaction. The internal credit risk rating system describes the credit worthiness of the borrower of a particular sector based on the assessment criteria set for that sector. All banks have a specific set of metrics they use to rate their customers. These are known as risk grade models. The generally include an assessment of financial results and debt level. However, a risk rating is not just about numbers. The process also permits bank management to manage risk to improve returns (Comptroller‘s Handbook , 2017)

### 4.2.9. Presence of established procedures for keeping up to date and informed changes in regulation

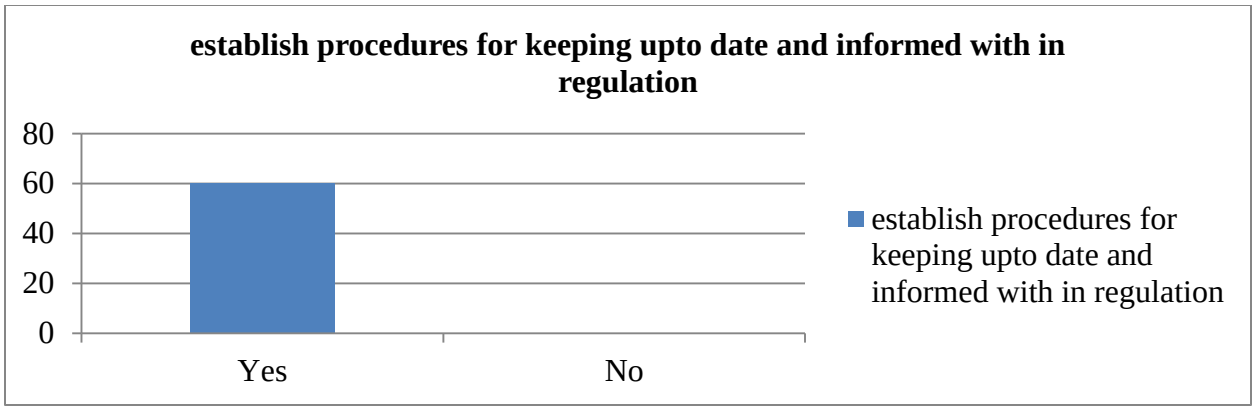



Figure 4.13 establish procedures for keeping up to date and informed with changes in regulation (Questionnaire).

According to the current research work all of the respondents answered “yes” for Presence of established procedures for keeping up to date and informed changes in regulation, for it was yes or no question (figure 4.13).

The ability to respond to changing conditions in an organization‘s operation is related to a range of activities including the development of risk training courses and involvement of staff in responding to an early warning system (Carey, 2016).The respondents state that their organizations have established procedures for keeping up-to-date and informed with changes in regulations to their staff. In addition, they provide risk management training courses at least once per year. The other companies also offer training courses more than once a year.

### 4.2.10. The support of guidance for the goal and objective of the banks

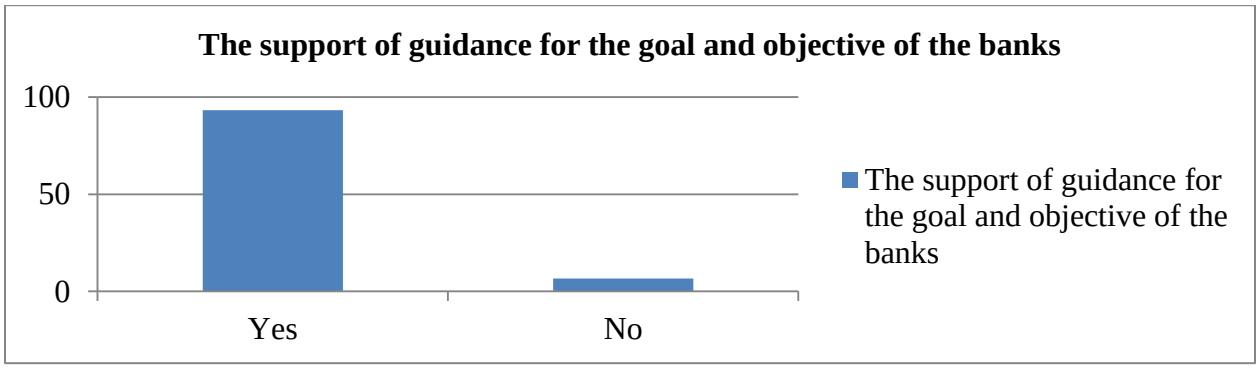


Figure 4.14 the guidance support the goal and objective of the banks (Questionnaire)

The present research finding indicated majority (93.3%) of the respondent answered the guidance does support the goal and objective of the banks. it was used yes or no question 6.7% of the respondent replied “no” (figure 4.14).

Because the financial world is always in fluctuation, (Carey, 2016) suggests that organizational structure must be reviewed regularly and adjusted to adapt to changing financial environments. All of the respondents stated that their organization changes its guidelines or policies in order to manage credit risks. Most of the organizations implement changes and review their organizational structure every year. Moreover, (Grabowski and Roberts, 2002)suggest that risk management is primarily associated with the fluidity of organizational structures. It is a flexible approach to respond in different ways and respond quickly in the face of changing conditions.

## Discussion Part

What is the importance of managing credit risk in your banks? Credit risk refers to the probability of loss due to borrower’s failure to make payments on any type of debt. Credit risk management is the practice of mitigating losses by understanding the adequacy of a bank’s capital and loan loss reserves at any given time, credit risk management is importance for banks as it ensures that the borrower has a good credit standing, the capability to repay their debt, is run and managed by good personnel, forms a part of performing industry, is complaint with regulatory and legal requirements and importantly has not defaulted or is delinquent in other obligation.

In addition, the researcher identifies the major kinds of tools or methods used to manage credit risks. The tool that the banks used to manage their credit risks includes: Loan portfolio management (Portfolio management shall cover bank-wide exposures on account of lending), investment, other financial services activities spread over a wide spectrum of region, industry, size of operation, technology adoption, and etc. There should be distribution of borrowers in various industries & business groups.

**Loan review**: Credit Approving Authority, constitution wise delegation of powers, sanctioning authority‘s higher delegation of powers for better-rated customers; discriminatory time schedule

for review / renewal, Hurdle rates and Bench marks for fresh exposures and periodicity for renewal based on risk rating

**Credit Audit/Loan Review Mechanism**: This should be done independent of credit operations, covering review of sanction process, compliance status, review of risk rating, pick up of warning signals and recommendation for corrective action with the objective of improving credit quality. Credit Audit is conducted on site, i.e. at the branch that has appraised the advance and where the main operative limits are made available.

**Risk Rating Model:** Set up comprehensive risk scoring system on different point scale. Clearly define rating thresholds and review the ratings periodically preferably at half yearly intervals.

The challenges that the respondents' face in credit risk management lack of concentration of exposures to a particular borrower, miss interpretation of policies, unknowing the exact feature of customers especially individual borrower, effects of changing in government policy, inadequate human capacity, poorly organized of industries to evaluate their worthiness, problem of collateral registration, low level of awareness to ward credit risk management, unable to get full information about customer from external sources, and absence of relevant information on time.

## 4.3 Descriptive or Summary statistics

In this section the study presents the descriptive statistic results for dependent variable return on asset (ROA) and dependent variable, non-performing loan to loan provision (NPLLA), loan provision to total loan and advance (LPTLA), non-performing loan to total loan and advance (NPLTLA) and total loan and advance to total deposit (TLATD).

***Table 4.3.1: Descriptive Statistics of all variables***

| Variables | Obs | Mean | St. dev | Minimum | Maximum |
|---|---|---|---|---|---|
| ROA | 60 | 0.0305204 | 0.0089306 | 0.00316 | 0.053312 |
| NPLLP | 60 | 0.3388329 | 0.0913108 | 0.1211125 | 0.5741279 |
| LPTLA | 60 | 0.0773671 | 0.0974951 | 0.0026192 | 0.3841046 |
| NPLTLA | 60 | 0.0753659 | 0.0587373 | 0.0107336 | 0.196006 |
| TLATD | 60 | 0.6284976 | 0.169804 | 0.3040247 | 0.97789 |

*Source: STATA output results and author's computation (2010-2019)*

### *4.3.1* Descriptive statistics for the dependent variable Return on Asset (ROA)

In order to measure the effect of credit risk on financial performance of selected private banks, ROA is a financial performance measure in the earlier chapters. It is the ratio of net income to total assets. According to the analysis of descriptive statistics from the figure 4.3.1 above, the average value of return on asset for the selected private banks was 0.0305204 (3.05%) with a maximum and minimum value was 0.053312 and 0.00316, respectively. The standard deviation was 0.0089306.

It means that the average or mean value was 3.05%, maximum value was 5.3312% and minimum value was 0.00316. This indicated that selected private banks among samples earned 3.05 cents of the profit after tax for a single one birr invested in the assets of the banks, it implies minimum value 0.00316 the maximum 5.3312%. This indicated that the presence of moderations among the value of profitability across banks include for the study.

The average value for non-performing loan to loan provision as measured by ratio of the selected private banks was 33.88 with a maximum of 57.41% and a minimum of 12.11%. It indicated that there is large amount of non-performing which tends to have default risk. On the other hand, banks who have excess uncollected amount has average 0.33 cents from the reserved loan provision birr (1.00) and the value of nonperforming loan to loan provision standard deviation from its mean by 0.0913108 On the other hand, the loan provision to total loan and advance ratio indicated by the range between 38.41% and 2.61%. The mean value was equals 7.7 %. The relatively high range between the minimum and maximum value implies that the most efficient bank has a profitable capability compared to the least efficient bank. The standard deviation statistics for loan provision to total loan and advance ratio was 0.0974957 which indicated that the written amount of loan loss variation between the selected banks was medium. The average value of Non-performing loan to total loan advance rate equals 7.5% with a maximum of 19.60% and its minimum value was 1.07%. The standard deviation statistics for NPLR is 0.0587373. This means despite the inverse relationship that exists between nonperforming loan and performance and the value of non-performing loan to total loan and advance deviate from its mean by 0.0587373. Finally, the average value of the total loan to deposit was 62.84% with a minimum 30.40% and maximum of 97.78%. The standard deviation statics for this was

0.169804.This shows the existence relatively high variation of loan to deposit ratio between the selected banks compared with the variation in ROA.

## 4.4. Correlation analysis

As noted by Gujarati (2004), the correlation analysis is made to describe the strength of relationship or degree of linear association between two or more variables. The purpose undertaking correlation analysis is to cheek whether there is multi-co linearity problem in the model and to indicate whether the variables more together or not in the same direction and correlation coefficient indicates the strength of a linear relationship between two variables. In Pearson correlation matrix, the value of correlation coefficient range between -1 and +1.

It is common in most studies making correlation analysis among variables before going to detail regression analysis. A correlation coefficient close either -1 or +1 indicate that there is strong inverse or direct relationship between variables respectively; whereas a correlation coefficient of zero indicates that the variables are uncorrelated correlation analysis is conducted in this section in order to analyze and examine the effect of credit risk on financial performance measurement ROA,NPLLP,LPTLA,NPLTLA and TLATD.

The correlation matrix also shows the linear relationship between dependent and independent variable used in the study. Table 4.4.1 below presents the result of the correlation analysis of credit risk on financial performance of selected private banks.

***Table 4.4.1 correlation analysis of variable***

| | ROA | NPLLP | LPTLA | NPLTLA | TLATD |
|---|---|---|---|---|---|
| ROA | 1.0000 | 0.7993 | 0.2811 | 0.0893 | 0.0601 |
| NPLLP | 0.7983 | 1.0000 | 0.05813 | 0.2551 | -0.1015 |
| LPTLA | 0.2811 | 0.05813 | 1.0000 | 0.2542 | -0.0695 |
| NPLTLA | 0.0893 | 0.2551 | 0.2542 | 1.0000 | -0.4119 |
| TLATD | 0.0601 | -0.1015 | -0.0695 | -0.4119 | 1.0000 |

Source: - STATA output results and authors computation (2010-2019).

The correlation matrix also shows the linear relationships between each independent variable and dependent variables used in the study in the above table presents the result of the correlation

analysis of credit risk on financial performance. Based on the output, ROA white, NPLTLA and TLATD are negatively correlated with Return on Asset (ROA). From which NPLLP and LPTLA is highly correlated.

## 4.5 regression model test Panel data fixed and random effect

Perform Hausman's (1978) specification test, hausman's test or often referred to as Husman test is a test used to determine the best method between fixed effect or random effects, if we have entered the post-chow test stage and the results is to choose fixed effects, then it should be contended with hausman test. The requirement is to perform steps in a sequence, which is doing a fixed effect analysis first and proceed with the random effects.

As Brooks (2008), conduct a Hausman test the number of cross section should be greater than number of coefficients of to be estimated. If p-value of test is >0.05, we accept the (Ho) Random effect model is consistent and efficient (appropriate) the results conclude the best fit. If p-value of the test is <0.05, we reject (Ho) Fixed effect is preferred (consistent). Based on the hausman test on the panel data is random or common effect on the cross section the result of effect of 0.1208, so this result is greater than 0.05 select the random effect model reject the Ho and fixed random model is preferred (consistent). The conclusion of Hausamn test if hausman test is accept Ho p-value>0.05, the method use choose is random effect. Then we proceed with langrage multiplier test to determine whether we still choose random effect or common effects. If hausman test receive H1 or p-value<0.05, then method we choose is fixed effects.

**Test for the classical liner regression model**

To maintain the data validity and robustness of regressed result of the research, the basic classical linear regression model assumption.

**The errors have zero mean (E(ut)=0)**

The assumption of classical linear regression model that assumption is said that error have zero mean, heteroscedasticity, autocorrelation, normality and multicollinearity. Brooks (20028) the assumption the average value of the errors is zero. In fact, if a constant term is including in the regression equation, this assumption will never be violated.

### I. Test of heteroscedasticity assumption ( Var(ut) = σ2 <∞)

Under the assumption that the errors are independent and identically distributed you can perform the test using the fitted value of the model, the predictors in the model subset of the independent variance, as indicated by Brooks (2008). Based on breusch pagan test of heteroskeddasticity, the p-value of the regression is above 0.05 that means 0.2269 that means variable is fitted values of ROA

### II. Test of autocorrelation assumption (cov(ui, uj ) = 0 for i ≠ j

A common method of testing for autocorrelation is the Durbin-Waston test, the Durbin-Waston test procedure that range from 0 to 4.

Autocorrelation refers to the degree of correlation between the values of the same variable across different observation in the data. The concept of autocorrelation is most often discussed in the context of time series data in which observation occurs at different point in time (Brooks, 2008).

### III. Test of Normality (ut~N(0, σ2)

As per Brooks (2008) normality tests are used to determine if a data set is well-modeled by a normal distribution. With the normality assumption, ordinary least square estimation can be easily derived and would be much more valid and straight forward. This study used JarqueBera Test (JB test) to find out whether the error term is normally distributed or not.

The result of the study is the p-value is greater than 0.05 that means 0.400412 that indicate there is no normality problem of distribution that means normal distribution.

### IV. Test of multicollinearity

According to Brooks (2008), Multicollinearity will occur when some or all of the independent variables are highly correlated with one another. If the multicollinearity occurs, the regression model is unable to tell which independent variables are influencing the dependent variable. This study used high pair-wise correlation coefficients method to test the presence of multicollinearity problem in a regression model, because it shows the correlation of independent variables between each other one by one. (Malthotra, 2007), Stated that multicollinearity problems exists when the correlation coefficient among explanatory variables should be greater than 0.75.

However, (Brooks, 2008)mentioned that if the correlation coefficient along with the independent variables is 0.8 and above, multicollinearity problems will be existed.

Based on the regression result there is no a problem of multicollinearity that means all correlation result is 0.75.

## 4.6. Analysis of regression

Regression analysis is a conceptually simple method for investigating functional relationship among variables. The relationship is expressed in the form of an equation or model connecting the response or dependent variables and one or more explanatory or predictor variables.

This part is to present the regression output results on effect of credit risk on financial performance of selected private banks in Ethiopian.

**Regression results**

The empirical model used in the study in order to identify the effect of credit risk on financial performance of selected private banks in Ethiopian.

$ROA=\beta_0+\beta_{1NPLLP}+\beta_{2LPTLA}+\beta_{3NPLTLA}+\beta_{4TLATD}+\mu$

***Table 4.3 Regression results***

Dependent Variable: - ROA

Method: panel data least

Date 1 May 2020, 00:17:31

Sample:-2010-2019 Period included: 10

Total balanced observations: 60 Reg roa npllp lptla npltla tlatd

| Source | SS | Df | Ms | Number of observation | 60 |
|---|---|---|---|---|---|
| Model | .003342641 | 4 | .00083566 | F(4.55) | 33.72 |
| Residual | .001362987 | 55 | .000024782 | Pro>F | 0.0000 |

| | | | | | |
|---|---|---|---|---|---|
| Total | .004705628 | 59 | .000079756 | R-square<br>Adju R-square<br>Root Mss | 0.7103<br>0.6893<br>0.0498 |

The above table shows that regression result of the variables.

| ROA \| | Coef. | Std. Err. | T | P>\|t\| | [95% Conf. Interval] |
|---|---|---|---|---|---|
| NPLLP | .0957024 | .0088071 | 10.87 | 0.000 | .0780525 .1133523 |
| LPTLA | -.0246155 | .008253 | -2.98 | 0.004 | -.0411549 .0080761 |
| NPLTLA | -.0062301 | .0125847 | -0.50 | 0.623 | -.0314504 .0189902 |
| TLATD | .0065123 | .0041928 | 1.55 | 0.126 | -.0018903 .0149149 |
| Cons | -.0036257 | .0041035 | -0.88 | 0.381 | -.0118493 .0045979 |

Table 4.3.1 Regression result

Source: - Annual report of the selected banks report regression results 2010-2019.

The following a detailed cross sectional data analysis, the findings are discussed in line with the objective of this study, credit risk has positive and significant effect on total loan and advance of the selected private banks in Ethiopia. P-value indicated at what percentage or precession level of each variable is significant. The r-squared value measures how well the regression model explains the actual variation in the dependent variable (Brooks', 2008).

R-squared and the adjusted R-square statistics of the model was 71.03% and 68.93% respectively this indicated the results R-square is good and the adjusted R-square is moderate. The adjusted R-square value 68.93% indicate moderate dependent variable of return on asset (RA) of selected private banks in Ethiopia is well explained by the independent variable are listed in the model

The R-square value of 71.03% indicates that models are good. The regression F-static (14.2) and P-value of zero effected to the statistic. The coefficient of NPLLP was 0.0957024 on ROA, which indicate that the non-performing loan to loan provision of the selected private banks in

Ethiopian had positive relationship with ROA. The coefficient for LPTLA is -0.0246155 on the ROA which refers to the non-performing loan to loan provision and total loan and advance had negative and significant refers to with ROA. The coefficient of NPLTLA was -0.0062301 on the ROA, which indicated they had negative and insignificant relation independent variable and dependent variable. The coefficient of TLATD was 0.0065123 on ROA, which has positive relation with ROA in selected private banks in Ethiopia.

## 4.7 Test of Hypothesis

**$H_0$1: Non-performing loan to loan provision has negative and significant effect on the performance of selected private banks in Ethiopian.**

According to the above table, explanatory or independent variable, NPLLP has positive and significant impact on ROA of the selected private banks in Ethiopia. According to the regression results NPLLP coefficient is 0.0957024. This implies that that holding often independent variable and the P-value of the NPLLP is 0.000 which reveals that it is statistically, According to the results of researcher hypothesis reject, which means NPLLP positive and significant effect on the performance of selected private banks in Ethiopia. This finding is contradict with Tibebu,2011 studies the effect of credit risk on financial performance of private banks in Ethiopia used secondary data, showed that there is a negative relationship between credit risk and performance of private banks in Ethiopia.

**$H_0$2: Loan provision to total loan and advance, LPTLA has negative and statistical significant effect on the performance of selected banks.**

According to the above table, our independent variable LPTLA, of the selected private banks in Ethiopia was -0.0246 this implies that the result of the regression negative coefficient variable our independent and corresponding the probability value of p-statistic 0.004, which is less than 0.05, According to the result the null hypothesis or zero hypotheses is support.

**$H_0$3: Non-performing loan to total loan and advance has negative and significant effect on the performance of selected private banks in Ethiopian.**

According to the above regression results of non-performing loan to total loan and advance (NPLTLA), has negative results by a coefficient estimate of -0.00623, this implies the holding

independent variable is constant. P-value 0.623 this shows that insignificant as 5% level of significant. According to the result reject the working hypothesis the NPLTLA has negative and insignificant effect on performance of the selected private banks in Ethiopian for the period of 2010-2019.

**$H_0$4: Total loan and Advance to Total Deposit has positive and significant impact on financial performance of selected private banks in Ethiopian.**

According to the above table our independent variables, TLATD, has positive and non-significant impact on the ROA of selected private banks in Ethiopian , this implies that positive coefficient value of our independent variable is 0.00651 it is positive and the corresponding probability of p-value 0.126, which is greater than 0.05 critical value that means insignificant.

# CHAPTER-FIVE

# CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Summary of the finding

Credit risk is the possibility of losing money due to the inability and unwillingness lines of a counterparty to honor a financial obligation. It is highly impose banking institution in the operation of their day-to-day activities and affecting the long term growth, profit and making them to waste their time and essential resource. Therefore, the overall objective of the research is to investigate the effect of credit risk on financial performance of selected private banks of Ethiopia. It is obvious that Credit risk is a serious that threats to the performance of banks as a result various researchers has examined the effect of credit risk management on performance on banks in varying dimensions.

Both primary and secondary data were used to analyze the effect of credit risk on financial performance of selected private banks in Ethiopia. The primary data collected through questionnaire were analyzed and interpreted using descriptive statistics tools like tables, figures and percentage. However, secondary data was analyzed through econometrics model to measure the effects of credit risk on performance of selected private banks in Ethiopia. This research study was employed quantitative research design.

This research finding revealed the major kinds of tools or methods used to manage credit risks. The tool that the banks used to manage their credit risks includes: Loan portfolio management (Portfolio management shall cover bank-wide exposures on account of lending), investment, other financial services activities spread over a wide spectrum of region, industry, size of operation, technology adoption, and etc. Because those tools were helped to minimize the distribution of borrowers in various industries & business groups such as loan review credit audit/loan review mechanism and risk rating model. The result also indicated non-performing loan to total loan and advance and total loan and total deposit has negative effect of the performance of selected private banks return on asset (ROA). Furthermore, non-performing loan to loan provision and Loan provision to total loan and advance has positive effect on the return on asset (ROA).

## 5.2 Conclusion

The thesis examines the effect of credit risk on financial performance of selected private banks of Ethiopia by using financial statements of six private banks. The researcher cheeked the effects of credit risks on private banks. The analysis considered both primary and secondary data to analyze the effect of credit risk on financial performance of selected private banks.

The main goal of banking industry is making tremendous profit. Thus, loan is one of the sources of profit. The data were collected through judgmental sampling method from a sample of six private banks in Ethiopian over the period of 2010 to 2019 that means 10 years annual reports in used as time series and cross section data analysis also used and panel data regression mechanism also used and to test the research finding based on the OLS assumption.

Based on the current result it is possible to conclude the following:-

1. Non-performing loan to total loan and advance and loan provision to total loan and advance has negative effect of the performance of selected private banks return on asset (ROA).

2. Non-performing loan to loan provision and total loan and advance to total deposit has positive effect on the return on asset (ROA).

## 5.3 Recommendations

Based up on the finding of the study the following recommendations are forwarded.

- Returns on asset are affected by the percentage of NPL or non-performing loan, loan provision, total loan and advance and total deposit, the banks should give high attention to those indicators.
- In line with this finding of this study, it is mandatory for banks manager need to put more efforts to the credit risk by critically evaluating borrower's ability to pay back.
- There is need to strengthen bank lending policy through effective and efficient regulators supervision and monitoring when facility is give out especially during utilization of the facility by the borrower.
- Banks should try as much as possible to strike a balanced in their loan pricing decision.

- In general banks should pay great attention to those variables in determine the credit risk management policy, by establishing standard and overall objectives to reduce the level of credit exposure.

## 5.4 Implications for future research

This study was conducted on the credit risk on financial performance of selected private banks in Ethiopian, six banks select as sample base to indicate factors of credit risk, However it recommendable for potential researcher to study including to other financial sectors and other indicators/factors of credit risk.

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# APPENDIX

SELECTED BANKS VARIABLES

| Name of the Banks | Code | Years | ROA | NPLLP | LPTLA | NPLTLA | TLATD |
|---|---|---|---|---|---|---|---|
| Dashen Bank | 1 | 2010 | 0.022377 | 0.381241 | 0.22406239 | 0.12380055 | 0.4062229 |
| | 1 | 2011 | 0.032254 | 0.481459 | 0.20866749 | 0.12878808 | 0.4960641 |
| | 1 | 2012 | 0.027303 | 0.391246 | 0.29138268 | 0.12219034 | 0.6998998 |
| | 1 | 2013 | 0.033595 | 0.490125 | 0.38410465 | 0.1768584 | 0.4384488 |
| | 1 | 2014 | 0.033595 | 0.490125 | 0.21118741 | 0.12416418 | 0.4917365 |
| | 1 | 2015 | 0.042899 | 0.421457 | 0.13045643 | 0.19600605 | 0.4736295 |
| | 1 | 2016 | 0.039098 | 0.326359 | 0.13931021 | 0.11928734 | 0.4216216 |
| | 1 | 2017 | 0.039458 | 0.314588 | 0.16612622 | 0.1639834 | 0.4506735 |
| | 1 | 2018 | 0.031396 | 0.337846 | 0.02053382 | 0.16001095 | 0.4640357 |
| | 1 | 2019 | 0.031396 | 0.352416 | 0.02179823 | 0.08555029 | 0.4304107 |
| Awash Bank | 2 | 2010 | 0.035428 | 0.421476 | 0.0467973 | 0.11572212 | 0.6917212 |
| | 2 | 2011 | 0.029401 | 0.374779 | 0.04742304 | 0.03392469 | 0.3040247 |
| | 2 | 2012 | 0.027815 | 0.310144 | 0.03635151 | 0.1121988 | 0.3476118 |
| | 2 | 2013 | 0.028033 | 0.320125 | 0.02780057 | 0.19241399 | 0.7154341 |
| | 2 | 2014 | 0.028033 | 0.321246 | 0.02359096 | 0.1093529 | 0.7589277 |
| | 2 | 2015 | 0.034565 | 0.484786 | 0.22232791 | 0.15184023 | 0.3374745 |
| | 2 | 2016 | 0.023392 | 0.312146 | 0.01769781 | 0.10708987 | 0.3982112 |
| | 2 | 2017 | 0.023647 | 0.329453 | 0.0154929 | 0.11830016 | 0.662575 |
| | 2 | 2018 | 0.025604 | 0.371426 | 0.21482278 | 0.11755556 | 0.6379615 |
| | 2 | 2019 | 0.025604 | 0.371248 | 0.02179823 | 0.11756418 | 0.6825323 |
| Wegegen Bank | 3 | 2010 | 0.017967 | 0.271458 | 0.1396601 | 0.11363767 | 0.3985644 |
| | 3 | 2011 | 0.029689 | 0.319451 | 0.24561785 | 0.01386895 | 0.97789 |
| | 3 | 2012 | 0.046759 | 0.388416 | 0.02424232 | 0.08364648 | 0.8381393 |
| | 3 | 2013 | 0.053312 | 0.56946 | 0.12243788 | 0.01445367 | 0.6273839 |
| | 3 | 2014 | 0.053312 | 0.574128 | 0.21666846 | 0.05559828 | 0.8390365 |
| | 3 | 2015 | 0.031109 | 0.339746 | 0.31342 | 0.04572126 | 0.8035236 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 3 | 2016 | 0.035812 | 0.389452 | 0.01055805 | 0.02251794 | 0.8070892 |
| | 3 | 2017 | 0.033119 | 0.374579 | 0.045734 | 0.01416594 | 0.7399422 |
| | 3 | 2018 | 0.024202 | 0.274789 | 0.00413147 | 0.02405931 | 0.8921927 |
| | 3 | 2019 | 0.024202 | 0.271479 | 0.00542698 | 0.0437911 | 0.8458215 |
| | 4 | 2010 | 0.030655 | 0.241459 | 0.0262577 | 0.02567709 | 0.8485671 |
| United Bank | 4 | 2011 | 0.032547 | 0.279846 | 0.02848555 | 0.02102725 | 0.8922542 |
| | 4 | 2012 | 0.033569 | 0.322265 | 0.02461873 | 0.01298352 | 0.6388451 |
| | 4 | 2013 | 0.035874 | 0.441479 | 0.2642486 | 0.01648113 | 0.965826 |
| | 4 | 2014 | 0.039658 | 0.447145 | 0.2160022 | 0.06572852 | 0.5379556 |
| | 4 | 2015 | 0.049412 | 0.491451 | 0.09252378 | 0.01121798 | 0.5851493 |
| | 4 | 2016 | 0.033215 | 0.331479 | 0.01317567 | 0.13175669 | 0.4802878 |
| | 4 | 2017 | 0.003167 | 0.141246 | 0.00261916 | 0.02619156 | 0.5909866 |
| | 4 | 2018 | 0.018098 | 0.219785 | 0.00518908 | 0.05189076 | 0.7584763 |
| | 4 | 2019 | 0.018098 | 0.214478 | 0.00404085 | 0.04040846 | 0.5543958 |
| Bunna Bank | 5 | 2010 | 0.034164 | 0.341479 | 0.02214455 | 0.02214455 | 0.5159475 |
| | 5 | 2011 | 0.031209 | 0.319785 | 0.01468374 | 0.01468374 | 0.9024273 |
| | 5 | 2012 | 0.027261 | 0.271459 | 0.01477758 | 0.01477776 | 0.4859816 |
| | 5 | 2013 | 0.023927 | 0.243246 | 0.01173134 | 0.01173034 | 0.518863 |
| | 5 | 2014 | 0.023927 | 0.242366 | 0.01219889 | 0.01219889 | 0.7363148 |
| | 5 | 2015 | 0.009288 | 0.121112 | 0.01159125 | 0.01159125 | 0.7627 |
| | 5 | 2016 | 0.016263 | 0.212456 | 0.01733846 | 0.01733846 | 0.5026766 |
| | 5 | 2017 | 0.042249 | 0.423256 | 0.01702771 | 0.01702771 | 0.7782826 |
| | 5 | 2018 | 0.030214 | 0.324759 | 0.00595445 | 0.05955445 | 0.5687011 |
| | 5 | 2019 | 0.030214 | 0.312356 | 0.00616186 | 0.06161855 | 0.5630981 |
| Lion Bank | 6 | 2010 | 0.036653 | 0.381479 | 0.04516503 | 0.05031778 | 0.5040247 |
| | 6 | 2011 | 0.029049 | 0.282459 | 0.01471173 | 0.16144748 | 0.5476118 |
| | 6 | 2012 | 0.029025 | 0.291458 | 0.01572576 | 0.17006472 | 0.6154341 |
| | 6 | 2013 | 0.031779 | 0.321215 | 0.01314463 | 0.15228616 | 0.7589277 |
| | 6 | 2014 | 0.031779 | 0.321458 | 0.01353596 | 0.15243586 | 0.6374745 |
| | 6 | 2015 | 0.029464 | 0.283255 | 0.016869 | 0.01073363 | 0.5982112 |
| | 6 | 2016 | 0.031791 | 0.341479 | 0.02005733 | 0.12189617 | 0.662575 |
| | 6 | 2017 | 0.028064 | 0.254153 | 0.02052436 | 0.01884636 | 0.6379615 |
| | 6 | 2018 | 0.028118 | 0.251246 | 0.00611605 | 0.0112261 | 0.5825323 |
| | 6 | 2019 | 0.028118 | 0.282222 | 0.06577728 | 0.01861066 | 0.8985644 |

**Regression result**

```
tsset code years
        panel variable:  code (strongly balanced)
         time variable:  years, 2010 to 2019
                 delta:  1 unit
log using "C:\Users\Toshiba\Desktop\results.smcl"
-------------------------------------------------------------------------------------------------------------------
      name:  <unnamed>
       log:  C:\Users\Toshiba\Desktop\results.smcl
  log type:  smcl
 opened on:   1 May 2020, 00:18:51
. reg roa npllp lptla npltla tlatd
      Source |       SS           df       MS      Number of obs   =        60
-------------+----------------------------------   F(4, 55)        =     33.72
       Model |  .003342641         4   .00083566   Prob > F        =    0.0000
    Residual |  .001362987        55  .000024782   R-squared       =    0.7103
-------------+----------------------------------   Adj R-squared   =    0.6893
       Total |  .004705628        59  .000079756   Root MSE        =    .00498
-------------------------------------------------------------------------------
```

```
        roa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
------------+----------------------------------------------------------------
      npllp |   .0957024   .0088071    10.87   0.000     .0780525    .1133523
      lptla |  -.0246155    .008253    -2.98   0.004    -.0411549   -.0080761
     npltla |  -.0062301   .0125847    -0.50   0.623    -.0314504    .0189902
      tlatd |   .0065123   .0041928     1.55   0.126    -.0018903    .0149149
      _cons |  -.0036257   .0041035    -0.88   0.381    -.0118493    .0045979
------------------------------------------------------------------------------
. sum
    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
nameoftheb~s |          0
        code |         60         3.5    1.722237         1          6
       years |         60      2014.5     2.89652      2010       2019
         roa |         60    .0305204    .0089306    .003167    .053312
       npllp |         60    .3388329    .0913108   .1211125   .5741279
-------------+---------------------------------------------------------
       lptla |         60    .0773671    .0974957   .0026192   .3841046
      npltla |         60    .0753659    .0587373   .0107336    .196006
       tlatd |         60    .6284976     .169804   .3040247     .97789
```

```
. summarize roa npllp lptla npltla tlatd

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+---------------------------------------------------------
         roa |         60    .0305204    .0089306    .003167    .053312
       npllp |         60    .3388329    .0913108   .1211125   .5741279
       lptla |         60    .0773671    .0974957   .0026192   .3841046
      npltla |         60    .0753659    .0587373   .0107336    .196006
       tlatd |         60    .6284976     .169804   .3040247     .97789

. reg roa npllp lptla npltla tlatd

      Source |       SS           df       MS      Number of obs   =        60
-------------+----------------------------------   F(4, 55)        =     33.72
       Model |  .003342641         4  .00083566   Prob > F        =    0.0000
    Residual |  .001362987        55  .000024782   R-squared       =    0.7103
-------------+----------------------------------   Adj R-squared   =    0.6893
       Total |  .004705628        59  .000079756   Root MSE        =     .00498

------------------------------------------------------------------------------
         roa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       npllp |   .0957024   .0088071    10.87   0.000     .0780525    .1133523
```

```
      lptla |  -.0246155    .008253    -2.98   0.004    -.0411549   -.0080761
     npltla |  -.0062301   .0125847    -0.50   0.623    -.0314504    .0189902
      tlatd |   .0065123   .0041928     1.55   0.126    -.0018903    .0149149
      _cons |  -.0036257   .0041035    -0.88   0.381    -.0118493    .0045979
------------------------------------------------------------------------------

. corr roa npllp lptla npltla tlatd
(obs=60)
             |      roa    npllp    lptla   npltla    tlatd
-------------+---------------------------------------------
         roa |   1.0000
       npllp |   0.7993   1.0000
       lptla |   0.2811   0.5813   1.0000
      npltla |   0.0893   0.2551   0.2542   1.0000
       tlatd |   0.0601  -0.1015  -0.0695  -0.4119   1.0000

. vif
    Variable |       VIF       1/VIF
-------------+----------------------
       lptla |      1.54    0.648758
       npllp |      1.54    0.649476
      npltla |      1.30    0.768712
       tlatd |      1.21    0.828638
```

```
-------------+----------------------

    Mean VIF |      1.40

. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

         Ho: Constant variance

         Variables: fitted values of roa

         chi2(1)      =     1.46

         Prob > chi2  =   0.2269

. imtest,white

White's test for Ho: homoskedasticity

         against Ha: unrestricted heteroskedasticity

         chi2(14)     =     22.94

         Prob > chi2  =    0.0612

Cameron & Trivedi's decomposition of IM-test

---------------------------------------------------

              Source |       chi2     df      p

---------------------+-----------------------------

  Heteroskedasticity |      22.94     14    0.0612

            Skewness |       8.88      4    0.0641

            Kurtosis |       1.71      1    0.1903

---------------------+-----------------------------
```

```
            Total |      33.54     19    0.0208
-------------------------------------------------

. sktest

varlist required

r(100);

. sktest roa npllp lptla npltla tlatd

                Skewness/Kurtosis tests for Normality

                                                ------ joint ------

   Variable |       Obs  Pr(Skewness)  Pr(Kurtosis) adj chi2(2)   Prob>chi2

------------+------------------------------------------------------------

        roa |        60     0.9846        0.0269        4.86        0.0881

      npllp |        60     0.2007        0.3068        2.81        0.2455

      lptla |        60     0.0001        0.1667       13.39        0.0012

     npltla |        60     0.1609        0.0000       16.18        0.0003

      tlatd |        60     0.5356        0.0492        4.35        0.1135

. swilk roa npllp lptla npltla tlatd

                Shapiro-Wilk W test for normal data

   Variable |       Obs       W          V         z       Prob>z

------------+------------------------------------------------------

        roa |        60    0.94964      2.737     2.170    0.01499

      npllp |        60    0.97055      1.601     1.014    0.15518
```

lptla | 60 0.73372 14.474 5.760 0.00000

npltla | 60 0.87584 6.749 4.116 0.00002

tlatd | 60 0.97699 1.251 0.482 0.31475

. xtreg roa npllp lptla npltla tlatd,fe

Fixed-effects (within) regression Number of obs = 60

Group variable: code Number of groups = 6

R-sq: Obs per group:

within = 0.7360 min = 10

between = 0.4982 avg = 10.0

overall = 0.7021 max = 10

F(4,50) = 34.84

corr(u_i, Xb) = -0.1613 Prob > F = 0.0000

---

---

roa | Coef. Std. Err. t P>|t| [95% Conf. Interval]

---+---

npllp | .0993373 .0086327 11.51 0.000 .081998 .1166766

lptla | -.0273891 .0087684 -3.12 0.003 -.0450009 -.0097773

npltla | .0046807 .0155962 0.30 0.765 -.0266451 .0360065

tlatd | .0046511 .0044458 1.05 0.301 -.0042786 .0135807

```
      _cons |  -.0042953   .0042401    -1.01   0.316    -.0128117    .0042212
------------+----------------------------------------------------------------
    sigma_u |  .00241966
    sigma_e |  .00472575
        rho |  .20770767   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0: F(5, 50) = 2.21                     Prob > F = 0.0682
. estimate store fixed
. xtreg roa npllp lptla npltla tlatd,re
Random-effects GLS regression                   Number of obs     =         60
Group variable: code                            Number of groups  =          6
R-sq:                                           Obs per group:
     within  = 0.7334                                         min =         10
     between = 0.5493                                         avg =       10.0
     overall = 0.7098                                         max =         10
                                                Wald chi2(4)      =     140.70
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =     0.0000
------------------------------------------------------------------------------
         roa |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       npllp |   .0971348   .0085926    11.30   0.000     .0802936    .1139759
```

```
      lptla |  -.0260247   .0082702    -3.15   0.002    -.0422339   -.0098154
     npltla |  -.0037093   .0131122    -0.28   0.777    -.0294087    .0219901
      tlatd |   .0060133   .0041941     1.43   0.152     -.002207    .0142337
      _cons |  -.0038784   .0041218    -0.94   0.347     -.011957    .0042002
-------------+----------------------------------------------------------------
    sigma_u |  .00127509
    sigma_e |  .00472575
        rho |  .06786091   (fraction of variance due to u_i)
------------------------------------------------------------------------------
. estimate store random
. hausman fixed random
                ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+----------------------------------------------------------------
      npllp |    .0993373     .0971348        .0022025        .0008311
      lptla |   -.0273891    -.0260247       -.0013644        .0029135
     npltla |    .0046807    -.0037093         .00839        .0084446
      tlatd |    .0046511     .0060133       -.0013623        .0014746
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
```

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

```
. xtreg roa npllp lptla npltla tlatd,re,robust

invalid 'robust'

r(198);

. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

        roa[code,t] = Xb + u[code] + e[code,t]

        Estimated results:

                     |       Var     sd = sqrt(Var)

                         roa |   .0000798       .0089306

                       e |   .0000223       .0047258

                       u |   1.63e-06       .0012751

        Test:   Var(u) = 0

                           chibar2(01) =     1.37

                         Prob > chibar2 =   0.1208

. log close

      name:  <unnamed>

       log:  C:\Users\Toshiba\Desktop\results.smcl

  log type:  smcl

 Closed on:   1 May 2020, 00:34:08
```

# Appendix I

# Jimma University

# Collage of Business and Economics

# Department of Accounting and Finance

# Questionnaire

Questionnaires to be filled by employees of selected private banks.

Dear respondent:

I am conducting a research on "***The Effect of Credit Risk on Financial performance of Selected Private Banks in Ethiopia***'' *Partial Fulfillment of the Requirements for the Award of Masters of Science Degree in Accounting and Finance*. The study intends for academic purpose only, your response is not used for other purpose other than educational survey benefit, besides that, the outputs of the study will help as an input for the companies decision makers.

Directions for filling the questionnaire

1. There is no right and wrong answer of the options provided. Therefore, you are kindly requested to fill your real opinion regarding each question.
2. Please put an "X" mark on your choice in the space provided.
3. To make the Satisfaction Survey objective and make your response confidential, please don't mention your name or any other identification.
4. Your response is utilized only for the purpose of this Survey.

I would like to appreciate your kind cooperation to fill this questionnaire in advance.

## I. Personal information

1. Select where you work

Dashen Bank ☐ Bunna international bank ☐ United Bank ☐

Awashen Bank ☐ Lion Bank ☐ Wogegan Bank ☐

2. Educational Background

Diploma ☐ 1st Degree ☐ MA/MSC ☐

3. Work Experience

Below 5 years ☐ 5-10 years ☐ 10-15 years ☐ above 15 years ☐

## II. Question directly related to the study

4. Do you think that credit risk influence the performance of Ethiopian commercial banks

Yes ☐ No ☐

5. Do you believe that credit risk management policy and practice in line with the overall strategy of the bank.

Yes ☐ No ☐

6. Do you think that the banks are follow the NBE credit lending policy and procedures?

Yes ☐ No ☐

7. Do you have any follow-up mechanism of your customers after grating a loan?

Yes ☐ No ☐

8. If your answer in Question 7 is "yes" how often.

Monthly ☐ Quarterly ☐ Semiannual ☐ by customer demand ☐

9. Do you think that credit are affected by total deposit

Yes ☐ No ☐

10. Do you think that NPL (Non-performing loan) are affected the performance of the bank.

Yes ☐ No ☐

11. Does your organization offer training for employees?

Yes ☐ No ☐

12. Does the bank have internal credit rating system?

☐ ☐

Yes No

13. Does your organization have established procedures for keeping up-to- date and informed with changes in regulation.

Yes ☐ No ☐

14. Does the guidance support the goal and objectives of credit risk?

Yes ☐ No ☐

**III. You are kindly requested to provide answers to these questions as precisely and honestly as possible**

15. What is the importance of managing credit risks in to your bank?

……
……
…….

16. What are the major kinds of method or process used by the managing of credit risk?

……
……
……

17. What challenges you face in credit risk on financial performance of the bank?

……
……
…….

18. How it was suitable for your bank?

……
……..