ST. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

EFFECT OF CREDIT RISK ON PROFITABILITY OF PRIVATE COMMERCIAL BANKS IN ETHIOPIA

BY

ESHET ZELEKE

DECEMBER, 2019

ADDIS ABABA

ETHIOPIA

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FACULTY OF BUSINESS

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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of St. Mary's University school of graduate studies .All sources of materials used for the thesis have been duly acknowledged. I, further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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December, 2019

ENDORSEMENT

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

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ABSTRACT

The objective of the study is to empirically examine effect of credit risk on profitability of private commercial banks in Ethiopia by considering variables related to lending activities to determine bank specific, industry specific and macro-economic factors that affect banks financial performance over the period of 9 years (2009-2017). The empirical investigation uses the accounting measure of Return on Equity (ROE), which is the explained variable, to represent Banks' performance while seven independent variables have been taken as explanatory variables. Secondary data are used for nine banks which stayed in the industry for more than nine years among sixteen private banks which are functional at the moment in Ethiopian banking industry. Data used for this analysis is obtained from banks' annual reports, NBE annual reports and Ministry of Finance and Economic Development. To this end correlation and multiple regression analysis is done with fixed effect model and EView 9 software used to regress the data. NPL,LTDR,GDP,EXRA and DEPG had a significant impact on banks' profitability at 10% significant level. LTDR,DEPG has a negative relationship with profitability and the rest has a positive relationship.

Keywords: Ethiopia, Credit Risk, Bank, Macro-Economic factors, Bank Specific, Industry Specific, Macroeconomic factors.

ACRONYMS

AFDB:	African Development Bank
AIB:	Awash International Bank SC
ATM:	Automatic Teller Machine
BOA:	Bank of Abyssinia SC
CAR:	Capital Adequacy Ratio
CBK:	Central Bank of Kenya
DB:	Dashen Bank SC
ECB:	European Central Bank
GDP:	Gross Domestic Product
ICT:	Information Communication Technology
IMF:	International Monetary Fund
MFIs:	Micro Finance Institution's
NBE:	National Bank of Ethiopia
NIB:	Nib International Bank SC
NIM:	Net Interest Margin
ROA:	Return on Assets
ROE:	Return on Equity
RBS:	Risk Based Supervision
UNB:	United Bank SC
WEB:	Wegagen Bank SC

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CHAPTER ONE

1. Introduction

1.1 Background of the study

The financial system is an important ingredient in any economic environment of Commercial banks. Their central role is to make the community's surplus of deposits and investments useful by lending it to people for various investment purpose: company growth, education, houses (Bart and Gastel, 2009). Financial intermediaries as a component of the financial system provide a payment mechanism, much supply and demand in the financial markets, provide market transparency and perform risk transfer and risk management Therefore, efficient management of commercial banks is very crucial to the development of every country economy.

This transformation of surplus or providing of financing from supply side to demand side is not without risk. Intermediation function of commercial banks gives rise to different types of risks with different magnitudes on bank performance such as credit risk, liquidity risk, market risk, operational risk etc (Van Gestel & Baesens, 2008).Among the others, credit risk is found most important type of banking risk (Abu Hussain& Al-Ajmi, 2012; Khalid &Amjad, 2012; A. Pereraet al, 2014).

The lending function of banks is considered the most crucial function to utilize available funds efficiently. Since large portion of funds invest in the form of loan or credit given to customer, efficient and effective lending management is very sensitive part of financial institution. It is essential for banks having robust credit risk management policies and procedures that are sensitive and responsive to these changes (Shawn, 1998). National Bank of Ethiopia issued guidelines on the Credit risk management function and it emphasizes on Policy guidelines, organizational structure and responsibility and procedural guidelines besides all this, large portion of income is derived from lending funds, banks or financial institution survival highly attached to this service. Indeed, large number of uncollected amount of loan or non-performing loan is the main cause of bank failure (Rehm, 2002).

Financial institution which provides lending service to the customer or borrower and borrower always inherent to credit risk, and it is a day to day inherent challenge of every business unit, which provides whether they are service provider or product provider. Under the Ethiopian banking business directive, non-performing loans are defined as "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 loans or advances in question" National Bank of Ethiopia (NBE, 2008).

An increasing of non-performing loans in the credit portfolio of the bank is causing to poor performance of the bank industry in terms of generating high profit to its owner or it is difficult to achieve the objective of the bank. Non-performing loan is the percentage of loan values that are not serviced for three months and above.

Profitability refers to the positive gain from an investment or business operation after subtracting of all expenses (Richard, 2015). Profitability of a company is the difference between the income of the business and all its costs/expenses. A business that does not make profits will fail, potentially affecting employees, suppliers and the local community because their overall operations depend on profits. Profitability is the measure of the overall success of a company (Charles, 2013). It is a necessary coordination for survival. Investors could prefer a single measure of profitability that would be meaningful in all situations (Smirlock, 1985).

In Ethiopia, as of 2018 there are sixteen private commercial banks and two public banks operating under the direct supervision of National Bank of Ethiopia (NBE). The sector was opened for private investors since the 90s. A non-Ethiopian citizen under Proclamation No.592/2008 (FDRE, 2008) does not permit foreigners to own and operate banks in Ethiopia until recent years 2018.

Since then some 18 private banks have been established and have been a significant engine for the growing economy. Commercial banks in Ethiopia extend credit (loan) to different types of borrower for many different purposes. For most customers, bank credit is the primary source of available debt financing and for banks good loans are the most profitable assets (Mishkin, 2004). Even if credit creation is the main income generating activity, it also involves huge risks to the bank

1.2 Statement of the problem

Banks exist to provide financial intermediation services while at the same time endeavor to maximize profit and shareholders' value. The function of the bank covers a wide range of activity such as collection of surplus, lending, participate in investments, giving guarantee, facilitate import and export etc.

Banks consciously take risk as they perform their role of financial intermediation in the economy (Tenguh , 2008). Consequently, they assume various risks, which include credit risk, interest rate risk, liquidity risk, internal control & compliance risk, money laundering risk, foreign exchange risk and operational risk. (Funso et-al., 2012). Credit risk gets most attention due to a large portion of fund invested in the form of credit and large portion of income generated from loan. According to Colquitt (2007) credit risk arises whenever a lender was exposed to loss from a borrower, or counter party who fails to honor their contracted debt obligation, as agreed, in a timely manner.

High level of nonperforming loan is linked with banks failures and financial crisis. Failure in one bank might lead to run on bank which in turn has contagious impact affecting the whole banking industry as has recently been experienced in the USA and other parts of the world. Though the recent financial crisis began with Fannie Mae and Freddie Mac, US banks, it rapidly spread from Wall Street to the rest of world economies (Jonathan and Peter,2011).The credit risk management function in banks needs to be a robust process(kimeu,2006).credit risk management includes both preventive and curative measure.

In case of Ethiopia, large portion of the bank's investment inherent with credit or loan activity, this will make the banking industry highly liable to credit risk. As per NBE report 2017/18 total resource mobilized by private bank is 108.8 billion for the period 2016/17 and 139.9 billion for the period 2017/18 .Out of total resource mobilized in 2016/17 ,67 billon birr is allocated for disbursement ,which is 10% increase than last year of Birr 60.6 billion 2016/17. In other word the outstanding loan of 2016/17 is 134.6 billion and the outstanding loan of 2017/18 is 182 billion .In general, when we see different financial report of the bank, we can understand that NPL is increasing year after year and the influence of NPL on the banks performance is becoming more and more significant as a result it needs further investigation.

Profitability of Private and public bank becomes more and more attractive and bigger than the previous for most of private bank but on the other hand the amount of nonperforming loan on the profitability is also significantly increase year after year, even if all private bank has work for the better position of Non-performing loans, it still needs great attention for the reasons of a source of profit for banking and plays a great role in country economy.

In this study, certain variables such as Nonperforming loan (NPLR), Loan and advance to deposit ratio (LTDR),Cost per loan asset ratio (CLAR), Capital adequacy ratio (CAR), Deposit

growth of banks (DEPG) ,GDP and exchange rate (EXRA) were used in order to explain the relationship that exist between those factors and its effect on profit, measured by ROE

Literatures on Ethiopian banking sector documented that credit risk and non-performing loan have been major challenges of bank performance in Ethiopian (Alemauhy, 1991; NBE, 2009; Tekilebirhan, Melkamu, 2012; Gethun, 2012; Mekonen, 2012). Nonetheless, very few (Mekasha,2011; Tefera, 2011; Million, 2014) examined the extent to which credit risk affected profitability performance of banks in Ethiopia.

Local studies so far however did not consider some variables like the effect of deposit growth, and cost per loan asset/credit administration cost relation to performance of banks. These variables were among the factors considered in studies made in different countries (Pasiouras and Kosmidou, 2007, Appa, 1996, Guru et al., 2002 and BenNaceur, 2003).

Besides, almost all previous studies focus on public and private commercial banks together. Up to the Knowledge of the researcher, there is little separate study on the effect of credit risk on profitability of private Commercial banks in Ethiopia. Therefore, this study seeks to fill the gap by providing full information about the variables considered in the study and it is further believed that such a complete recognition of all factors would contribute good knowledge to understand the relationship between profit and other variables

1.3 Objective of the Study

1.3.1 General Objective

The general objective of the study is to assess the effect of credit risk on profitability of private commercial banks that operate in Ethiopia.

1.3.2 Specific Objective

- To evaluate the effect of nonperforming loans on profitability of private commercial banks in Ethiopia.
- To examine the relationship between cost per loan asset ratio and the profitability of private commercial banks in Ethiopia.
- To evaluate the effect of GDP on private banks profitability in Ethiopia.
- To examine the relationship between loans to total assets and profitability of private commercial banks in Ethiopia.
- To examine the relationship between total banks deposit growth and profitability of private commercial banks in Ethiopia.

- To examine the effect of capital adequacy on the profitability of private commercial banks in Ethiopia.
- To examine the effect of exchange rate on the profitability of private commercial banks in Ethiopia

1.4 Research Hypothesis

HO1: Nonperforming loan has negative and significant effect on profitability of private commercial Banks in Ethiopia (NPLR).

HO2: Loan and advance to deposit ratio has positive and significant effect on profitability of private commercial banks in Ethiopia (LTDR)

HO3: Cost per loan asset ratio has negative and significant effect on profitability of private commercial banks in Ethiopia (CLAR).

HO4: Capital adequacy ratio has negative and significant effect on profitability of private commercial banks in Ethiopia (CAR).

HO5: Gross domestic product has positive and significant effect on profitability of private commercial banks of Ethiopia. (GDP)

H06: Deposit growth of banks has positive and significant effect on profitability of private commercial banks of Ethiopia (DEP).

H07: Exchange rate of banks has positive and significant effect on profitability of private commercial banks of Ethiopia (EXRA).

1.5 Significance of the Study

The finding of this research will benefit a number of stakeholders: in general, the private and public bank will benefit from this research to understand and mitigate the root cause of credit risk, and to take actions appropriately. It is also useful to government body i.e. national bank of Ethiopia(NBE), Financial policy makers that were directly involved with financial institution as it could provide a source of knowledge in to the core business of banks specifically benefiting policy makers to understand the root cause of credit risk, when they are reviewing procedures and policies. Investors who are interested to invest in financial institution, policy makers, academicians, the bank customer, the public will benefit from this paper through information

available about the bank in related to credit risk In addition, the finding of this study was assist managers in planning appropriate decision in day to day activity. Above all there could be positive effect on the overall performance by minimizing the risk associated with non-performing loans

1.6 Limitation of the Study

Even if there are many variables that affect commercial banks profitability the study will only concentrated on seven variables (Non-performing loan, Cost Per loan asset, Deposit growth, Loan to deposit, capital adequacy, real gross domestic product and foreign exchange rate).Because of lack of sufficient data that is required for the analysis purpose in most of the newly established private banks are exclude from the study so, the number of sample banks are reduced to nine.

1.7 Scope of the study

This research study focuses on the effect of credit risk on all private commercial banks that operate in Ethiopia by taking as a sample private banks which operate more than nine years and establishment period 2009 and above which will represent the real character of the country's financial institution, the sample size which is 62.5% of all private bank, the sample will cover from 2009-2017 to get more accurate result. It categorizing independent factors in to three groups i.e. bank specific, industry specific and macro-economic factors.

1.8 Organization of the study

The research study was organized in to five chapters; Chapter one will contain the introduction part dealing with research problems, objective, hypothesis and limitation of the study. The second chapter focuses the review of related literature about the subject matter. The third chapter focuses on research design and methodology. Chapters four will discuss on analysis of the subject matter to investigate and evaluate the problems, chapter five will cover the conclusions of the findings and forwards recommendations

CHAPTER TWO

REVIEW OF RELATED LITERATURES

2.1 INTRODUCTION

This chapter is covering the available information about credit risk and related topics in view of other scholars. The chapter will summarize the effect of credit risk in relation to profitability of banks, the variables and methodology they used as well as their findings and recommendations.

2.2 DEFINITION AND CONCEPT OF CREDIT

2.2.1 What is Risk?

In general risk is defined by different scholars that some unfavorable event (both financial and physical) will occur" Ehrhardt and Brigham (2011) or Risk is "the variability of the actual return from the expected returns associate given asset or investment" (Khan and Jain, 2004).As per a book entitled Financial Markets and Institution written by Sanders and Cornett (2001) Risk Faces by Financial Institutions is credit Risk, liquidity risk, interest risk, market risk, Off-balance sheet risk, foreign risk, country or sovereign risk technology risk operational risk insolvency risk

2.2.2What is Credit?

Credit is defined as transactions involve in the transfer of money or other property on promise of repayment, usually at a fixed future date. The transferor and transferee will involve in which the former referred us a creditor, and the later as a debtor; hence credit and debt are simply terms describing the same operation viewed from opposite standpoints (Donald, 2008).

Bank credit is related with a loan extended by a bank to an individual, firm or organization, in the form of cash. The type of loan may take several forms from short term loan to a line of credit. The principal function of credit is to transfer property from those who own it to those who wish to use it. The transfer is temporary and is made for a price, known as interest, which varies with the risk involved and also with the demand for, and supply of credit (Stiglitz and Weiss, 1981).

Credit is the confidence of the bank to its customer to give him/her a certain amount, to be used in a particular purpose for a certain period, and payment is made under specific conditions, and provides guarantees for the bank to recover his/her loan (Omra, 2011).

As it is explained by Al-Zubadi (2002), banking credit is one of the most attractive banking activities for the banks management, but it is also a very sensitive and dangerous, because it is considered as important investment for the commercial banks, may lead the bank to bankruptcy or access to the very high profits. Therefore, in order to avoid any unforeseen risk and so as to satisfy customer's credit demand, banks should strike the balance of demand and supply of credit.

2.2.3 What is Credit Risk?

According to valsamakis et al (2005), credit risk is the risk that a financial contract will not be accomplished according to the agreement made by the bank and the borrowers' it is the risk that the counterparty to an asset will default. Credit risk is simply defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms.

Credit risk is also well defined by the Basel committee on banking supervision as "potential that a bank borrower or counter party will fail to meet its obligations in accordance with agreed terms Banks and other deposit-taking institutions are financial intermediaries whose assets consist overwhelmingly of loans to a wide variety of borrowers and whose liabilities consist overwhelmingly of deposits (Peter Howells and Keith Bain 2003).A bank exists not only to accept deposits but also to grant credit facilities, therefore inevitably exposed to credit risk (Elena Carletti, 2006). Credit risk is by far the most significant risk faced by Banks and the success of their business depends on accurate measurement and efficient management of this risk to a greater extent than any other risks (Gieseche, 2004).

The main source of credit risk include, limited institutional capacity, inappropriate credit policies, volatile interest rates, poor management, inappropriate laws, low capital and liquidity levels, direct lending, massive licensing of Banks, poor loan underwriting, laxity in credit assessment, poor lending practices, government interference and inadequate supervision by the central Bank (Kithinji, 2010).Credit risk is critical since the default of a small number of important customers can cause large losses, which can lead to insolvency (Bessis,2002).

2.3How to Measure Banks Performance

In every financial activity performance must be measured in terms of quantifiable way to understand easily to the owners, in this regard financial institution has measured by their profit. The study of profits is important not only because of the information it provides about the health of the bank in any given year, but also because profits are a key determinant of growth and

employment in the medium-term. Changes in profitability are an important contributor to economic progress via the influence profits have on the investment and savings decisions of companies.

Profitability connotes a situation where the income generated during a given period exceeds the expenses incurred over the same length of time for the sole purpose of generating income, Banwo (1997), Sanni (2006) cited in Shemendi2017. The fundamental requirements here are that the income and the expenses must occur during the same period of time (Matching Concept) and the income must be a direct consequence of the expenses. The period of time may be one week, three months, one year etc.Sabo (2007).

The term profit can take either its economic meaning or accounting concept which shows the excess of income over expenditure viewed during a specified period of time. On one hand, profit is one of the main reasons for the continued existence of every business organization. On the other hand, profit is expected so as to meet the required return by owners and other outsiders. For a profit-oriented organization, profit is the soul of business. The importance of profitability, therefore, stems from its being the raison (purpose) of business. A company remains in operation because it expects to make profits. Once that expectation is confirmed unattainable, the most rational decision is to close shop or exit the business.

Three indicators, namely: Return on Assets (ROA) Return on Equity (ROE) and Net Interest Margin (NIM),were identified by Ahmed (2003) to be mostly employed in the literature to measure profitability.

However, there are divergent views among scholars on the superiority of one indicator over the others as a good measure of profitability. For instance, Goudreau and Whitehead (1989) and Uchendu (1995) believed that the three indicators are all good. Hancock (1989) used only ROE to measure profitability in his study. Also, Odufulu (1994) used only the gross profit margin in measuring profitability. Ogunleye (1995) did not believe that gross profit margin could constitute a good Measure of profitability and therefore used ROA and ROE. Profitability measures, according to Akinola(2008) include Profit before Tax (PBT), Profit After Tax (PAT), Return on Equity (ROE),Rate of Return on Capital (ROC) and Return on Assets (ROA). Sanni (2009) used Earnings Per-Share (EPS). For this study, the researcher limited profitability to the one widely used profitability measure namely Return on equity (ROE).

Return on equity (ROE) is a ratio measuring stockholders' (shareholders') profitability, expressed as a percentage of the firm's net worth. ROE indicates a firm's efficiency in applying common

stockholders' (ordinary-shareholders') money. Formula: **Net income ÷ Net worth**. It measures a firm's efficiency at generating profits from every unit of shareholders' equity (also known as net assets or assets minus liabilities).Widely used by investors; the ROE ratio is an important measure of a company's earnings performance. The ROE tells common shareholders how effectively their money is being employed. Peer Company, industry and overall market comparisons are appropriate; however, it should be recognized that there are variations in ROEs among some types of businesses. In general, financial analysts consider return on equity ratios in the 15-20% range as representing attractive levels of investment quality (Richard, 2015).

2.4 VARIABLES THAT AFFECT PROFITABILITY

Nonperforming loan (NPLR)

The non- performing loan ratio measure to capture banks' credit risk on financial performance. Credit Risk; the analysis of the financial soundness of borrower's has been at the core of banking activity since its inception. This analysis refers to what currently known as credit risk, that is, the risk that counterparty fails to perform an obligation owed to its creditor. It is called nonperforming loan ,a loan considered as accredit risk as the chance that a debtor or issuer of a financial instrument whether an individual, a company, or a country will not repay principal and other investment -related cash flows according to the terms specified in a credit agreement.

Inherent to banking, credit risk means that payments may be deferred or not made at all, which can cause cash flow problems and affect a bank's profitability(Greuning and Bratanovic ,2009) It indicates how banks manage their credit risk because it defines the proportion of loan losses amount in relation to total loan amount. The less the ratio the most effective of the credit risk management practice of banks. To calculate this ratio, the researcher used data provided in the financial statements of nine commercial banks and NBE. Thus, calculation of the NPLR has accomplished in the following way: **Non-performing loan ratio= Non-performing loan/total outstanding loan balance.**

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.

Loan to Deposit ratio (LTDR)

The formula for the loan to deposit ratio is exactly as its name implies**, loans divided by deposits.** The loan to deposit ratio is used to calculate a lending institution's ability to cover withdrawals made by its customers.

A lending institution that accepts deposits must have a certain measure of liquidity to maintain its normal daily operations. Loans given to its customers are mostly not considered liquid meaning that they are investments over a longer period of time. Although a bank will keep a certain level of mandatory reserves, they may also choose to keep a percentage of their non-lending investing in short term securities to ensure that any monies needed can be accessed in the short term. The study conducted by Rengasamy, 2014 attempt to evaluate the impact of LDR on ROA for locally owned commercial banks in Malaysia for the period of five years from 2009 to 2013. In general the study indicates that there was a positive impact on LDR to the profitability (ROA) of the banks.

Cost per Loan asset ratio (CLAR)

Theoretically more operational efficient Bank is expected to be more profitable. Cost per loan asset (CLAR) is the average cost per loan advanced to customer in monetary term. Purpose of this is to indicate efficiency in distributing loans to customers (Appa, 1996). CLAR can be calculated as: **CLA Ratio= Total Operating Cost/ Total amount of loans.**

Capital Adequacy Ratio (CAR)

Capital adequacy refers to the sufficiency of funds available to absorb losses to protect depositors, creditors, etc. in the interest of maintaining financial system stability. As per Basel Committee on Banking Supervision (BCBS 2004) revised framework and NBE requirement (NBE directive no SBB/9/95) capital adequacy is measured by the ratio of regulatory capital to risk-weighted assets and accordingly a minimum of 8% is required. However, the proxy for capital adequacy measurement used in this study was the ratio of **total equity to total asset.**

Deposit growth (DEPG)

For any private bank, the main purpose of establishing is to collect deposits from their customer and invested in the form of loan or other ways. Deposits accepted by the bank in the form of saving deposit, current deposit and time deposit. Banks will have an expense in the form of interest payment for saving and fixed/time/term deposit and banks do not pay interest for current or demand deposits. In the case of saving deposit and current deposit withdrawals will be taken place at any time, even if there is some limitation on the amount of withdrawals. Since

withdrawals can take place at any time, the banks have an obligation to accept their withdrawal request and deliver solution according the customer their request. The formula of deposit growth is deducting the current year deposit from the previous year and dividing the result with the previous year.

Real growth domestic product (GDP)

Gross Domestic Product (GDP) is one of the macroeconomic indicators employed in measuring the financial performance of a bank. This is because it is used to estimate the entire economic activities of a country. Based on the results of the study conducted by Bikker (2002), a positive relationship is expected

Exchange rate(EXRA)

This variable is also used to measure the effect of environmental situations in the banking industry. The finding may differ depending on the exchange rate adopted by the country (fixed or floating exchange rate). According to Domac and Martinez- Peria (2003) the profitability of the bank is likely to rise if the country employs the fixed exchange regime. However, Artete and Eichengreen (2002) see it differently. These researchers believe irrespective of the exchange rate regime adopted by a country, banks can increase or reduce their profitability.

2.5 REVIEW OF EMPIRICAL LITERATURES

The relationship between credit risk and commercial bank performance has been the concern of several study conducted both in developing and developed world. From the studies on this subject matter, I will try to present some of authors finding precisely by classifying Global research and Local research conducted

2.5.1 GLOBAL RESEARCH CONDUCTED

The study which found the existence of credit risk management on banks profitability is the research conducted by AraHosna et al in year 2009 with the title of Credit Risk Management and Profitability in Commercial Banks in Sweden is tried to find out how the credit risk management affects the profitability of banks. The main purpose of the study was to describe the effect of credit risk management on profitability in four commercial banks in Sweden. In the model it was defined ROE as profitability indicator while NPLR and CAR as credit risk management indicators. The quantitative method is used in order to fulfill the main purpose of the study. This study used regression model to do the empirical analysis. The data is collected from the sample banks annual reports (2000-2008) and capital adequacy and risk management reports (2007-

2008). The findings and analysis reveal that credit risk management has effect on profitability in all 4 banks. Among the two credit risk management indicators, NPLR has a significant effect than CAR on profitability (ROE).

Hosna et al. (2009) also found a similar result with Poudel in his study of four Swedish banks covering a period of 2000 to 2008. The result showed that rate of non-performing loan and capital adequacy ratios was inversely related to ROE though the degrees vary from one bank to the other. Such inverse relationships between profitability, performance and credit risk measures were also found in other studies (Achou and Tenguh, 2008; Funso et al., 2012;Musyoki and Kadubo, Tomak (2013) conducted study on the "Determinants of Bank's Lending Behavior of commercial banks in Turkish" for a sample of eighteen from 25 banks. The main objective of the study was to identify the determinants of bank`s lending behavior. The data was covered 2003 to 2012 periods. The variables used were size, access to long term funds, interest rates, GDP growth rate and inflation rate. The finding reveals that bank size, access to long term loan and inflation rate have significant positive impact on the bank`s lending behavior but, interest rates and GDP are insignificant.

The findings of Felix and Claudine (2008) also shows that return on equity (ROE) and return on asset (ROA) all indicating profitability were negatively related to the ratio of non-performing loan to total loan (NPL/TL) of financial institutions of Sweden therefore decreases profitability.

Bourke's (1989) reports on the effect of credit risk on profitability appear clearly negative in Europe, North America and Australia. This result may be explained by taking into account the fact that the more financial institutions are exposed to high risk loans, the higher is the accumulation of unpaid loans, implying that these loan losses have produced lower returns to many commercial Banks in U.S.A (Miller and Noulas, 1997).

Al-Khouri (2011) assessed the impact of Bank's specific risk characteristics, and the overall Banking environment on the performance of 43 commercial Banks operating in 6 of the Gulf Cooperation Council (GCC) countries over the period 1998-2008. Using fixed effect regression analysis, results showed that credit risk, liquidity risk and capital risk are the major factors that affect Bank performance when profitability is measured by return on assets while the onlyrisk that affects profitability when measured by return on equity is liquidity risk.

Ben-Naceur and Omran (2008) in attempt to examine the influence of Bank regulations, concentration, financial and institutional development on commercial Banks' margin and profitability in Middle East and North Africa (MENA) countries from 1989-2005 found that Bank capitalization and credit risk have positive and significant impact on Banks' net interest margin, cost efficiency and profitability.

Ahmad and Ariff (2007) examined the key determinants of credit risk of commercial Banks on emerging economy banking systems compared with the developed economies. The study found that regulation is important for banking systems that offer multi-products and services; management quality is critical in the cases of loan-dominant Banks in emerging economies. An increase in loan loss provision is also considered to be a significant determinant of potential credit risk. The study further highlighted that credit risk in emerging economy banks is higher than that in developed economies.

Poudel (2012) studied the factors affecting commercial bank performance in Nepal for the period of 2001 to 2012 and followed a linear regression analysis technique. The study revealed a significant inverse relationship between commercial bank performance measured by ROA and credit risk measured by default rate and capital adequacy ratio

Mohammad, Ammara, Abrar and Fareeha (2012) examined economic determinants of non-performing loans using correlation and regression analysis to analyze the impact of selected independent variables and the result reveals that interest rate, energy crisis, unemployment, inflation and exchange rate has a significant positive relationship with the non-performing loans of Pakistan banking sector, while GDP growth rate has a significant negative relationship with the non-performing loans of Pakistan banking sector.

A research conducted in year 2012 called Impact of Risk Management on Non Performing Loans and Profitability of Banking Sector of Pakistan (Shahbaz Haneef et-al, 2012).The aim of the study was to investigate the impact of risk management on nonperforming loan and profitability of banking sector of Pakistan. In the model it was defined ROA as profitability indicator while NPLR as credit risk management indicators. Five banks were selected for data collection and whole data was secondary in nature. The result of this study reveals that there is no proper mechanism for risk management in banking sector of Pakistan. Study also concluded that non-performing loans are increasing due to lack of risk management which threatens the profitability of banks.

Ekanayake and Azeez (2015) investigated the determinants of non-performing loans in licensed commercial banks in Sri Lanka for the period 1999- 2012 and found that the level of non-performing loans can be attributed to both macro-economic conditions and banks specific factors. Their study results reveal that nonperforming loans tends to increase with deteriorating banks efficiency and there was a positive correlation between loan to asset ratio and non-performing loans. They also observed that banks with high level of credit growth is associated with a reduced level of non-performing loans, while larger banks incur lesser loan defaults compared to smaller banks. However the study found with regards to the macro economic variables, that nonperforming loans vary negatively with growth rate of GDP, while inflation was positively related to the prime lending rate.

Kithinji (2010) assessed the effect of credit risk management on the profitability of commercial Banks in Kenya. Data on the amount of credit, level of non-performing loans and profits were collected for the period 2004 to 2008. The findings revealed that the bulk of the profits of commercial Banks are not influenced by the amount of credit and non-performing loans, therefore suggesting that other variables other than credit and non-performing loans impact on profits.

Hamisu (2011) studied credit risk and the performance of Nigerian banks using descriptive, correlation and regression techniques for a sample of banks from 2004- 2008. Their findings reveal that credit risk management has a significant impact on the profitability of Nigeria banks and that the management of banks needs to be cautious in setting up a credit policy that might not negatively affects profitability of banks. Further implications of their study findings, was that the management of banks also need to know how credit policy affects the operation of their banks to ensure judicious utilization of deposits.

Credit risk is a serious threat to the performance of Banks; therefore various researchers have examined the impact of credit risk on Banks in varying dimensions.

Kargi (2011) evaluated the impact of credit risk on the profitability of Nigerian Banks. Financial ratios as measures of Bank performance and credit risk were collected from the annual reports and accounts of sampled Banks from 2004-2008 and analyzed using descriptive, correlation and regression

techniques. The findings revealed that credit risk management has a significant impact on the profitability of Nigerian Banks. The study concluded that Banks' profitability is inversely

influenced by the levels of Loans and Advances, Non-Performing Loans and deposits thereby exposing them to great risk of illiquidity and distress.

In year 2012 the research made in Kenya by Ogilo Fredrick with the title of The Impact Of Credit Risk Management On Financial Performance Of Commercial Banks In Kenya analyzed the impact of credit risk management on the financial performance of commercial banks and also attempted to establish if there exists any relationship between the credit risk management determinants by use of CAMEL indicators and financial performance of commercial banks in Kenya. Thestudy took independent variables of: CAMEL components, capital adequacy, asset quality, management efficiency and liquidity and the dependent variable financial performance (ROE).A causal research design was undertaken in this study and this was facilitated by the use of secondary data which was obtained from the Central Bank of Kenya publications on banking sector survey. The study used multiple regression analysis in the analysis of data and the findings have been presented in the form of tables and regression equations. The study found out that there is a strong impact between the CAMEL components on the financial performance of commercial banks. This study concludes that CAMEL model can be used as a proxy for credit risk management.

Ayadi and Boujelbene (2012) in their Banking performance study of twelve Tunisian deposit Banks over the period of 1995-2005, notice a significant positive relation between size and Return on average assets proving the existence of economies of scale in the Tunisian Banking sector.

On the contrary, Ben Naceur, and Goaied (2010), show that size impact negatively on profitability which involves that Tunisian Banks operating above their optimum level. Similarly, Sinkey (1991) concludes that larger Banks are more profitable than smaller ones. So, the impact of Bank size on its profitability cannot be theoretically anticipated.

Study conducted by Awoyemi Samuel Olausi, Banks year 2014 with the title of The Impact of Credit Risk Management on the Commercial Banks Performance in Nigeria, is the study which is made with the objective to investigate the impact of credit risk management on the performance of commercial banks in Nigeria. In the model, Return on Equity (ROE) and Return on Asset (ROA) were used as the performance indicators while Non Performing Loans (NPL) and Capital Adequacy Ratio (CAR) as credit risk management indicators. The data used in this study is a financial report of seven commercial banks for seven years (2005 – 2011). The panel regression model was employed for the estimation of the model. The findings revealed that

credit risk management has a significant impact on the profitability of commercial banks' in Nigeria. In the same way the study conducted by Taiwoetal in 2013 with a title of Credit Management Spur Higher Profitability? Evidence from Nigerian Banking Sector which evaluates the impact of credit risk management on bank profitability of some selected commercial banks operated in Nigeria.

Studies which support a positive impact of credit risk management on banks profitability, is the study conducted and has a title Impact of Credit Risk Management and Capital Adequacy on the Financial Performance of Commercial Banks in Nigeria (OGBOI, Charles, 2013).This study examined the impact of credit risk management and capital adequacy on banks financial performance in Nigeria. The study used variables of loan loss provisions (LLP), loans and advances (LA), non-performing loans (NPL), capital adequacy (CA) and return on asset (ROA).Panel data model was used to estimate the relationship that exists among variables. Results showed that sound credit risk management and capital adequacy impacted positively on bank's financial performance with the exception of loans and advances which was found to have a negative impact on banks' profitability in the period under study.

NevineSobhyAbdelMegeid, 2013 with a title of the impact of effective credit risk management. On commercial banks liquidity performance: Case of Egypt was made. This study was conducted to examine the impact of bank's credit risk management on improving liquidity performance, in the Egyptian commercial banks. The study selects and took a sample of 8 Egyptian commercial banks. The research is done on the financial statements analysis for the period 2004-2010, based on Bank scope database. The researcher uses Panel data analysis using Stata, where data are collected over 7 years and over the same sample, then a regression is run over these two dimensions (cross-sectional time series).The study found the significant and positive relationship between effective credit risk management and improving liquidity levels in Egypt commercial banks.

There is also a study called Credit Risk and Profitability of Selected Banks in Ghana which is conducted by Samuel Hymoreet'al in 2012.This study attempts to reveal the relationship between credit risk and profitability of some selected banks in Ghana. The dependent variable in the model is return on equity while the explanatory variable is credit risk which is measured by three main variables- net charge off to total loans and advances, non-performing loans to total loans and advances and pre-provision profit to total loans and advances. The researcher also controlled for the effects of other factors on firm profitability. These include bank size, ban

growth rate and the choice of capital structure. A panel data from six selected commercial banks covering the five-year period (2005-2009) was analyzed within the fixed effects framework. From the results credit risk (non-performing loan rate, net charge-off rate, and the pre-provision profit as a percentage of net total loans and advances) has a positive and significant relationship with bank profitability.

Moreover the study titled Credit Risk Management and Profitability of Selected Rural Banks in Ghana (Harrison Owusu AFRIYIE, 2013). This study examines the impact of credit risk management on the profitability of rural and community banks in the BrongAhafo Region of Ghana. In the model, definition of Return on Equity (ROE) and Return on Asset (ROA) were used as profitability indicator while Non-Performing Loans Ratio (NLPR) and Capital Adequacy Ratio (CAR) as credit risk management indicators. The data used for analysis, ten rural banks financial statements from the period of 2006 to 2010 (five years). The panel regression model was employed for the estimation. The findings indicate a significant positive relationship between non-performing loans and rural banks' profitability revealing that, there are higher loan losses but banks still earn profit.

To the contrary of the above studies, there are studies which concluded a negative relationship between credit risk management and banks profitability. The study conducted by DansonMusyoki in 2011 with the title of the impact of credit risk management on the financial performance of banks in Kenya for the period 2000-2006.The objective of study was to assess various parameters pertinent to credit risk management as it affects banks' financial performance. The Return on Assets (ROA) is a ratio that measures company earnings beforeinterest& taxes (EBIT) against its total net assets. The ratio isconsidered an indicator of how efficient a company is using its assets to generate before contractual obligation must be paid. It is calculated as: ROA= EBIT/Total Assets. Return on assets gives an indication of the capital intensity of the banking industry, which will depend on the industry; banks that require large initial investment will generally have lower return on assets (Apps, 1996).Parameters covered in the study were; default rate, bad debts costs and cost per loan asset. The study employed simple random sampling in order to pick 10 banks. Financial reports of 10 banks was used to analyze profit ability ratio for seven years (2000-2006) comparing the profitability ratio to default rate, cost of debt collection an cost per loan asset which was presented in descriptive, regression and correlation was used to analyze the data. The study revealed that all these parameters have an inverse impact on banks' financial performance, however the default rate is

the most predictor of bank financial performance vis-à-vis the other indicators of credit risk management.

The study conducted with the title of Efficiency of Credit Risk Management on the Performance of Banks in Nigeria A Study of Union Bank PLC (2006-2010) by Rufai (2013) aimed at assessing the efficacy of credit risk management on banks performance and also to determine if credit risk has effect on the profitability and examining the relationship between interest income and bad debt of the Union Bank. In this study, Return on equity and Return on assets indicates the overall profitability and efficiency while Non-performing loan over total assets shows the level of banks' exposure to credit risk. The study conducted in a population of the twenty-one (21) commercial banks in Nigeria, Secondary sources of data were used for the study. Time series and trend analysis are used for the analysis. Correlation coefficient and regression analysis were used in testing the hypotheses. The study conclude that credit risk affect the performance of Union Bank PLC and that to maintain high interest income, attention needs to be given to credit risk management especially regarding the lending philosophy of Union Bank

2.5.2 LOCAL RESEARCH CONDUCTED

Ahmed, Takeda and Shawn (1998) in their study found that loan loss provision has a significant positive influence on non-performing loans. Therefore, an increase in loan loss provision indicates an increase in credit risk and deterioration in the quality of loans consequently affecting Bank performance adversely.

Mekasha (2011) studied credit risk and its impact on the performance of a sample of six Ethiopian commercial banks using return on asset as a surrogate of performance and nonperforming loan to total loan ratio, loan provisions to nonperforming loan ratio, loan provision to total loan ratio and loan provision to total assets ratio used as a surrogate of credit risk measures. The result revealed that nonperforming loan to total loan ratio and loan provision to total loan ratio have inverse relationship with return on asset but only nonperforming loan to total loan was statistically significant. Whereas loan provision to nonperforming loan and loan provision to total asset have positive association with return on asset but both are insignificant to impact return on asset.

Awoke (2014) conducted a study on the impact of credit risk on the performance of samples of eight commercial banks in Ethiopia over the period of years 2008-2012 using return on asset as dependent variable and provision to total loans, loans to total assets, cost to total loans and

natural logarithm of total asset as independent variables. The findings shown that provisions to total loans and cost to total loans have inverse association with return on asset but loans to total assets and the natural logarithm of total assets have positive association with return on asset and all variables have significant impact on return on asset.

The research by Tesfaye (2014) with the title of the Determinants of Ethiopian commercial banks performance investigates the determinants of Ethiopian banks performance considering bank specific and external variables on selected banks' profitability for the 1990-2012 periods. The empirical investigation uses the accounting measure return on assets (ROA) to represent Banks' performance. The study finds that bank specific variables by large explain the variation in profitability. High performance is related to the ability of banks to control their credit risk diversify their income sources by incorporating non-traditional banking services and control their overhead expenses. In addition, the paper finds that bank's capital and liquidity status arenot significant to affect the performance of banks. On the other hand, the paper finds that bank size and macro-economic variables such real GDP growth rates have no significant impact on banks' profitability. However, the inflation rate is determined to be significant driver to the performance of the Ethiopian commercial banks

Bizuayehu (2015) carried out a study on the impact of credit risk on the financial performance of banks in Ethiopia using bank specific and macroeconomic factors covering a period of years 2003 -2008. Return on equity used as a proxy for financial performance and nonperforming loan to total loan ratio, capital adequacy ratio and total loan to deposit ratio, bank size, interest rate spread, gross domestic product and inflation rate as a proxy for credit risk. The study revealed that both bank specific factors and macroeconomic factors have inverse association with return on equity but only the bank specific factors are significant factors influencing return on equity.

Gizaw, Kebede and Selvaraj (2015) evaluated the impact of credit risk on the performance of commercial banks in Ethiopia over a period of years 2003-2004. Return on asset and return on equity used as proxy of performance and nonperforming loan to total loan ratio, capital adequacy ratio, and loan and advance to deposit ratio and loan loss provision to total loan ratio were used as a proxy for credit risk. The findings revealed that non-performing loan to total loan and loan and advances to deposit have inverse association with return on asset while the other two have positive association with return on asset. However; only nonperforming loan to total loan and loan loss provision to total loan are statistically significant to impact return on asset. Further, the study revealed that except loan loss provision to total loan ratio all the proxies of credit risk have

inverse relationship with return on equity and all are significant factors impacting return on equity.

Tegegne (2018) evaluated the Impact of Credit Risk on Profitability of Private Commercial Banks in Ethiopia over a period of 2003 to 2016.Return on equity used as a dependent variable and Non-performing Loan ratio, Loan to Deposit Ratio, Cost per loan asset ratio, Capital adequacy ratio, Bank Size Interest Spread Real GDP growth Inflation as an independent variable.The study therefore finds that bank specific factors have an impact on banks profitability and all variables of bank specific factor(Non-performing Loan ratio, Loan to Deposit Ratio, Cost per loan asset ratio, Capital Adequacy ratio, Bank Size) have a significant impact on profitability, while other external factor of macroeconomic (inflation) and industry specific factors (Interest Spread) have no significant impact in Ethiopia private bank's profitability. But the other macroeconomic factor of real gross domestic product has positive and statistically significant impact on profitability of private banks of Ethiopia.

Finally the researcher tried to find studies which are conducted in Ethiopia and to the best knowledge of the researcher studies on the relationship between credit risk and profitability performance of Ethiopian commercial private banks are few. Of these studies, Tefera (2011) and Mekasha (2011) each studied the effect of credit risk management on performance of commercial banks in Ethiopia and Tegegne (2017) by the title The Impact of Credit Risk on Profitability of Private Commercial Banks in Ethiopia by including bank size, GDP. Both used secondary data from annual reports of commercial banks and survey of primary data from bank managers and officers which similarly showed that there is a negative relationship between credit risk and performance of commercial banks in Ethiopia. On the contrary, the research conducted by Million (2014) shows the significant positive relationship between loan loss provision and commercial banks performance on this study might indicates the presence of potential earning management activities by bank managers.

To sum up, to the best of the researcher's understanding, Mekasha (2011), Awoke (2014),Bizuayehu(2015) and Gizaw, Kebede and Selvaraj (2015) Tegegne (2017) and other few studies are carried out in Ethiopia's commercial banking sector context entitled as the impact of credit risk management on the financial performance of Ethiopian commercial banks till this research is in effect. Even though the studies have attempted to contribute to the existing literature in some way, they are still a gap especially in private banks. Therefore, there is a need

to study the impact of credit risk management on the financial performance of Ethiopian private commercial banks.

To examine the impact of credit risk, return on equity used as a proxy to profit and independent variable will be capital adequacy ratio, nonperforming ratio, loan to deposit ratio, real growth domestic product, deposit growth, exchange rate and cost per loan asset ratio of the country on measures of financial performance return on equity.

2.6 SUMMARY AND KNOWLEDGE GAP

From the above empirical review, credit risk is affecting the performance of the Banking industry. Correspondingly, in the literature; the Bank profitability is usually expressed as a function of internal and external determinants. Various studies have been made in different countries regarding these variables. Among others, the most important internal determinants that are affecting performance include Bank Size (Age), Provision to Total Loans, Cost per Loan and Loan to Total Asset, and non-performing loan. On the other hand the most external determinant of that are affecting performance of the bank are Exchange rate and GDP

In Ethiopian private commercial bank history, it is possible to get a few studies which took; bank specific, industry specific and macro-economic factors to test the effect of credit risk management on financial performance of banks in Ethiopia.

Due to dominance of public bank in the finance industry of Ethiopia, much attention is given to public bank not to private bank of Ethiopia, therefore current study aimed at contributing to the literature gap on the subject matter by expanding the independent variables and also taking into consideration of the external determinants of profitability factors like exchange rate, GDP, deposit growth, bank size. This study is conducted first by considering both internal and external factors and analyzes the effect of those variables on banks profitability. This enables the researcher to evaluate from different three directions and to examine the impact of credit risk management on profitability of Ethiopian banks

2.7 CONCEPTUAL FRAMEWORK

The main objective of this study is to examine The Effect of Credit Risk on Profitability of Private Commercial Banks in Ethiopia. Based on the objective of the study, the following conceptual model is framed. As it described previously in the related literature review parts, bank profitability can be affected by bank specific, industry specific or macroeconomic factors. Bank specific factors are: nonperforming loans overt total loan, capital adequacy ratio, Deposit

growth, and Loan-deposit and cost per loan asset ratio. In addition to this there are also macroeconomic factors which can affect bank profitability such as economic growth which is measured by GDP and industry specific EXRA.

Thus, the following conceptual model is framed by the researcher to summarize the main focus and scope of this study in terms of variables included.

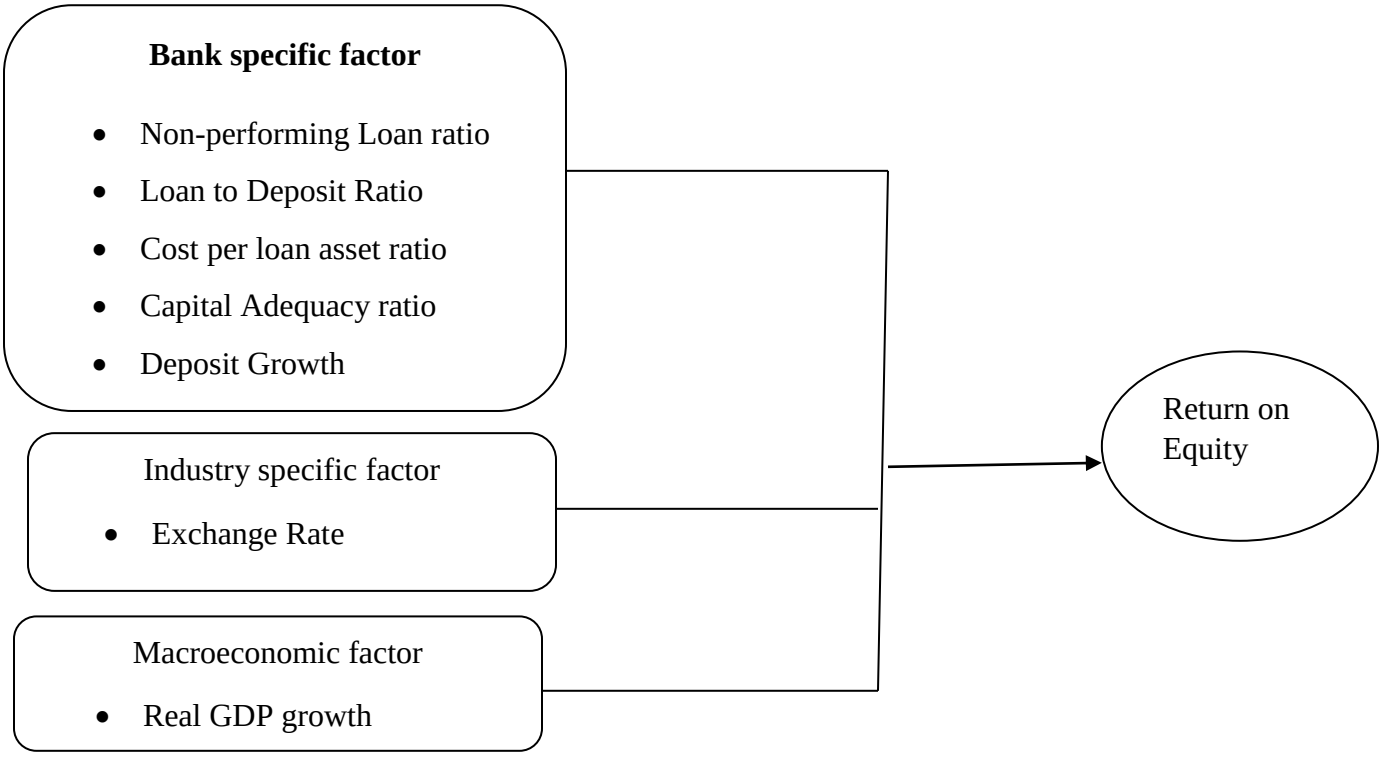


Fig 2. Theoretical/Conceptual frame work of bank, Industry specific factor and Macroeconomic factor

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

This section presents the research methodology employed for this study. Leedy and Ormrod (2005) define a research methodology as a means to extract the meaning of data, cited in Wondim,2015. The choice of research design depends on objectives that the researchers want to achieve (John, 2007) cited in Gadisa, 2014. This study examined the effect of credit risk on profitability of private commercial bank in Ethiopia. It gives a detailed schema on the procedures the researcher pursues to conduct this research. It presents the research approach, source & type of data, sampling design and techniques, data collection method, method of data analysis and presentation, variable definition and model specification.

3.2 RESEARCH DESIGN

Based on the objective, in which researchers ask their research questions and present their purpose, the research design, could be classified into three groups, namely exploratory, descriptive and explanatory studies (Saunders et al.,2009). This research uses explanatory design; studies that establish causal relationships between variables may be termed explanatory research. The emphasis here is on studying a situation or a problem in order to explain the relationships between variables. An exploratory study is a valuable means of finding out 'what is happening; to seek new insights; to ask questions and to assess phenomena in a new light' (Robson 2002).

As stated above, the objective of this study is to investigate the effect of credit risk on profitability of private commercial banks in Ethiopia. In order to achieve this objective, this study employed explanatory research design.

3.3 SOURCE AND TYPE OF DATA.

This study used secondary data to achieve its objective. The required secondary data is obtained from annual financial statements of selected private commercial banks in Ethiopia (Awash International S.C,Bank of Abyssinia S.C, Dashen Bank S.C, Wegagen Bank S.C,United Bank S.C, Nib International Bank S.C, Cooperative Bank of Ormia S.C,Lion International Bank S.C,Oromia International Bank S.C,Zemen Bank S.C) NBE report, and NBE web resources. In order to enhance the accuracy of data to be used in the analysis, data pertinent to annual profit,

loan portfolio, deposit, equity, asset and non- performing loan are collected from the audited financial statements of the commercial banks.

3.4 SAMPLING DESIGN AND TECHNIQUES

There are 16 private commercial banks operating in the country as of June 2018. From the 16 private commercial banks, a sample of 10 banks (establishment period 2009 and above) is selected for this study using purposive sampling technique. Purposive sampling is the deliberate choice of a respondent/unit due to the qualities the individual/entity possesses (Tongco, 2007 cited in Addaeetal. 2014). The technique was applied to the study to select the sample in view of the fact that, the commercial banks to be included in the sample should be those which has been in operation for the past 9 years. Accordingly, 10 private commercial banks are included in the sample; based on the stated purpose and selection criteria. The sample constitutes 62.5% of the total population of private commercial banks operating in Ethiopia.

3.5 DATA COLLECTION METHOD

There are basically two main sources of data collection method; the primary and secondary data sources: Primary data sources, when the researcher collects new information through observation, interviews, questioners and then uses this data for analysis (Saunders et al.,2009) on the other hand secondary data sources is data exists somewhere having been collected and used for some other purpose (Gupta 2012). After evaluating all possible data sources method the researcher found that the most appropriate method that gives practical solution is secondary data sources accordingly the researcher collects Financial figures of the sample private commercial banks for the study period (2009-2017) is collected from NBE report organized from audited financial statements of each sample private commercial banks annual return.

3.6 METHODS OF DATA ANALYSIS

The researcher analyzed the data collected from secondary sources by using regression and correlation analysis method. Descriptive statistics used to analyze the general trends of the data from 2009- 2017 based on the sample of 10 private banks. By clearly identifying the dependent and the independent variables, the researcher is used multiple regression model to show the relationship between the dependent and independent variables and correlation matrix was used to examine the relationship between the dependent variables and explanatory variables.

3.7 MODEL SPECIFICATION

The main objective of this research is to understand the effect of credit risk on profitability of private commercial bank in Ethiopia, similar to the previous study on the effect of credit risk on bank profitability, the dependent variable is return on equity(ROE) and the independent variables are Non-performing Loan Ratio(NPL), Capital Adequacy ratio(CAR), Loan to Deposit ratio(LTDR), Cost per loan asset ratio(CLAR), Exchange rate(EXRA),GDP and Total deposit growth are used as an explanatory variables.

This study examined the effect of credit risk by testing to use listed variables on Banks profitability of private commercial banks that operate in Ethiopia by adopting a model that is existed in most literatures. The data used to study enabled the researcher to use a longitudinal data model which is deemed to have advantages over cross sectional and time series data methodology. A longitudinal data involves the pooling of observations on the cross-sectional over several time periods. As Brook(2008) stated the advantages of using panel data set; first and perhaps most importantly, it can address a broader range of issues and tackle more complex problems with panel data than would be possible with pure time series or pure cross- sectional data alone.

$$Yit = \alpha + \beta xit + \mu it$$

Where; **I** denote the cross section, **t** denotes the time series dimension, **Yit** is the dependent variable, **α** the intercept ’**β** is the parameter to determine the independent variable, **Xit** is observations in independent variable, **μit** is error term Therefore the general models which incorporate all of the variables to test the hypotheses of the study were:

ROEi,t=α+ β1NPLRi,t+ β2CARi,t+ β3CLARi,t+β4LTDRi,t+ β5DEPGi,t+ β6GDPi,t+ β7EXRAi,t+Ui,t

ROEi,t =Return on Equity of i^{th} bank at year t,

NPLi,t =Nonperforming loan ratio of i^{th} bank at year t,

CARi,t =Capital Adequacy Ratio of i^{t} bank at year t,

LTDRi,t =Loan to Deposit Ratio of i^{th} bank at year t,

CLARi,t=cost per loan asset ratio of i^{th} bank at year t,

EXRAi,t =Exchange rate of the bank at year t,

DEPGi,t=Total Deposit of the Bank at year t

GDPi,t =Gross Domestic product of the country at year t,

Various diagnostic tests such as normality, heteroscedasticity, autocorrelation and multicolinearity test is conducted to decide whether the model proposed in the study is appropriate and fulfill the assumption of classical linear regression model (CLRM). These tests are presented below.

3.8 STUDY VARIABLES

In this study variables classify dependent variables is profitability measured by ROE and independent variables that this study covers are Non-performing loan ratio, Capital Adequacy Ratio, Loan to Deposit Ratio, Cost per loan asset ratio, Deposit Growth are those from the bank specific factors, the EXRA from industry specific Gross Domestic product of the country from the macroeconomic factors.

3.8.1 DEPENDENT VARIABL

In many literatures reviewed finance industry performance is more explained by quantifiable financial indicators. The literature on the determinants of bank performance has closely tied bank performance with profitability measures such as ROE

3.8.1.1 RETURN ON EQUITY

Return on equity (ROE) is a ratio measuring stockholders' (shareholders') profitability, ROE is calculated by dividing net income by shareholders' equity. Because shareholders' equity is equal to a company's assets minus its debt, ROE could be thought of as the return on net assets. ROE indicates a firm's efficiency in applying common-stockholders' (ordinary shareholders') money. ROE is expressed as a percentage and can be calculated for any company if net income and equity are both positive numbers. Net income is calculated before dividends paid to common shareholders and after dividends to preferred shareholders and interest to lenders.

Widely used by investors, the ROE ratio is an important measure of a company's earnings performance. The ROE tells common shareholders how effectively their money is being employed. Peer Company, industry and overall market comparisons are appropriate; however, it should be recognized that there are variations in ROEs among some types of businesses. In general, financial analysts consider return on equity ratios in the 15-20% range as representing attractive levels of investment quality (Richard, 2015).

3.8.2 INDEPENDENT VARIABLES

3.8.2.1 NON PERFORMING LOAN RATIO (NPLR)

Nonperforming loan are loans that are outstanding in both principal and interest for a long time contrary to the terms and conditions contained in the loan contract(Afza and Nazir,2009).According to

IMF,s (2006) “a loan is non performing when payments of interest and/or principal are past due by 90 days or more ,or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons such as a debtor filing for bankruptcy to doubt that payment will be made in full” similarly NBE(2008) “non-performing loan and advances are a loan whose credit quality has deteriorated and the full collection of principal and/or interest as per the contractual repayment terms of the loan and advances are in question.

Non-performing loan is a probability of loss which requires provision. The amount of provision can be further subtracted from the profit, as a result high NPL reduces the profit. Non-performing loan over total assets shows the level of banks’ exposure to credit risk. If the ratio goes above 25%, is an indication that the bank is getting into the zone of weak credit risk control system (Agborade 2002).

The amount of non-performing loans measures the quality of the bank asset (Chakraborty, 2008). Deterioration of asset quality is much more serious problem of bank unless the mechanism exists to ensure the timely recognition of the problem. It is a common cause of bank failure. Poor asset quality leads non-performing loan that can seriously damage a banks’ financial adverse effect position banks operation having (Lafunte, 2012). It distresses the performance and survival of banks (Mileris, 2012).

3.8.2.2 CAPITALADEQUACY RATIO (CAR)

Capital adequacy ratio is the amount of the bank’s own fund available to support the banks in relation to its risk exposure or capital adequacy is the level of capital that banks are required to hold to enable them to withstand credit, market and operational risks they are exposed to.

NBE has set specific measure of the capital adequacy position of Banks, which is the ratio the Capital Adequacy Ratio (CAR) (Directive No. SBB/9/95). The directive clearly set out the computation mechanism and the conversion factors for both on and off-balance sheet items and strictly set for all banks not to maintain their capital level below 8% of their risk weighted assets. Irrespective of such regulatory framework, the main intention of holding capital is to build the internal strength of the bank to withstand losses during crisis (Dang, 2011).

The research of Boudriga, Taktak & Jellouli (2009) illustrates this research found that CAR seems to reduce the level of problem loans which means higher CAR leads to less credit exposures.

It is a measure of bank`s financial strength since it shows the ability to withstand or tolerate with operational and abnormal losses. It is a measure of banks solvency and ability to absorb risk. Thus, this ratio is used to protect depositors and promote stability and efficiency of financial systems. **It is measured by total Equity to total asset ratio**. The ratio of equity to total assets is considered one of the basic ratios for capital strength. It is expected that the higher this ratio, the lower the need for external funding and the higher the profitability of the bank. It shows the ability of bank to absorb losses and handle risk exposure with shareholder. Equity to total assets ratio is expected to have positive relation with performance that well-capitalized banks face lower costs of going bankrupt which reduces their costs of funding and risks (Berger, 1995; Bourke, 1989; Hassan and Bashir, 2003).

3.8.2.3 LOAN AND ADVANCE TO DEPOSIT RATIO (LTDR)

Loans and advances refer to the amount borrowed by one person from another, the amount is also refers to the sum paid to the borrower (Adpoju et al) and it is measured by the ratio total loans advances to total deposit .Banks may not be earning an optimal return if the ratio is too low. If the ratio is too high, the banks might not have enough liquidity to cover any unforeseen funding requirements or economic crises. It is a commonly used statistic for assessing a bank's liquidity.

The loan to deposit ratio is used to calculate a lending institution's ability to cover withdrawals made by its customers. A lending institution that accepts deposits must have a certain measure of liquidity to maintain its normal daily operations. Loans given to its customers are mostly not considered liquid meaning that they are investments over a longer period of time. Although a bank will keep a certain level of mandatory reserves, they may also choose to keep a percentage of their non-lending investing in short term securities to ensure that any monies needed can be accessed in the short term. To quantify banks liquidity, this research paper employed Loan to Deposit Ratio. Which indicates that the ability of banks to withstand deposit withdrawals and willingness of banks to meet loan demand by reducing their cash assets. When the banks are more liquid, they can reduce risk of insolvency.

3.8.2.4 COST PER LOAN ASSET RATIO (CLAR)

Many researchers include operational efficiency as a specific-Bank factor affecting their profitability. Theoretically more operational efficient Bank is expected to be more profitable. Cost per loan asset (CLAR) is the average cost per loan advanced to customer in monetary term. Purpose of this is to indicate efficiency in distributing loans to customers (Appa, 1996). CLAR

can be calculated as: **CLA Ratio= Total Operating Cost/ Total amount of loans.** However, CLAR also measured by the cost-income ratio or by overhead costs to total assets ratio, some empirical literature found a negative relationship between operational efficiency and Bank's profitability (Athanasoglou et al., 2008; Goddard et al., 2009). Others authors, show a positive relationship between profitability and expenses. Molyneux and Thornton (1992) provide the evidence that Bank's expenses affect positively the European Banking profitability. Their results defend the efficiency wage theory, which states that employee's productivity increases with the wage's rate. Similarly, Guru et al. (2002) and BenNaceur (2003), suggest that Banks are able to pass their overheads to depositors and borrowers in terms of lower deposit rates and/or larger lending assets. Nevertheless, BenNaceur and Omra (2011) on MENA countries, find the opposite results when they consider the total operating costs divided by the sum of total earning assets and total deposits as a proxy of operational efficiency.

3.8.2.5 GROSS DOMESTIC PRODUCT (GDP)

GDP is the sum of the value added in the economy during a given period or the sum of incomes in the economy during a given period adjusted for the effect of increasing prices (Daferighe & Aje, 2009). When the GDP grows slows dawn, particularly during recessions credit quality deteriorates and default increases thus reducing subsequent bank lending (Flaminin et al.,2009) Two different approaches are used to calculate GDP. In theory, the amount spent for goods and services should be equal to the income paid to produce the goods and services, and other costs associated with those goods and services. Calculating GDP by adding up expenditures is called the expenditure approach, and computing GDP by examining income for resources (sometimes referred to as gross domestic income, or GDI, is known as the resource cost/income approach. Most of the studies under review use GDP growth rates as the main indicator of macroeconomic conditions and debt sustainability of wide group of borrowers. An increase in GDP growth rates translates into higher income and improves debt servicing capacity of borrowers, which results in lower credit risk of banks (Anna, 2013).

3.8.2.6 DEPOSIT GROWTH OF THE BANK

Private commercial banks mainly depend on the funds deposited by their clients(the public) in order to lend it out and earn interest income. The formula of deposit growth is deducting the current year deposit from the previous year and dividing the result with the previous year.

When we see the impact of deposit on the commercial banks profitability, empirical evidence from Naceur and Goaied (2001) quoted by Aburime (2008) indicates that best performing banks are those who have maintained a high level of account relative to their assets. Increasing the amount of deposit will lead to increasing the amount of funds available by banks for investment and lending activities. Since, and then we can predict that the level of deposit of banks will affect the bank profitability by increasing the available credit fund.

3.8.2.7 EXCHANGE RATE

In addition to lack of sufficient foreign currency deposit in Ethiopia, exchange rate will have positive or negative effect on the country performance in particular on the profitability of banks in Ethiopia. This variable is used to measure the effect of Credit Risk on Profitability of Private Commercial Banks in Ethiopia. The finding may differ depending on the exchange rate adopted by the country (fixed or floating exchange rate). According to Domac and Martinez- Peria (2003) the profitability of the bank is likely to rise if the country employs the fixed exchange regime. However, Artete and Eichengreen (2002) see it differently. These researchers believe irrespective of the exchange rate regime adopted by a country, banks can increase or reduce their profitability

CHAPTER FOUR

4. DATA ANALYSIS, INTERPRETATION AND PRESENTATIONS

4.1 INTRODUCTIONS

This part of the research deal with analysis of the finding and discussion of the results for the attainment of the research objectives, identifying the effect of Credit Risk on Profitability of Private Commercial Banks in Ethiopia, based on the methodology that have discussed by undermine the model Data collected and summarized from different sources. First section will present about descriptive analysis of dependent and independent variables by using tables to provide brief information on banks profitability across time. The second section will give an insight of correlation analysis of dependent and independent variables and the third section present the classical linear regression model assumption diagnostic test results. The fourth section presented result of regression analysis and discussion

4.2. DESCRIPTIVE STATSTICS OF THE DATA

Table 1, below shows summery of descriptive statistics intended to give general descriptions about the dependent and the independent variables. The total number of observations for each variable is 90 (i.e., from 10 private commercial bank data for 9 years (2009–2017). In this sub topic the result of the descriptive statistic: mean, standard deviation, minimum and maximum value of the dependent and the independent variables of the model is presented. Because the data are a panel of strongly balanced in type, the study has 90 observations of the dependent and independent variables.

Table 1: Summary Of Descriptive Statistics

	ROE	CAR	CLAR	DEPG	EXRA	GDP	LTDR	NPL
Mean	0.207	0.139	0.130	0.320	17.047	0.098	0.563	0.037
Median	0.215	0.132	0.125	0.270	18.187	0.101	0.579	0.022
Maximum	0.424	0.336	0.746	2.075	22.080	0.114	0.891	0.345
Minimum	-0.005	0.086	0.027	-0.033	10.420	0.080	0.217	0.009
Std. Dev.	0.087	0.040	0.069	0.250	3.920	0.010	0.129	0.047
Observations	90	90	90	90	90	90	90	90

Source: The Researcher computation through Eviews9.0

From above Table 1 regarding to return on Equity is an indicator of how efficient a company is by using its owners' equity to generate return to shareholders. ROE measured by Net Profit divided by net worth. Minimum and maximum return on equity is -0.05% and 42.4% respectively. It has a mean value of 21.5% and a standard deviation of 8.7%. As shown from the statistical result private commercial banks that operate in Ethiopia earn 20.5% return on averages from the equity per year .Based on Richard (2015), Return on equity between 15% and 20% are considered desirable and According to Richard (2015), the average industry mean value of 20.7% return on equity tells that the banking industry is the area where it makes good profit. Nevertheless, literature of Nava pan and Tripe (2003) doubts that getting this much return on equity may not always send a good message, but it may also result from having a small, inefficient and less competitive market. According to Flamini, McDonald, & Schumacher (2009), sub-Saharan African countries have higher profit than other parts of the world with an average ROA of around 2 percent.

The other independent variable of the model is Capital adequacy ratio (CAR) also measured by total equity divided by total assets, having a mean value of 13.9% and standard deviation of 4.00% with a minimum and maximum of 8.86% and 33.64% respectively. This indicates that capital adequacy ratio for the sample private commercial banks that operate in Ethiopia during study period were above the minimum requirement, which is 8%; the purpose of this reserve is to protect the depositor from any unexpected loss.

Dubious results have been recorded by different empirical literature regarding the relationship between Credit risk and capital adequacy ratio. On one hand, the managers of banks with low capital seem to involve in a moral hazard incentive to provide loan for customer with poor credit scoring, On the other hand, managers of highly capitalized banks might involve in a liberal credit policy with the notion of "Too Big to Fall". This might lead a positive relationship between equity capital and credit quality of the banking industry. We applied a formula which is the same as that of (Prakash & Poudel, 2013; Ghosh, 2017) which is total capital of the banks divided by total assets. This moral hazard hypothesis implies a negative relationship between CAR and NPL (Ghosh, 2017). Moreover, it is also used as an indicator of the financial institutions healthiness. BASEL committee set a minimum standard of 5% of the financial institutions risk weighted assets.

As per Table.1 result, as shown below, the average NPLR in Ethiopia commercial banking industry is 3.764% percent, this indicate that private commercial banks in Ethiopia during the last 9 year incurred 3.764% nonperforming loan on average from its total loan. As per NBE (2008) the banking sector required to maintain the ratio of NPLs is at least below 5%. As the rate indicates, private commercial banks in Ethiopia tried to maintain the NPL rate around 5% during the study period, which might be the result of strict follow-up and control applied by the National Bank of Ethiopia. A lending institution that accepts deposits must have a certain measure of liquidity to maintain its normal daily operations. Loans given to its customers are mostly not considered liquid meaning that they are investments over a longer period of time. Although a bank will keep a certain level of mandatory reserves, they may also choose to keep a percentage of their non-lending investing in short term securities to ensure that any monies needed can be accessed in the short term.

Loan to deposit ratio is measured by total loan divided by total deposit. (LTDR) has a minimum and maximum value of 21.7% and 89.1% respectively with the average value of 56.3%, in this respect, Willem (2013) mentioned that there is no international limit for the amount of LTDR ratio though some countries required a limit to this ratio.

Cost per loan asset ratio measures the total cost divided by loan and advanced to customer in monetary term and the function of this is to point out efficiency in distributing loans to customers. The mean value of CLAR is 13.23 % with 12.5 % variations which ranges 2.7% to 74.6%.Difeerent authors reveal that CLAR has whether positively or negatively affect

Exchange rate is one of the indicators that influence economy of a country in general and specifically banks profitability in particular. The incremental in exchange rate may also well explained by the fluctuations in other macro-economic indicators. Higher inflation turns to weaken the currency which supports the economy's balance of payment as export value increases relative to imports, and vice versa. The value for official exchange rate (ETB vis-a-vis US$, period average) in Ethiopia was 22.08 as of 2017, which it was depreciated. As the table above shows, over the past 9 years, this indicator reached a maximum value of 22.08 in 2017 and a minimum value of 10.42 in 2008.

The macroeconomic indicators of independent variables were GDP that can affect banks profitability over time. The mean value of real GDP growth rate was 9.8% indicating the average

real growth rate of the country's economy over the past 9yearswith maximum and minimum growth rate of 11.4%, 8% respectively. in the life-cycle model, growth has an ambiguous effect on savings, depending on which age cohorts benefit the most from the growth, how steep their earning profile are, and the extent to which borrowing constraints apply.

Deposit growth has a mean value 32.2%, with the standard deviation of 2.5%.Deposit growth shows the maximum and minimum values of 2.05% and -3% respectively.Increasing the amount of deposit, will lead to increasing the amount of funds available by banks for investment and lending activities. Since, and then we can predict that the level of deposit of banks will affect the bank profitability by increasing the available credit fund. This indicates that private commercial banks which have a big size have an advantage of absorbing some credit risks.

4.3. TEST FOR THE CLASSICAL LINEAR REGRESSION MODEL (CLRM)

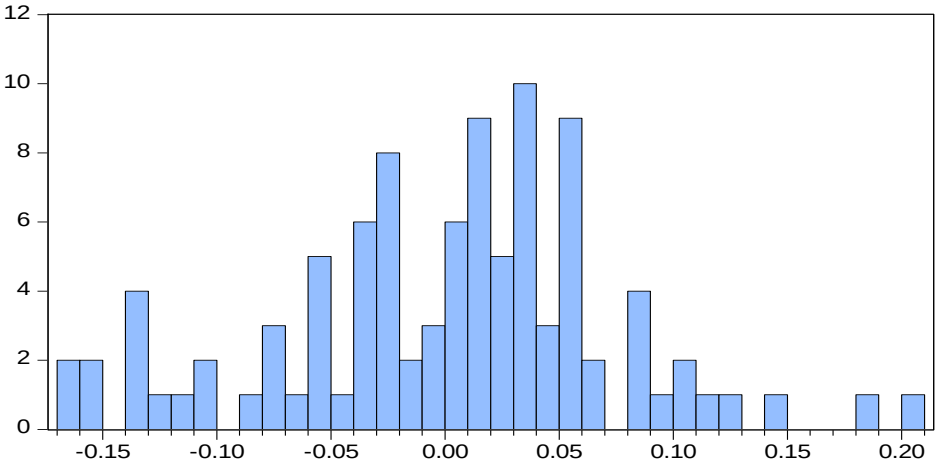
ASSUMPTIONS

4.3.1. NORMALITY ASSUMPTIONS

According to Brook (2008) one of the most applied test for normality is the Bera-Jarqe (BG) test, the entire distribution of the data is explained by mean, skewness,variance and kurtosis accordingly if the residuals are normally distributed, the histogram should be bell-shaped, a normal distribution is not skewed, and the Bera-Jarque statistic would not be significant meaning disturbance to be normally distributed around the mean. This means that the *p*-value given at the bottom of the normality test screen should be bigger than 0.05 to not reject the null of normality at the 5% level (Brooks, 2008).

Ho: Normally distributed errors Ha: Non-Normal Distribution error

Figur e 1: Normality Test for Residuals



Series: Standardized Residuals	
Sample 2009 2017	
Observations 90	
Mean	6.17e-17
Median	0.010623
Maximum	0.206939
Minimum	-0.167103
Std. Dev.	0.074116
Skewness	-0.154324
Kurtosis	3.250344
Jarque-Bera	0.644906
Probability	0.724370

As shown in the histogram in the appendix here above, kurtosis is around 3 (i.e.3.25), the Histogram statistics was not significant at 5% (i.e. 0.724). Hence, the null hypothesis that is the error term is normally distributed should not be rejected and the error term in all of the cases follows the normal distribution and skewed to the right

4.3.2. HOMOSCEDASTICITY ASSUMPTIONS (variance of the errors is constant)

According to Brooks, (2008) it has been assumed thus far that the variance of the errors is constant,σ2"var (ut) = σ2 <∞;" this is known as the assumption of homoscedasticity. One of the basic assumptions for the classical linear regression model is Homoscedasticity assumption that states as the probability distribution of the disturbance term remains same for all observations If the errors do not have a constant variance, they are said to be heteroscedastic.If the disturbance terms do not have the same variance or non-homogeneity of variance it is called heteroscedasticity (Bedru and Seid, 2005).Therefore, to test for the presence of heteroscedasticity, the popular Breusch-Pagan test was applied in this study. If the p-value is significant at 95 confidence interval, the data has heteroscedasticity problem, while if the p value is insignificant (greater than 0.05), the data has no heteroscedasticity problem.

It is hypothesized that as follows

Ho: There is no heteroskedaticity problem (homoskedasticity)

Ha: There is heteroskedaticity

Table 2: Heteroskedasticity Test: Breusch-Pagan-Godfrey

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.475620	Prob. F(7,92)	0.1857
Obs*R-squared	10.09421	Prob. Chi-Square(7)	0.1833
Scaled explained SS	8.823090	Prob. Chi-Square(7)	0.2656

Source: The Researcher computation through Eviews9.0

As shown in the above Breusch-Pagan-Godfrey, there is no heteroscedasticity problem for this study hence the p- value is 18.57% indicates insignificant value assumption of homoscedasticity. According to Brook, (2008) indicated that if the P-values of these test statistics are considerably in excess of 0.05, then the test give conclusion that there is no evidence for the presence of hetro-scedasticity. It is clear evident that the errors are homoscedastic. Therefore, based on this statistic we fail to reject the null hypothesis that is indicated as there is no Heteroscedasticity for the models.

4.3.3. TEST FOR ASSUMPTION OF AUTOCORRELATIONS

According to Chris brooks (2008), assumption three said that the CLRM‟s disturbance terms are the covariance between the error terms over time (or cross-sectional, for that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one another. In addition that if the errors are not uncorrelated with one another, it would be stated that they are“auto correlated” or that they are “serially correlated”. To test this assumption the Durbin–Watson (DW) statistical test was applied .Durbin Watson (DW) is a test for first order autocorrelation, i.e. it tests only for are relationship between an error and its immediately previous value. DW is approximately equals to $2(1 - \hat{\rho})$, where $\hat{\rho}$ is the estimated correlation coefficient between the error term and its first order lag (Brooks 2008). The null hypothesis for the DW test is no autocorrelation between the error term and its lag according to Brooks (2008).

Table 3: Autocorrelation test

Variables	Dw Test Statistics Result
All Specific And Macroeconomic Factors	1.84

Source: The Researcher computation through Eviews 9.0

To test this assumption, the DW stat value in the main regression table should be considered. The Durbin-Watson test statistic value in the regression result was 1.48.To identify determinants of 10 Ethiopian private Banking Industries, 90(9*10) observations were used in the model.

Therefore, to test for autocorrelation, the DW test critical values were used. Then relevant critical lower and upper values for the test are dL= 1.36 and dU=1.687 respectively. Thevalues of 4 - dU = 4-1.670=2.313; 4 - dL = 4-1.36=2.64

The Durbin-Watson test statistic of 1.84 is clearly between the upper limit (dU) which is 1.68 and the critical value of 4- dU i.e.2.313 and thus, the null hypothesis of no autocorrelation is within the non- rejection region of the number line and thus there is no evidence for the presence of autocorrelation.

4.3.4. MULTI COLLINAEARITY TEST

An implicit assumption that is made when using the panel OLS estimation method is that the explanatory variables (independent variable) are not correlated with one another

Table 4: Multicollinearity test

	CAR	CLAR	DEPG	EXRA	GDP	LTDR	NPL
CAR	1.000						
CLAR	0.080	1.000					
DEPG	0.208	0.123	1.000				
EXRA	-0.228	0.035	-0.208	1.000			
GDP	0.065	0.013	0.248	-0.446	1.000		
LTDR	0.219	0.164	-0.006	-0.033	-0.047	1.000	
NPL	-0.128	-0.093	-0.016	-0.235	0.218	0.113	1.000

Source: The Researcher computation through Eviews9.0

If there is no relationship between the explanatory variables (independent variable), they would be said to be orthogonal to one another. If the explanatory variables were orthogonal to one another, adding or removing a variable from a regression equation would not cause the values of the coefficients on the other variables to change (Brook, 2008).

According to Gujarati, (2004) multicollinearity could only be a problem if the pair-wise correlation coefficient among regresses is above 0.82 Hailer et al, 2006 cited in Birhanu, (2012) which is not more or less the case in the study variables.

4.3.5. RANDOM EFFECT (RE) VERSUS FIXED EFFECT (FE) MODELS

To test the relationship between these private commercial banks profitability (ROE) and variables that has effect on profitability, the theoretical model is developed based on the finance theory from the methodological part of this study. The important issue from the equation panel model is used, it is not specified whether it is fixed effects or random effects model. So the focal point the researcher concern here is, to examine whether individual effects are fixed or random. Because, there are broadly two classes of panel data estimator approaches that can be employed in empirical research: fixed effects models and random effects models. This also requires the high concern when the researcher employed the panel data approaches.

The method used to decide whether fixed effect or random effect model was Hausman Specification Test. The Hausman Specification Test identifies whether fixed-effects or random

effect model is the most appropriate to the model which used in the study. The null hypothesis of Hausman Test is Random effect model is appropriate that means if the null hypothesis is rejected, Fixed Effect model is appropriate for the study that is alternative hypothesis.

Table 5:Hausman test

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test period random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	1.533567	5	0.9092

As shown from the Hausman specification test for this study has a p-value of 0.9092 for ther egression model. This indicates that p-value is not significant at 5% and then the null hypothesis is rejected and the alternate hypothesis i.e. random effect model is appropriate for the given data set in this study.

4.4 RESULT OF REGRESSION ANALYSIS

This section presents the regression result of Cross-section random effects that was made to examine the effect of Credit Risk on Profitability of Private Commercial Banks in Ethiopia. Accordingly, the regression result was made and coefficients of the variables were estimated via E-views 9.0 software package. As stated above, random effects is an appropriate model used in this study. Thus, the model used to examine the effect of Credit Risk on Profitability of Private Commercial Banks in Ethiopia:

This section presents the general regression results of random effect model that made to identify the effect of Credit Risk on Profitability of Private Commercial Banks in Ethiopia. Based on the information revealed on table 6 below, the research developed the following model:

Table 6: Regression Analysis

Dependent Variable: ROE				
Method: Panel Least Squares				
Date: 12/16/19 Time: 11:48				
Sample: 2009 2017				
Periods included: 9				
Cross-sections included: 10				
Total panel (balanced) observations: 90				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.054049	0.050981	1.060180	0.2918
CAR	-0.247032	0.212166	-1.164336	0.2473
CLAR	0.133314	0.118723	1.122901	0.2644
DEPG	-0.066403	0.033944	-1.956236	0.0535***
EXRA	0.004253	0.001887	2.254467	0.0265**
GDP	2.223333	0.571791	3.888366	0.0002*
LTDR	-0.208701	0.063312	-3.296371	0.0014*
NPL	0.470828	0.182891	2.574356	0.01160**
R-squared	0.312368	Mean dependent var		0.207116
Adjusted R-squared	0.260048	S.D. dependent var		0.091452
S.E. of regression	0.078668	Akaike info criterion		-2.170552
Sum squared resid	0.569350	Schwarz criterion		-1.962139
Log likelihood	116.5276	Hannan-Quinn criter.		-2.086204
F-statistic	5.970353	Durbin-Watson stat		0.791723
Prob(F-statistic)	0.000010			

Source: The Researcher computation through Eviews 9.0

***,**, and ***, denote significance at 1% ,5% and 10% levels respectively.**

R-square: R-square, measures the proportion of the total variation of the dependent variable that is explained by the variation of the explanatory variables. Based on the regression result, the R^2 value is 0.31(31 %) which implies that 31% of fitness can be observed in the sample regression line. As known R-squared statistics and the Adjusted-R squared statistics of model was 26% is

the power of the explanatory variables that represent the explained variable i.e. (ROE) respectively. The result indicates that the changes in the explanatory variables explain 31% of the changes in the explained variable which is a good result to represent the model.

Further, the overall goodness of fit of the regression equation used is evaluated by the probability value of the F-statistics estimated. If the estimated probability value of the F-statistics comes out to be significant ($p<0.05$), then the equation is assumed to be a good regression equation otherwise not. As a result for the estimated probability value-prob(F-statistics) is highly significant ($0.000001<0.05$) then the regression equation is good fitted

From table 6 it can be seen that nonperforming loan, loan to deposit, exchange rate and GDP are statistically significant factors that affecting the bank profitability and The coefficient of explanatory variables affect profitability negatively are LTDR,DEPG and CAR. Which means the one unit of CAR, DEPG, LTDR variables increased in the bank have a 0.208, 0.0664and 0.247 unit change on banks profitability to the opposite direction respectively. However, CLAR, EXRA,GDP ANDNPL had a positive impact on ROE which implies that one-birr change in CLAR, EXRA ,GDP and NPL will have 0.1333, 0.0042, 0.003664, 2.22 and0.4708change on profitability with the same direction respectively.

DISCUSSION'S

The aim of this study was to examine the effect of credit risk on profitability of private commercial banks in Ethiopia. Based on studies made previously and the finding of this research, this section discussed the general result obtained via random Effect Regression Model as shown in the above table 6 and the result of each explanatory variable including their impact on the level of ROE of private commercial banks in Ethiopia was discussed. The detailed estimation results that show the effect of explanatory variables on ROE were discussed as follows:

NON PERFORMING LOAN

The regressions result regarding to Nonperforming Loan Ratio (NPLR)one of the bank specific factor which is affect the credit risk is NPL that has a significant impact on the performance of the bank (ROE) at coefficient variations differences of (0.4708) which is at statically significance at $P\leq5\%$ interval. Based on the above regression result, trained analysis clearly shows that when ROE growth to upside the NPL will go to upward in the same direction and this

is contrary to the assumption.

In case of Ethiopia private banks ,As we can see from data we can understand that NPL increase year after year but there is no evidence that will decrease or negative effect on ROE. In real life of banks in Ethiopia we can understand that from their annual report the NPL and ROE of banks increasing in significant way, from this we can understand that NPL has not negative impact ROE. This is because of the probability of the borrowers failed to fulfill the pre-agreed condition or default is much less due to the collateral given against their loans or The demand to loan and the banks will benefit by increasing their interest and the rate of increasing ROE is much more than NPL increasing rate

LOAN TO DEPOSIT RATIO (LTDR)

Regressions result regarding to Loan to Deposit Ratio was indicated on likelihood coefficient variations -0.2087, this indicates that a one unit increase of loan to deposit will change a 0.2087 unit decrease of ROE or profit of the Private Commercial Banks in Ethiopia. If this ratio increases more and more, the bank becomes more and more risky as the loan amount would be equal or sometimes greater than the deposit amount. As a result banks suffer with a liquidity problem and that may also makes the bank risky. This shows their consciousness and ability to keep balance between customer deposits and loans to customers.

This research has consistent result with Ogboiet al (2013) in the study on the impact of credit risk management and capital adequacy on the financial performance of commercial banks in Nigeria came out that loan and advances had a negative impact on profitability.

CAPITAL ADEQUECY RATIO (CAR)

Capital adequacy ratio is the amount of the bank's own fund available to support the banks in relation to its risk exposure or capital adequacy is the level of capital that banks are required to hold to enable them to withstand credit, market and operational risks they are exposed to, accordingly, based on the findings in the regression table 5, capital adequacy has the negative and statistically insignificant effect on ROE, as a result, the output is inconsistent with the hypothesis developed in this study.

This negative sign of coefficient shows there is an inverse relationship between capital adequacy ratio and ROE. It implies that for one unit change in the banks' capital adequacy ratio, keeping other thing constant has resulted 0.247 unit changes on the levels of ROE in opposite direction.

GROSS DOMESTIC PRODUCT (GDP)

In this study, as per multiple regression result, GDP has a significant and positive relationship with ROE. It has a p-value of 0.0002 and a coefficient of 2.223.The coefficient sign indicate that GDP growth rate has positive relationship with ROE In general, one unit change in the banks' gross domestic product, keeping other thing constant has resulted 2.223 unit changes on the levels of ROE in same direction. This is similar to the researcher expectation.

Some research works support the idea of positive relationship between these variables, others reveal otherwise. A study conducted by Sufianet al (2008) on Philippian banks revealed a positive relationship between banks‟ profitability and GDP. This is in line with the work done by Athanasoglou et al., (2008) which is showed a positive correlation between the variables. On the other hand, a study by Husni (2011) on the banks in Jordan indicated a significant and an inverse relationship between ROA and GDP. Interestingly, the finding of Vong et al (2009) showed an insignificant relationship between the tw

COST PER LOAN ASSET RATIO (CLAR)

Cost per loan asset ratio result in the above regression table 5 shows that there is a positive and statistically insignificant effect on banks profitability. It has a coefficient result of 0.1333 and a p value of 0.2644 that means cost per loan asset is insignificant factor for bank performance even at 10% significance level. The multiple regression result shows that keeping the other things constant, one birr change in CLAR will result a 0.1333 change of profitability of banks in same direction.

EXCHANGE RATE (EXRA)

The null hypothesis states that Exchange rate (EXRA) of banks has positive and significant impact on profitability of private commercial banks of Ethiopia. As per table 5 EXRA has a coefficient of variation of 0.00425 and a probability of 0.0265, this indicates that there is possibility of positive relationship between EXRA and ROE. In addition, it is significant at 10% probability of error. So, exchange rate has statistically positive and significant effect on ROE of private commercial bank of Ethiopia. Therefore, we can conclude that there may be a possibility to accept the null hypothesis.

DEPOSIT GROWTH (DEPG)

The null hypothesis states that Deposit growth of banks has positive and significant impact on profitability of private commercial banks of Ethiopia (DEP).Contrary to the null hypothesis

return on equity and deposit growth has a negative relationship and insignificant impact. The multiple regression result shows that keeping the other things constant, one birr change in DEPG will result a 0.0664 change of profitability of banks in opposite direction.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENADATION

5.1CONCLUSION

The purpose of this research work is to identify the prevailing relationship between Credit risk and Profitability of some selected private banks in Ethiopia. Return on equity (ROE) was used as the dependent variables for this study. The explanatory variables employed in the two models were the measures for credit risk. This included NPL, LTDR, GDP, EXRA, CAR, DEPG and CLAR were used as control variables.

The study result regarding to Nonperforming Loan Ratio (NPL) one of the bank specific factor which is affect the credit risk is NPL that has a significant impact on the profitability of the bank at 5% significant level and has a positive relationship with ROE

Regressions result regarding to Loan to Deposit Ratio, The research showed that LTDR has a significant impact on the profitability of private commercial bank in Ethiopia and LTDR has a negative relation with ROE

Based on the study result concerning, Capital Adequacy Ratio (CAR) has the negatively and statistically insignificant impact on ROE or profitability that determines the risk taking behavior of banks.

Contrary to the hypothesis, this research work shows DEPG has a negative association with ROE.As per the study conducted, DEPG show a negative association with ROE of banks and DEPG has insignificant impact on ROE.

A multiple regression result shows that GDP had statistically significant impact on ROE at 1% significant level and has a positive relation with ROE, which is consistent with researcher expectation.

Cost per loan asset ratio (CLAR), which reveals the intermediation efficiency in terms of cost, appears most important determinant variable on the profit of Ethiopian private commercial banks. The surprising result is that this variable appears positive relationship and insignificant impact to affect bank's profitability.

This research work indicates that EXRA has a positive and significant effect on the profitability of private banks in Ethiopia at 10% significant level, furthermore, the results show that

(1) Profitability of Private Commercial Banks in Ethiopia is significantly affected by the level of GDP,LTDR,NPL and EXRA at 10% significance level and

(2) The Profitability of Private Commercial Banks in Ethiopia have a negative relationship with CAR, DEPG and LTDR. Finally, we find that the departure from a perfect competitive market structure in the Profitability of Private Commercial Banks in Ethiopia is relatively small

Finally, the researcher concludes that there is a significant relationship between Ethiopian commercial banks' performance and credit risk management similar result with that of other authors mentioned on this research literature review part.

5.2. RECOMMENADATION

After close examination and analysis of the research findings, the following recommendations are suggested:

- Ethiopian private banks needs strong credit risk management structure by learning from other developed countries which have better experience in the industry, improving performance requires instituting a strong credit risk Management system that can efficiently identify bankable borrowers to decrease the amount of nonperforming loan
- The bank authority should evaluate carefully LTDR before disbursing large amount of loans to their customer and to maximize profit, banks should improving loan to deposit ratio but up to some stage to maintain liquidity problem
- As we can see from the researcher expectation NPL and ROE has negative relationship and DEPG and ROE has a positive relationship but on the contrary the study finding opposite to the expectation, this result will demand a further study should be done on the impact of credit risk on profitability of Ethiopian private banks by including additional variables as credit risk management which decides how banks can be profitable by minimizing the risk amount they took to do the business.
- Private banks should work hard to mobilize more deposits to alleviate deposit growth fluctuation year after year by providing customer based services i.e out door cash collection services, giving more interest to high depositors etc

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APPENDIXES

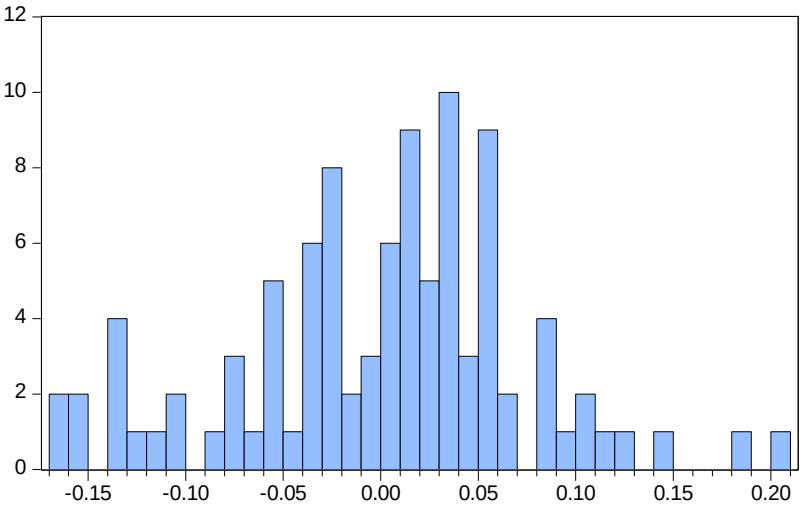
APPENDEX 1: ESTABILISHMENT DATE OF PRIVATE BANKS

No Name of the ban	Year of establishment	Age
Awash Bank	1994 GC	22
Dashen Bank	1995 GC	21
Wegagen Bank	1979 GC	19
Bank of Abyissinia	1996 GC	20
United Bank	1998 GC	18
Nib International Bank	199 GC	17
Cooperative Bank of Oromia	2004 GC	12
Lion International Bank	2006 GC	10
Zemen Bank 2008	2008 GC	8
Oromia International Bank	2008 GC	8
Buna International Bank	2009 GC	7
Brehan International Bank	2009 GC	7
Abay Bank	2010 GC	6
Addis International Bank	2011 GC	5
Debub Global Bank	2012 GC	4
Enat Bank 2012	2012 GC	4

APPENDEX 2: SUMMARY OF DESCRITPTIVE STATISTIC

	ROE	CAR	CLAR	DEPG	EXRA	GDP	LTDR	NPL
Mean	0.207	0.139	0.130	0.320	17.047	0.098	0.563	0.037
Median	0.215	0.132	0.125	0.270	18.187	0.101	0.579	0.022
Maximum	0.424	0.336	0.746	2.075	22.080	0.114	0.891	0.345
Minimum	-0.005	0.086	0.027	-0.033	10.420	0.080	0.217	0.009
Std. Dev.	0.087	0.040	0.069	0.250	3.920	0.010	0.129	0.047
Observations	90	90	90	90	90	90	90	90

APPENDEX 3: NORMALITY TEST FOR RISDUAL



Series: Standardized Residuals
Sample 2009 2017
Observations 90

Mean	6.17e-17
Median	0.010623
Maximum	0.206939
Minimum	-0.167103
Std. Dev.	0.074116
Skewness	-0.154324
Kurtosis	3.250344
Jarque-Bera	0.644906
Probability	0.724370

APPENDEX 4: HETEROSKEDASTICITY

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.475620	Prob. F(7,92)	0.1857
Obs*R-squared	10.09421	Prob. Chi-Square(7)	0.1833
Scaled explained SS	8.823090	Prob. Chi-Square(7)	0.2656

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 12/16/19 Time: 11:55

Sample: 190

Included observations:90

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004532	0.005242	0.864487	0.3896
CAR	-0.056575	0.021815	-2.593385	0.0111
CLAR	-0.007930	0.012207	-0.649651	0.5175
DEPG	0.002258	0.003490	0.646841	0.5193
EXRA	-0.000211	0.000194	-1.087959	0.2795
GDP	0.106294	0.058793	1.807944	0.0739
LTDR	0.004269	0.006510	0.655811	0.5136
NPL	0.001078	0.018805	0.057310	0.9544

R-squared	0.100942	Mean dependent var	0.005694
Adjusted R-squared	0.032536	S.D. dependent var	0.008224
S.E. of regression	0.008089	Akaike info criterion	-6.720070

Sum squared resid	0.006019	Schwarz criterion	-6.511656
Log likelihood	344.0035	Hannan-Quinn criter.	-6.635721
F-statistic	1.475620	Durbin-Watson stat	1.196930
Prob(F-statistic)	0.185698		

APPENDIX 5: *MULTIPLE VARIABLES REGRESSION MODEL*

Dependent Variable: ROE				
Method: Panel Least Squares				
Date: 12/16/19 Time: 11:48				
Sample: 2009 2017				
Periods included: 9				
Cross-sections included: 10				
Total panel (balanced) observations: 90				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.054049	0.050981	1.060180	0.2918
CAR	-0.247032	0.212166	-1.164336	0.2473
CLAR	0.133314	0.118723	1.122901	0.2644
DEPG	-0.066403	0.033944	-1.956236	0.0535***
EXRA	0.004253	0.001887	2.254467	0.0265**
GDP	2.223333	0.571791	3.888366	0.0002*
LTDR	-0.208701	0.063312	-3.296371	0.0014*
NPL	0.470828	0.182891	2.574356	0.01160**
R-squared	0.312368	Mean dependent var		0.207116
Adjusted R-squared	0.260048	S.D. dependent var		0.091452
S.E. of regression	0.078668	Akaike info criterion		-2.170552
Sum squared resid	0.569350	Schwarz criterion		-1.962139
Log likelihood	116.5276	Hannan-Quinn criter.		-2.086204
F-statistic	5.970353	Durbin-Watson stat		0.791723
Prob(F-statistic)	0.000010			

APPENDIX 6: *RANDOM EFFECTS-HAUSMAN TEST*

Correlated Random Effects - Hausman Test

Equation: Untitled

Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	1.533567	5	0.9092

** WARNING: estimated period random effects variance is zero.

Period random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
CAR	-0.375632	-0.375536	0.003058	0.9986
CLAR	0.126316	0.128447	0.000897	0.9433
DEPG	-0.060997	-0.062102	0.000123	0.9207
LTDR	-0.230224	-0.247458	0.000943	0.5747
NPL	0.461059	0.461368	0.001917	0.9944

Period random effects test equation:

Dependent Variable: ROE

Method: Panel Least Squares

Date: 12/16/19 Time: 11:39

Sample: 2009 2017

Periods included: 9

Cross-sections included: 10

Total panel (unbalanced) observations: 90

WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.382492	0.048167	7.940885	0.0000
CAR	-0.375632	0.226019	-1.661951	0.1003
CLAR	0.126316	0.122716	1.029337	0.3063
DEPG	-0.060997	0.035832	-1.702313	0.0924
EXRA	NA	NA	NA	NA
GDP	NA	NA	NA	NA
LTDR	-0.230224	0.072288	-3.184806	0.0020
NPL	0.461059	0.188494	2.446009	0.0166

Effects Specification

Period fixed (dummy variables)

R-squared	0.303201	Mean dependent var	0.211343
Adjusted R-squared	0.185669	S.D. dependent var	0.087369
S.E. of regression	0.078842	Akaike info criterion	-2.102734
Sum squared resid	0.515939	Schwarz criterion	-1.707076
Log likelihood	118.0340	Hannan-Quinn criter.	-1.942699
F-statistic	2.579722	Durbin-Watson stat	0.644283
Prob(F-statistic)	0.003935		

APPENDIX 7: ***AUTOCORRELATION TEST***

Variables	Dw Test Statistics Result
All Specific And Macroeconomic Factors	1.84