DETERMINANTS OF NON-PERFORMING LOANS IN SELECTED PRIVATE COMMERCIAL BANKS IN ETHIOPIA

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A RESEARCH PAPER SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF JIMMA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER'S OF BUSINESS ADMINISTRATION

BY:

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JIMMA UNIVERSITY

COLLEGE OF BUSINESS & ECONOMICS

DEPARTMENT OF MANAGEMENT

MBA PROGRAM

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DECLARATION

I, the undersigned, hereby declare that this thesis entitled "*Determinants of Nonperforming Loans in Selected Private Commercial Banks in Ethiopia",* has been carried out by me under the guidance and supervision of Dr. Arega Seyoum and Ato Mohammed Sultan.

The thesis is original and has not been submitted for the award of any degree or diploma to any university or institutions.

Hiwot Jemal   Date   Signature

_____   _____   _____

CERTIFICATE

This is to certify that the thesis entitles "*Determinants of Nonperforming Loans in Selected Private Commercial Banks in Ethiopia",* submitted to Jimma University for the award of the Degree of Master of Business Administration (MBA) and is a record of bonafide research work carried out by Mrs. Hiwot Jemal, under our guidance and supervision.

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

Dr. Arega Seyoum   Date   Signature

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Mr. Mohammed Sultan   Date   Signature

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ACKNOWLEDGEMENTS

Abstract

The main goal of Ethiopian private commercial banks (EPCB) is to operate profitably in order to maintain this stability and improve growth and sustainability. However, EPCBs experience high levels of non-performing loans. This trend threatens the viability and sustainability of the banks and hinders the achievement of their goals. This study was aimed at examining the determinants of non-performing loan. Specifically, the study sought to establish the effect of microeconomic variables (deposit interest rate, exchange rate and annual inflation rate), bank specific (loan to deposit ratio, and loan growth rate) and borrower specific characteristics characteristic (business profit margin). The study used both primary and secondary data. The study target population comprises six private commercial banks currently operating in Ethiopia. The study adopts a mixed methods research approach by combining documentary analysis (structured review of documents) and in-depth interviews. More specifically, the study reviews the financial records of six private commercial banks in Ethiopia and relevant data on macroeconomic factors considered for the period from the year 2004 to 2018. The sampling of the study includes six private commercial banks, from 16 private commercial banks based on their share of total outstanding loan. The collected panel data is analyzed using descriptive statics, correlation analysis and multiple linear regressions analysis. The findings of the study show that business profit margin, deposit interest rate, loan growth rate, and loan to deposit ratio were statistically significant factors in influencing private banks' NPLs. On the other hand, variables like exchange rate and inflation rate were found to be statistically insignificant. Based on the findings the study recommended that Loan growth, business profit margin, loan to deposit ratio and deposit interest rate were significant driver of NPLs, hence focusing and engendering the institution alongside these indicators could reduce the probability of NPL in Ethiopian private commercial banks.

Key words: Nonperforming loans, bank specific factors, macroeconomic factors

ACRONYMS & ABBREVIATIONS

AIB: Awash International Bank

BOA: Bank of Abyssinia

BUPM: Business Profit Margin

CAR: Capital Adequacy Ratio

CLRM: Classical Linear Regression Model

CMWF: Construction Manufacturing Working Fund

CPDD: Corporate Planning and Development Department

DIR: Deposit Interest Rate

DMTS: Domestic Trade and Service

EPCBs: Ethiopian Private Commercial Banks

EXR: Exchange Rate

GDP: Gross Domestic Product

GVP: Gross Value of Production

IDSP: Industrial Development Strategic Plan

IMF: International Monetary Fund

LDR: Loan Deposit Ratio

LGR: Loan Growth Rate

NBE: National Bank of Ethiopia

NIB: Nib International Bank

NPLs: Non-Performing Loan

OLS: Ordinary Least Square

SME: Small and Medium Enterprise

SPSS: Statistical Package for Social Scientists

CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

In the competitive environment, more and more lines of business, which need a huge investment, are being opened. Some of these huge investments are financed through commercial banks loans. With this respect, banks play a major role in the overall economic development of a country. However, in this process of extending credit to customers, a bank should have a way of scrutinizing its borrowers so that it would minimize the risk of default. The effect of default, non-performing loans, is not limited to that of affecting the profit of one particular bank but it has a ripple effect that extends itself into the economy at large. Hence, prudent banks are concerned about the quality of their loan and the effectiveness of their risk management processes in order to safeguarding their business as well as the overall economy.

Non-Performing Loans (NPLs) is a loan that is in default, or close to being default. Loans become non-performing when there are not being paid, or default for 3 consecutive months, or depends on the contract terms. According to IMF "a loan is nonperforming when payments of interest and principal are past due by 90 days or more, or at least 90 days of interest payments have been capitalized, refinanced or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons to doubt that payments will be made in full". In Dashen bank S.C the amount of NPL increases from time to time. For example in 1999/00 amount of NPL shows 61.1 million but this figure reached to 242.5 million in 2013/14.

Several empirical studies have been conducted on factors that affect banks non-performing loan by using bank specific and macroeconomic factors jointly and separately. For instance, Abiodun et al. (2013) in Nigeria and Skarica (2013) studied on the determinants of NPLs in Central and Eastern European countries. Most of the study with regard to determinant of NPLs is conducted in developed country. In Ethiopia limited studies such as Negera (2012) and Meshesha (2015) assessed the determinants of NPLs of commercial banks. There are so many observe the

macroeconomic factors. In addition, these studies used only descriptive statistics and correlation matrix for the analysis.

According to a report by (NBE,2009) it was discovered that credit, operational and liquidity risks are dominant risks and that was expected to continue for five years from the study period and credit risk take 60% of total risk. From the total risk, the 60 percent Credit risk clearly implies the availability of nonperforming loan and one of the most vital risks for Ethiopian commercial banks. Credit risk arises from nonperformance loan a borrower either inability or unwillingness to perform in the pre-commitment contracted manner and directly related to non-performing loans (Hailu 2015). The NPL amount of Ethiopian commercial banks show improvement but still the amount fluctuates from year to year. As an example, CBE's level of NPLs for the fiscal years 2015 and 2016 were 1.8% and 2.5% respectively which showed a 0.7% increment (CBE Annual Report 2017).

1.2 Statement of the Problem

Loan represents the majority of bank's assets and contributes significantly to income of commercial banks. Typically, 85% of commercial banks income comes from interest on loans (Uppal 2009). Particularly to Ethiopian commercial banks, loan is the main function and vital source of revenue i.e., from total revenue, interest income take a lion share. According to the financial data of Zemen Bank, Dashen Bank and Abyssinia Bank for the period ending 2016 interest income comprises the highest percentage share amounting to 52%, 56 % and 67.2% of total revenue respectively. This credit creation and loan disbursement process exposes the banks to high default risk which might lead to financial distress including bankruptcy because of NPLs. A very important indicator of the financial risks of the commercial banks is credit risk, which is directly connected with the level of NPLs (Ali 2013). NPLs indicate the borrowers are not paying their principal and interest properly as per their payment schedule, unable to meet their current financial obligation when borrowers fail to repay their loan amount. Non-performing loan is considered as one of the major causes of financial crises (banking failure) and impair the profitability of the bank. Thus, NPLs are likely to hamper economic growth and reduce the economic efficiency (Hou 2007).

NBE imposed restriction on the proportion of NPLs not to exceed 5% of their total loan outstanding (NBE 2012). After the restriction the NPLs of commercial banking sector have shown improvement. Nevertheless, for Mehari (2012) the decrease in NPLs of Ethiopian commercial banking sector is not resulted from improved credit risk controlling, measuring and monitoring system. Instead, the reduction was mainly the result of writing off and restructuring of loans. For instance, back in 2016 the NBE announced that coffee trader loan faced repayment problem and, therefore, the government ordered commercial banks to reschedule their loan (NBE 2016). In the same vein, Dashen bank faced repayment problem totaling Birr 446,658,898 rescheduled the payment at 30 June, 2016. Both writing off and restructuring of NPLs is a post active measurement (Tsige 2013). The issue of preventing NPLs in Ethiopian commercial banks is still in question. Banks are not fulfilling the maximum (5%) allowable limit of NPLs. For instance, in 2013 and 2014 NPLs of Zemen Bank was 8.52% and 8.83% respectively (ZB 2014). Additionally, in 2010 NPLs of Co-operative Bank of Oromia and Nib International Bank was 14.58% and 7.37% of their total loans respectively. The amount of NPLs fluctuates year to year for example in 2014, 2015 and 2016 NPLs of CBE was 1.4%, 1.8% & 2.5% respectively (CBE 2016). Despite the numerous studies conducted in the area yet, there exist inconsistent results depending on the economic condition, the credit policy and the general situation in which the banks operate. The banking sector in Ethiopia has its own unique nature like high dominance of state bank, restriction of foreign bank and unavailability of capital markets, etc. In view of the problem discussed above, this study has been initiated to identify and examine the major factors determining non-performing loans in Ethiopian private commercial banks.

1.3 Research Questions

In order to sufficiently address the problem identified above, the study is guided by the following research questions

1) What effect do borrower specific, bank-specific and macroeconomic factors have on non-performing loans of Ethiopian private commercial banks?
2) From among the macroeconomic variables, bank specific variables and borrower specific characteristics, which variables are more important in the loan repayment performance in private banking sector in Ethiopia?

1.4. Objective of the Study

1.4.1 General Objective

The main objective of the study is to identify the determinant of non-performing loans in Ethiopian private commercial banks.

1.4.2 Specific Objectives

Moreover, the study aims to achieve the following specific objective;

i. To examine the effect of borrowers specific factors (i.e. business profit margin) on the growth of NPLs in private commercial banks in Ethiopia.

ii. To analyze the effect of bank specific variables, such as loan growth rate and loan to deposit ratio on NPLs in Ethiopian private commercial banks;

iii. To examine the impact of macroeconomic variables (foreign exchange rate, inflation rate, and deposits interest rate), on the level of NPLs in private commercial banks in Ethiopia.

1.5 Research Hypotheses

As mentioned above the broad objective of this study is to investigate the determinant of NPLs in Ethiopian private commercial banks. So as to achieve the research objective the study framed the following six hypotheses.

H1. Deposit interest rate has a significant positive effect on the level of NPLs in private banks in Ethiopia.

H2. There is a significant positive effect inflation rate and NPLs of private banks.

H3. Foreign exchange rate has a significant positive effect on the level of NPLs in private banks in Ethiopia.

H4. Business Profit Margin has significant negative effect on the level of NPLs in private banks in Ethiopia.

H5. There is significant and positive effect loans to deposit ratio and NPLs.

H6. There is significant positive effect loan growth rate and NPLs of private banks in Ethiopia.

1.6 Significance of the Study

In general, the findings of the study are expected to have the following contributions:

- Enrich the readers' knowledge on the major factors affecting nonperforming loans in private commercial banks in Ethiopia.
- Enable the Bank and borrowers to develop and implement good credit worthiness system to minimize nonperforming loans.
- Enable officials, executive and customers to become aware of their respective duties and responsibilities towards satisfying mutual goals.
- Enable the managers to be aware of what is expected of them in managing loans of different firms.
- Finally, it is believed that this paper will also be expected to serve as a base and starting point for further studies and researchers on respective areas.

1.7. Scope of the Study

This research is adjusted to fit its objectives of examining the determinants of NPLs of private commercial banks in Ethiopia within the limits of specified time. The researcher decided to delimit this study to the six private commercial banks found in Ethiopia namely Awash international bank, bank of Abyssinia, Wegagen bank, United bank, Nib International bank and Dashen bank that were registered by NBE before 2000/01. These banks were selected since they are senior banks and are expected to have more experience on the lending activities. These six private banks constituted 84% out of the total loan granted by 16 private commercial banks to manufacturing sector within the study period (2004-2018). Yet, this study covers a panel data of these banks over the period 2004 to 2018 of the six private banks and regressed by multiple linear regressions model. Hence, this study is limited to bank specific (LDR and LGR), macroeconomic factors (EXR, INFR and DIR) and borrower specific characteristics (Business Profit Margin) specifically the manufacturing production sector of NPLs in private Commercial banks in Ethiopia between the above mentioned periods.

1.8 Limitations of the Study

In conducting this study, the researcher encounter various problems, from these problems the first was there was lack of financial data for recent year, 2019 for the sampled banks. Therefore, the study is limited to take data up to the year 2018. Second, resource and time constraints were also some of the factors that hindered the outcome of the research. In addition to this, there were difficulties to get all data from NBE. Thus, the researcher gathers relevant data from financial Statements of the sampled banks. However, the above resistant factors make this study difficult; and hope that readers will get some valuable ideas from the outcome of this study.

1.9 Organization of Research

The remaining parts of the thesis have been structured in the following order. Chapter two presents both the theoretical and empirical literature review related to the study. Chapter three describes the research design and methodology that have been adopted in the study. Chapter four presents the results and discussions. Finally, the last chapter (chapter 5) discusses the conclusions and recommendations part of the study.

CHAPTER TWO

2. REIEW OF RELATED LITERATURE

2.1 Theoretical Literature Review

2.1.1 Introduction

Loan means any financial assets of a development finance institution arising from a direct or indirect advance of funds (i.e. unplanned over drawings, participation in loan syndication, the purchase of loans from another lender, etc.) or commitment to advance funds by a development finance institution to a person that are conditioned on the obligation of the person to repay the funds, either on a specified date or dates or on demand, usually with interest. The term includes a contractual obligation of a development finance institution to advance funds to or on behalf of a person, claim evidenced by a lease financing transaction in which the development finance institution is the lesser, and line of credit to be funded by the development finance institutions on behalf of a person (NBE Directives No. SBB/ 48/2010). A certain amount of money that is given by one party to the other party with the expectation of it being fully repaid is called a loan. The nature of this transaction is financial. All the specific terms and conditions that are a part of the transaction from either side are formally laid out in a promissory note. A lender granting temporary use of a sum of money to borrower, who must repay the money that, was borrowed over a fixed term, in addition to the interest on the loan or debt, that was incurred, defines loan. There is a stated due date to the borrower by the lender to repay the money back to the borrower, but if the borrower failed to repay the stated money back, the lender charges late fee from those persons who do not return the money on the due date.

Generally, a financial loan typically refers to monetary debt, although it is possible to lend any material possession, aside from sales, the lending of money is the most frequent type of commercial transaction that occurs in a modern economy.

2.1.2 Credit Activity

The word "Credit" is derived from Latin word 'creditum', which means to believe or trust. In economics, the term credit refers to a promise by one party to pay another for money borrowed or goods or services received. It is a medium of exchange to receive money or good on demand at some future date. Credit defines as the right to receive payments or the obligation to make payment on demand at some future time on account of the immediate transfer of goods"(M.L Jhingon, p.165).

The principal reason commercial banks are operating in their environment is to maximize their profit by extending credit facilities to their customers. Banks are expected to support their local business comminutes with an adequate supply of credit for all legitimate business and consumer finical needs and to price that credit reasonably in line with competitively determined interest rates. Indeed, it is the principal economic role of banks-to provide loans to the business entities and individuals who are engaged in various economic activities (Agriculture, manufacturing and industry, import/ export, trade and services, housing etc...). The bank's role in finding involves assisting prospective borrowers by availing working or investment capital from which it generates profit.

How well a bank performs its lending function has a great deal to do with the economic development of the country, because bank loans support the growth of new businesses and creates jobs within the banks' environment and promote economic growth, Moreover, bank loans often seem to convey positive information to the marketplace about a borrower's credit quality, penalty, enabling a borrowers to obtain more and perhaps somewhat cheaper funds from other sources.

For most commercial banks, loan accounts are half or more of their total assets and about half to two-third of their revenue, moreover, risk in banking tends to be concentrated in the loan portfolio when a bank gets serious finical trouble, its problems usually come from loans that have become uncorrectable due to mismanagement, illegal manipulation of loan, misguided lending policies, or unexpected economic downturn. (Yonas, 2004, page 28)

2.1.3 Types of Credit in Bank

According to IMF (www.imf.com), the great variety of credit line results from the widely varying needs and activities of borrowers and lenders. Credit can be classified in different ways, but usually in banking sector it can be classified based on two criteria:

I. Based on the needs of Customers and nature of their Business

Overdraft Facility: This is credit facility by which customer is allowed to withdraw cash in excess of their deposit up to the extent of an approved limit by the bank.

Term Loan: it is a type of credit facility giving for specific time. The duration may be short up on one year or medium up to five years and long above five years. These loans are paid by equal monthly, Quarterly or semi-annually repayments. Short-term loans are usually used for working capital needs; medium term loan may be extended to purchasing of public transport vehicles, equipment, trucks and trailers … etc. Long- term loan extended for new investment projects, manufacturing, and building and constructions purpose.

Merchandize Loan - When a loan is granted against the pledge of merchandise goods for a short period it is called merchandise loan.

Letter of credit Facility - When importers are not in a position to cover fully the value of the letter of credit to be opened for goods intended to be imported, the bank provide them advance to cover some part of the cost and deal with the exporters' bank on behalf of the importer.

II. Based on Economic Sectors

Loans can be classified based on the purpose they involved in the economic sector. These economic sectors are Agricultural production, manufacturing production, Domestic trade and Service, Building and Construction and import - Export loan categories (Aklilu, 2016).

According to Dashen Bank loan category, loans are segregated among eight categories for the purpose of report and analysis. The categories are agriculture, manufacturing, DMTS, import, export, real estate, CMWF, and transport (Dashen Bank S.C. 2013/14, Annual Credit Report).

2.1.4 What is Non-Performing Loan?

There is no common definition of nonperforming loans (NPLs) in the whole country since it is recognized that it is possible that what is appropriate in one country may not be so in another. There is, however, some common opinion on this issue. (Gadise Gezu, 2014).

According to Oxford Dictionary of Finance & Banking (3rd Edition), nonperforming loans (NPLs) is a loan on which the interest or payment are overdue. In the USA, non-performing loans (NPLs) defined by regulators as a category of loan which is more than 90 days". Based to Oxford Business English Dictionary, non-performing loans (NPLs) is a loan in which the borrower has not made a payment for a particular period of time. Therefore the banks run into trouble with non-performing loans (NPLs).

According to National Bank of Ethiopia directive number SBB/43/2008, "Nonperforming" means loans or advances whose credit quality has deteriorated such that full collection of principal and/or interest in accordance with the contractual repayment terms of the loan or advance is in question.

"A non-performing loan is a loan that is in default or close to being in default. Many loans become non-performing after being in default for three months but this can depend on the contract terms. A loan is non-performing when payments of interest and principal are past due by 90 days interest payments have been capitalized, refinanced or delayed by agreement or payments are more than 90 days overdue, but there are other good reasons to doubt that payments will be made in full" (IMF, 2005).

According to NBE directives (2010) Loans or advances with pre–established repayment programs are nonperforming when principal and/or interest is due and uncollected for ninety consecutive days or more beyond the schedule payment date or maturity. Overdraft and loans or advances that do not have a pre – established repayment program shall be considered non – performing when the debt remains outstanding for ninety consecutive days or more beyond the scheduled payment date or maturity.

The debt exceeds the borrowers approved limit for ninety consecutive days or more. Interest is due and uncollectable for ninety days or more or the account has been in active for ninety

consecutive days and /or deposits are insufficient to cover the interest capitalized during the period.

Non-performing loan is a loan that is not earning interest income and:-

a) Full payment of principal and interest is no longer expected.

b) Principal or interest is 90 days or more delinquent.

c) The maturity rate has passed and payment is full has not been made (www. workpedia.com).

Non-performance loan are not generating income as a first step, loans are often considered to be non-performance when principal or interest on them is due and left unpaid for 90 days or more (this period may vary by justification). The borrower cash flow and overall ability to repay amount is significantly more important than whether the loan is overdue or not.

❖ Non-performing loan are those in which borrowers are experiencing some repayment problems. Past due loans represent loans for which contracted interest and principals payments have not been made within 90 days after the due date.

❖ According to World Bank, asset classification is important for repayment of loan. Asset classification is the process whereby an asset is assigned a credit risk grade, which is determined by the likelihood threat debt obligations, will be serviced and debt liquidated according to contract terms.

According to NBEs directive SBB/48/2010, loans & advances are classified in to five. Those are:-

1. Pass

Loans in this category are fully protected by the current financial and paying capacity of the borrower and are not subject to any criticism. Notwithstanding the generality of this statement, the following loans shall be classified pass: short term loans past due for less than 30 (thirty) days, medium and long term loans past due for less than 90 (ninety) days; and any loan, or portion thereof, which is fully secured, both as to principal and interest, by cash or cash-substitutes, regardless of past due status or other adverse credit factors.

2. Special Mention

The following loans at a minimum shall be classified special mention: short term loans past due for 30 (thirty) days or more, but less than 90 (ninety) days; medium and long term loans past due 90 (ninety) days or more, but less than 180 (one-hundred-eighty) days;

3. Substandard

The following non-performing loans at a minimum shall be classified substandard: short term loans past due 90 (ninety) days or more, but less than 180 (one-hundred-eighty) days and medium and long term loans past due 180 (one-hundred-eighty) days or more, but less than 360 (three-hundred-sixty) days.

4. Doubtful

The following non-performing loans at a minimum shall be classified doubtful: short term loans past due 180 (one-hundred-eighty) days or more, but less than 360 (three-hundred-sixty) days and medium and long term loans past due 360 (three-hundred-sixty) days, but less than 3 (three) years.

5. Loss

The following non-performing loans at a minimum shall be classified loss: short term loans past due 360 (three-hundred-sixty) days or more and medium and long term loans past due 3 (three) years or more.

According to NBEs directive SBB/ 48/2010, Non-performing loans are those loans which are past their due dates. They are classified into:

1. **Sub-Standard**:- Non-performing loans or advances past due 90 days or more but less than 180 days shall at minimum be classified sub-standard.

2. **Doubtful**: - Non-performing loans or advances past due 180 days or more but less than 360 days will be referred as doubtful.

3. **Loss**: - Non-performing loans or advances past due 360 days or more will be classified as loss.

2.1.5 Causes of Non-Performing Loans

Causes for non-performing loans are merely varied from bank to bank as well as countries to countries. Even the classification of this causes differ from one bank to another. Some classified them based on the level of the responsibility for the occurrence of NPLs.

According to Corporate planning and development department (CPDD) of Dashen bank S.C on its October 2005 NPL issues, the causes are classified in to two broad groups. These are:-

1. Internal factors

- Lack of continuous follow up of repayment due to manpower shortage
- Lack of consultation and communication with defaulter
- Overstating the collateral value at the time of estimation
- Lack of credit information to be gathered from other commercial banks
- Agency problem (i.e. branch managers focus merely on increasing their loan portfolio by accepting borrowers without making due analysis)

2. External factors

- Diversion of the borrowed fund to other purposes
- Unavailability of demand and price fluctuation on both local and international market.
- Country's economic and political condition
- Impact of change fiscal and monetary policy
- Insufficient credit awareness
- Unwilling customer to disclose the information required
- Unethical competition made between banks
- Willful default

There are large macroeconomics reasons for wide spread of NPLs and the causes for it have multi faced dimensions such as structural systematic policy and managerial though different banks encounter different causes for NPLs general consensus of common causes, are also there. Some of these common causes are; bankruptcy of the borrower business, absence of risk assessment, poor follow up, Lack of credit information and moral hazard (Haregewoin Tesfye, 1999).

Although the causes of NPLs different from bank to bank, the following are the bank and self –
explanatory reasons for the occurrence of NPLs in the commercial banking sector of Ethiopia.
(Yonas, 2004)

- Providing loan over the total capital of the forms or business entities
- Providing loan without sufficient back up /adequate safety of collateral or security
- Providing loan without sound credit principal and appraisals
- Providing loan to unfamiliar borrowers and without adequate information about the borrower.
- Providing loan without the quality and dependability of personal guarantee
- Providing loan (large sum) without audited financial statement of borrower firm /company
- Providing additional loan without additional collateral
- Providing loan without the expertise of engineering appraisal and without consideration of depreciation and current fair value of the property of the borrower
- Providing loan without sufficient credit history or information of the borrower
- Providing loan with a collateral, which has no legal document, or registration with the municipality.
- Providing loans without viable project/business proposals

The damages of NPLs on commercial banks occurred due to the above causes aggravated
because of the way that the banks try to recover sick loans.

2.1.6 Inflation

Inflation is a supported build in the normal cost of all merchandise and administrations processed
in an economy. Money loses buying force throughout inflationary periods since every unit of
money purchases dynamically fewer merchandise. Swelling is an ascent in the general value
level. There are two real reasons for expansion: Demand change, and supply change. Powerless
and vacillating recuperation needs is a great solid dosage of swelling published ahead of time by
the Fed/Treasury. The thinking behind that solution is that expansion and the desire of swelling
might activate organizations sitting on crowds of money and families attempting to shore up their
asset reports to begin using some of their money on ventures and shopper durables instead of

watch the money devalue. Additionally, climbing costs, and the desire of climbing costs, might energize organizations, hesitant to grow yield and livelihood as a result of deficient interest, to do only that in the desire that costs might climb sufficiently to permit them to offer the included yield at a benefit. Inflation is defined as the percentage increases of a reference index, the Consumer Price Index (CPI), which is a representative of a common basket of goods and services (Mercurio, 2004).

The impact of inflation on an economy takes the form of restructuring of income. It harms savers as price increases, and purchasing power of savings depreciates. Saving account, insurance plans, annuities and other fixed value paper assets decrease in real value during inflation. Unexpected inflation profits borrowers at the expense of lenders. For the macro-economic managing, low levels of inflation are preconditions mostly in developing nations (Gill & Khan, 2010). Inflation can have a chain of negative significances for the economy. Initially, inflation wears down the purchasing power of the individuals and therefore, leads to a reduction in economic growth. It leads to rise in macro-economic unsteadiness as an inflationary atmosphere creates much ambiguity. Moreover, inflation has backsliding significances on the poverty of a country's citizens. The surge in general price level harms the poor more since their basket of goods and services becomes considerably concentrated in every inflationary spell.

Furthermore, inflation can hurt a nation's effectiveness by leading towards the appreciation of the national currency and a resulting overestimated exchange rate, which has an adverse impact on exports (Gill & Khan, 2010).

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

2.1.7 The Effects of NPLs on Economy

Non-performing loans can lead to efficiency problem for banking sector. It is found by a number of economists that failing banks tend to be located far from the most-efficient frontier (Berger and Humphrey (1992), Barr and Siems (1994), DeYoung and Whalen (1994), Wheelock and

Wilson (1994)), because banks don't optimize their portfolio decisions by lending less than demanded. What's more, there are evidences that even among banks that do not feel, there is a negative relationship between the non-performing loans and performance efficiency (Kwan and Eisenbeis (1994), Hughes and Moon (1995), Resti (1995)).

The phenomena that banks are reluctant to take new risks and commit new loans is described as the „"credit crunch/crisis/" problem. According to the United States Council of Economic Advisors (1991), credit crunch is "a situation in which the supply of credit is restricted below the range usually identified with prevailing market interest rates and the profitability of investment projects". A "credit crunch" is a disequilibrium phenomenon. It is present when banks are unwilling to lend, especially when a firm with profitable projects cannot obtain credit in spite of low interest rates (lower than the expected marginal products). Credit crunch results in excess demand for credit and hence credit rationing, where loans are allocated via non-price mechanism. Eventually, it imposes additional pressure on the performance of the monetary policy.

The idea of credit crunch has drawn attention when the traditional view failed to satisfactorily explain the economy state for those countries that suffered from the South-East Asian financial crisis in 1997. Under the traditional view, the link between the interest rate change and the real economic activity occurs through investment and consumer durable expenditure. It was strongly believed by IMF that the hike would help stabilize the foreign currency market and eventually induce banking reform by crowding out low-profit projects. However, the persistent fall in economic growth rate and the lasting economic recession cast doubt on the true benefits of the policy and the effectiveness of the traditional view of the transmission mechanism. The idea of credit crunch addresses an alternative explanation for the transmission mechanism.

During a crisis, in order to restore the credibility among creditors and depositors, failing financial institutions not only try to expand their equity bases, but also reduce their risk assets or change the composition of the assets portfolio. As a result of such defensive action, the corporate debtors are always targeted, thus stalling the overall economic growth.

Specially, the reluctance of banks to lend can be caused by several reasons, such as the increased capital adequacy requirement imposed by Basel Accords; impaired debt-servicing capacity,

especially small-to-medium enterprises (SMEs); risks of a further fall in collateral value, etc., which make the interest rate not to serve as the main determinant by banks in credit approval. Non-performing loans have been viewed to constitute one of the most important factors causing reluctance for the banks to provide credit. In a high NPL condition, banks increasingly tend to carry out internal consolidation to improve the asset quality rather than distributing credit. Also, the high level of NPLs requires banks to raise provision for loan loss that decreases the banks" revenue and reduces the funds for new lending. The cutback of loans impairs the corporate sector as they have difficulties in expanding their working capital, blocking their chances of resuming normal operation or growing. Unavailability of credit to finance firm's working capitals and investments might trigger the second round business failure which in turn exacerbates the quality of bank loans, resulting in a re-emerging of banking or financial failure. In a worse case, it triggers an endless violent liquidity curved. As a result of poor economic condition and the depressed economic growth, the level of NPLs increases

- The weaker corporate sector makes banks more reluctant to provide additional credits
- With insufficient capital, the production sector is further weakened, resulting in decreases in aggregate demand
- Again, even worse borrowers" condition creates more NPLs.

Krueger and Tornell (1999) support the credit crunch view and attribute the credit crunch in Mexico after the 1995 crisis partially to the bad loans. They point out that banks were burdened with credits of negative real value, thereby reducing the capacity of the banks in providing fresh fund for new projects. Agung et al. (2001) using the macro and micro panel data analyses to study the existence of a credit crunch in Indonesia after the crisis. Both the macro and micro evidences show that there was a credit crunch, characterized by an excess demand for loans, starting to emerge in August 1997, one month after the contagion effects of the exchange rate turmoil in Thailand spreading to Indonesia. They investigate the relationship between the loan supply and real lending capacity, lending rates, real output, bank's capital ratio, and non-performing loan. The results show that the coefficients on NPLs are negative and significant, which indicate that bank credit supply declines with the worsening of the NPLs problem. Westermann (2003) compares the cases of Germany after the credit boom of the late 1990s and Japan aftermath the bubble burst in early 1990s. He argues that even though the German banks

were in a better condition than Japanese banks were, as the path of German's aggregate credit looks so similar to that of Japan, it is at least unlikely that the German credit slowdown was entirely driven by demand, while that of Japan was mostly caused by a lack of supply. There must at least be some supply side changes that affect the aggregate credit, and differences only exist in the magnitude of the problem. He further points out that the one of the main reasons in Germany for the credit crunch is the increased risk of non-performing loans after the credit boom.

2.1.8 Preventing and Non-performing Loans

Safety is the watchword in commercial bank lending activities. Bankers want to feel reasonably sure that the principals of their loans will be repaid, even though they may have to be satisfied with relatively low rates of interest because of their selection of only the better risks.

Banks deal with problem loans in a variety of ways. The eventual path to collect problem loans depends on how early the problems are discovered. Problems that are discovered early enough can frequently be corrected by restructuring the borrower's operations and repayment schedule. According to Peter (1999, p.243) there are useful warning signals of a weak loans and poor bank lending policies. The signals of weak loans include irregular or delinquent loan repayment, frequent request for alternations in loan, rising debt to net worth and not filing documents like financial statements. In addition, request for reappraisal of assets to increase net worth and applying for loan on poor quality collateral signal problem loans. The customer may also rely on non-recurring sources of funds, such as selling of buildings and equipment to meet loan repayments.

On the other hand, poor selection of risks among borrowing customers, ending money on contingent future events, lending money because a customer promises a large deposit, failure to specify a plan for liquidation of each loan are indicators of poor lending policies. In addition to this, substantial loans to insides including employees, directors, or shareholders, tendency to overreact to competition, like making poor loans to keep customers form going to other banks is dangerous attitude. Lending money to support speculative purchases and lack of sensitivity to conditions are also good indicators of inadequate or poor bank lending polices (Koch & Timothy, 1995, Pp.157-58).

Lending difficulties can be reduced if management establishes and adheres to loan policy guidelines that restrict unacceptable activity. Such guidelines specify quantitative goals for loan production versus loan quality, and indicate procedures to attain these goals. The procedures document format for obtaining loan application, grading loans, approving loans and systematically reviewing loan performance and quality.

Once the bank comes to the realization of a problem loan on its books, the first thing it should do is to contact the debtor. This helps to assess the attitude of the borrower and to find solutions to the problem. If the bank expects a debtor's co-operation, it is usually necessary to give him assurance that the bank wishes to co-operate with him and that is advantageous to both the bank and the debtor. At this time the bank must be taken actions immediately. But it must also be reasonable and conciliatory enough that the debtor will believe that all is not lost, and that co-operating with the bank in instituting plan for correction may be beneficial to him. In this case the bank's officer should make unrealistic demands for immediate payment, unless obvious fraud or gross misrepresentation exists, nor should they threaten legal action at this time. (Rose & Peter, 1999, Pp.248-251)

The second step in handling the problem loan, as described by the same author is searching solutions. Achieving workable solution is rarely easy, and in some cases impossible. Where no workable solution can be found, the bank has no alternative but to collect the loan, either through the voluntary liquidation of assets by the debtors or by forced liquidation. The benefits that accrue to the debtor, if the plan for correction is successful are rather obvious. For the bank as well, if it can help the borrower solve his problems and become a successful businessman, it will have a loyal customer for many years to come. The bank ordinarily gains the good will of the customer, as well as the business community as a whole. Corrective actions should be sought to recover problem loans using various workout strategies. Each problem is different, and no routine is universally applicable. Some of the most common approaches to be considered include:

- Developing a debt structuring program,
- Agreeing on additional documentation, and guarantees,
- Calling on a guarantees,

- Arranging for joint partnership and capital contribution,

- Working with managements to define problems & potential solutions,

- Developing a retrenchment program with closely monitored budgets,

- Arranging the sale of the operating company to a third party, and

- Replacing management

When all the above methods fail to be effective in the recovery process, the bank has no option but to forego the dues by writing them off. Write-off should, however, be permitted as the last resort after exhausting all other opportunities.

As a solution, the creditor may seek to solve the borrower's problem of inadequate cash flow to meet loan obligations through the extension of loan terms. Extensions and renewals however, should be considered only after a thorough examination of a cash flow projection, and only if there is adequate evidence that repayment will actually materialize at a later time. Any renewals should be for a short period of time, and the bank should carefully re-examine its position before granting additional renewals or extension. There are several dangers involved in the granting of an extension. The debtor may feel relieved of pressure from, and may reduce his efforts to repay the debt, or divert available cash to the repayment of other debts, which are more pressing. Therefore, when dealing with prospective renewal request, the lender should carefully analyze the credit in the same manner as would analyze a new application.

2.2. Non-performing Loans

2.2.1. Microeconomic factors

Banks has a major role in economic activity of every country through provision of different financial service. In addition to bank influence on economic activity, macroeconomic factor also affect activity of commercial bank in given country, macroeconomic variable which were found to affect NPLs in literature include GDP, exchange rate, Interest rate, inflation rate and others. The following macroeconomic factors are reviewed from different banking area study.

Deposit Interest Rate

The level of interest rates has a direct effect on a consumer's ability to repay a loan. For example, Thordsen and Nathan (1999), assert that when interest rates are low, people are willing to borrow because they find it relatively easy to repay their debt. When interest rates are high, people are reluctant to borrow because repayments on loans cost more. Some consumers may even find it difficult to meet their existing loan repayments, especially if interest rates increase faster than the rise in a consumer's income. If interest rates rise sharply and stay high for a long period, some consumers will default on their loans. From the main factors of banks NPL every country central bank regulation is the prominent factor that determined the level banks NPL. Regulation in the financial sector is aimed at reducing imprudent actions of banks with regards to charging high interest rates, insider lending and reducing asset defaults. The central banks have achieved this through interest rate ceilings and other monetary policies. Fofack (2005) argues that economic growth and the real interest rate are important determinants of bad loans in the sub-Saharan African countries. He attributes the relationship between macroeconomic factors and doubtful accounts to the undiversified environment of some economies and their high exposure to external shocks.

There is an empirical evidence of positive correlation between the interest rate and non-performing loans (Nkusu 2011; Adebola, Yusoff, & Dahalan, 2011; Louzis, Vouldis and Metaxas, 2011; Berge and Boye, 2007). An increase in interest rate weakens loan payment capacity of the borrower there for non-performing loans and bad loans are positively correlated with the interest rates (Nkusu, 2011). As far as interest rate policy is concerned it plays very important role in NPLs growth rate in a country/economy, Hoque and Hossain (2008) examined this issue and according to them non-performing loans are highly correlated with the high interest rates which enhances the debt burden of the borrowers and causes loan defaults. Espinoza and Prasad (2010) examined the macroeconomic determinants of non-performing loans in the GCC banking system, according to them high interest rates increases loan defaults but they did not find statistically significant relationship.

Inflation Rate

Inflation can be defined as a sustained or continuous rise in the general price level or, alternatively, as a sustained or continuous fall in the value of money. There is an empirical

evidence of positive relationship between the inflation in the economy and non-performing loans (Khemraj and Pasha, 2009, Fofack 2005). While Nkusu, (2011) has explained that this relationship can be positive or negative according to the author inflation affects loan payment capacity of borrowers positively or negatively, higher inflation can enhance the loan payment capacity of borrower by reducing the real value of outstanding debt; moreover increased inflation can also weaken the loan payment capacity of the borrowers by reducing the real income when Salaries/wages are sticky; Nkusu further explains that in this scenario inflation reduces the debt servicing capacity of the loan holders as lenders adjust the lending interest rates to adjust their real return. So according to literature relationship between inflation and non-performing loans can be positive or negative depending on the economy of operations.

Exchange Rate

Exchange rate can affects borrowers" debt servicing capacity through different channels and its impact on NPL can be positive or negative (Nkusu 2011). For the Spanish banking sector, Jimenez and Saurina (2006) present evidence that the NPL ratio is explained by GDP growth, real interest rates and credit conditions. Based on their model, Khemraj and Pasha (2009) try to find the determinants of NPL in the Guyanese banking sector. They found that the real effective exchange rate (REER) has a positive effect on impaired loans. The result indicates that whenever there is an appreciation of the local currency, the NPL portfolios of credit institutions are expected to be high.

As far as the relationship of the exchange rate is concerned literature provides mixed reviews. According to Khemraj and Pasha (2009) there is a positive relationship between real effective exchange rate and non-performing loans.

2.2.2. Bank Specific Factors

The existence of NPLs for some borrower under the same macro environment show the micro economic factors, which are viewed as exogenous forces influencing the banking industry are not the exclusive determinant of NPLs. On contrary, the distinctive features of banking sector and the policy choice of each particular bank with respect to their effort for maximum efficiency and improvement in their risk management and expected to exert a decisive influence on the

evolution of NPLs. (Onchomba, 2014). Three bank specific variables have been used in this study are discussed below in detail.

Credit Monitoring and Follow-up

A weak Risk assessment can also play a role in increasing NPLs. The repute of borrowers to repay loan and the market value of securities are not adequately assessed while giving loans which become key reasons behind NPLs (Petersson, 2004). The study of Ning (2007) shows that the banks use their personal experiences in giving loans rather than using historical data, mature credit portfolio management skills and centralized information system. The banks should access information about creditability of the customers, so that NPLs can be reduced. In this regard responsibilities of banks should be clearly defined. It should be ensured that banks exercise effective policies and adequate risk management (Basel, 2001). The study made by Podpiera and Weill (2008) examine empirically the relation between poor credit risk management and NPL. They conclude that there is strong evidence in favor of the bad management hypothesis and propose that regulatory authorities in emerging economies should focus on managerial performance in order to enhance the stability of financial system (by reducing nonperforming loans).

Deposits to Loans Ratio

According to Ferreira, C. (2008) deposits to loans ratio can be used as rough estimate of profitability on the deposits or as rough estimate of banking reserve ratio or can be used to measure national savings. The growth in deposits to loans ratio can predict the decline in the NPLs ratio. The theoretical justification of the relation is that the growth in deposits to loans ratio means the greater increase in the deposits as compared to the loans. As the deposits of the banks are growing and loans are not, it shows that banks are risk averse and lend only to those customers who have good credit history and are able to repay the loan.

On the contrary, study done by Fawad and Taqadus (2013) rejects the validity of the deposits to loans ratio effect by suggesting significant positive association between NPLs and reserve ratio. There finding is opposite to the findings of the above researchers. The study suggests that banks has already lend funds to the low quality borrowers in order to utilize idle funds because of the bad management and deviation from standard loan allocation practices, wrong evaluation of

collateral and lack of loan monitoring and controlling skills (bad management hypothesis) and expect that in future the borrowers will not repay loans, banks stop lending with the fear of further increase in the riskiness of loans, thus deposits to loan ratio increases because of the expected increase in the future NPLs.

Credit Growth

The study of Sarlija and Hare (2012) indicates that in case of developed countries, lending is at a much speedy pace. The study of Jiménez, et al. (2007), points out that herd behavior, moral hazard, agency problems and disaster nearsightedness are the basic factors behind the lenient terms of credit. Furthermore they linked the lenient credit terms with Non-Performing Loans. When the economy is intensifying, bank managers are found to exercise leniency in giving credit because lower credit expansion means lesser income generation which indicates poor performance.

Through the research period our country Ethiopia does not exercise difficult financial crisis but in other country before the financial crisis there was significant credit growth. This was largely thanks to the deregulation of financial markets and the development of information technologies in the banking industry (Rinaldi & Sanchis-Arellano, 2006). Since the financial crisis, the trend has been reversed and banks are now less willing to lend. This has led to an academic focus on bank lending behavior (Micco & Panizza, 2006; Olokoyo, 2011).

Interest income, which suggests that loan growth, is an important drives of the riskiness of banks Amador et al. (2013) underline the relationship between abnormal loan growth and banks' risk-taking behavior. They find that abnormal credit growth over a prolonged period of time leads to an increase in banks" riskiness, accompanied by a reduction in solvency and an increase in the ratio of NPL to total loans.

Another important contribution on Italian credit growth is the paper published by the Bank of Italy in 2013. In this study, Panetta (2013) finds that the main obstacle to the growth of loans is the deterioration of the credit risk caused by the prolonged recession. In the first quarter of 2013, the annual rate of input non-performing loans rose to 2.8% of total credit and to 4.5% for business loans. Panetta (2013) shows a positive relationship between non-performing loans and

credit reduction by banks, or bank lending behavior. With regard to cooperative banks, Panetta (2013) shows that cooperative bank activity expanded significantly between 1995 and 2008, and their market share increased. He also shows that in the early years of the financial crisis (2008-2009), cooperative banks gave stability to the loan supply thanks to their financial soundness and funding stability. In the second half of 2011, cooperative bank liquidity suffered the effects of the sovereign debt crisis, and in October 2011 the net interbank position of the cooperative movement was in debt for the first time. In addition, cooperative banks are experiencing deterioration in credit quality. In 2012, the stock of non-performing loans increased by a quarter, and other impaired loans by almost a third. There is thus almost unanimous evidence that banks" risk appetite is compromised by experiences related to loan losses. An increase in NPL is expected to lead to a reduction in banks' credit lines, hence the negative relationship between NPL and loan growth rate.

2.2.3 Business Characteristic

Business Profit Margin with NPL

The regression result of fixed effect model in the above table 4.7 is consistent with the hypothesis developed in this study. The study hypothesized that there is a negative association between business profit margin and NPLs of banks. Model in the above table 4.7 indicates statistically significant negative effect of business profit margin on NPLs in Ethiopia. This positive sign indicates the same flow relationship between business profit margin and NPLs. It implies that for one unit change in the manufacturing business profit margin, keeping other thing constant had resulted 7.8% units change on the levels of NPLs in opposite direction. The result is inconsistent with the result found by Nannyonga (2000); Onyenucheya & Ukoha (2007); Oke et al. (2007); Von Pischke (1991) who found that borrowers who get higher profit, have higher chance of repaying their loans compared to borrowers who declare less profit.

2.3 Empirical Literature

The term "bad loans" as described by Basu (1998) in Fofack (2005) is used interchangeably with non- performing and impaired loans. Berger and De Young, (1997) also consider these types of loans as "problem loans". In effect, these would be considered bad or toxic assets on the banks books (Bexley & Nenninger, 2012). These descriptions were used interchangeably during the study. According to Berger and De Young (1997), non-performing loans could be injurious to the financial performance of banking institutions.

According to Alton and Hazen (2001) non-performing loans are those loans which are ninety days or more past due or no longer accruing interest. Hennie (2003) agrees arguing that non-performing loans are those loans which are not generating income. This is further supported by Caprio & Klingebiel (1996), cited in Fofack (2005), who define non-performing loans as those loans which for a relatively long period of time do not generate income that is, the principal and or interest on these loans have been left unpaid for at least ninety days. Non- performing loans are also commonly described as loans in arrears for at least ninety days (Guy, 2011). Therefore in this study, non-performing loans are loans that are ninety or more days delinquent in payments of interest and/or principal (Bexley & Nenninger, 2012).

Most empirical studies examine the influence of the macroeconomic environment on non-performing loans (Louzis et al, 2011). Rinaldi & Sanchis-Arellano (2006) analyze household non-performing loans for a panel of European countries and provide empirical evidence that disposable income, unemployment and monetary conditions have a strong impact on non-performing loans. Berge and Boye (2007) find that problem loans are highly sensitive to the real interest rates and unemployment for the Nordic banking system over the period 1993–2005 Non-Performing loans in Commercial Banks.

Louzis et al. (2010) conducted a study to examine the determinants of NPLs in the Greek financial sector using fixed effect model from 2003-2009 periods. The variables included were ROA, ROE, solvency ratio, and loans to deposit ratio, inefficiency, credit growth, GDP growth rate, unemployment rate and lending rates. The finding reveals that loan to deposit ratio, solvency ratio and credit growth has no significant effect on NPLs. However, ROA and ROE has negative significant effect whereas inflation and lending rate has positive significant effect on

NPLs. It justifies that performance and inefficiency measures may serve as proxies of management quality.

Ali & Iva (2013) conducted study on "the impact of bank specific factors on NPLs in Albanian banking system" considered Interest rate in total loan, credit growth, inflation rate, real exchange rate and GDP growth rate as determinant factors. They utilized OLS regression model for panel data from 2002 to 2012 period. The finding reveals a positive association of loan growth and real exchange rate, and negative association of GDP growth rate with NPLs. However, the association between interest rate and NPL is negative but weak. And also inflation rate has insignificant effect on NPLs.

Similarly, Shingjergji (2013) conducted study on the "impact of bank specific factors on NPLs in Albanian banking system". In the study, capital adequacy ratio, loan to asset ratio, net interest margin, and return on equity were considered as a determinant factors of NPLs. The study utilized simple regression model for the panel data from 2002 to 2012 period and found as capital adequacy ratio has negative but insignificant whereas ROE and loan to asset ratio has negative significant effect on NPLs. Besides, total loan and net interest margin has positive significant relation with NPLs. The study justifies that an increase of the CAR will cause a reduction of the NPLs ratio. Besides, an increase of ROE will determine a reduction of NPLs ratio. Besides, Mileris (2012) on the title of "macroeconomic determinants of loan portfolio credit risk in banks" was used multiple and polynomial regression model with cluster analysis, logistic regression, and factor analysis for the prediction. The finding indicates that NPLs are highly dependent of macroeconomic factors.

However, Swamy (2012) conducted a study to examine the macroeconomic and indigenous determinants of NPLs in the Indian banking sector using panel data a period from 1997 to 2009. The variables were GDP growth, inflation rate, per capital income, saving growth rate, bank size, loan to deposit ratio, bank lending rate, operating expense to total assets, ratio of priority sector`s loan to total loan and ROA. The study found that real GDP growth rate, inflation, capital adequacy, bank lending rate and saving growth rate had insignificant effect; whereas loan to deposit ratio and ROA has strong positive effect but bank size has strong negative effect on the level of NPLs.

Similarly, Farhan et al. (2012) on the title of "Economic Determinants of Non-Performing Loans: Perception of Pakistani Bankers" utilized both primary and secondary data in 2006 years. The data was collected from 201 bankers who are involved in the lending decisions or handling nonperforming loans portfolio. Correlation and regression analysis was carried out to analyze the impact of selected independent variables. The variables included were interest rate, energy crisis, unemployment, inflation, GDP growth, and exchange rate. The study found that, interest rate, energy crisis, unemployment, inflation and exchange rate has a significant positive relationship whereas GDP growth has insignificant negative relationship with the non-performing loans.

According to an Empirical Study made on Commercial Banks in Pakistan by Badar & Yasmin (2013) on the title of "Impact of Macroeconomic Forces on Nonperforming Loans" the long and short run dynamics between nonperforming loans and macroeconomic variables covering the period from 2002 -2011 of 36 commercial banks in Pakistan were assessed. In the stud, inflation, exchange rate, interest rate, gross domestic product and money supply were included as macroeconomic variables. They applied vector error correction model. The study found that as there is strong negative long run relationships exist of inflation, exchange rate, interest rate, gross domestic product and money supply with NPLs.

Makri et al. (2014) identify the factors affecting NPLs of Euro zones banking systems for 2000-2008 periods before the beginning of the recession exclusively pre-crisis period. The study includes 14 countries as a sample out of 17 total Euro zone countries. The variables included were growth rate of GDP, budget deficit (FISCAL), public debt, unemployment, loans to deposits ratio, return on assets, and return on equity and capital adequacy ratio. The study utilized difference Generalized Method of the Moments (GMM) estimation and found as real GDP growth rate, ROA and ROE had negative whereas lending, unemployment and inflation rate had positive significant effect on NPLs. However, ROA & loan to deposit ratio, inflation, and budget deficit did not show any significant impact on NPL ratio. Similarly, Carlos (2012) on macroeconomic determinants of the Non-Performing Loans in Spain and Italy found as inflation rate has insignificant effect on NPLs (cited in Gadise Gezu, 2014).

Researchers in banking and finance have indicated that bank performance is related to internal and external factors. The internal factors relate to banks" characteristics and external factors are

described as the economic and legal environment (Athanasoglou, Brissimis & Delis, 2008). Multiple linear regressions is a very common statistical technique used in finding the determinants of bank performance, for example Athanasoglou, Brissimis & Delis (2008), Haron (2004) and Sanusi & Mohamed (2007).

A similar study in finding determinants of bank profitability, Sanusi & Mohamed (2007) found that bank's characteristics and the financial structure of a country are significant variables affecting bank profitability. They also compared the results of fixed effects and random effects on the proposed model and observed low adjusted $R2$ values, indicating a low proportion of variation in profitability explained by the significant independent variables.

2.3.1 Summary of Literature and Knowledge Gap

As per the empirical analysis of our country and other countries researchers, plenty of variables were assessed. However, still there is not a standard variable to determine non performing loan, rather they agree on its greater impact on the overall economy. Yet, despite its highest importance, still a few studies were done in Ethiopia. Moreover, to the best of the researcher's knowledge; there is no empirical evidence on the determinant of NPLs, which shows all three major determinants of NPLs (bank specific, microeconomic and business characteristic factors). Specifically, there is lack of papers that are done on the determinant of NPLs from business characteristic perspective. Besides, most of the related literatures reviewed cover different studies made both in developing and developed countries' banking industries. Even if quite a number of studies have investigated the determinants of NPLs, most of these studies have been done in developed countries with few being done in developing countries. As per the report of NBE and the private commercial banks data manufacturing sector is a pioneer sector that faces more NPL than other sector. Due to governmental economic policy there is incentive to obtain more ratio of loan to the manufacturing sector than other sectors and the loan arrears of manufacturing sector gone be risen through out period of time, as per the researcher's knowledge there is not any studies made on the determinant of nonperforming loan in Ethiopian private commercial banks focusing on manufacturing sector. Therefore, this research will contribute towards filling the gap by identifying and analyzing the factors that affect level of nonperforming loans in Ethiopian private commercial banks, specifically the manufacturing sector.

2.4 Conceptual Framework

Figure 2.1 Conceptual framework

Independent variable   Dependent variable

| Independent variable box | Arrow | Dependent variable |

➢ Deposit Interest Rate
➢ Inflation rate
➢ Exchange Rate
➢ Loans to Deposit Ratio
➢ Business Profit Margin
➢ Loan Growth Rate

Non-performing Loans
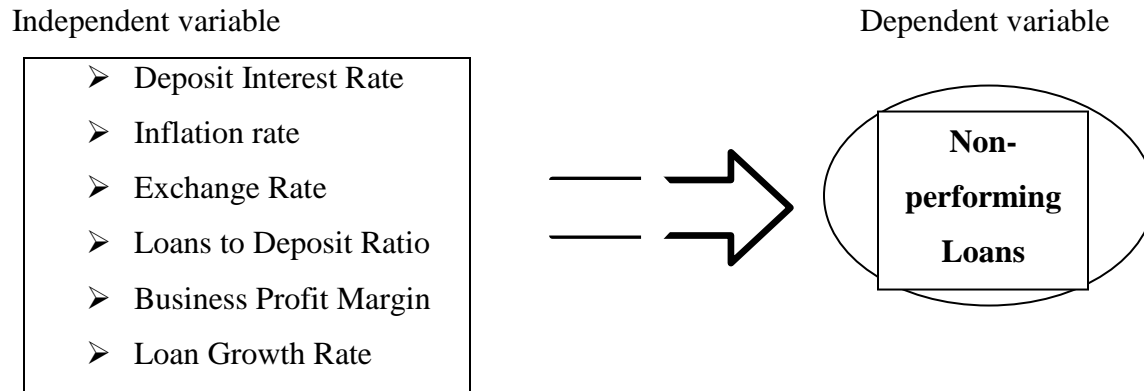
Source: Developed by the researcher from different literature

In the above conceptual framework model, the researcher expects if the average lending interest rate and NPL rate are high, it was an internal factor that affects banks NPL position. Whereas if GDP growth rate is low and inflation rate was high, it was an external factor that affects NPL status of the bank. The researcher used the average lending interest rate as lending interest rate in the study.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Research Design and Approach

Research design is a master plan specifying the methods and procedures for collecting and analyzing the required data. The choice of research design depends on predetermined objectives that the researchers want to achieve. According to Kotzar et al. (2005), research design is defined as the plan and structure of investigation and the way in which studies are put together. Cooper et al. (2003) also define research design as the process of focusing on the researcher's perspective for the purpose of a particular study.

The study was designed to identify the determinants of NPLs in private commercial banks in Ethiopia. The researcher employed quantitative data in respect with research variables of non-performing loan rate (NPL to total loan ratio), inflation rate, exchange rate, deposit interest rate, loans to deposit ratio, business profit margin and loan growth rate. Since it tries to describe the problem and attempts to explain the phenomenon with quantitative research approach. Thus, due to quantitative nature of data, the researcher employed deductive reasoning to examine the major factors affecting NPLs. Because deductive reasoning starts from laws or principles and generalizes to particular mean that the researcher generalized the position of NPL depend on NBE directives. As noted by Kothari (2004), explanatory research design examines the cause and effect relationships between dependent and independent variables. Hence, in this study the researcher employed explanatory research design.

3.2 Source of Data and Instruments of Data Collection

This study used panel data. The study was used panel data since panel data can take heterogeneity among different units into account over time by allowing for individual-specific variables. Besides, by combining time series and cross-section observations, it gives more informative data. Furthermore, panel data can better detect and measure effects that simply cannot be observed in pure cross-section or pure time series data (Gujarati, 2004). Accordingly, the study used secondary sources of data. A secondary source of data was preferred by the study since it is the appropriate data to achieve the research objectives and it is less expensive in terms of time. Secondary data is either being published or unpublished data (Kothari, 2004). Accordingly, the data was obtained from the audited annual financial statements of the selected private commercial banks in Ethiopia. These data includes both bank specific and macroeconomic factors. The bank specific variable data was obtained from the country's central bank, National bank of Ethiopia, head office of each bank and from the Central Statistical Agency (CSA).

3.3. Population and Sampling Design

The total population of the study was the sixteen private banks currently operating in Ethiopia. The sampling frame for drawing sample included those commercial banks having at least 15 years working experience in Ethiopia (i.e. from 2004 to 2018). Yet,commercial bank of Ethiopia

(CBE) is one of senior and covers the largest market share portion,but as per the ownership structure and the frame of the bank loan structure is different from private commercial banks and furthermore the prior research is done before are totally assess only the CBE data. Accordingly, there were sixteen private commercial banks discuss outstanding loan disbursed by private banks from 2004-2018.it showed that out of the total outstanding loan 84.13% of the loan was disbursed by the six private banks (AIB, DB, BOA, WB, UB and NB) and total coverage of the banks was more than 50% so the finding of the study is believed to explain the problem of the private commercial banks. Beside the paper which is done only on the Ethiopian private commercial banks and the study intend to focus only on six private commercial banks having at least fifteen years experience which include: Dashen Bank S.C (DB), Awash International Bank S.C (AIB), Wegagen Bank S.C (WB), United Bank S.C (UB), Nib International Bank S.C (NIB) and Bank of Abyssinia S.C (BOA) but other private banks have not 15 year experience, yet the study needs to assess 15 years data of the bank. Therefore, the matrix for the frame is 16*6 that includes 96 observations.

In this case, since the numbers of private commercial banks in Ethiopia which have 15 years' experience are very few, the study assumed the data obtained from the six selected private banks. Therefore, the sampling frame and the sample size was the same. According to Brooks (2008), while there is no definitive answer for an appropriate sample size for model specification, it should be noted that most testing procedures in econometrics rely on asymptotic theory. This theory says that as the sample size approaches to the population, the results from the sample estimates are more appropriate for generalizing it to the total population and for primary data from the bank, the study also interviewed two senior loan officers and the manager of the department in each bank and the study totally interviewed 12 senior loan officers and 6 loan department managers. Regarding the firms in manufacturing sample selection was based on stratified sampling where borrowers were selected in such a way that it comprises a diversified activity and in proportion to the population classification in terms of their loan status but It excludes borrowers whose repayment installment has not yet matured. In line with this the study was first identify the manufacturing companies that face NPL in each sub sector (food and beverage and textile) in each bank. Out of the total outstanding loan in average 3 manufacturing face NPL in each sub sector (for privacy case the name of the company is not disclose) and

totally 36 companies face NPL in the final research period (2018) in all six banks, out of 36 the 18 designated persons were interviewed. Therefore the study contacted 50 % of the total population (36).

3.4 Study Variables and Model Specification

The researcher was used NPL (dependent variable) as a measure of non-performing loans of private commercial banks and six predictor (independent variables) was chosen and analyzed. Those chosen variables were bank Deposit interest rate, Inflation rate, Exchange rate, Loan to deposit ratio, Business profit margin of the sector, Loan growth rate, and the error term.

$$NPL_{it} = \beta_0 + \beta_1(DIR)_{it} + \beta_2(INFR)_{it} + \beta_3(EXR)_{it} + \beta_4(LDR)_{it} + \beta_5(BUPM)_{it} + \beta_6(LGR)_{it} + \varepsilon_{it}$$

Where:

NPL= Non-performing loan

DIR_{it} = Deposit Interest rate of bank i at time t,

$INFR_{it}$ = Inflation Rate i at time t,

EXR_{it} = Exchange Rate i at time t,

LDR_t = Loan Deposit Ratio at time t,

$BUPM_{it}$ = Business profit Margin of the sector at time t,

LGR_{it} = Loan growth rate i at time t,

ε_{it} = the error term.

3.5 Data Presentation and Analysis Techniques

The data collected from different sources was coded, checked and entered into simple excel program to make the data ready for analysis, Then to achieve the stated objective of the study, the collected panel data was analyzed using descriptive statistics, correlation and multiple linear regressions analyses. The descriptive statistics (Mean and Std.) were used to analyze the general trends of the data from 2004 to 2018 based on the sample of 6 banks, and the correlation matrix was also used to examine the linear relationship between the dependent variable and independent

variables. Finally, a multiple linear regression model was used to determine the relative importance of each independent variable in explaining the variation of NPLs in EPCBs.

The multiple linear regressions model was conducted by the ordinary least square (OLS) method using Eviews 6 econometric software package. The rational for choosing OLS is that, if the Classical Linear Regression Model (CLRM) assumptions hold true, then the estimators determined by OLS will have a number of desirable properties (Brooks 2008). In addition, as noted in Petra (2007) OLS outperforms the other estimators when the following holds; the cross section is small and the time dimension is short. Therefore, as far as both the above facts hold true in this study it is rational to use OLS. Furthermore, various diagnostic tests such as normality, heteroscedasticity, and autocorrelation and multicolinearity test were conducted to decide whether the model may use in the study is appropriate and to fulfill the assumption of classical linear regression model. Finally, a multiple linear regression model was used to determine the relative importance of each independent variable in explaining the variation of NPLs in EPCBs.

3.6 Ethical Consideration

Permission to carry out the research was sought from the college of business and economics before the study is initiated. The officials of NBE and the sample private banks were also made aware of the objectives and the general overview of the study. On the other hand, they were informed that the findings will be used by the stakeholders and policy makers for the betterment of the banking sector. Their informed consent was sought by appending a signature in the respondent consent.

CHAPTER FOUR

4. RESULTS AND DISCUSSIONS

4.1 Introduction

In this chapter of the study, the panel data, which was collected from the financial statements, were analyzed through E-views software and other information gathered from semi structured in-depth interview, were discussed in this chapter. The results from the regression and correlation analysis were presented in tables and discussed one by one. The regression model was employed to analyze the panel data collected and to test the effect of the independent variables on the

dependent variable so that the research hypotheses are fully tested. Multiple regression analysis was employed to test whether one or more independent variables (predicators) influence the dependent variable (outcome variable) and to identify whether the effect is positive or negative. Generally, the purpose of this chapter is to present results and analysis of data obtained from different methods involved in this study.

4.2. Choosing Random effect (RE) Versus Fixed Effect (FE) Models

According to Gujarati (2004), if *t* (the number of 6 cross sectional unit) is large and *n* (the number of independent variables) is small, there is likely to be little difference in the values of the parameters estimated by fixed effect model/FEM and random effect model/REM. Hence the choice here is based on computational convenience. According to Brooks (2008); Verbeek (2004) and Wooldridge (2004), it is often said that the REM is more appropriate when the entities in the sample can be thought of as having been randomly selected from the population, but a FEM is more plausible when the entities in the sample effectively constitute the entire population/sample frame. On the other hand, random effect is used when the number of entities is greater than the independent variables, if independent variables is less than or equal to with entities the researcher is obliged to use fixed effect models. Hence, this study chose to use Fixed Effect Model (FEM) since the entities (banks) and variables are equal.

4.3. Results

The purpose of this section is to present the results of data obtained from different data sources. Accordingly, the results of the documentary analysis (structured reviews of documents) and in depth interviews are presented in the following subsections.

4.3.1. Descriptive Statistics

This section presents the descriptive statistics of dependent and explanatory variables used in this study. The dependent variable used in this study was NPLs ratio while explanatory variables were BUPM, DIR, EXR, INFR, LDR, and LGR. Accordingly, the following table 4.1 reports mean, median, maximum, minimum, standard deviation and number of observation for each variables used in this study. In case, the following table 4.1 shows that all variables have 90 observations.

Table 4.1 Descriptive Statistics of Dependent and Independent Variables

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Observation
NPL	0.100417	0.07	0.24	0.02	0.097516	90
BUPM	0.278958	0.29	0.6	0.07	0.129383	90
DIR	0.041875	0.04	0.06	0.03	0.010791	90
EXR	1.0525	0.955	1.3	0.91	0.147762	90
INFR	0.115938	0.081	0.364	-0.106	0.118194	90
LDR	0.722813	0.71	0.16	0.49	0.155409	90
LGR	0.175313	0.16	1.0	0.00	0.128128	90

Source: E-views Output based on Financial Statements of banks & MOFEC reports

The mean value for NPL of the six sample banks was 10 percent with a standard deviation of 9.75% the mean indicates that private commercial banks in Ethiopia incurred 10% NPLs on average from its total loan. The average value of nonperforming loan for 15 consecutive years was above the average requirement of National bank of Ethiopia (5%) and there were a big variation across the sample banks NPL ratio. NPL for the sample period was ranged from 2 percent to 24 percent, the minimum and maximum value respectively. When we come to the explanatory variable BUPM it range from minimum of 7% up to maximum 60% and its mean value 27.89% and it shows there is a great variation in BUPM within the research period. The second variable DIR was minimum of 3 percent and maximum 6 percent and the standard deviation was 1 percent this indicate that there is no difference in deposit interest and the average percentage of interest is 4%.

Regarding to the annual average exchange rate in the research period the maximum exchange rate in the country was 1.3% (logarithm result) and the minimum exchange rate was 0.91% (logarithm result). The standard deviation of EXR was 14%, which shows that the variation of exchange rate among sample banks was high; it implies that there is a fluctuation of currency in the country. The rate of inflation was highly dispersed over the periods under study towards its mean with standard deviation of 0.11%. The maximum inflation rate was recorded in the year 2009 (i.e. 0.36) and the minimum was in the year 2012.

Regarding LDR ratio that measured by total loans divided by total deposits, it ranges from a minimum of 0.49% to a maximum of 0.16%. It has a mean of 0.72% with highest deviation (0.15) % from its mean value. Finally the LGR of Ethiopian banks have a minimum 0 growth rate, which shows it have no change on consecutive years and the maximum 1% with the third highest standard deviation of 0.12%, it implies that average annual loan have great variation in EPCBs . Among bank specific variables employed in this study LDR had a higher standard deviation which was 0.155% with a minimum 0.49% (logarithm result) and maximum (0.16%). Moreover, the Standard deviation of inflation rate (0.11%) indicates the existence of less volatility of inflation in Ethiopia over the period under consideration. Thus, it can be concluded that, the macroeconomic variables were relatively stable over the sample periods as compared to bank specific variables with the exception of instability on exchange rate.

4.3.2. Test for the Classical Linear Regression Model (CLRM) Assumptions

This section provided test for the classical linear regression model (CLRM) assumptions such as Normality, Heteroscedasticity, Autocorrelation and Multicolinearity tests. The linearity of the parameter is assumed since the model applies linear ordinary least square (OLS). The objective of the model is to predict the strength and direction of association among the dependent and independent variables. Before applying the model for testing the significance of the slopes and analyzing the regressed result, Normality, Multicolinearity, Autocorrelation and Heteroscedasticity tests were made for identifying misspecification of data if any so as to fulfill research quality.

Heteroscedasticity Test

In the classical linear regression model, one of the basic assumptions is Homoskedasticity assumption that states as the probability distribution of the disturbance term remains same for all observations. To test for the presence of Heteroscedasticity, the popular white test was employed (Brooks 2008). As shown in table, the white test statistic gave that there was no evidence for the presence of Heteroscedasticity in this particular study since the p-values for all versions of the test statistic were in excess of 0.05. Hence the p value is 7.41% showing insignificant value.

Table 4.2 Heteroskedasticity Test: White

F-statistic	1.725553	Prob. F (38,56)	0.0311

Obs*R-squared	51.23957	Prob. Chi-Square (38)	0.0741
Scaled explained SS	278.4757	Prob. Chi-Square (38)	0.0000

Source: E-views Output

Test for Autocorrelation Assumption

This assumption implies that the errors are linearly independent of one another (uncorrelated with one another) Brooks (2008). If the errors are correlated with one another, it would be stated that they are auto correlated, that means errors associated with one observation are uncorrelated with the errors of any other observation. The researcher tests the autocorrelation using both Breusch-Godfrey Serial Correlation LM Test and DW (Durbin-Watson) test statistic. The result implies that the research independent variable error term is uncorrelated each other. The test result indicated in Breusch-Godfrey test shows the null hypothesis of no autocorrelation is not rejected, since it is above 5% significance level. Hence the p value is 0.23 so there is not autocorrelation within the variables.

Table 4.3 Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.165052	Prob. F (2,82)	0.3170
Obs*R-squared	2.624921	Prob. Chi-Square (2)	0.2692

Source: E-views Output

Moreover, in addition to the above autocorrelation is tested by DW (Durbin-Watson) test statistic, according to the table the dl is 1.535 and du value is 1.802 in 90 observation and six variables at 5% level of significance. The DW test statistic value from the regression result is 2.14 and it is above the lower level and the upper level, yet 4-du= 2.198 and 4-dl=2.465 and in both case it is near to 2 so it fall in the region of no evidence of autocorrelation.

Table 4.4 Durbin-Watson DW test

	Reject Ho: Positive Autocorrelation	Inconclusive	Do not reject HO: no evidence of autocorrelation	Inclusive	Reject Ho: Negative Autocorrelation
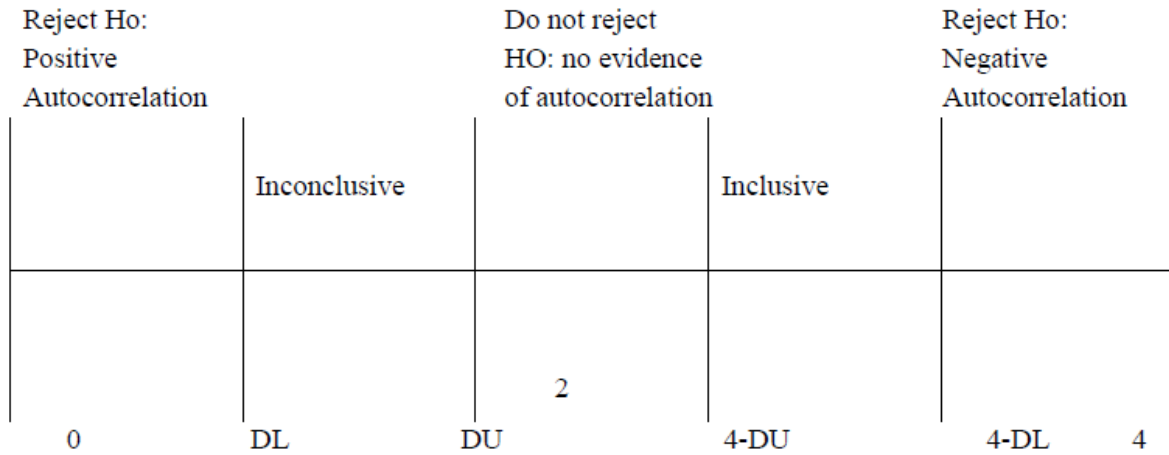
Source: E-views output

Test for Multicollinearity

As indicated earlier we say there is Multicollinearity problem when there is correlation between variables employed in the regression model (when the assumption that cov(x1,x2) = 0 is violated). That is the existence of a ``perfect`` or exact linear relationship among some or all explanatory variables of a regression model (Gujarati, 1995). The Interco relation between the two variables can be measured by the partial correlation coefficient between one variable with another variable. As a rule of thumb, if the correlation coefficient between the two variables is greater than 0.8, one can conclude that there is a series problem of Multicollinearity. Accordingly the test result shows that the correlation coefficient between all variables under consideration is less than 0.8 implying that the explanatory variables can separately contribute to the variation in the dependent variable.

Table 4.5 Correlation Matrixes of Independent Variables

	BUPM	DIR	EXR	INFR	LDR	LGR
BUPM	1					
DIR	-0.490153	1				
EXR	-0.195435	0.464421	1			
INFR	-0.343961	0.055058	0.226609	1		
LDR	-0.050277	-0.208192	-0.715009	-0.299096	1	
LGR	-0.074082	0.012514	-0.07599	-0.031403	0.143192	1

Normality Test

One of the basic assumptions of the classical linear regression model (CLRM) is the stochastic/disturbance term is normally distributed. If this curve is like bell shaped distribution it can be concluded that the disturbance term is normally distributed with mean zero and constant variance one (i.e. N~ (0, 1)). To get the residuals normally distributed first we have to make sure that each variables employed are found to be normally distributed. In this case, most of the variables are found to be normally distributed; a normal distribution is not skewed and is defined to have a coefficient of kurtosis 3. Skewness measures the extent to which a distribution is not symmetric about its mean value and kurtosis measures how far the tails of the distribution are. If the residuals are normally distributed, the histogram should be bell shaped. The residuals scatter plots allow us to check whether the residuals should be normally distributed about the predicted dependent variable scores. As we can understand from the histogram and p-p plot depicted below, the residuals seem normally distributed and the residuals are distributed with a mean of 0 and standard deviation of 0.020. Thus, the model fulfills the assumption of being normally distributed.

Figure 4.1 Normality Test for Residuals: Bera-Jarque

Series: Standardized Residuals	
Sample 2001 2015	
Observations 90	
Mean	-2.81e-18
Median	0.001879
Maximum	0.058645
Minimum	-0.041906
Std. Dev.	0.020388
Skewness	0.155868
Kurtosis	3.182934
Jarque-Bera	0.489916
Probability	0.782737
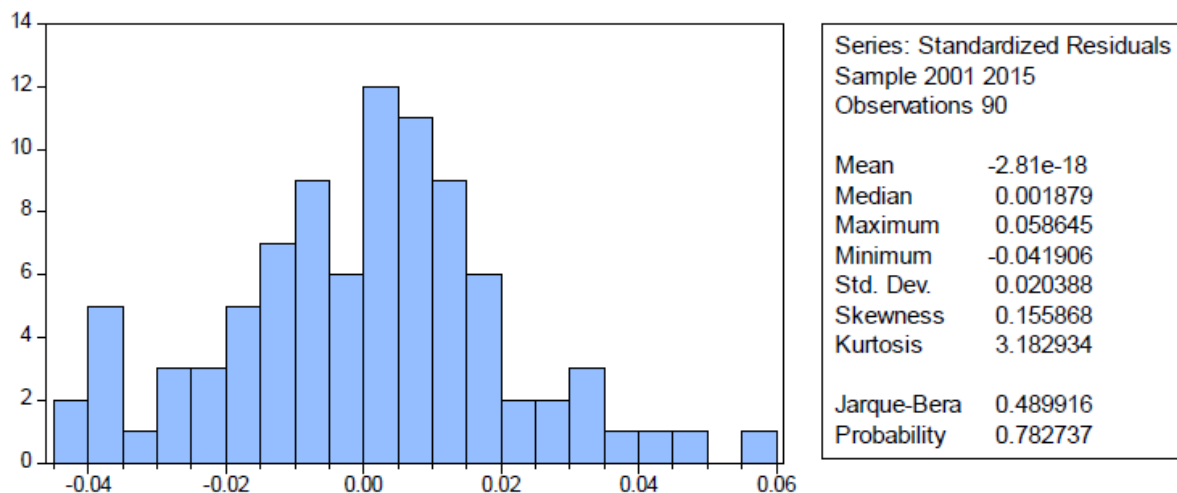
4.3.3. Correlation Analysis

Correlation analysis is a way to indicate the degree to which two or more variables are associated with or related to each other. Each individual variable have negative or positive relationship with each other, Correlation coefficient between two variables ranges from +1 (i.e. perfect positive relationship) to -1 (i.e. perfect negative relationship). The most widely used bi-variant correlation statistics is the Pearson product-moment coefficient, commonly called the Pearson correlation which was used in this study. As Brooks (2008), if it is stated that y and x are correlated, it means that y and x are being treated in a completely symmetrical way. Thus, it is not implied that changes in x cause changes in y, or indeed that changes in y cause changes in x rather, it is simply stated that there is evidence for a linear relationship between the two variables, and movements in the two are on average related to an extent given by the correlation coefficient.

Table 4.6 Correlation Matrix of Dependent and Independent Variables

	BUPM	DIR	EXR	INFR	LDR	LGR
NPL	-0.078922	0.813428	-0.035011	0.027279	0.059115	-0.079032

Source: E-views output

According to the above table business profit margin is negatively correlated with non-performing loan with the coefficient of -0.078922 and the linear relationship between BUPM and NPL is statistically different from zero/statistically significant. Yet, two macroeconomic variables were positively correlated with NPL and one micro economic variable is negatively correlated. Non-performing loan is positively correlated with deposit interest rate with the coefficient of 0.813428 and statistically different from zero/statistically significant. Exchange rate is negatively correlated with the dependent variable (NPL) with the coefficient of -0.035011 and statistically different from zero/statistically insignificant. The last macroeconomic variable is inflation rate; its correlation coefficient is positive with the coefficient of 0.027279, but statistically insignificant/not different from zero. Among the bank specific factors affecting non-performing loan, loan to deposit ratio and loan growth rate, LDR have positive significance correlation at 5% level but LGR was negatively correlated with non nonperforming loan and it has a statistically significant at 1% significant level.

4.4. Result of Regression Analysis

As mentioned in the previous chapter, in this study a two step multiple linear regression equations were run. In the first step (general) regression equation, all the proposed independent variables (i.e., BUPM, DIR, EXR, INFR, LGR and LDR) were regressed with respect to the dependent variable (NPLs). To this end, only the significant variables that were found from the first step regression equation were regressed once again. Table 4.7 shows the first step regression results. The R square and the adjusted- R square statistics of the model were 94.61% and 93.52% respectively. These results are intended to show how well does the model containing the explanatory variables that can explain variations in the dependent variable and usually known as goodness of fit statistics (Brooks 2008).

Thus, the adjusted- R square of this study indicates that, 94.61% of the variation on the dependent variable (NPLs of EPCBs) was explained by the changes in the independent variables. In other words, the change in annual inflation rate, deposit interest rate, effective exchange rate, loan growth, loan to deposit ratio, and business profit margin collectively explain 94.61 of the variation in NPLs ratio of EPCBs. In contrary, the remaining 5.39 % of changes on the NPLs of ECBs were explained by other factors which were not included in the econometrics model of this study. Thus it can be concluded that, all the independent variables used in this study collectively, were good explanatory variables of NPLs in EPCBs. Thus, the null hypothesis of F-statistic (the overall test of significance) that the R square is equal to zero was rejected at 1% significance level (p-value = 0.0), which enhanced the reliability and validity of the model.

Table 4.7 First (General) Regression Results

Dependent Variable: NPL
Method: Panel Least Squares
Sample (adjusted): 2004-2018
Periods included: 15
Cross-sections included: 6
Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003547	0.054686	0.064858	0.9485
BUPM	-0.078922	0.026455	-2.983279	0.0039
DIR	0.813428	0.402925	2.018809	0.0471
EXR	-0.035011	0.041378	-0.846123	0.4002
INFR	0.027279	0.024305	1.122368	0.2653
LDR	0.059115	0.029411	2.009938	0.0481
LGR	-0.079032	0.025991	-3.040725	0.0033
NPL(-1)	0.728825	0.049531	14.71458	0.0000
D102	0.081442	0.023655	3.442867	0.0010
D302	0.086476	0.023976	3.606804	0.0006
D106	0.064163	0.023233	2.761687	0.0072

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.946186	Mean dependent var		0.087222
Adjusted R-squared	0.935277	S.D. dependent var		0.082381
S.E. of regression	0.020958	Akaike info criterion		-4.732762
Sum squared resid	0.032504	Schwarz criterion		-4.288351
Log likelihood	228.9743	Hannan-Quinn criter.		-4.553550
F-statistic	86.73967	Durbin-Watson stat		2.140965
Prob(F-statistic)	0.000000			

Source: E-views output, from Financial Statements of banks & reports of MOFEC

Furthermore, the study examined the impact of bank specific macroeconomic and business characteristic factor on the level of NPL based on regression result of fixed Effect Model in Table 4.7 in terms of examination of coefficients of explanatory variables and significance level.

Through the examination of coefficients BUPM, EXR, and LGR had negative impact on NPL having a coefficient of -0.078, -0.035 and -0.079 respectively. This indicates that one unit change (increase/decrease) in, BUPM, EXR, and LGR can result a change on NPL by -0.078, -0.035 and -0.079 units in opposite direction respectively. In terms of significance level (corresponding p-value), all explanatory variables had p-values of less than the selected significance levels (1%,

5% and 10%) except for EXR and INFR. As shown in Table 4.7 above BUPM, DIR, LDR, and LGR were the statistically significant factors affecting NPL of private commercial banks in Ethiopia. LGR and BUPM have statistically significant impact on NPL at 1% level. LDR and DIR have significant impact on NPL at 5% level, Whereas, INFR and EXR were statistically insignificant.

As mentioned earlier, only the significant variables (BUPM, DIR, LDR and LGR) that were found in the first step regression analysis were regressed once again in order to ensure the reliability and the consistency of the first step regression results (both in terms of the coefficient estimates and the level of significance). On the other hand, according to Brook (2008), the dummy variables are used in the same way as other explanatory variables and the coefficients on the dummy variables can be interpreted as the average differences in the values of the dependent variable for each category, given all of the other factors in the model. In line with this to improve the chances of error normality the researcher used 3 dummy variables and the dummy variables remove observations corresponding to "one-off" or extreme events that are considered highly unlikely to be repeated, and the information content of which is deemed of no relevance for the data as a whole. The study also adds lags i.e. considering the effect of data one year later, this also used to remove the non-normality distribution.

Table 4.8 Second Step Regression Results

Dependent Variable: NPL
Method: Panel Least Squares
Sample (adjusted): 2003 - 2018
Periods included: 15
Cross-sections included: 6
Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.021207	0.024983	-0.848849	0.3986
BUPM	-0.095132	0.024952	-3.812553	0.0003
DIR	0.508342	0.281522	1.805695	0.0749
LDR	0.068801	0.023250	2.959121	0.0041
LGR	-0.083267	0.025903	-3.214538	0.0019
NPL(-1)	0.747034	0.036344	20.55476	0.0000
D102	0.074122	0.023387	3.169370	0.0022
D106	0.068969	0.023034	2.994180	0.0037
D302	0.080278	0.023703	3.386867	0.0011

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.943955	Mean dependent var		0.087222
Adjusted R-squared	0.934368	S.D. dependent var		0.082381
S.E. of regression	0.021105	Akaike info criterion		-4.736592
Sum squared resid	0.033852	Schwarz criterion		-4.347732
Log likelihood	227.1466	Hannan-Quinn criter.		-4.579781
F-statistic	98.46542	Durbin-Watson stat		2.151362
Prob(F-statistic)	0.000000			

Source: E-views output, from Financial Statements of banks & reports of MOFEC

Furthermore, the study examined the impact of bank specific macroeconomic and business characteristic factor on the level of NPL based on regression result of fixed Effect Model in Table 4.7 in terms of examination of coefficients of explanatory variables and significance level.

Through the examination of coefficients BUPM, EXR, and LGR had negative impact on NPL having a coefficient of -0.095, and -0.083 respectively. This indicates that one unit change (increase/decrease) in, BUPM, EXR, and LGR can result a change on NPL by -0.095, and -0.083 units in opposite direction respectively. In terms of significance level (corresponding p-value), all explanatory variables had p-values of less than the selected significance levels (1%, 5% and 10%) except for EXR and INFR. As shown in Table 4.6 BUPM, DIR, LDR, and LGR were the statistically significant factors affecting NPL of private commercial banks in Ethiopia. LDR, BUPM, and LGR have statistically significant impact on NPL at 1% level. On the other hand,

DIR have insignificant effect on NPL of private commercial banks. In the first model, it was revealed that the macroeconomic variables INFR and EXR were statistically insignificant variables to influence the level of NPLs in private banks in Ethiopia.

As mentioned earlier, only the significant variables (BUPM, DIR, LDR and LGR) that were found in the first step regression analysis were regressed once again in order to ensure the reliability and the consistency of the first step regression results (both in terms of the coefficient estimates and the level of significance). On the other hand, according to Brook (2008), the dummy variables are used in the same way as other explanatory variables and the coefficients on the dummy variables can be interpreted as the average differences in the values of the dependent variable for each category, given all of the other factors in the model. In line to this to improve the chances of error normality the researcher used 3 dummy variables and the dummy variables remove observations corresponding to "one-off" or extreme events that are considered highly unlikely to be repeated, and the information content of which is deemed of no relevance for the data as a whole. The study also adds lags i.e. considering the effect of data one year later, this also used to remove the non-normality distribution.

Table 4.7 shows the second step multiple regression results in which the insignificant variables (INFR and EXR) were dropout. Comparing the results of the two regression analysis, major differences were not found but the significance level is goes up from 5% to 1%. As shown in table 4.8, the R2 (94.39%) and the adjusted- R2 (93.43%) statistics in the second step regression were much closer to the R2 (94.39%) and the adjusted- R2 (93.43%) results obtained in the first step regression. Similarly, the results of Durbin-Watson statistics in the first and second step regression were 2.14 and 2.15 respectively.

Moreover, the sign and the magnitude of coefficient estimates in both the first and second step regression were almost similar. Based on the above discussions, it can be concluded that the results obtained from the first (general) regression analysis were consistent with the result of the second regression analysis, which enhanced the reliability and validity of the data used in the model.

4.5. Discussion on the Findings

The purpose of this section is to discuss the results obtained from the secondary data. This section deeply discuss the relationship between NPLs and such factors as business profit margin, deposit interest rate, annual average exchange rate, and inflation rate, loan to deposit ratio, and loan growth rate as discussed earlier from eight variables, the secondary data of six variables were analyzed by using E-view software and the reset two variables are discussed using interview with respective parties. The subsequent discussions present the analysis of results in respect of those factors in an orderly manner.

4.5.1. Macroeconomic Factors

As shown earlier all the microeconomic variable were regressed by using E-views software, on the regression result micro economic variables have positive and negative impact on NPL, out of three micro economic variables deposit interest rate have significant effect but the rest two inflation rate (INFR) and exchange rate (EXR) have insignificance impact on NPL of private banks in Ethiopia. The effect of each macroeconomic variable is discussed below.

Deposit Interest Rate (DIR) and Non-performing Loan (NPL)

As discussed in the literature review most of the earlier researchers suggested that deposit interest rate (DIR) have a positive correlation with NPL, but their argument was on the significance of its effect on the growth of NPLs. Besides to this, in Ethiopia deposit interest rate is set by the National Bank of Ethiopia (NBE), yet during the research period (2004-2018), in Ethiopia interest rate was not significantly fluctuated and it was changed only for four times within range of minimum 0.03 up to maximum 0.06.

An increase in deposit interest rate (DIR) also increase the bank cost of fund, beside to this banks exert additional fund on borrower in order to cover the cost. That means as interest rates rise, prudent borrowers are more likely to decide that it would be unwise to borrow, whereas borrowers with the riskiest investment projects are often those who are willing to pay the highest interest rates. Hence, higher interest rate leads to greater adverse selection that increases the likelihood that the lender is lending to a bad credit risk which ultimately increases the volume of banks NPLs. This research result indicated that deposit interest rate has a strong positive coefficient and it is statistically significant at 5% significant level (0.0471). The coefficient value

of the variable (i.e. 0.813428) indicated a percentage rise/decline in banks deposit interest rate, resulted in 1 times rise/decline in the NPL of private banks in Ethiopia in the same direction. As per Fofack (2005) the coefficient value may suggest that from all determinants of NPL the most important one is interest rate and also NPLs rate highly influenced by lending interest rate. Based on the result the hypothesis is not rejected, the result is also consistent with the findings of the previous studies conducted by Nkusu (2011), Adebola, Yusuff & Dhalan (2011), Louzis, Valdis & Metaxas (2011).

Inflation Rate (INFR) and Non-Performing Loan (NPL)

According to the theories produce positive and negative effect on economy, in our case the effect of inflation is sever in manufacturing business, due to an increase in inflation the profit of the sector had been worsening. The surge in price of wide range of row material and in line with this the cost of production is goes up. However the domestic market consumer ability to pay is eroded by the inflation, based on this the profit of the sector had been decline and the paying ability of the business is eroded. On the other hand the decline of inflation has opposite effect on the above assumption. On the other hand, since market frictions lead to the rationing of credit, credit rationing becomes more severe as inflation rises. As a result, the financial sector makes fewer loans; resource allocation is less efficient, and intermediary activity diminishes with adverse implications for capital/long term investment.

Nevertheless, in this study the coefficient estimate of inflation was positive but statistically insignificant at (P- value of 0.2653). The negative coefficient estimate of inflation (0.027279) indicates a positive association with NPLs. That means an increase in inflation rate leads to an increase in NPLs. This result also asserts that the hypothesis is rejected and it is inconsistent with the results of Khemria & Pash (2009) Fofac (2005), Nukusu (2011).

Exchange Rate (EXR) and (NPL) Non Performing Loan

In this study the exchange rate is considered the value of birr exchange in to dollar, as shown earlier the implication of exchange is negative or positive effect on the NPL growth. The effect of it is based on the nature of the business, when there is appreciations of exchange rate export

oriented firms are benefited. On the other hand, it can negatively affect the debt-servicing capacity of borrowers who borrow in foreign currency (import-oriented firms). Beside to this as per our country manufacturing sector trend, most of them are import oriented (machinery) but there is very weak trend in export. However, the sub-sector considering in this study (food and beverage products industry and textile) row material is more domestic wise. When the value of exchange rate is goes up the purchasing value of row material is also raise however, there is not export and which is not compensated the exchange value and this erode the repayment capacity of loan. More specifically, as the value of Ethiopian birr depreciated in terms of dollar, it can increase the competitiveness export-oriented Ethiopian firms in the international market. This due to the fact that, the operating cost of export-oriented Ethiopian firms was very less as compared to the international firms since the value domestic currency was very small in terms of foreign currency (dollar). This result was in accordance with the import substitution policy of Ethiopian government that encouraging export-oriented firms. In this regard, EPCBs are providing loans primarily to export-oriented firms so as to encourage the export sector. Hence, the incentive for export-oriented firms can also make their debt servicing easier.

The finding of the result implies that there is an inverse relationship between exchange rate and the growth rate of non-performing loan. It implies that when the exchange rate is rising, the sector that import goods turn to using the domestic production. Moreover, the coefficient (-0.035011) estimate of EXR was statistically insignificant. This implies that, an increase in EFEX (i.e., a depreciation of Ethiopian birr in terms of dollar); lead to a decrease in NPLs of EPCBs. The result is consistent with the finding of Zelalem (2013).

4.5.2. Bank Specific Variables

Loan to Deposit ratio (LDR) and Non Performing Loan (NPL)

It examines bank liquidity by measuring the fund that a bank has utilized in to loan from collected deposit. The coefficient sign of loan to deposit ratio shows that there is a positive relationship between banks nonperforming loan and loan to deposit ratio. Loan to deposit ratio had positive and statistically significant (p-value = 0.0481) at 5% significant level. The result is in line with the research hypothesis which is based on the argument that when banks lending increase as compared to the deposits the level of NPL also increase. Because at the time of low loans to deposits ratio in order to earn more banks start lending even to the low quality borrowers and do not follow the standard loan allocation practices, which leads to the growth in NPLs. Therefore, the result implies that every one percent change (increase or decrease) in bank's loan to deposit ratio keeping the other thing constant has a resultant change of 5.91% on the nonperforming loan in the same direction. The result is consistent with Ferreira, C. (2008), (Makri et al. 2014), (Ranjan and Chandra, 2003).

Loan growth Rate

According to the previous discussion the growth of loan have a positive impact over the growth of NPL. They finding of Amador et al. (2013) implies that abnormal credit growth over a prolonged period of time leads to an increase in bank's riskiness, accompanied by a reduction in solvency and an increase in the ratio of NPL to total loans. However, when we come to our country trend, specifically the six private commercial banks data implies that the loan disbursement is grown but the NPL rate in the research period was declining, i.e. through period of time the knowhow of the borrower is grown and the sector high portion is dominated by a few strong borrowers. Beside to this the growth rate of loan is stagnant.

In line with this the relationship between loan growth and NPL have an inverse impact, the result of this research also implies that loan growth have negative correlation (coefficient -0.079032) and it has (0.0033) significance at 1%. The finding was consistent with previous studies of Pasha and Khemraj (2009), Jellouli et al. (2009), and Vogiazas and Nikolaidou (2011), Zelalem Tsige (2013).

Credit Monitoring and Follow-up

As per the previous discussion this variable is covered by semi structured in-depth interview with the credit managers and senior loan officers in each six private commercial banks. As per the

interview conducted with credit head managers and senior credit officers of selected EPCBs, in order to have information about the current practical perception of them regarding the determinant of NPL in EPCBs, the bank employees that manufacturing sector is the priority sector that has incentive from bank than other sector, regarding loan and foreign transaction. As per the finding of the interview there are not separated personnel who work only in the manufacturing sector, even if there is priority to disburse loan to the sector but there is no special technique regarding credit follow-up and monitoring to the sector.

According to the interview finding there is not separated organized information center to access to appraise credit financing of manufacturing sector, rather the analysis is done by credit portfolio management officer based on the data supplied by the borrower but in 3 banks considered in this study have credit review to the management supplied by risk management report, also based on the information supplied by borrowers. As per their discussion the information is more based on the borrower, due to this as per the researcher outlook the data is more biased rather it is better to have information that gather by the officer by their own. In the view of credit manager, poor credit appraisal techniques on the part of credit/loan officers also account for some loans becoming delinquent. They explain this to mean that some loan officers lack the skills to adequately assess a credit proposition to reasonably determine their commercial viability or otherwise. In this sense, they accept some un bankable projects which eventually fail and repayment of the loan becomes sticky.

This study showed that the bank officers agreed that a loan defaults if the borrowers are admit by compromising the assessment conditions. The study also highlighted that if the bank has strong knowledge about the credit history of a borrower then this would lead to high loan quality. Furthermore the study also indicated that poor risk assessment can also lead to high NPLs. The five Cs (Character, Condition, Collateral, Capital and Capacity) are considered basic tools before lending. In case of failure to conduct adequate risk assessment would lead to missing any or all of the five Cs resulting in loan defaults. The survey results showed that 92.7% of the respondents agreed that tight monitoring of loans enhance its quality. This has been verified in the literature as stated that regular and adequate monitoring of a loan would result in Non-Performing Loans. The Interview results also show that if a loan is poorly assessed then it can be avoided from default by adequate monitoring. The results also indicate that credit monitoring directly affects

the occurrence of NPLs. However, Interview also indicates that if banks spend more on monitoring the loans then it is not guaranteed that level of NPLs may decrease. As per the literature review and hypostasis derived earlier credit monitoring and follow-up have negative correlation with the growth rate NPLs. That means, other things held constant, the efficiency of the bankers is increase from the application of loan until the final loan repayment, then the quality of the loan gone be good. Beside to this the percentage of NPLs getting goes down but if it is the reverse the percentage of NPL have different implication. The finding is also consistent with, the previous studies expressed that the loans are more secured if the banks keep a continuous check on the borrowers. Agresti et al. (2008) Salas and Saurina (2002), (Berger and DeYoung, 1997). The result is also parallel with previous studies such as Deininger and Liu (2009); Papias and Ganesan (2009) and Olomola (2000) which found that loan monitoring is an important factor in increasing/decreasing loan repayment rate among borrowers.

4.5.3 Nature/Characteristic of the Business with NPL

This variable also the second variables that used a primary data through semi structured in-depth interview in order to know the actual perception of the personal in manufacturing sector regarding the determinant of non-performing loan in Ethiopian Private commercial banks. The finding of the interview in each sub sector have different implies that the challenge that impair the growth of manufacturing sector is import goods and distribute it in the country market is lest cost and it is easy in every circumstances. Beside to this the production cost is very high and lack of access to market compared to import. On the other hand the manufacturing sector managers suggested that, the reason to be default in manufacturing sector is the impact of banks policy and procedure, after the loan is disbursed the grace period given by the bank is only 1 year, but as per nature of the business the machinery of the companies planting is take 1 or more year, moreover the grace period is not enough to generate profit and to repay back the loan.

Generally as per the interview result the cause of loan default enumerate by the clients: Late disbursement of the loan, business failure, unfavorable payment terms, high interest rate, inadequate loan sizes, and unforeseen contingencies. The manufacturing companies manager discuss that poor appraisal, lack of monitoring or improper monitoring, improper client selection,

inadequate skills of clients, poor business practices, and macroeconomic factors, poor management styles among others, negligence and improper appraisal by credit officers are some of the causes of loan default. This indicates that as the borrower takes loans that will be repaid within the medium term of repayment, his/her capacity to repay his/her loan successfully will increase. The marginal effect indicates that as the borrower takes a loan to be repaid within the medium repayment period, On another hand the interview result indicates that wrong timing of credit delivery and nature of the sectors; borrowers who engage in the service-giving sector have high probability of repaying their loan successfully relative to borrowers who engage in manufacturing industry, agriculture and agro processing sectors. Even if there is an incentive to the sector but Sometimes, there is delays in approving loans being requested by the customers, some business opportunities are lost before the loan amount is disbursed to the customers. When this happens and the disbursement is done in cash, because money has alternative uses, the borrowers tend to misuse these funds or at best use them for wrong or unplanned business ventures which in most cases fail to perform well. In the end they are unable to repay the loan. Manager of the manufacturing sector implies that, sub sector have an opportunity like an incentive regarding loan & foreign currency, it have also an opportunity supplied by government. However, there are also challenges from different source like there is still scarcity of power; there is also lack of both domestic and international market, inadequate marketing opportunities most dominant cause of NPLs. Their reason was that as a result of inadequate market, the wares get perished or produce suffer post losses leading to inability to repay loans. In both sub sector there is scarcity in well trained employees and this scarcity drop down the profit of the sector moreover the survivor of the company and the company can"t able to cover its loan.

As per the interview conducted with the sector managers and senior credit officer of selected EPCBs, business characteristic is one of the major factors that can affect Ethiopian banks NPLs negatively. The result also consistent with the finding of (Embiale Bitew October 2015), Munene, H. Nguta Guyo, S. Huka, (Kefyalew Endale, 2012)

Table Summary of Regression Results

Independent Variable	Hypothesis Derived	Relationship With NPL	Estimated Impact	Significance Test
Business Profit Margin	Negative	Negative	0.07 increase/decrease NPL Growth Rate in opposite direction	Statically significant
Deposit Interest Rate	Positive	Positive	0.81 increase/decrease NPL growth rate in the same direction	Statically significant
Exchange Rate	Positive	Negative	0.03 increase/decrease NPL in the opposite	Statically insignificant
Loan to Deposit Ratio	Positive	Positive	0.05 increase /decrease NPL in the same direction	Statically significant
Loan Growth Rate	Positive	Negative	0.07 increase/increase NPL in opposite direction	Statically significant
Inflation Rate	Positive	Positive	0.02 increase/decrease NPL in the same direction	Statically insignificant

Source: Survey Outcome and Own Computation

CHAPTER FIVE

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The previous chapter presented the analysis of the findings obtained from different data sources that regressed by E-views and personal computations. The purpose of this chapter is to discuss the conclusions and recommendations based on the findings. Accordingly, the chapter is organized in two sections, the first section, 5.2 presents the conclusions of the study. And, the second section, 5.3 presents the recommendations that provided based on the findings of the study.

5.2 Conclusions

The broad objective of this research was to investigate bank specific, macroeconomic and business characteristic specific determinants of NPLs in EPCBs. To achieve this broad objective, the study used mixed methods research approach. More specifically, quantitative research approach along with survey design (structured review of documents) was dominantly used. In addition, to have a better insight and to gain a richer understanding about the research problem, the quantitative method was supplemented with the qualitative method (semi structured interviews). To this end, the collected data from a sample size of six Ethiopian commercial banks over the period of 2004 to 2018 were analyzed using descriptive statistics, correlation matrix and multiple linear regression analysis. The analyses were made in line with the stated hypotheses and specific research questions formulated in the study. In doing so, previous studies on impacts of bank's NPLs have been reviewed and as per the literature NPLs of banks" usually expressed as a function of internal and external impacts.

Accordingly, in this study, three bank specific variables (i.e., loan growth rate, Loan to deposit ratio and credit follow-up and monitoring) and three macroeconomic variables (i.e., inflation rate, deposit interest rate and exchange rate) and two borrower characteristic (business profit margin and nature of business) were included. Consequently, the empirical findings of this particular study suggested the following conclusions: According to the result of bank specific

variables, loan growth rate (LGR), and loan to deposit ratio were found to be a major determinant of NPLs in EPCBs with 1% and 5% significance level respectively. Particularly, according to the loan officer perception credit follow-up and monitoring also have a significant relationship with the NPL. The findings also revealed a negative relationship among loan growth of a bank and NPLs of EPCBs which was inconsistent with the prior expectation. Hypothesis that banks which allocate adequate budget to screening loans, appraising collateral, and monitoring and controlling borrowers after loans disbursement resulted significant impact on volume NPLs. Second, with respect to the macroeconomic variables, inflation rate and effective exchange rate were found to be statistically insignificant determinants of NPLs in EPCBs. In particular, exchange rate had a negative association with the levels of NPLs. The findings also reported a significant positive relationship among deposit interest rate and NPLs of EPCBs which indicates whenever there was an increase in deposit interest rate, the bank need additional income loan to cover the cost paid to deposit, due to this the NPL growth rate is goes up. In addition, the effective exchange rate had also a negative association with NPLs of Ethiopian private commercial banks. This implies the depreciation of Ethiopian birr in terms of dollar reduced the volume of NPLs reported by Ethiopian banks through increasing the competitiveness of export-oriented Ethiopian firms in international market and it can also increase the monopolistic power of large importers of the country by getting out of market those small and medium importers. Hence, this conditions increase the debt servicing capacity of borrowers (both import and export-oriented).

Third, as the interview suggested, other internal factors such as absence of adequate man power, lack of comprehensive studies on the credit applicants, lack of follow-up on the borrower's activities or failure to follow up the collateral provided by the borrowers were also the major internal impacts of NPLs in ECBs. In addition, factors related to the borrowers such as providing false information to the bank, using the loan for other purposes that are undesirable from the banks' point of view (fund diversion), willful default and operational losses of borrower were also the impacts of NPLs in ECBs. Lastly, the results of business characteristic the business profit margin have significant impact on the growth rate NPLs. When the manufacturing sector income is increase the paying ability also goes up and the growth rate of NPLs also at increasing rate. The nature of the business have also great impact on the loan repayment of the manufacturing sector, The manufacturing business is more affected by the external force, like

suppliers the set up of the domestic and foreign market and also the government policies have a great impact on the development of the sector. The development of infrastructure has a core role on the growth of the sector. However, the infrastructure of the country has an appreciation but still is not well enough with the demand.

5.2. Recommendations

Based on the findings of the study the following possible recommendations were forwarded:

➢ Loan growth, business profit margin, loan to deposit ratio and deposit interest rate were the significant drivers of NPLs in Ethiopian private commercials banks. Hence, focusing and reengineering the institutions alongside these indicators could reduce the probability of nonperforming loans in Ethiopian commercial banks.

➢ As per the interviewees, borrowers related factors (such as fund diversion, willful default and providing false information) and internal factors (such as lack of comprehensive studies on the credit applicants and lack of follow-up on the borrower's activities) were quite important of NPLs in Ethiopian private commercial banks. Thus, Ethiopian private commercial Banks that were considered in this study should put in place enthusiastic credit process that would encompass issues of proper customer selection, monitoring and follow up and clear recovery strategies for sick loans.

➢ Regarding the borrower characteristic of the manufacturing firms the nature of the business has great role on the payment capacity of the companies; in line with this the study recommended that, still import and deliver products to domestic consumer dominantly control the market, yet the country policy regarding to balance import and export need improvement. Besides, manufacturing companies can improve their profit by using both domestic and international market. The private commercial banks give only one year grace period for repayment, based on the nature of manufacturing industry the profit is increasing gradually, so the bank's policy regarding grace period also need improvement for the sector.

➢ Finally, the finding of the study indicated that the nature of the business (borrower specific variable) was the major determinant of non-performing loan, followed by bank

specific variables. However, microeconomic variables have no significant effect on non-performing loan of private banks in Ethiopia except deposit interest rate. Therefore, the designated parties (government, the company's manager and the private banks) need to improve their policy to balance import and export and banks also need to improve their policy regarding risk assessment and credit follow-up and monitoring techniques".

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APPENDICES

Appendix A: Interview guide lines for Credit head manager and credit officer

1. Does the select prioritized projects that are most vital within the priority sector or finance all priority sectors credit request?

2. Do you have special incentives for borrowers that involve economically influential manufacturing sector?

3. Does the bank have specialized man power, who have better knowhow for credit financing and supporting of customers involved in manufacturing sector?

4. Does the bank have organized information center to access to appraise credit financing of manufacturing sector appropriately?

5. Is there any credit assessment technique, in your bank to know your customer risk level?

6. After disbursing the loan how to follow up, your customer until the final repayment?

7. What are basic challenges that the bank has faced while financing manufacturing sector?

8. What are the benefits the bank gets by financing manufacturing sector as priority sector?

9. Do you think that financing of manufacturing sector as priority sector has achieved its intended target?

10. Does the bank satisfies satisfy the demand for manufacturing sector credit request?

11. At last what is your opinion the reason for non performing loan in manufacturing sector?

Appendix B: Interview guidelines for the manufacturing company's administration

1. Do you fill that the nature of business had been the major case of to be default? Even if the sector has a special incentive in tax and foreign exchanges but sector is faced non performance loan at a primary level, what does u believe behind it?

2. Does the supply of raw materials adequately available for producers in the manufacturing sector/sub-sector and meet their production capacity? And any problems related to supply and

quality of raw materials such as supplier's capacity and consistency, handling, government rules and regulations, marketing etc…?

3. Is there adequate man power for technical and managerial positions in the manufacturing sector/sub-sector?

4. What are the market opportunities and challenges in the sector/sub-sector?

5. Is there any government rules, regulations and policies that hinder the firm's in sector/sub-sector to operate in full capacity or for further to develop performance and further expansion?

6. Does the bank incentives and support for firms in the manufacturing sector/ sub-sector effective and adequate? If not, what are the reasons and solutions?

Appendix C: First (General) Regression Results

Dependent Variable: NPL

Method: Panel Least Squares

Sample (adjusted): 2003 2018

Periods included: 15

Cross-sections included: 6

Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.003547	0.054686	0.064858	0.9485
BUPM	-0.078922	0.026455	-2.983279	0.0039
DIR	0.813428	0.402925	2.018809	0.0471
EXR	-0.035011	0.041378	-0.846123	0.4002
INFR	0.027279	0.024305	1.122368	0.2653
LDR	0.059115	0.029411	2.009938	0.0481
LGR	-0.079032	0.025991	-3.040725	0.0033
NPL(-1)	0.728825	0.049531	14.71458	0.0000
D102	0.081442	0.023655	3.442867	0.0010
D302	0.086476	0.023976	3.606804	0.0006
D106	0.064163	0.023233	2.761687	0.0072

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.946186	Mean dependent var	0.087222
Adjusted R-squared	0.935277	S.D. dependent var	0.082381
S.E. of regression	0.020958	Akaike info criterion	-4.732762
Sum squared resid	0.032504	Schwarz criterion	-4.288351
Log likelihood	228.9743	Hannan-Quinn criter.	-4.553550
F-statistic	86.73967	Durbin-Watson stat	2.140965
Prob(F-statistic)	0.000000		

Dependent Variable: NPL
Method: Panel Least Squares
Date: 12/19/16   Time: 00:47
Sample (adjusted): 2001 2015
Periods included: 15
Cross-sections included: 6
Total panel (balanced) observations: 90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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BUPM	-0.078922	0.026455	-2.983279	0.0039
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Log likelihood	228.9743	Hannan-Quinn criter.	-4.553550
F-statistic	86.73967	Durbin-Watson stat	2.140965
Prob(F-statistic)	0.000000		

Table : Summary of Private Banks Loans and Advances in all type of loan (in millions of birr)

NO.	TYPE OF LOANS & ADVANCES	NAME OF Banks	YEAR																	TOTAL
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
1	Agricultural production -term loan	AIB	106	124	176	207	212	296	434	580	629	623	724	916	1,266	1,773	2,110	2,870	13,048
		DB	127	179	224	27	367	513	727	917	1,009	1,023	1,162	1,430	1,869	2,038	2,168	2,651	16,682
		BOA	148	186	207	227	289	284	451	530	648	623	726	763	896	1081	1164	1358	9582
		WB	138	161	186	207	227	230	366	496	540	486	570	669	820	1079	1059	1397	8631
		UB	81	90	114	115	151	136	231	324	428	495	602	754	940	1083	1166	1578	8288
		NB	115	136	176	222	218	261	339	418	486	511	587	636	853	1045	1244	1586	8832
2	Manufacturing production	AIB	153	178	253	297	308	425	617	828	905	895	1,038	1,315	1,816	2,544	3,028	4,119	18,719
		DB	180	258	322	395	527	736	1,044	1,316	1,446	1,469	1,666	2,051	2,680	2,924	3,111	3,803	23,934
		BOA	212	266	297	326	414	407	648	761	930	894	1041	1094	1286	1552	1670	1949	13,746
		WB	198	231	266	297	326	331	526	711	774	697	816	960	1177	1548	1519	2004	12,382
		UB	116	129	164	165	217	196	331	465	614	710	862	1081	1348	1555	1673	2264	11,891
		NB	164	196	253	318	313	374	487	600	698	733	840	913	1224	1499	1785	2275	12,670
3	Building & construction - term loans	AIB	125	149	207	243	249	348	505	679	739	732	849	1,076	1,486	2,081	2,477	3,370	15,316
		DB	127	213	263	323	431	60	854	1,07	1,183	1,201	1,363	1,678	2,193	2,392	2,546	3,112	19,582
		BOA	173	218	243	266	339	333	530	622	761	731	851	895	1052	1270	1366	1594	11,247
		WB	162	189	218	243	266	271	430	582	634	570	668	786	963	1266	1243	1639	10,130
		UB	95	106	134	135	177	160	271	381	502	581	706	885	1103	1272	1369	1852	9729
		NB	134	160	207	261	256	306	398	491	571	599	687	747	1001	1227	1460	1861	10,367
4	Merchandise	AIB	51	59	84	99	101	141	205	277	301	298	346	440	605	848	1,009	1,373	6,241
		DB	60	86	107	131	175	245	348	438	482	489	555	685	893	974	1,037	1,267	7980
		BOA	71	89	99	109	138	136	216	254	310	298	347	367	429	517	557	650	4584
		WB	66	77	89	99	109	110	175	237	258	232	272	322	392	516	506	668	4129
		UB	39	43	55	55	72	65	110	155	205	237	287	362	449	518	558	755	3966
		NB	55	65	84	106	104	125	162	200	233	244	280	306	408	500	595	758	4225
5	Others	AIB	30	32	46	54	55	77	116	152	164	162	188	239	330	462	550	748	3,405
		DB	30	46	60	74	95	136	192	239	262	269	304	376	487	534	567	693	4348
		BOA	30	48	54	59	75	74	118	138	169	163	189	199	234	282	304	354	2491
		WB	30	42	48	54	59	60	96	129	141	127	148	175	214	281	276	364	2245
		UB	30	24	30	30	39	36	60	85	112	129	157	197	245	283	304	412	2171
		NB	30	36	46	58	57	68	89	109	127	133	153	166	223	273	324	414	2304
	TOTAL		150	196	238	275	325	374	555	700	811	821	951	1113	1403	1653	1775	2237	