ST. MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES

DETERMINANTS OF PROFITABILITY (ROA) THE CASE OF DEVELOPMENT BANK OF ETHIOPIA

A THESIS SUBMITTED TO ST.MARY'S UNIVERSITY, SCHOOL OF GRADUATE STUDIES, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MBA IN ACCOUNTING AND FINANCE

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CERTIFICATE

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Abstract

The objective of this study is to investigate the determinants of Return on Asset (ROA) of Development Bank of Ethiopia which are, nonperforming loans, Bank size, Loan size, Operating expense and inflation

The study focused on the determinants of Return On Assets of Development Bank of Ethiopia, against the background that there was large amount of nonperforming loans beyond the set threshold of NBE, which could affect the overall status of the bank and the country as a whole. Based on the general objective of assessing the profitability of Development Bank of Ethiopia, this study also tries to investigate the reasons for the accumulation of bad loan at DBE. In the empirical analysis, NPLs are negatively associated with Return On Asset of the bank and affect liquidity of the Bank. In contrary operating expense is positively related to Return On Asset (ROA), this is because as the operation or the activity of the bank increases the operating expense also increases.

Using the ordinary least squares estimation technique, this paper analyzes the profitability of the the bank over the period from 1999/2000 – 2017/2018. Our profitability determinants include bank-specific characteristic as well as macroeconomic factors inflation. Consistent with previous studies, we find that the bank-specific determinants, with the exception of size, are significantly affect profitability of the bank. For size measure, the impact is uncertain and is depended on the category of bank size.

Key words: Return On Assets, nonperforming loans, Bank size, Loan size, Operating expense and inflation

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ACRONYMS AND ABBREVIATIONS

AADFI	Association of African Development Finance Institutions
ACBE	Agricultural and Commercial Bank of Ethiopia
ADLI	Agricultural Development Led Industry
AIDB S.C.	Agricultural and Industrial Development Bank of Ethiopia as a share company
AMC	Asset Management Company
AMCON	Asset Management Company of Nigeria
DBE	Development Bank of Ethiopia
EIC	Ethiopian Investment Corporation
EPRDF	Ethiopian People Revolution Democratic Front
EU	European Union
GDP	Gross Domestic Product
IMF	International Monetary Fund
KYC	Know Your Customer
NBE	National Bank of Ethiopia
NPL	Nonperforming Loan
NPLR	Nonperforming Loan Ratio
OPE	Operating Expense
ROA	Return on Assets
ROE	Return on Equity
SBI	State Bank of India
SPM	Strategic Planning and Management
VIF	Variance Inflation Factor
TOL	Tolerance

CHAPTER ONE
INTRODUCTION

1.1 Background of the study

An important measure of bank profitability is return on assets (ROA). For banks with similar business risk profiles, pretax ROA is a useful statistic for comparing the profitability of banks because it avoids distortions that are introduced by differences in financial leverage and complications in the tax laws. We control for the differences in economic conditions among bank markets by focusing our analysis on community banks (CBs) that primarily operate in a single county. Even among this select group of CBs, ROA displays wide variation both across banks within a quarter and among banks over time. Figure 1 plots average and median ROAs, and the difference between the 90th percentile and the 10th percentile of the ROA distribution for Development Bank of Ethiopia.

Banks constitute one of the most important groups of financial intermediaries. As financial intermediaries, banks play a crucial role in the functioning of most economies; they channel funds from savers to spenders. Studies have attempted to identify the major determinants of bank profitability. Profitability is important in understanding the causes of threatening situations such as the Plaza Accord of 1987 regarding bank capital standards, the recession of the 1990s, and the financial recession of 2008. Bank managers need to understand which determinants are under their control and which determinants are exogenous and they need to adapt to.

The efficiency of financial intermediation can also affect economic growth. Economies that have a profitable banking sector are better able to withstand negative shocks and contribute to the stability of the financial system. Therefore, it is important to understand the determinants of banking sector profitability.

The main focus of this study is to identify different bank-specific, industry-specific, and macroeconomic determinants to see what effects they have on the profitability of global banks. To be more specific, the variables used to measure Return on Assets (ROA). ROA will hold still as the dependent variables that are used in evaluating bank profitability. The determinant variables include nonperforming loan Bank size, Operating Expense(OPE), Loan size and inflation expectations, and cyclical output. These data are collected for the nineteen years of Development Bank of Ethiopia. (1999/2000 to 2017/2018). Antonio I. (2015)

Due to privatization of public sector banks and study for both developed and developing Merger/consolidation, the ownership structure has countries. The larger banks are efficient in managing changed along with structure. These changes are their costs in order to increase their profitability. receiving great attention on the national and international Such a negative relation between expenses and level. The mobility of capital enforced the economic profitability has been supported by Bourke structure to strengthen the internal system to face the and Jiang *et al*.

The dependent variable is ROA capital flow volatility. A sound financial system plays which is derived by dividing net income on its total key part in improving infrastructure and economic assets. The ROA reflects how efficient a bank's stability.

The determinants of profitability in banking management is in using the bank's real investment system have been observed and explored but consensus resources to produce profits has not been found. A few studies are conducted in order banks with healthy capitalization have very little to determine the factors influencing the banks bankruptcy costs and have relatively high interest margin profitability. Some researcher considered only banking.

Similarly, Naceur also conducted a study in order characteristics, whereas other included to find out the relationship between interest margin and macroeconomic factors in order to find out the profitability. This positive relationship between determinants of banks profitability. Profitability and expenses has been observed in Tunisia. A very few studies have been conducted by Naceur and in Malaysia by Guru *et al*. to resolve the issues of determinants bank's profitability. They concluded that the interest margin and profitability in Pakistan.

This study in conducted to examine the main highly associated with nonperforming ratio and large determinants of banks profitability in DBE which may overheads. There is a negative relationship between high contribute nonperforming loan ratio on banks' profitability as is seen by the regression output. Faisal K., Melati A., Lim . and Hashim K. (2011)

Many studies on bank performance and profitability, such as Bourke (1989), Molyneux & Thornton (1992) and Goddard (2004), use linear models to estimate the important determinants that may explain bank profits. Although these studies show that a meaningful analysis on bank

profitability can be conducted, some inefficiency is brought up. Many of the literatures principally consider the performance determinants at the bank level, which lacking investigation of the effect of the macroeconomic environment.

During the last decade the banking sector has knowledgeable of worldwide major transformation regarding its operating environment. Both internal and external factors have affected its structure and performance. A stable and profitable banking operation has the ability to withstand negative shocks from the economic conditions and the contribution to the stability of the financial system. Therefore, the determinants of bank profitability have brought the interest of investigation by the academic research as well as of bank management team and financial markets.

Many studies on bank performance and profitability, such as Bourke (1989), Molyneux & Thornton (1992) and Goddard (2004), use linear models to estimate the important determinants that may explain bank profits. Although these studies show that a meaningful analysis on bank profitability can be conducted, some inefficiency is brought up. Many of the literatures principally consider the performance determinants at the bank level, which lacking investigation of the effect of the macroeconomic environment.

The empirical results suggest that the bank-specific determinants, excluding size, significantly positively correlated with bank profitability. The impact of size to bank profit is uncertain and depends on the size category among banks which is distinguished by banks' assets. Christine Z. & and Liyun. D (2011)

Bank efficiency is one of bank performance indicators. Bank efficiency is an indicator in measuring the overall performance of bank activities. Efficiency is often defined as an organization's ability to produce maximum output using a certain input level, or use the minimum input to the level of output. Efficient and effective utilization of resources are key to the success of a bank. Some developments and recent events in the banking industry have greater emphasis on banking efficiency. Various changes in the banking sector in Indonesia such as bank restructuring, privatization and bank prudential regulation have done to improve the banking sector. These changes are expected to encourage the creation of efficiency in the banking sector. The creation of banking efficiency is expected to encourage the banking system to be resilient against shocks and competition and ultimately to encourage the stability of the financial system.

A well-developed financial system supports economic growth. The function of financial system is to support the flow of funds from savers to borrowers (Goldsmith, 1969). An efficient financial system always shows improvements in profitability, increasing level of funds flowing from savers to borrowers and better services for consumers. Lending and borrowing is a main business of banks. Banks work on the principal of accepting deposits of money from the depositors for the purpose of lending or investment. Receiving deposits involves no risk instead of lending always involves much risk because there is no certainty of repayment. These are always critical to the whole financial system (Podder&Al Mamun, 2004; Franklin & Elena, 2008). Banking industry is sensitive towards credit risk or non-performing assets in all over world. It has been reported that non-performing asset is widely used as a measure of asset quality in banks and regarded as the primary cause of bank failure (Guy& Lowe, 2011; Samad, 2012). Because of high NPL, the financial instability of banks arises, which reduces economic growth and revenue of bank (Saba,Kouser&Azeem, 2012; Baselga-Pascual&Orden-Olasagasti, 2015).Many researches on the cause of bank failures find that asset quality is a statistically significant predictor of bankruptcy (Barr*et al*., 1994;Bhattarai, 2016). Non-performing assets are those assets which are 90 days or above or no longer accruing interest (Alton & Hazen, 2001; Fofack, 2005; Boudriga&Jellouli, 2008; Joseph, *et al*., 2012; Dimitrios, Helen& Mike, 2016).Lending interest income is the main earning of bank operation (Agu and Okoli, 2013).Banks all activities depend on money that causes an array of risks such as credit risk, operational risk, exchange rate risk counter market risk and market risk (Ali, Akhtar&Sadaqat, 2011; Washington, 2014), which affect the survival and success of banks (Ali, Akhtar&Sadaqat, 2011).NPLcauses the operational risk and also an indicator of operational performance (Muneer*et al*., 2013). NPAs and profitability are two parameters perform by banks to measure the efficiency of credit risk (Fainstein&Novikov, 2011). Similarly, it has been reported that credit risk is commonly measured by using gross non-performing loan to the total loan amount (Delis, *et al*., 2011; Tehulu&Olana, 2014). NPA is a disease for any bank which directly affects two main components of the banks responsible for overall efficiency of any bank i.e. the liquidity and profitability. Continuously decline in profitability due to increase in NPLs would ultimately expose the viability of the bank (Swamy, 2015). Now day's banks are very alert in extending loans because of mounting non-performing loans. High level of NPL indicates poor asset quality. Sahib M., Muhammad I., Muhammad S. and Sahar S (2017)

1.2 Statement of the Problem

The Development Bank of Ethiopia is one of government Bank, which is highly exposed to a risky business area. This is due to government policy in the hope of promoting projects which bring impact on national development agenda. However, the existing situations regarding the NPLs ratio is far beyond the acceptable standards set by (Association of African Development Finance Institution) AADFI, which the NPLs ratio is 39% DBE Quarter report (June 2018).

The challenge confronting the bank is the growing in size and ratio of NPLs, which is a double sword as it is a reason for provision and other administrative charges and on the other hand drastically reduces the banks income and profitability due to suspension of interest on NPLs. This undesirable fact tarnishes the image of the bank and negatively contributes to play its part in the countries development endeavourers. Besides, the bank's capital, affects its liquidity position, and reduces its competitive stance locally or in the global market and hence not compatible with a development bank that is expected to play an active and indispensable role by maintaining its sustainability

The problem of loan default reduces the lending capacity of a financial institution. It also denies new applicants¢ access to credit as the bank's cash flow management problems augment in direct proportion to the increasing default problem. In other words, it may disturb the normal inflow and outflow of fund a financial institution has to keep tostay in sustainable credit market. (Abreham, 2002)

Banks are susceptible to many risks including credit risk that usually brings about nonperforming loans. Credit crystallizes (fall apart) when loans and other advances become nonperforming and almost irrecoverable.

However, provision of credit alone does not support the economic development of the country unless it is accompanied by the existence of factors necessary for efficient utilization of the fund in order to repay the loan in accordance with the agreement. Based on strategic objective of the government, term loan projects financed by the bank has long loan repayment period which extends up to twenty years including maximum five years of grace period. Moreover, low interest rate than commercial banks, which is 8.5% for priority area projects and 9.5% is for non-

priority area projects, and suitable rehabilitation mechanism makes the bank different from other lending institutions. (Arega, et. al, 2016)

The issue of the allocation of credit has a profound implication both at the micro and macro level. When credit is allocated poorly, poor investment projects are undertaken and the nation's resources are misspent, it raises costs to successful borrowers, erodes the fund that would be available for future investment, reduces banks flexibility in redirecting towards alternative activities. No other concern in financial markets has such a profound effect on the performance of lenders. The problem of loan default reduces the lending capacity of a financial institution. It also denies new applicants¢ access to credit as the bank's cash flow management problems augment in direct proportion to the increasing default problem. In other words, it may disturb the normal inflow and outflow of fund a financial institution has to keep staying in sustainable credit market

The issues of nonperforming loans portfolio and negative bank profit can be traced to insider abuse, compromise of sound credit risk procedures, overtrading, incompetence, complacency, inadequate supervision, among other shortcomings of corporate governance. Performance of lenders. The problem of loan default reduces the lending capacity of a financial institution. It also denies new applicants¢ access to credit as the bank's cash flow management problems augment in direct proportion to the increasing default problem. In other words, it may disturb the normal inflow and outflow of fund a financial institution has to keep to stay in sustainable credit market. (Abreham, 2002)

During the financial crises of the late 1980s, 1990s and beyond, many banks collapsed mainly due to huge nonperforming, loans indicating that nonperforming loans portfolio is rather a sign of pending bank failure than a pointer to bank profitability. (John, 2016).

Therefore, the National Bank of Ethiopia NBE has issued a directive with regard to the objective of the bank and risk related to be treated exceptionally other than commercial banks. The purpose of these Directives is to provide guidelines to Development Bank to assure that assets are classified according to their age as follows:

The loan repayment performance of its clients should be effective so that the bank will be sustainable as a bank and will have a bankable asset quality. One of the measurements by which

bank's asset quality can be measured is the nonperforming loan ratio (NPLs ratio). Hence, in order to get soft loan from its lenders, DBE's asset quality has to be regularly monitored and assessed whether it is within the acceptable standard or not that is 15% of the total outstanding loan which is set by Association of African Development Finance Institutions (AADFI).

There are many factors that affect nonperforming loan of banks; some of them are mentioned as follows. Laila , Shilpam .and Suresh (2017) the determinants of NPLs are broadly categorized in three categories by researcher's viz., macroeconomic factors, bank specific factors, and borrowers specific factors. Some of the factors are controllable while some are uncontrollable factors. Bank specific factors and customer specific factors are controllable by banks to some extent while macroeconomic factors are uncontrollable. In order to come up with the solution the researcher conducted nineteen years' data was used to test the hypothesis under sub title 1.7.

Previous studies show what factors determine nonperforming loans. Arega S. Hanna ., Tadele T. (2016) have shown three factors regarding DBE central region: Credit has long been recognized as one of the important tool that supports the success of development project which contributes towards economic development.

Similarly, DBE provides sustainable credit facility for those engaged in agriculture, industrial and other service sectors which can result in development of the country. So, in order to maintain this objective, the bank needs to strengthen its liquidity position by enhancing its loan recovery. However, provision of credit alone does not support the economic development of the country unless it is accompanied by the existence of factors necessary for efficient utilization of the fund in order to repay the loan in accordance with the agreement. Based on strategic objective of the government, a term loan project financed by the bank has long economic environment as well as the business climate. Apart from the economic growth and environmental changes registered by the country within the last few years, the Bank has also undergone changes in its lending procedures, lending limit, credit policies and organizational structure. Therefore, the current study tried to narrow the research gaps through focusing on factors affecting Non-performing loans financed by the DBE and attempts to provide answers for the following basic research questions:

The researchers conclude that; Empirical evidence shows that NPL is found to be one of the major critical factors that adversely affect the overall profitability of the financial institutions. It results in poor asset quality, undermines the net income, and endangers sustainability. Also the

researcher of this paper tried to know the determinants of profitability of DBE based on internal factors and macroeconomic factor inflation. Arega, A., Hanna, N., Tadele T. (2016).

1.3 Objective of the study

The objective of this study is to find out factors that affect of profitability of Development Bank of Ethiopia (DBE).

1.3.1 Specific objective

- To determine nonperforming loans on profitability (Return on Asset) the bank.
- To determine the effect of bank size on profitability (Return on Asset) of Development Bank of Ethiopia bank(DBE).
- To examine the effect of operating expense on profitability (Return on Asset) of Development Bank of Ethiopia bank (DBE)
- To identify the relationship of inflation towards Return On Asset Development Bank of Ethiopia (DBE).
- To assess the effect of Loan size on profitability of DBE

1.4 Significance of the Study

Prudent risk management, with a special emphasis to credit risk is pivotal. To put in place adequate credit management tools, understanding factors that contribute to the occurrence of bad loan play a crucial role.

This study thus will help Development Bank of Ethiopian get insight on what it takes to improve profitability of the bank and to examine how to improve the profitability of the bank. In addition, the study will also contribute to the existing body of knowledge regarding the effect of nonperforming loans in improving bad asset and make the return on asset of Development Bank of Ethiopia. Limitation

1.5 Limitation and Scope of the Study

This study is limited to bank internal specific factors such as nonperforming loans, bank size, operation expense and macroeconomics factors i.e. inflation rate that would affect profitability of the bank, and examined based on quantitative data. Thus the study does not explore other bank specific variables that using mixed data approach. The study does not use qualitative methods of

data collection. However, this study has its own limitations. It is obvious that doing research needs enough budgets and sufficient time but the limited budget and time puts its pressure and unable to design a mixed method that can need data collection in extended areas. This research will do using a quantitative data only; it excluded analyzing the effect of factors that affect credit risk is one of the limitations of the study.

1.6 Hypothesis of the study

After reviewing pertinent related literature review the researcher tries to answer the following questions in relation to literatures.

Ho: Nonperforming loans portfolio has no negative effect on bank profitability

H_1: Nonperforming loans portfolio has negative effect on bank profitability

Previous researchers Gizaw, K. and Selvaraj (2015) assert that non-performing loan ratio (NPLR) is the major indicator of commercial banks' credit risk. They find that NPLR has statistically significant large negative effect on profitability. Also Yuga R. (2015) pointed out that in view of the theory and majority of the empirical literature, negative relationship is expected between non-performing loan ratio and bank's profitability ($\beta_1 < 0$).

Ho: Total loans portfolio has positive effect on bank profitability

H_1: Total loans portfolio has negative effect on bank profitability

The loan portfolio major indicator for banks income earning which is statistically significant and has positive effect on ROA of DBE ($\beta_1 > 0$) Ho: Total loans portfolio has positive effect on bank profitability

$H_{0:}$ Bank size has no significant and positive effect on bank profitability

H_1: Bank size has significant and positive effect on bank profitability

As many researches Staikouras and Wood (2004) and Kosmidou *et al.* (2005) suggest that large banks are likely to enjoy higher economics of scale and hence be able to produce services at a lower cost and more cheaply and efficiently than can small banks which would have a positive influence on profitability. In view of majority of the empirical literature, a positive relationship is expected between bank size and bank's profitability ($\beta_3 > 0$). Yuga R. (2015)

$H_{0:}$ Cost per assets has no significant and negative effect on bank profitability

H_1 Cost per assets has significant and negative effect on bank profitability

Banks that are efficient in managing their expenses (costs), holding other factors constant, earn high profits. In view of theoretical perspective and empirical evidences, a negative relationship is expected between cost per asset and bank's profitability ($\beta_4<0$).

H_0: Inflation rate has no significant and positive effect on bank profitability.

H_0: Inflation rate has significant and positive effect on bank profitability.

In line with the majority of the past empirical studies, a positive relationship is expected between inflation rate and bank's profitability ($\beta_5> 0$). Yuga R. (2016)

- H_5: Inflation rate has a significant and positive effect on bank profitability. Yuga R. (2015)

1.7 Organization of the Study

This research paper has five chapters, the first chapter consists of introduction; which includes background of the study, statement of the problem, objective of the study, hypotheses of the study, significance of the study, scope and limitation of the study and organization of the study. The second chapter consists of review of credit policy of DBE and loan performance. The second chapter consists of reviews of existing literature on nonperforming loans. The fourth chapter provided the research methodology-the research design, the research model, and sample size and data analysis methods. In the fifth chapter data analysis and result discussion will be carried on. The sixth chapter includes Conclusion and recommendations are presented.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

Loan means any financial assets of a development finance institution arising from a direct or indirect advance of funds (i.e. unplanned over drawings, participation in loan syndication, the purchase of loans from another lender, etc.) or commitment to advance funds by a development finance institution to a person that are conditioned on the obligation of the person to repay the funds, either on a specified date or dates or on demand, usually with interest. The term includes a contractual obligation of a development finance institution to advance funds to or on behalf of a person, claim evidenced by a lease financing transaction in which the development finance institution is the lesser, and line of credit to be funded by the development finance institutions on behalf of a person.(NBE Directives No.SBB/ 48/2010).

In line with this Nonperforming loans means whose credit quality has deteriorated such that full collection of principal &/OR interest in accordance with the contractual repayment terms of the loan or advance is in question. (NBE Directives No.SBB/ 48/2010).

2.2 Theoretical Literature Review

A SiriLankan researcher indicated in his research that the causes of nonperforming loans are of two kinds. In recent years, the literature on non-performing loans have occupied the interest of several authors particularly the attention in understanding of the variables liable to the higher NPL. The literature identifies two sets of factors to explain the evolution of NPLs over time. One group focuses on external events such as the overall macroeconomic conditions, which are likely to affect the borrowers' capacity to repay their loans, while the second group, which looks more at the variability of NPLs across banks, attributes the level of non-performing loans to bank-level factors. Theoretical background of the study lies in Diamond (1984) delegated monitoring theory of financial intermediation. Under this theory, depositors delegate monitoring of their funds to banks. Risk increase when banks make adverse loan selection. Therefore, inefficient monitoring by banking institutions may explain reasons for high loan defaults. (Ekanayake, 2015)

Similarly, a Jordanian researcher and many other researchers agree with the previous idea for origination of nonperforming loans. Previous studies have identified two sets of factors that affect NPLs over time. The first group is the internal factors that are considered bank specific variables. The second group includes the external factors such as the macroeconomic conditions which affect the borrowers' capacity to repay. Empirical evidence, however, finds support for both sets of factors. The following section will discuss briefly those internal and external factors that affect NPLs. (Khaled, 2016)

The evidence that shows from south Eastern Europe reviled by three researchers support the study made between the years 1984 - 1990 the relation of rapid loan growth and loan quality. Hence on the sample of Texas banks for 1984 through 1990. The study finds that relationship between loan growth and loan quality depends on bank capital level. Namely, rapid loan growth reduces loan quality with highest effect on banks with low capital adequacy ratio. The evidence of the relationship between loan growth and loan losses of US banks in the period from 1982 to 1996 is also provided by Keeton's (1999) later study. (Marijana, et, al. 2013)

During the financial crises of the late 1980s, 1990s and beyond, many banks collapsed mainly due to huge nonperforming, loans indicating that nonperforming loans portfolio is rather a sign of pending bank failure than a pointer to bank profitability.

For example, in 1993 insolvent banks accounted for about 20 percent of banking system assets and about 22 percent of deposits. In 1995 almost half of the banks reported being in financial distress, during which about 25 banks were liquidated as a result of nonperforming loans portfolio. *(*John, 2015)

Moving into 2000s technically distressed banks in Nigeria had accumulated nonperforming loans in excess of the shareholders' funds that led to the injection of about N 700bn by the Central Bank of Nigeria and the formation of the Asset Management Company of Nigeria (AMCON) to participate in a bazaar of nonperforming loans (NPLs) as strategies to reviving the sick banks. *(*John, 2015)

Credit has long been recognized as one of the important tool that supports the success of development project which contributes towards economic development. Similarly, DBE provides sustainable credit facility for those engaged in agriculture, industrial and other service sectors

which can result in development of the country. So, in order to maintain this objective, the bank needs to strengthen its liquidity position by enhancing its loan recovery. However, provision of credit alone does not support the economic development of the country unless it is accompanied by the existence of factors necessary for efficient utilization of the fund in order to repay the loan in accordance with the agreement. Based on strategic objective of the government, term loan repayment period which extends up to twenty years including maximum five years of grace period. Moreover, low interest rate than commercial banks, which is 9.5 for priority area projects and 12.5% is for non-priority area projects, and suitable rehabilitation mechanism makes the bank different from other lending institutions DBE Loan Manual, (2014).

However, the existing situations regarding the NPLs ratio is far beyond the acceptable standards set by AADFI, which the NPLs ratio is 25%. in line with this the lion share of the NPLs which is about47% the NPLs goes to the textile industry out of the total NPLs. (DBE 4th Quarter annual report, 2017).

The increasing level of Non-performing loans may lead to very serious implications. For instance, it discourages the financial institution to refinance the defaulting client, which put the defaulters once again into vicious circle of low productivity. Therefore, a rough investigation of the various aspects of loan defaults, source of credit, purpose of the loan, form of the loan, and condition of loan provision are of utmost importance both for policy makers and the lending institutions. Even if default is random and influenced by unpredictable behaviors or it is influenced by certain factors in a specific situation needs an empirical investigation so that the findings can be used by any financial institutions to manipulate their credit program for the better. Most of the default arose from poor management procedures, loan diversion and unwillingness to repay loans, etc. Because of this, the lenders must give various institutional methods that aimed to reduce the risk of loan default Ahmmedet al., (2012).

Worldwide, the most common and successful approach towards NPL management is the establishment of Asset management Companies (AMC). These companies use public or bank funds to remove NPAs from the banks. For example, the Korean Asset Management Corporation purchased as much as 80% of bad loans at market rate following the Asian crisis. Now, there are several measures that are being implemented.

Large stocks of NPLs on the balance sheet of banks are not only a micro-prudential supervisory problem, but an issue with broader macro-prudential and financial stability implications. A high stock of NPLs throughout the system negatively affects the resilience of the banking sector to shocks and hence increases systemic risk. Higher NPLs are usually associated with higher funding costs and a lower supply of bank credit to the real economy. At the bank level, a high NPL ratio could cast doubt over the viability of a bank's business model and its resilience to future downturns, thus being associated with an increased uncertainty about future profitability and asset values. In the real economy, the elevated level of NPLs indicates that a significant part of the corporate and household sector may be excessively leveraged and that debt overhang may weigh on economic growth. Resolving non-performing loans in Europe July (2017).

2.3 Review of Credit Policy in the Case Of DBE`S Loan Performance

Credit Management Policy

In the past decades there have been major advances in theoretical understanding of the workings of credit markets. These advances have evolved from a paradigm that emphasis the problems of imperfect information and imperfect enforcement (Hoff and Stiglitz, 1990). They pointed out that borrowers and lenders may have differential access to information concerning a projects risk, they may form different appraisal of the risk. What is clearly observed in credit market is asymmetric information where the borrower knows the expected return and risk of his project, where as the lender knows only the expected return and risk of the average project in the economy. Lending institutions are faced with four major problems in the course of undertaking credit activity:

- to ascertain what kind of risk the potential borrower is (adverse selection),
- to make sure the borrower will utilize the loan properly once made, so that he will be able to repay it (moral hazard).
- to learn how the project really did in case the borrower declares his inability to repay and.
- to find methods to force the borrower to repay the loan if the borrower is reluctant to do so (enforcement) (Ghatak and Guinnane, 1999).

These problems of imperfect information and enforcement leads to inefficiency of credit market which in turn leads to default. Thorough credit assessment that takes into account the borrowers`

character, collateral, capacity, capital and condition (what is normally referred to in the banking circles as the 5C`s) should be conducted if they are to minimize credit risk. Charles Mensah (1999) stressed the importance of credit management as follows:

Credit management process deserves special emphasis because proper credit management greatly influences the success or failure of financial institutions. An understanding of a bank's credit risk management process provides a leading indicator of the quality of a bank's loan portfolio. The key elements of effective credit management therefore are well developed credit policies and procedures; strong portfolio management; effective credit controls and the most crucial of all a well trained staff that is qualified to implement the system. Financial institutions must maintain basic credit standards if they are to function well and make credit available to investors. These standards include a thorough knowledge of the borrowers' business by the officer in charge; reasonable debt equity ratio; marketability and viability of the investment project and other technical capabilities. Credit analysis is in general vital for the officer to judge about the credit worthiness of the borrower as well as the project to which the loan is injected. (Abreham, 2002).

2.3.1 Credit Information

Credit information is one of the tools to assess a borrower's current status and the credit worthiness; and the previous history. This is one of the tool to perform the KYC regarding the borrower revel the necessity of credit information. Engagement in financing begins with customer recruitment. An issue of knowing the customer, customarily known as KYC (Know Your Customer) is so vital before proceeding to details. Banks use various means to obtain such information about the existing or potential customer. Use of financial statement, credit report from credit bureau, customers' history if not new is the potential sources of information Ross et al., (1998).

According to The Federal Reserve (2004) a credit report is the organized presentation of information about an individual's and/or company's credit record that a credit bureau communicates to those who request information about the credit history of an individual's and/or company's experiences with credit, leases, non-credit-related bills, collection agency actions, monetary-related public records, and inquiries about the individual's credit history.

Further according to Ferreti (2007), credit information is usually integrated with data from other sources such as court judgments, electoral rolls and other private information provided by other organizations, which compile additional information referring to a consumer. This naturally is ideal source of input for credit analysis.

The purpose of information sharing is to communicate relationship information from existing lending relationships to outside lenders (Gehrig and Stenbacka, 2007). Credit providers use credit information to conduct credit risk analysis of prospective borrowers in order to mitigate credit risk. Kallberg and Udell (2003) highlight that information sharing is useful both at the origination stage and after credit has been extended. Especially at the origination phase, information sharing reduces the problems of adverse selection.

In addition, Barth, Lin, Lin & Song (2008) show that information exchange will assist in minimizing lending corruption in banks by reducing information asymmetry between consumers and lenders, improving the bribery control methods and reducing information alert, and hence the bargaining power of lenders. The exchange of consumer credit information disciplines borrowers to repay loans because borrowers do not want to damage the good report which can make it difficult for them to get credit (Swiss National Bank,2008).

Once credit information on the loan request is obtained bank officers precede with credit assessment. The next section would thus discuss process involved in credit analysis or assessment. Wondimu, (2012).

2.3.2 Credit Assessment

Credit analysis is the first step in the process to tailor-make a solution to fit the customer's needs. The assessment starts with an understanding of the customer's needs and capacities to ensure there is a good fit in terms of the financing solution. Credit assessment is the most important safeguard to ensure the underlying quality of the credit being granted and is considered an essential element of credit risk management (Cade, 1999).

The credit quality of an exposure generally refers to the borrower's ability and willingness to meet the commitments of the facility granted. It also includes default probability and anticipated recovery rate (Saunders & Cornett, 2003). Credit assessment thus involve assessing the risks involved in financing and thereby anticipating the probability of default and recovery rate. A

credit analysis is used by the credit official to evaluate a borrower's character, capital, capacity, collateral and the cyclical aspect of the economy, or generally referred to as the five C's (Strischek, 2000). Detailed discussion of this model, also referred as the five C's is done the next section.Wondimu, (2012)

2.3.3 Credit Approval

Extending credit is the careful balance of limiting risk and maximizing profitability while maintaining a competitive edge in a complex, global marketplace. Banks go through a thorough process in approving credit to hit the balance. Credit approval is the process of deciding whether or not to extend credit to a particular customer. It involves two steps: gathering relevant information and determining credit worthiness Ross, Westerfield and Jordan, (1999).

The quality of credit approval processes depends on two factors, i.e. a transparent andcomprehensive presentation of the risks when granting the loan on the one hand, and an adequate assessment of these risks on the other. Furthermore, the level of efficiency of the credit approval processes is an important rating element. Due to the considerable differences in the nature of various borrowers and the assets to be financed as well the large number of products and their complexity, there cannot be a uniform process to assess credit risks.

The quality of the credit approval process from a risk perspective is determined by the best possible identification and evaluation of the credit risk resulting from a possible exposure Fentaw, (2016).

2.3.4 Loan Follow-Up

After carefully analyzed loans are disbursed according to terms and conditions stated during the approval process. The loan disbursed to the borrower needs strict attention and follow-up not to be diverted to other unintended purpose. The presence of adequate follow-up will make the project success full and operational. A reluctant follow-up also will lead the projects to fail and unable to meet the intended objective; due to this and other factors the borrower is unable to meet the contractual obligation. As a result, the due date of settlement may elapse and consequently nonperforming loans are created. (DBE credit policy 2015)

Lending decision is made on sound credit risk analysis /appraisal and assessment of credit worthiness of borrowers. But past records of satisfactory performance and integrity areno guarantee future, though they serve as useful guide to project trend in performance. Aloan granted on the basis of sound analysis might go bad because of the borrower may not meet obligations per the terms and conditions of the loan contract. It is for this reason that proper follow up and monitoring is essential. Monitoring or follow-up deals with the following vital aspects: Wondimu, (2012)

- Ensuring compliance with terms and conditions
- Monitoring end use of approved funds
- Monitoring performance to check continued viability of operations
- Detecting deviations from terms of decision
- Making periodic assessment of the health of the loans and advances by nothing some Of the key indicators of performance that might include: profitability, activity level and management of the unit and ensure that the assets created are effectively utilized for productive purposes and are well maintained.
- Ensuring recovery of the installments of the principal and interest in case of term loan as per the scheduled repayment program
- Identify early warning signals, if any, and initiate remedial measures thereby averting from possible default. Wondimu, (2012)

The loan documentation plays a major role for safeguarding the bank interest. Bank should be certain policy in regards to loan documentation and some of the bank are gradually focusing on centralization credit administration function to minimize the risks of internal fraud as well as efficiently handling of documentation formalities like mortgage formalities, loan agreement etc. The compliance of terms and condition of sanction advice is the responsibility of business team and credit admin team jointly, the credit administration team shall ensure all the compliances are addressed properly and then they should input the limit into the system upon full satisfaction or ensuring full compliance of sanction terms. The disbursement of term loan in particular the phase's one shall be allowed phase by phase to ensure the end use of fund which is brighter the prospects of loan collection/refund.

2.3.5 Credit Risk Management

Loan is a major asset, income source for banks, and risky area of the industry. Moreover, its contribution to the growth of any country is very clear. Bank credit is the primary source of debt financing available for most customers in the personal, business or corporate market. The underlying need for credit varies across these markets. Banks generally also want to increase the base of their income and use credit extension as an opportunity to cross sell other fee generating services when a customer applies for credit facilities Koch & MacDonald, (2003).

Any successful business must meet its customer needs and make a profit. Likewise, successful financial institutions must meet the desperate needs of depositors and borrowers. Depositors look for high rates, short terms and no risk, while borrowers seek low rates and long terms. Financial institutions are therefore, in the risk intermediation business. To be successful, financial institutions, banks in particular, must properly underwrite risk, manage and monitor the risk assumed Barrickman, (1990).

Credit risk can be defined as the potential for a borrower or counter party to fail to meet their obligations in accordance with the terms of an obligation's loan agreement, contract or indenture Sobehart, Keenan & Steyn, (2003).

Credit risk is considered the oldest form of risk in the financial markets. Caouette, Altman & Narayanan (1998: 1) state that "credit risk is as old as lending itself", dating back as far as 1800 B.C. The first banks, which started in Florence seven hundred years ago, faced very similar challenges that banks face today. Although managing credit risk is their core competency, many banks failed due to over-extension of credit Caouette et al, (1998).

The following measures can be taken to reduce the effects of other causes.

- Bank should have their own robust risk management framework, the framework must include the process of risk identification, measurement, mitigation, reporting & monitoring and governance. The reasons of non-performing loans are typically accredited to the lack of policy guideline as well as noncompliance of prevailing policy for sanctioning of credit facility.
- The origination of credit in particular the selection of borrower and utilization of fund/loan is most important for maintaining credit discipline. The bank which follows

strong credit culture backed by policy, procedure and risk classification model the possibility of asset quality deterioration is at minimum.

- The compliance of internal and external polices for sanctioning of credit facility shall be ensured by the business team primarily and credit risk management division secondly and audit & inspection division should conduct the audit rigorously on regular interval.

The risk classification/grading system shall be exercised based on sector specific policy, which will guide the bank how much risk banks are taking on their shoulder. Banks are taking risks in each and every credit facility commensurate with the nature of business, however, it shall be within the tolerable limit of risk appetite as set by the board of directors of the bank (Jamal,2017).

2.4 Definition non-performing loan

A non-performing loan, or NPL, is a loan that is in default or close to being in default. Many loans become non-performing after being in default for 90 days, but this can depend on the contract terms. According to International Monetary Fund IMF, "A loan is nonperforming when payments of interest and principal are past due by 90 days or more, or at least 90 days of interest payments have been capitalized, refinanced or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons to doubt that payments will be made in full" By bank regulatory definition, non-performing loans consist of:

- Loans that are 90 days or more past due and still accruing interest, and
- Loans which have been placed on nonaccrual (i.e., loans for which interest is no longer accrued and posted to the income statement). Wikipedia.

According to the International Monetary Fund (IMF, 2009), a non- performing loan is any loan in which interest and principal payments are more than ninety days overdue; or more than ninety days worth of interest has been refinanced. On the other hand, the Basel Committee1 (2001) puts non performing (NPLs) loans as loans left unpaid for a period of ninety days.

Under Directives No. SBB/ 52/2012 “Asset Classification and Provisioning for Development Finance Institutions Directives No. SBB/ 52/2012”.

According to this directive non-performing loans "means loans whose credit quality has deteriorated such that full collection of principal and /or with the contractual repayment term of the loan or advance is in question "For purpose of these directives,

- Short term loans are nonperforming when principal and/or interest due for ninety consecutive days or more beyond the scheduled payment date or maturity;
- Medium and long term loans are nonperforming when principal and/ or interest is due and uncollected for twelve consecutive months or more beyond the scheduled payment and or maturity;
- As to the directive articles the entire balance of loans outstanding exhibiting the characteristics described under article 4.10.1 and 4.10.2 hereof shall be considered as nonperforming. (NBE, SBB/ 52/2012).

The sustainability of the bank depends not only on domestic and foreign source of fund but also on its loan recovery rate too. The loan repayment performance of its clients should be effective so that the bank will be sustainable as a bank and will have a bankable asset quality. One of the measurements by which bank's asset quality can be measured is the nonperforming loan ratio (NPLs ratio). Hence, in order to get soft loan from its lenders, development financing institution's asset quality has to be regularly monitored and assessed whether it is within the acceptable standard or not that is 15% of the total outstanding loan which is set by Association of African Development Finance Institutions (AADFI).

2.4.1 Classification of Loans

For the purpose of these Directives, development finance institutions shall classify all their loans, into the following five classification categories using the criteria described below: (NBE, SBB/ 52/2012).

A. Pass

Loans in this category are fully protected by the current financial and paying capacity of the borrower and are not subject to any criticism. Notwithstanding the generality of this statement. The following loans shall be classified pass: (NBE, SBB/ 52/2012).

a. short term loans past due for less than 30 (thirty) days,
b. medium and long term loans past due for less than 180 (one hundred eighty) days; and

c. any loan, or portion thereof, which is fully secured, both as to principal and interest, by cash or cash-substitutes, regardless of past due status or other adverse credit factor. (NBE, SBB/ 52/2012).

B. Special Mention

The following loans at a minimum shall be classified special mention: a) short term loans past due for 30 (thirty) days or more, but less than 90 (ninety) days; b) medium and long term loans past due 6 (six) months or more, but less than 12 (twelve) months; (NBE, SBB/ 52/2012).

C. Substandard

The following non-performing loans at a minimum shall be classified substandard:

a. Short term loans past due 90 (ninety) days or more, but less than 180 (one-hundred-eighty) days;
b. Medium and long term loans past due 12 (twelve) months or more, but less than 18 (eighteen) months; (NBE, SBB/ 52/2012).

D. Doubtful

The following non-performing loans at a minimum shall be classified doubtful:

a. Short term loans past due 180 (one-hundred-eighty) days or more, but less than 360 (three-hundred-sixty) days; b) medium and long term loans past due 18 (eighteen) months or more, but less than 3 (three) years; (NBE, SBB/ 52/2012).

E. Loss

The following non-performing loans at a minimum shall be classified loss:

a. Short term loans past due 360 (three-hundred-sixty) days or more;
b. Medium and long term loans past due 3 (three) years or more; (NBE, SBB/ 52/2012).

Without prejudice to the classification criteria used for the Sub-Standard category set out under article 7.1.3 the directive, renegotiated non-performing loans shall be categorized as "Substandard" unless equivalent of all past due interest is paid by the borrower in cash at the

time of renegotiation and the following payments are made by the borrower on a consistent and timely basis in accordance with the restructured terms of the loan: (NBE, SBB/ 52/2012).

Loan recovery is one of the key objectives of financial institutions as it enables them to refinance and to reach more people. To have a positive impact on the economy of a country, the institutions must be able to loan out funds and recover the same so as to remain relevant in the finance industry. Loan recovery is a strategic activity for financial institutions. For any economy to thrive there must be funds to foster investment which leads to well-being of the population. Proper investments eventually bring about poverty reduction through creation of employment. High recovery rates reflect the adequacy of financial institution's services to clients' needs Godquin, (2004).

However, the accumulation of nonperforming loans affects the profitability of banks by setting aside a provision. Non-performing loans have been a hindrance to economic stability and growth of economies. In Malaysia and Singapore, non-performing loans continued to improve, underpinned by higher reclassification of non-performing loans to performing status and recoveries, as well as efforts to achieve healthier balance sheets via loan write-offs.4 As a result, net non-performing loan ratios in the Malaysian banking system, since the Asian fi nancial crisis, has gradually been in decline from a high of 13.6% (3-month classification) in December 1998 to 3.2% in 2007 MohdZainiAbd Karim, Sok-Gee Chan, Sallahudin Hassan (2010).Charged on the borrowers and reduces the borrower's capacity to pay Ombaba, (2013). Thus, the relationship between interest rate and NPLs is expected to be positive.

2.5 Empirical study on Effect of Return on Asset of Banks' profitability

Most research credits Berger (1995) as being one of the first studies to distinguish between internal and external determinants and develop a theory of bank profitability. In his study, Berger focuses on which factors affect profitability. However, most of the results vary due to the differences in the global environments within which the banks operate. The main hypotheses that have emerged from the literature are described below. The market power hypothesis (MP), also referred to as the structure-conduct-performance hypothesis (SCP), identifies correlation between industry structure and performance. Firms will attempt to differentiate themselves but ultimately it is the industry structure that will dictate a company's profits. Different industry structures include but are not limited to the regulatory environment, industry culture, and concentration.

Karim, Sami, & Hichem (2010) also support the SCP hypothesis because based on their empirical results there is a significant positive relationship between industry structure and bank profitability. Some studies have refuted this hypothesis by referencing the relative-market-power hypothesis (RMP). This hypothesis states that as banks become bigger and more dominating in an industry, the greater their yield will be. Large market shares and a wide range of the source of profits cause higher profits for individual banks (Berger 1995). The third hypothesis, is commonly referred to in the literature as the ESX hypothesis.

This hypothesis, also created by Berger, states that better managerial efficiency in banks cause higher profits. This theory is not as commonly used as the first two hypotheses because as Berger (1995) states, the ESX hypothesis cannot be tested empirically due to the fact that increased profits may be caused by other correlated variables and it is hard to isolate the impact of managerial efficiency. Antonio I (2015)

Many previous studies have measured firm performance using ROA. Fraser and Kolari (1985) examined the financial performance of 1,000 small banks during the 1970-1983 periods. They measured the banks' performance from three dimensions, namely profitability, cost efficiency, and credit loss experience. To measure profitability, they used ROA as they believed that ROA is the most widely used ratio for measuring profitability. In their study to identify determinants of firm performance, Hansen and Wernerfelt (1989) used a five year average ROA as the measure of firm performance. The sample for this study included 60 Fortune 1,000 firms representing over 300 areas of business. Based on these 5 firms, Hansen and Wernerfelt (1989) developed regression models for estimating ROA determinants. Their final model included both economic and organizational variables and achieved an adjusted *R2* of 0.457, indicating that economic and organizational variables have little overlap and a more reliable model can be developed by incorporating both types of variables. Hyewon Y (2010)

Kim and Burnie (2002) examined the role of economic cycle on small firm's performance. Using ROA as the performance measure, they found that small firms perform better than large firms during good economic conditions. When the economic condition is weak, however, small firms tend to have poor performance and high bankruptcy risk. This is more than likely because small firms tend to have lower ROA and higher leverage (D/E ratio) in comparison to large firms (Chan & Chen, 1988).

Another study conducted by Reinartz et al. (2004) investigated the relationship between customer relationship management process and economic performance of firms, with sample firms derived from financial services, hospitality, online retailing, and power utilities industries. They used two types of performance measures in their study. Perceptual economic performance was measured through respondents' subjective ratings about their company using a seven-point Likert scale. Respondents were asked to rate the company, relative to its competitors, in terms of 'achieving overall performance,' 'attaining market share,' 'attaining growth,' and 'current profitability.' On the other hand, objective economic performance was measured using ROA.

In their study of U.K. hotel companies, Phillips and Sipahioglu (2004) assessed whether there is a statistically significant relationship between a firm's level of debt and its financial performance. Their primary interest was to see whether a combined set of debt ratio (total debt over total assets) and gearing ratio (total debt over total equity) could significantly influence ROA and ROE of sample companies. The results indicated that at the 0.05 significance level, there is no significant relationship between the amount of debt and the firm performance.

A review of the literature indicates that ROA is a widely used and preferred performance measure in financial research. While many studies have examined various factors that may have contributed to firm performance measured by ROA, no such studies, to the best of our knowledge, have been conducted for the Korean lodging industry. Given the poor ROA of the Korean lodging firms, it is highly necessary to investigate its causes or determinants. Realizing the necessity, this study attempts to estimate a regression model to identify firm specific variables that may have affected the ROA of Korean lodging firms. The findings of this study should help researchers as well as industry practitioners better understand how lodging operations may be improved in Korea. Hyewon Y (2010)

The Return on Asset (ROA) and the Return on Equity (ROE) have been used extensively as measures of profitability. ROA indicates how effectively a bank is managing it assets to generate income. ROA is the income earned on each unit of asset usually expressed as percentage. The problem with ROA is that it excludes from the total assets off-balance sheet items (for instance, assets acquired through a lease) thereby understating the value of assets. This can eventually create a positive bias where ROA is overstated in the evaluation of bank performance.

Nevertheless, Golin (2001), and Rose *et al.,* (2005) have argued that ROA is one of the most important measures of profitability in recent banking literature. Haron (2004),

Hasan *et al.,* (2003), Bashir (2001), Demirguc-Kunt *et al.,* (1998), Naceur (2003), Alkassim (2005), and Alrashdan (2002) have all adopted ROA as a measure of profitability. As an alternative measure of profitability the Return on Equity (ROE) is computed by dividing net income by equity. It measures the income earned on each unit of shareholders capital. The shortfall of this measure is that banks with high financial leverage tend to generate a higher ratio. Banks with high financial leverage may be associated with a higher degree of risk although these banks may register high ROE. Thus ROE may sometimes fall short in exposing the true financial health of banks. Another challenge with using ROE is that it is affected by regulation. However, ROE is commonly used in conjunction with ROA. Lawrence K.(2011)

Brunilda D. Elvana M. (2015) in their research found out two outcomes viz: Determinants of bank profitability can be divided in internal and external factors. Internal factors of bank profitability can be defined as those factors that are influenced by the bank's management policy objectives and decisions. Management effects are the results of differences in bank management policies, decisions, objectives, and actions reflected in differences in bank operating results, including profitability. Zimmerman (1996) has mentioned that management decisions, particularly regarding loan portfolio concentration, were an important factor contributing in bank performance.

Wangai, Bosire and Gathogo (2014) have examined the effect of non-performing loans on financial performance of microfinance banks (MFBs) in Kenya. A structured questionnaire was used to collect data from the respondents. The authors assert that credit risk significantly negatively affected financial performance of MFBs in Nakuru town. They have concluded that increase in credit risk would significantly reduce the MFBs' financial performance.

Adebisiand & Matthew (2015) have examined the impact of non-performing loans on firms' profitability of banks in Nigeria. The secondary data obtained from the Annual Report and Statement of Accounts of the NDIC for a period of seven years (2006-2012) was analyzed using the regression model. The authors have found significant negative relationship between the Non-performing Loans (NPL) and Return on Assets (ROA); however, they found a

positive but insignificant relationship between the Non-performing Loan (NPL) and Return on Equity (ROE) of Nigerian Banks.

Chimkono, Muturi and Njeru (2016) have investigated the effect of non-performing loan ratio and other determinants on the financial performance of commercial banks in the Malawian banking sector. Secondary data of seven-year period from 2008 to 2014 have been collected and analyzed using regression method. The author conclude that non-performing loan ratio, cost efficiency ratios and average lending interest rate had a significant effect on the performance of banks in Malawi. They assert that cash reserve ratio variable was positively related to bank performance but was not significant.

Kiran and Jones (2016) have evaluated the effect of non-performing assets on the profitability of banks. The data of SBI and 5 nationalized banks were collected and the relation between their gross non-performing assets and net profit was measured. The authors have concluded that except for SBI all the other banks exhibit a negative correlation between their gross non-performing assets and net profits. But for SBI the net profit is not at all affected by gross non-performing assets and it is in continuous profits only. Yuga Raj B.(2016)

Study of Rajan & Dhal (2003) employed the regression analysis for Indian banks. It claimed that Macro-economic factors and financial factors both have significant impact over the NPLs rate. Reported macroeconomic factors include the GDP growth, among financial factors; maturity, bank size, credit orientation, and credit terms were included. Some studies also considered the impact of ownership structure on the NPLs rate.

Vigano (1993), employing a credit scoring model for development banks based on 118 sample borrowers, taking the case of Development Bank of Burkina Faso, found out that customer's characteristics, enterprise characteristics and customer's activity, profitability and revenue stability, asset value and composition, financial situation, loan use, bank-customer relationship, contractual conditions and credit risk control, quality of information and the customer's banking behavior are identified to influence the bank's credit risk. The study revealed that being women, married, aged, proximity to the bank, use of better technology and being flexible to adjust to market changes, proper use of the loan, project diversification, frequency of loan maturity, collateral, personal guarantee and being a pre-existing depositor are negatively related to loan default risk. Loans in kind, long waiting period from application to disbursement and being

younger firm, past default, existence of other loan are those positively related to loan default rate. Many researchers tried to show the determinants of nonperforming factors but the three researchers came with concepts; borrower specific.

Other studies such as Sinkey & Greenwalt (1991) indicated that loan delinquencies are associated with rapid credit growth. The authors found that excessive lending explain loan loss rate. This was confirmed later by Keeton (1999) who used data from commercial banks in the United States (from 1982 to 1996) using a vector auto regression model showed that there was association between default and rapid credit growth.

Likewise, Salas and Saurina (2002) in their study on Spanish banks also revealed that credit growth is associated with non-performing loans. Also, study by Bercoff*et al*. (2002) confirmed that asset growth explains NPLs.

According to Karim, Chan and Hassan (2010), the main effect of bad loans is the ability to hinder the bank to grow financially. This is because bad loans drag banks into liquidity problems and make them unable to extend funds to other potentially viable businesses. Karim et al. also maintained that the banks cannot take up some procreative investment opportunities because of locked up capital due to bad loans and makes banks experience shortfalls in revenue generation.

Ensuring strong credit risk management for building quality loan portfolio is of paramount importance to robust performance of commercial banks as well as overall economy (Charles and Kenneth, 2013). The growing stock of literature in finance and economics underscores that failure in credit risk management is the main source of banking sector crises which possibly leads to economic failure experienced in the past including 2008 global economic financial crises (Fofack, 2005; Onaolapo, 2010).

Loan portfolio constitutes the largest operating assets and source of revenue of most financial institutions. However, some of the loans given out become non-performing and adversely affect the profitability and overall financial performance of the lending institutions. Many lending institutions in Ghana are confronted with the challenge of rising non-performing loan portfolios despite efforts at stemming the tide. Michael Nyarko-Baasi (Global Journal of Management and Business Research: C Finance Volume 18 Issue 2 Version 1.0 Year 2018)

Likewise, Roman and Tomuleasa (2013) study (2003 to 2011) on the impact of internal and external factors on the profitability of banks in EU countries revealed that the increase in non-performing loans had a negative impact on banks‟ profitability. Kargi (2011) study (2004 to 2008) on the relationship between credit risk and profitability of Nigerian commercial banks revealed a negative relationship between credit risk and the profitability of commercial banks in Nigeria. Similarly, Kolapo et al. (2012) study on the impact of credit risk on commercial banks‟ profitability in Nigeria concluded that the increase in non- performing loans reduces the banks‟ profitability.

The Karim et al. (2010) study on the relationship between non-performing loans and bank efficiency in Malaysia and Singapore revealed that a higher incidence of non-performing loans reduces banks‟ cost efficiency, thus negatively affecting profitability.

Gizaw et. al. (2015) also in their paper examined how far the profitability performance of commercial banks in Ethopia has been affected by risk associated with credit. The study used a secondary data collected from the companies' respective audited annual accounts published in their websites and also from the publication of the Central Bank of Ethopia. The authors were collected from eight commercial banks from a period of twelve year (2003 to 2014). The data was then analyzed using descriptive statistics. Their results showed that variables such as non-performing loans, loan loss provisions and capital adequacy which were used as proxy for credit risk had a significant impact on commercial banks profitability performance in Ethopia. A panel data model was adapted by the paper in line with Kolade et al. (2012). Return on Asset (ROA) and Return on Equity (ROE) were used by the paper as the indicators of profitability performance. The study recommended that commercial banks in Ethiopia need to institute policies and programmes to check credit risk to ensure their profitability and survival.

2.6 Effect of Nonperforming Loans on the Profitability of Development Bank of Ethiopia

According to Karim, Chan and Hassan (2010), the main effect of bad loans is the ability to hinder the bank to grow financially. This is because bad loans drag banks into liquidity problems and make them unable to extend funds to other potentially viable businesses. Karim et al. also maintained that the banks cannot take up some procreative investment opportunities because of locked up capital due to bad loans and makes banks experience shortfalls in revenue generation.

Ensuring strong credit risk management for building quality loan portfolio is of paramount importance to robust performance of commercial banks

Wangai et al., (2014) also examined how the Financial Performance of Kenyan Microfinance Industry has been impacted by Non-Performing Loans and the effects on the survival of small and medium enterprises. This study aimed at establishing how far microfinance banks (MFBs) in Nakuru, Kenya have been affected by non-performing loans over a period of time. They used primary data which was collected from the respondents with a structured questionnaire. The paper analyzed data collected both descriptively and inferentially. It was established that risk associated with credit significantly affected MFBs in Nakuru town's financial performance. The authors further concluded that, increase in credit risk would significantly reduce the financial performance of the MFBs. Michael N. (2018)

Does a higher level of NPLs refer to a lower profitability for banks? The relationship between NPLs and profitability is one of the central topics in banking studies because of the potential implications for regulatory policies. A number of studies found that failing banks tend to have lower efficiency and high ratios of problem loans (Berger & Humphrey, 1992; Wheelock & Wilson, 1994). A good number of other studies detected negative relationships between profitability and problem loans even among the ones which do not fail (Kwan & Eisenbeis, 1995; Hughes & Moon, 1995; Karim, 2010) In addition, studies on bank profitability recently took into account asset quality, and specifically NPLs.

Athanasoglou et al. (2008) showed that the poor quality of loans reduces interest revenue, thus confirming that NPLs has a negative effect on bank profitability. A number of researchers foundthat NPLs lead to lower profitability in the banking sector (Altunbas et al., 2000, Fan & Shaffer, 2004; Girardone et al., 2004). The findings support the hypothesis that the efficient banks are better at managing their credit risk as proposed by Berger and DeYoung (1997). Banker et al. (2010) also mentioned that once the importance of nonperforming loans is ambiguous, banks fear that their lending behavior will suffer disadvantages, and if an increase in NPLs exceeds expected levels, this will impact negatively on the bank profitability. Nguyen T.

Bernanke et al., 1994; Kiyotaki & Moore, 1995; Le, 2016 The non-performing loan has been concerned as one of the most critical factors causing reluctance for the banks to provide credit. In a high NPL condition, banks increasingly tend to tighten credit standards in response to deterioration in credit quality (Berger & Udell, 2004). In addition, the high level of NPLs

requires banks to raise provision for loan loss that leads to decrease in banks' revenue and reduces the funds for new lending (Hou & Dickinson, 2007). The financial accelerator effect also refers to the effects of NPLs on banks' lending behavior. This theory relates to borrowers' equity position (or net worth) which influences their access to credit. This also explains bank lending behavior and its relationship with the cyclical fluctuations in the economy. When a net worth of a firm is improved, the greater it is, the lower the external finance premium as lenders assume less risk when lending it to high net worth agents during business upturns. An adverse shock that lowers borrowers' current cash flows leads to a decline in their net worth and raises external finance premium. The increase in borrowers' cost of financing will discourage their desires to undertake more investment projects and consequently affect the demand for credit, amplifying the effect of the initial shocks Nguyen, (2016).

Kwan and Eisenbis (1997) demonstrate that higher levels of bank inefficiency can lead to an increase in problem loan ratios of banks. Bank profitability may also determine the risk taking behavior of managers. Banks with high profitability are less pressured to revenue creation and thus less constrained to engage in risky credit offerings. Godlewski (2004) use Return on Asset (ROA) as a proxy for performance, shows that banks profitability negatively impacts the level of NPL ratio. In investigating the problem loans in Spanish commercial and saving banks, Salas and Saurina (2002) reveal that, rapid credit expansion, bank size, capital ratio and market power explain the variation in NPLs. Das and Ghosh (2007) found a strongly significant and a positive impact of credit growth on problem loans.(Ekanayake E.M.N.N1 AzeezAzeez A.A. 2015).

2.6.1 Inflation Rate

Inflation refers to the sustained increase in the general prices of goods and services in an economy over time. The relationship between NPLs and inflation is ambiguous. Higher inflation can make debt servicing easier either by reducing the real value of outstanding loans, or simply because it is associated with low unemployment as the Phillips' curve suggests. However, it can also weaken some borrowers' ability to service debt by reducing real income when wages are sticky (Nkusu, 2011). According to Yuga R. (2015) It is predicted that the extent to which inflation affects bank profitability depends on whether future movements in inflation are fully anticipated or not. An inflation rate that is fully anticipated increases profits as banks can appropriately adjust interest rates in order to increase revenues, while an unexpected change

could raise costs due to imperfect interest rate adjustment and reduces profits. Inflation may pass through nominal interest rates as lenders adjust rates to maintain their real returns or simply to pass on increases in policy rates resulting from monetary policy actions to combat inflation, thus reducing borrowers' loan-servicing capacity (Skarica, 2014). Based on this literature, a positive relationship is expected between the two variables.Nanteza & Haniifah, (2015).

2.6.2 Return on Asset (ROA)

According Prastowo (2002:86), Return on Assets (ROA) is used to measure the effectiveness of the company in generating profits by exploiting its assets. This ratio may give an indication of good or bad neighbor management in implementing cost control or management of his property. Return on Assets (ROA) is often used as a tool to measure the rate of return on total assets after interest expense and taxes, Brigham, (2001). The high Return On Assets (ROA) will be good for the company.

Value Return on Assets (ROA) high would indicate that the company is able to generate profits relatively high value assets. Investors would like the company to the value of Return on Assets (ROA) is high, as companies with Return on Assets (ROA) which is capable of producing high levels of corporate profits is greater than the Return on Assets (ROA) is low Ang, (2001)

Return on Assets (ROA) is a financial ratio used to measure the degree to which the assets have been used to generate profits. The greater Return on Assets (ROA) shows that the better the company's performance, because of the greater rate of return on investment. Riyanto,(2001). According to Harahap (2002), the profitability of a company's ability to generate earnings for a certain period. Mohd H.,Muammar K.& Ainatul U.

Capital: it is measured by the ratio of equity capital to total asset. Bank equity capital can be seen in two ways. Narrowly, as stated by Uhomoibhi T. Aburime (2008), it can be seen as the amount contributed by the owners of a bank (paid-up share capital) that gives them the right to enjoy all the future earnings. More comprehensively, it can be seen as the amount of owners' funds available to support a bank's business. The later definition includes reserves and is also termed as total shareholders' funds.

It indicates the portion of banks assets financed through owners fund. In opposite to leverage the source for capital is owners' contribution. It also expressed as capital adequacy ratio. As

Investopedia explained capital adequacy ratio is the ratio which determines the bank's capacity to meet the time liabilities and other risks such as credit risk, operational risk, etc. Holding adequate amount of capital reduces potential losses, and protects the bank's depositors and other lenders Ahmad and Ariff, (2007). Government also required at least maintaining a minimum capital adequacy ratio banks to hold and that enhance confidence in the banking system.

Its link with credit risk is that banks capital will be decreased if the amount of loan default covered by owner's capital increased. As credit risk increased the probability of default loan financed through capital also increased so it has to be a negative relationship with credit risk. In this study total capital to total assets will be used as a proxy for capital as of Ahmed, Akhtar and Usman (2011).

This section presents the research methodology employed for this study. The study examined the effect of non-performing loans and bank performance on Development Bank of Ethiopia. The study adopted ex-post facto research design as there was the existence of variables and secondary time series data at the time of the study. Secondary data for nineteen years period covering 1999/2000 to 2017/2018 was collected from the Bank's audited financial stamens

A. Non-Performing Loan Ratio

As briefly discussed in the previous chapter effect of nonperforming loans on profitability of banks, the researcher would like to emphasize on other researcher's findings in respect to research methodology.

Non-performing loan ratio (NPLR) reflects the default rate on total loan and advances. Gizaw, K. and Selvaraj (2015) assert that non-performing loan ratio (NPLR) is the major indicator of commercial banks' credit risk. They find that NPLR has statistically significant large negative effect on profitability measured by ROA. However, Li and Zou (2014) and Alshatti (2015) have found the positive effect of non-performing/ gross loans ratio on the financial performance of banks. Contrary to these findings, Felix and Claudine (2008), Kargi (2011) and Kodithuwakku (2015) found an adverse impact of non-performing loans on the profitability. Moreover, Kithinji (2010) has asserted that the bulk of the profits of commercial banks are not influenced by the amount of non-performing loans. Although there are conflicting evidences on this issue, in view

of the theory and majority of the empirical literature, negative relationship is expected between non-performing loan ratio and bank's profitability ($\beta_1 < 0$).

3.2 H_1: Non-performing loan ratio has a significant and negative effect on bank profitability.

B. Bank Size

This study has used the natural logarithm of total assets as a proxy for bank size. The empirical literature on bank profitability presents mixed findings about the relationship between bank size and profitability. Demnirguc-Kunt and Huizinga (2000) report that larger banks tend to have higher margins. Staikouras and Wood (2004) and Kosmidou *et al.* (2005) suggest that large banks are likely to enjoy higher economics of scale and hence be able to produce services at a lower cost and more cheaply and efficiently than can small banks which would have a positive influence on profitability. Smaoui and Ben Salah (2012) have also found that larger bank size contributes to higher profitability in Islamic banks.

On the other hand according to Hanweck & Humphrey, 1987; Boyd & Runkle, 1993; Miller & Noulas, 1997; Athanasoglou, Brissimis & Delis, 2008). Eichengreen and Gibson (2001) suggest that the effect of a growing bank's size on its profitability may be positive up to a certain limit. Beyond this point, the impact of its size could be negative due to bureaucratic and other factors. Hence, the size-profitability relationship may be expected to be non-linear.

The research under taken by Fadzlan S. , Royfaizal R. (2008) showed that, the negative coefficient indicates that larger (smaller) banks tend to earn lower (higher) profits. This provides support to the earlier studies finding economies of scale and scope for smaller banks or diseconomies of scale for larger banks (e.g., Pasiouras & Kosmidou, 2007; Staikouras, Mamatzakis & Koutsomanoli-Filippaki, 2008). Hauner (2005) offers two potential explanations regarding how size could have a positive impact on bank performance. First, if this link relates to market power, large banks should pay less for their inputs. Second, there may be increasing returns to scale through the prioritisation of fixed costs (e.g. research or risk management) over a higher volume of services or through efficiency gains from a specialised workforce. Fadzlan S. , Royfaizal R. (2008)

In view of majority of the empirical literature, a positive relationship is expected between bank size and bank's profitability ($\beta_2 > 0$).

H_2: Bank size has a significant and positive effect on bank profitability

C. Operating Expense (OPE)

Operating Expense (OPE) is the average cost per total asset which shows. It is calculated dividing total operating costs by total amount of assets. The empirical studies show the mixed results about the effect of cost per asset of the bank (OPE) on bank profitability. In Nepalese context, Paudel (2012) has found negative but statistically insignificant association between cost per asset (OPE) and bank performance (ROA) but in the Nigerian perspective, Kurawa and Garba (2014) have found significant positive association between cost per asset (OPE) ratio and bank's profitability (ROA).However, banks that are efficient in managing their expenses (costs), holding other factors constant, earn high profits. In view of theoretical perspective and empirical evidences, a negative relationship is expected between cost per asset and bank's profitability ($\beta_3<0$).

- H_3: OPE per assets has a significant and negative effect on bank profitability (Bhattarai, 2016).

D. Inflation Rate

The account for macroeconomic risk is also considered by controlling for inflation. It is envisaged that the extent to which inflation affects bank profitability depends on whether future movements in inflation are fully anticipated or not. An inflation rate that is fully anticipated increases profits as banks can appropriately adjust interest rates in order to increase revenues, while an unexpected change could raise costs due to imperfect interest rate adjustment and reduces profits. Naceur and Kandil (2009) explain the negative coefficient by the fact that a higher inflation rate increases uncertainty and reduces demand for credit. However, other studies (Alexiou and Sofoklis, 2009; Athanasoglou et al., 2008; Claeys and Vander Vennet (2008); García-Herreto et al., 2009; Kasman et al., 2010; Pasiouras and Kosmidou, 2007) confirm a positive relationship between inflation and profitability. In line with the majority of the past empirical studies, a positive relationship is expected between inflation rate and bank's profitability ($\beta_5> 0$). Yuga R. (2016)

- H_5: Inflation rate has a significant and positive effect on bank profitability

2.7 Conceptual framework models

A conceptual framework depicts a relation that exists between study variables. The study seeks to identify determinants of banks profitability hence independent variables will include bank's size, nonperforming loans, loan size, Operating expense and inflation. The dependent variable will be profitability

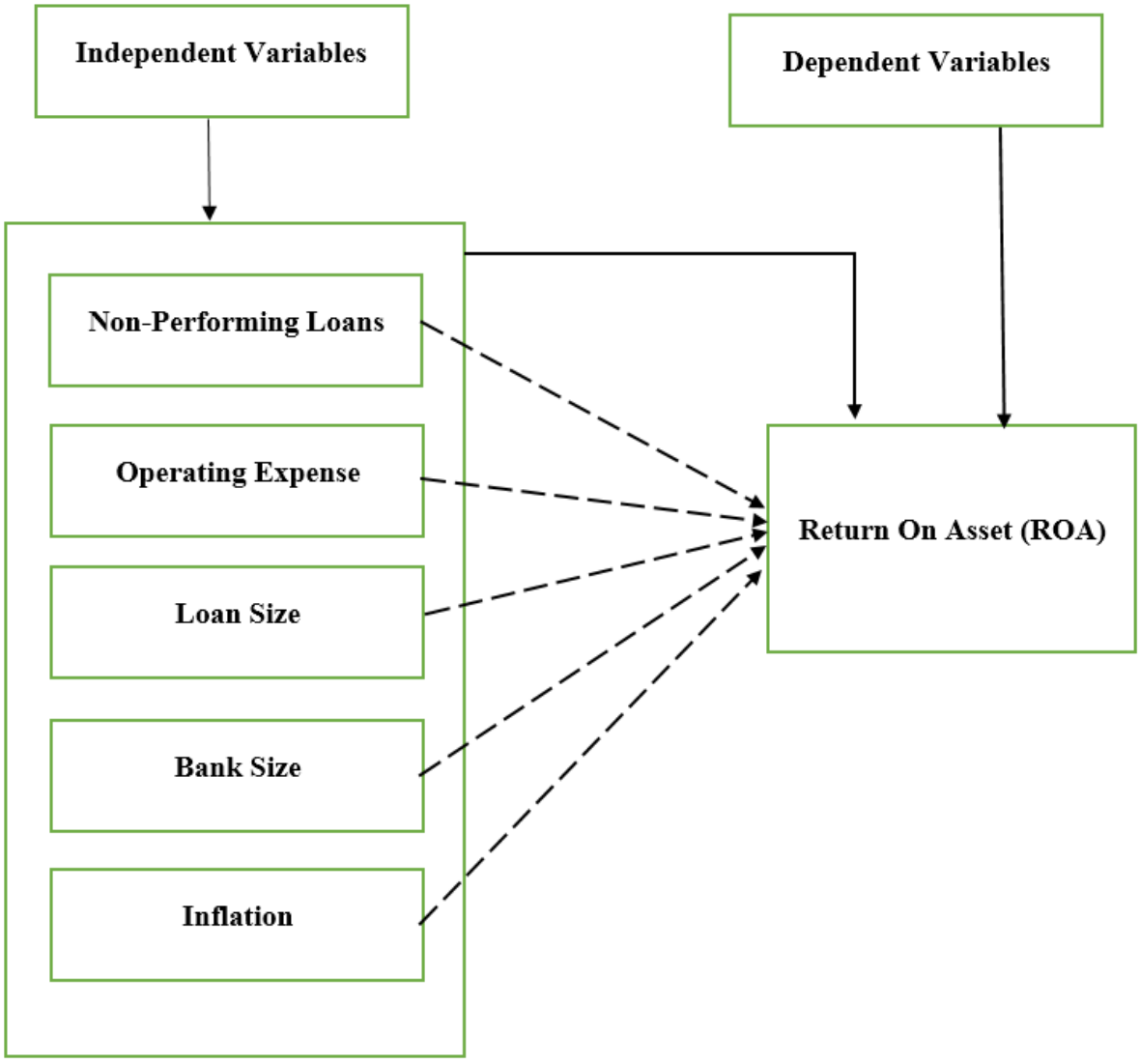

Figure 1: conceptual framework models

Source: extracted by the researcher (2015)

CHAPTER THREE
RESEARCH DESIGN AND METHODOLOGY

This chapter addressed the research approach, research design, the type of data used, data collection method, the sources of data, population and the sample size, sampling technique and the research model used. Finally, it explains method of data analysis and the hypothesis in null form specifically to each variable designed to be addressed. A descriptive study was the most appropriate because, it presents facts concerning the nature and status of a situation as it exists at the time of study.

3.1 The Research Design

Research design is a master plan specifying the methods and procedures for collecting and analyzing the required data. The choice of research design depends on objectives that the researchers want to achieve (John, 2007) cited in Gadisa Gezu, 2014. According to Kotzar et al., (2005), research design is defined as the plan and structure of investigation and the way in which studies are put together. Cooper et al. (2003) also define research design as the process of focusing on the researcher's perspective for the purpose of a particular study. Leedy and Ormrod (2005) define a research methodology as a means to extract the meaning of data, cited in

Wondimagegnehu, 2012. Since this study was designed to examine the effect of NPLs in relation with profit. The researcher has used quantitative data in respect with research variables of non-performing loan rate (NPLR to total loan ratio), inflation rate, Operating Expense, lending interest rate, and real GDP growth rate. Since it tries to describe the problem and attempts to explain the phenomenon with quantitative research approach. Thus, due to quantitative nature of data, the researcher used deductive reasoning to examine the cause and effect relationships between NPLs and in relation with profit because Deductive reasoning starts from laws or principles and generalizes to Particular mean that the researcher generalized the position of NPL depend on NBE directives. As noted by Kothari (2004), explanatory research design examines the cause and effect relationships between dependent and independent variables. Therefore, since this study has examined the cause and effect relationships between nonperforming loans and profitability. It is an explanatory research design where as quantitative explanations are quantitative research approach (Wondimu, 2015).

3.2 Research Methodology

The research design will aim using quantitative analysis that aim at providing basic information, quantitative analysis goes further to test the theories in the theoretical framework behind the study and prove or disapprove it. For this kind of a study, there is need to go further and test hypothesis. The multiple regression analysis will be used to explore the relationship of dependent and independent variables. Naomi K., Omwenga & Nagib O. (2017)

3.2.1 Definition of Study Variables

The dependent variables and independent variables used in this study are as follows:

3.2.2 Dependent Variables (ROA)

The dependent variable Return on Asset is has been discussed in the previous chapter section 3.9.2. For farther briefing and clarity purpose it is included in the research methodology. This study has adopted one classical profitability indicators as dependent variables. Return on assets (ROA) is one of the dependent variables used in this study, which express the risk taking behavior of bank management in obtaining the satisfied level of profit per unit of total resources.

3.2.3 Independent Variables

The independent variables used in this study are: non-performing loan ratio, bank size, operating expense per total assets, loan and inflation rate.

3.2.3.1 Non-Performing Loan Ratio

As briefly discussed in the previous chapter effect of nonperforming loans on profitability of banks, the researcher would like to emphasize on other researcher’s findings in respect to research methodology.

Non-performing loan ratio (NPLR) reflects the default rate on total loan and advances. Gizaw, Kebede and Selvaraj (2015) assert that non-performing loan ratio (NPLR) is the major indicator of commercial banks' credit risk. They find that NPLR has statistically significant large negative effect on profitability measured by ROA. However, Li and Zou (2014) and Alshatti (2015) have found the positive effect of non-performing/ gross loans ratio on the financial performance of

banks. Contrary to these findings, Felix and Claudine (2008), Kargi (2011) and Kodithuwakku (2015) found an adverse impact of non-performing loans on the profitability. Moreover, Kithinji (2010) has asserted that the bulk of the profits of commercial banks are not influenced by the amount of non-performing loans. Although there are conflicting evidences on this issue, in view of the theory and majority of the empirical literature, negative relationship is expected between non-performing loan ratio and bank's profitability ($\beta_1 < 0$).

H_1: Non-performing loan ratio has a significant and negative effect on bank profitability.

3.2.3.2 Loan

We use loans over total assets to explain the loan's impact on bank's performance. This ratio is regarded as a measure both of bank's credit risk and of lending specialization. For the credit risk, the bank with higher loan ratio is less prepared with unforeseen liquidity emergency. Therefore, the higher the ratio is, the more exposure to the credit risk the bank faces. For the lending specialization, the previous study shows that there's a positive correlation between loan ratio and bank's profitability, since the higher ratio tends to indicate that the bank has more information to determine how to distribute its loans. Lending specialization reduces bank's research costs and intermediation costs, therefore improves bank's profitability. Above all, we have effects favor in opposite direction, the overall effect cannot be anticipated theoretically. Christine Z and Liyun D.(2011)

Without continued general credit availability, therefore, even short-term loans backing transactions involving real goods would turn illiquid. Rigid adherence to the orthodox doctrine was, furthermore, a practical impossibility if banks were to play a role in the nation‟s economic development (Casu, 2006)). Moreover, the practice of continually renewing short-term notes for the purpose of supporting long-term capital projects proved unacceptable. The failure or inability of banks to tailor loan arrangements to the specific conditions encountered with longer-term uses in fact contributed to the demise of the practice a positive relationship is expected between loan and bank's profitability ($\beta_2 > 0$). Jane **(2010)**

$H_{1:}$ Loan portfolio has a significant effect and a positive effect on profitability of bank.

3.2.3.3 Bank size

This study has used the natural logarithm of total assets as a proxy for bank size. The empirical literature on bank profitability presents mixed findings about the relationship between bank size and profitability. Demnirguc-Kunt and Huizinga (2000) report that larger banks tend to have higher margins. Staikouras and Wood (2004) and Kosmidou *et al.* (2005) suggest that large banks are likely to enjoy higher economics of scale and hence be able to produce services at a lower cost and more cheaply and efficiently than can small banks which would have a positive influence on profitability. Smaoui and Ben Salah (2012) have also found that larger bank size contributes to higher profitability in Islamic banks. However, Hassan and Bashir (2004) conclude that big size tends to be associated with less profitability in Islamic banks. In view of majority of the empirical literature, a positive relationship is expected between bank size and bank's profitability ($\beta_3 > 0$).

H_1: Bank size has a significant and positive effect on bank profitability

3.2.3.4 Operating Exp. (OPE)

Operating Expense (OPE) is the average cost per total asset which shows. It is calculated dividing total operating costs by total amount of assets. The empirical studies show the mixed results about the effect of cost per asset of the bank (OPE) on bank profitability. In Nepalese context, Paudel (2012) has found negative but statistically insignificant association between cost per asset (OPE) and bank performance (ROA) but in the Nigerian perspective, Kurawa and Garba (2014) have found significant positive association between cost per asset (OPE) ratio and bank's profitability (ROA). However, banks that are efficient in managing their expenses (costs), holding other factors constant, earn high profits. In view of theoretical perspective and empirical evidences, a negative relationship is expected between operating expense and bank's profitability ($\beta_4 < 0$).

Even if the theory shows that negative relation is expected but, the regression model reveled that positive relation. This is because from the observation the total asset was increasing year after year this means the operation is increasing as the operation increases the operational expense also increase in direct proportion. and

- H_1: Operating expense. has a significant and negative effect on bank profitability (Bhattarai, 2016).

3.2.3.5 Inflation Rate

The account for macroeconomic risk is also considered by controlling for inflation. It is envisaged that the extent to which inflation affects bank profitability depends on whether future movements in inflation are fully anticipated or not. An inflation rate that is fully anticipated increases profits as banks can appropriately adjust interest rates in order to increase revenues, while an unexpected change could raise costs due to imperfect interest rate adjustment and reduces profits. Naceur and Kandil (2009) explain the negative coefficient by the fact that a higher inflation rate increases uncertainty and reduces demand for credit. However, other studies (Alexiou and Sofoklis, 2009; Athanasoglou et al., 2008; Claeys and Vander Vennet (2008); García-Herreto et al., 2009; Kasman et al., 2010; Pasiouras and Kosmidou, 2007) confirm a positive relationship between inflation and profitability. In line with the majority of the past empirical studies,a positive relationship is expected between inflation rate and bank's profitability ($\beta_5 > 0$). Yuga R. (2016)

- H_1: Inflation rate has a significant and positive effect on bank profitability.

3.3 Methods of Data Analysis

In order to acquire meaningful facts, the researcher has employed both will use Descriptive and inferential Statistics methods for this research to achieve the objectives the study. The researcher employs regression analysis and descriptive statistics data set covering 19 years (1999/00 to 2017/18) to examine the relationship between nonperforming loans and other key internal and external variables along with the effect nonperforming loans on profit. To do this quantitative research design certain statistical methods are used. Therefore, the researcher used multiple linear regression analysis. According to Nor Mazlina Abu Bakar and Izah Mohd Tahir (International Business Research journal no.2 Vol.4 October, 2009) multiple linear regression analysis is a technique for modeling the linear relationship between two or more variables. It is one of the most widely used of all statistical methods. In banking and finance literature, regression analysis is a very common method used to find the determinants of bank performance (Wondimu, 2015).

3.4 Study Variables and Model specification

3.4.1 Model Specification

In very general terms, regression is concerned with describing and evaluating the relationship between a given variable and one or more other variables. More specifically, regression is an attempt to explain movements in a variable by reference to movements in one or more other variables.

The model used for the regression analysis, the variable whose movements the regression seeks to explain by y and the variables which are used to explain those variations by x1, x2. . . Xk. Hence, in this relatively simple setup, it would be said that variations in k variables (the xs) cause changes in some other variable, y.

In regression, the dependent variable (y) and the independent variable(s) (xs) are treated very differently. The y variable is assumed to be random or 'stochastic' in some way, i.e. to have a probability distribution. The x variables are, however, assumed to have fixed ('non-stochastic') values in repeated samples.

$y = \beta 1 + \beta 2x_2 + \beta 3x_3 + \cdots + \beta kx_k + u$

The coefficient interpretations are slightly altered in the multiple regression contexts. Each coefficient is now known as a partial regression coefficient, interpreted as representing the partial effect of the given explanatory variable on the explained variable, after holding constant, or eliminating the effect of, all other explanatory variables. For example, βˆ2 measures the effect of x_2 on y after eliminating the effects of x_3, x_4, . . ., x_k. Stating this in other words, each coefficient measures the average change in the dependent variable per unit change in a given independent variable, holding all other independent variables constant at their average values. Chris B. (2008)

$$\boldsymbol{ROA = \beta_0 + \beta_1 NPLR + \beta_2 Size + \beta_3 OPE + \beta_4 INF + \beta_5 LOAN\ SIZE + \varepsilon} \qquad \textbf{(1)}$$

Where:

- ROA = Return on assets (ratio of earnings after taxes to total assets of DBE
- NPLR = Non-performing loan ratio of DBE
- SIZE=Natural logarithm of total assets of DBE
- OPE = operating exp per assets of DBE

- INF=Inflation rate
- Loan size = total Loan of DBE
- B_0= The intercept (constant)
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$= The slope which represents the degree with which bank profitability changes as the independent variable changes by one unit variable.
- ε = error component

The selected study variables, their definition, basis of measurement and priori expected sign have been depicted in Table 1.

Table 1: Independent variables and their expected sign

Abbreviations variables	Description	Measurement	Expected sign
NPLP	Nonperforming loans	Non-performing loan/gross loans and advances	-
SIZE	Bank size	Natural logarithm of total assets	+
OPE	Operating Expense	Total Operating exp divided by Total Asset	-
INF	Inflation rate	Annual inflation rate	+
Loan	Total loan portfolio	Loan	+

CHAPTER FOUR
DATA ANALYSISA AND FINDINGS

This chapter involved model estimation, analysis of data collected and their findings by using descriptive statistics, correlation analysis, and regression analysis. And this paper was conducted using nineteen year Audited financial stamens from the period 1999/2000 up to 2017/2018 loan and advances of Development Bank of Ethiopia.

4.1 Data Analysis

The aim of this study is to analyze the Effect of nonperforming loans of Development Bank of Ethiopia profitability. The Data was analyzed through descriptive and regression statistical methods using STATA 13 Software.

$$\mathbf{ROA} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1}\mathbf{NPLR} + \boldsymbol{\beta_2}\mathbf{Bank\ Size} + \boldsymbol{\beta_3}\mathbf{OPE} + \boldsymbol{\beta_4}\mathbf{INF} + \boldsymbol{\beta_5}\mathbf{Loan\ size} + \boldsymbol{\varepsilon} \qquad \mathbf{(2)}$$

4.2 Result and Discussion

4.2.1 Descriptive Statistics

This chapter presents the results and discussions of quantitative data analysis of the study. It has two major sections. The first section is descriptive statistics such as mean, standard deviation, minimum value and maximum value. The second section of the chapter provides empirical result for this study, the dependent variable is ROA and the independent variables are NPLR, LOAN, INF., BANK SIZE, and OPE

Table 2: Summery of descriptive statistics

Variable	Statistics	Mean	Std. Dev.	Min	Max
ROA	19	1%	1%	0%	2%
NPLR	19	12%	14%	0%	39%
LOAN	19	9,835.00	11712.52	493.99	39155.36
INFLATION	19	13%	12%	-11%	36%
Bank Size	19	402%	91%	297%	646%
OPE	19	1.38%	1.68%	0%	5%

Source researcher data computation STAT 13

4.2.2 Result Discussion

The descriptive statistics of variables used in the study have been presented in Table 2. The results of the descriptive statistics show that the average value of the bank profitability: ROA is 1.0% while the mean, minimum, and max, is 1%, 0% & 2% respectively for the period. 1999/2000-2017/2018, in terms of percentage on average, the total assets of DBE 402% and minimum and maximum is 297%, 646%, the standard deviation of 91% return. The standard deviation of the ROA is 1%, which shows the lack of substantial variation. The minimum non-performing loan ratio is 12% and that of maximum is 39%, the variation in NPLR between series of the data was 14%. Which show the much variation in non-performing loan ratios of DBE during the period. NPLR is a general factor for DBE as it is acceptable up to 15% limit.

However, NPLR for the bank for selected 19 years period is really alarming. The NPLR indicates that there is very poor initiative in controlling of non-performing loans by bank. As the nonperforming loan increases it is obvious that the capital of the bank is going to be eroded due to large sum of provision for nonperforming loans. In addition the increasing amount of NPL also will make the financial institution incapable to extend credit facilities to those in need of financial assistance. This cause negative effect on the economic development of the country, in addition create a burden on employment opportunity. See Graphical representation on Appendix I.

4.3 Regression Analysis

As discussed in chapter three, the OLS model was selected for analyzing the effect of the ROA in case of DBE. Prior to running, the OLS regression model explanatory variables were checked for the existence of multicollinearity and the degree of association using VIF. For more information, see Table 3 below. In addition, Normality test is checked and the model has constant variance. sees section 4.2.2.

This means that adjusted R^2 60.19% of the relationship is explained by the identified five factors namely NPLR, Loan, Inflation, bank size, OPE. The rest 39.81% is unexplained by other factors in the financial performance not studied in this research. In summary the four factors studied namely, NPLR, Inflation, bank size, OPE determine properly explained by the model and reveal that by R^2 73.5% of the relationship while the rest 26.5% is unexplained are in the error term.

Table 3: Regression Analysis

Source	SS	df	MS
Model	0.0008	6	0.00013
Residual	0.0003	12	0.00002
Total	0.0011	18	0.00006

Number of obs=19
F (6, 12) =5.54
Prob> F=0.0059
R-squared=0.7346
Adj R-squared=0.6019
Root MSE=0.00492

ROA	Coef.	Std.Err.	T	P>t	[95% Conf. Interval]	
NPLR	-4.47%	0.0223	-2.01	0.0660**	-0.0928	0.0034
Loan	34.81%	9.7600	2.57	0.0230*	0.0000015	0.0000055
Inflation	2.85%	0.0101	2.83	0.0140*	0.0067	0.0502
Bank Size	0.03%	0.0018	0.14	0.8870	-0.0036	0.0041
OPE	49.80%	0.1834	2.72	0.0180*	0.1019	0.8942
Constant	-0.0004	0.0074	-0.06	0.9530	-0.0164	0.0155

Source researcher data computation STAT 13

*, and ** are at 5% and 10% level of significance respectively

The regression results of the effect of non-performing loan ratio on profitability of DBE is shown in Table-4.The value of R^2 is 73.5% and adjusted r^2 60.19% in the model. The overall explanatory powers of the regression model look fair and properly explain the dependent variable ROA. This indicates that 26.5% of the variation in bank profitability (ROA) can be explained by other variables which are not included in the model. This is supported theoretically by, the goodness of fit which describes how well fits a set of observations. Measures of goodness of fit typically summarize the discrepancy between observed values and the values expected under the model in question.

The p-values for F statistics in the model are significant at 5% level of significance. As a test of the presence of multicollinearity among independent variables in the model, variance inflation factors (VIF) have been computed. The variance inflation factors (VIF) show the values less than 5the variable in model. The larger the value of VIF, the more troublesome or collinear the variables and as a rule of thumb a VIF greater than 10 is unacceptable (Gujarati,

2004). Thus, VIF less than 5 for the variable indicates the non-presence of multicollinearity. Thus, the estimated regression model is free from multicollinearity problem and independent variables chosen for the model is best suited for the regression analysis.

$$\text{ROA} = \beta_0 + \beta_1 \text{NPLR} + \beta_2 \text{Bank Size} + \beta_3 \text{OPE} + \beta_4 \text{INF} + \beta_5 \text{LOAN SIZE} + \varepsilon \quad (3)$$

$$\text{ROA} = -0.0004 - 4.47\text{NPLR} + 0.03\text{Size} + 49.80\text{OPE} + 2.85\text{INF} + 34.81\text{LOAN} + \varepsilon \quad (4)$$

From Table 3 above, the F distribution tell us that the selected model is a good model and at least one independent variable is statistically significant. The Adjusted r^2 is 60.2% it tell us that each independent variable has a capacity to explain the dependent variable i.e. ROA.

4.4 Independent Variables

4.4.1 Nonperforming loan(NPLR)

The regression results indicate that the coefficient of non-performing loan ratio -4.47 is negative and this shows a unit increase in nonperforming loan decreases the return on asset or profitability of the bank.as seen from the regression it is statistically significant to measure bank profitability (ROA). The result indicates that an increase in the amount of non-performing loan reduces the profitability of DBE. The result is found as expected because theoretically, NPLR was expected to have a negative relationship with bank profitability. The result is also similar to Felix & Claudine (2008), Kargi (2011), Kodithuwakku (2015), and Gizaw, Kebede & Selvaraj (2015), where they have found negative effect of NPLR on bank profitability. However, the result is in contrary to Li and Zou (2014) and Alshatti (2015), where they have found the positive effect of non-performing/ gross loans ratio on the financial performance of banks.

4.4.2 Bank size

As expected, there is a strong positive association between bank size and it measures banks' profitability (ROA). It indicates that large banks in terms of asset are likely to enjoy higher economies of scale and hence be able to produce services at a lower cost and more cheaply and efficiently than can small banks which would have a positive influence on the profitability commercial banks.

The result is similar to that of Marijana Ćurak, Sandra Pepur, Klime Poposki yhat of Analyzing bank size, past performance and solvency ratio; supervisors could detect banks with potential for increase in bad quality assets.

The coefficient of bank size, which represents the bank's total assets, is positive but insignificant. This evidence is consistent with the findings of Jordanian researcher Rajha, (2016). Demnirguc-Kunt and Huizinga (2000), Staikouras and Wood (2004), Kosmidou et al. (2005), Smaoui & Ben Salah (2012), who have found that larger bank size contributes to higher profitability. As discussed by Hassan and Bashir (2004), who have claimed that big size tends to be associated with less profitability of banks. This is because Islamic banks lend free of interest charge and this may cause for big size banks to suffer with huge operational cost therefore, Hassan & Bashir (2004) tried to show the relation of big size banks tend to associated with less profitability. ($\beta_2 > 0$).

4.4.3 Loan

A loan is the lending of money by one or more individuals, organizations, or other entities to other individuals, organizations etc. The recipient (i.e. the borrower) incurs a debt, and is usually liable to pay interest on that debt until it is repaid, and also to repay the principal amount borrowed. Acting as a provider of loans is one of the main activities of financial institutions such as banks and credit card companies. The rate of return on a portfolio is the ratio of income generated (whether realized or not) by a portfolio to the size of the portfolio. It is measured over a period of time, commonly a year.

Without continued general credit availability, therefore, even short-term loans backing transactions involving real goods would turn illiquid. Rigid adherence to the orthodox doctrine was, furthermore, a practical impossibility if banks were to play a role in the nation‟s economic development (Casu, 2006)). Moreover, the practice of continually renewing short-term notes for the purpose of supporting long-term capital projects proved unacceptable. The failure or inability of banks to tailor loan arrangements to the specific conditions encountered with longer-term uses in fact contributed to the demise of the practice a positive relationship is expected between loan and bank’s profitability ($\beta_2 > 0$). Jane **(2010)**

4.4.4 Operating Expense

Operating Expense (OPE) is the average cost per total asset which shows. It is calculated dividing total operating costs by total amount of assets. The empirical studies show the mixed results about the effect of cost per asset of the bank (OPE) on bank profitability. In Nepalese context, Paudel (2012) has found negative but statistically insignificant association between cost per asset (OPE) and bank performance (ROA) but in the Nigerian perspective, Kurawa and Garba (2014) have found significant positive association between cost per asset (OPE) ratio and bank's profitability (ROA). However, banks that are efficient in managing their expenses (costs), holding factors other constant, earn high profits. In view of theoretical perspective and empirical evidences, a negative relationship is expected between operating expense and bank's profitability ($\beta_4<0$) but, in this research a positive relation is observed. The null hypothesis is rejected since ($\beta_4>0$). This is because of as the operation of the bank is increasing year after year, the operational expense also increased. That is why the coefficient of operating expense took a positive sign. However, the researchers result of Kurawa Garba (2014) found out significant positive effect. In this regard the researcher conclude that the positive association indicates that as the operation of the bank is increasing year after year, the operational expense also increased. (Bhattarai, 2016)

4.4.5 Inflation Rate

The account for macroeconomic risk is also considered by controlling for inflation. It is envisaged that the extent to which inflation affects bank profitability depends on whether future movements in inflation are fully anticipated or not. An inflation rate that is fully anticipated increases profits as banks can appropriately adjust interest rates in order to increase revenues, while an unexpected change could raise costs due to imperfect interest rate adjustment and reduces profits. Naceur and Kandil (2009) explain the negative coefficient by the fact that a higher inflation rate increases uncertainty and reduces demand for credit. However, other studies (Alexiou and Sofoklis, 2009; Athanasoglou et al., 2008; Claeys and Vander Vennet (2008); García-Herreto et al., 2009; Kasman et al., 2010; Pasiouras and Kosmidou, 2007) confirm a positive relationship between inflation and profitability. In line with the majority of the past empirical studies, a positive relationship is expected between inflation rate and bank's profitability ($\beta_5> 0$). Yuga R. (2016)

- H_1: Inflation rate has a significant and positive effect on bank profitability.

In this study the researcher conclude that result obtained is similar to previous researches and confirmed that inflation has a positive effect on profitability of a bank.

As discussed previously all independent variables used for analysis four independent variables NPRL, Loan, Inflation, and OPE are statistically significant but, Bank size has statistically insignificant in the study. As to significance, a unit change in those significant variables they have observable effect on the dependent variable ROA. From all statistically significant only NPRL has a negative or inverse relationship with ROA and the sign is as expected in theoretical works. The remaining three significant variables have a positive relationship with ROA. In magnitude OPE has a greater effect on ROA than other significant variable.

This study revealed like that of, Roman and Tomuleasa (2013) study (2003 to 2011) on the impact of internal and external factors on the profitability of banks in EU countries revealed that the increase in non-performing loans had a negative impact on bank's profitability.

Considering other variables are constant a unite change in NPLR, it decrease the ROA by 4.47% similarly a unit change in inflation it increase ROA by 2.85%. and the OPE has a positive magnitude as to ROA and an increase in OPE lead to an increase of ROA, on the other hand an a unit change in loan increases the ROA by 34.81%

4.5 Post Estimation

4.5.1 Test of multicollinearity

The study carried out multicollinearity and heteroscedasticity tests. The test for multicollinearity was carried out using the VIF (Variance Inflation Factor) which quantifies the severity of multicollinearity in ordinary least squares. It provides an index that measures how much the variance (the square of the estimate's standard deviation) of an estimated regression coefficient is increased due to collinearity. According to Myers (1990), a VIF greater than 10 would be a cause of concern. If the VIF value lies in the range of 1-10 (VIF <1 or > 10), it may be concluded that there is no multicollinearity. If the VIF <1 or > 10, then it can be concluded that multicollinearity exists. The Table 1 below gives the outcome of the test. Eston C.,Willy M. & Agnes N.(2016)

Of course, one could use TOL*j* (Tolerance)as a measure of multicollinearity in view of its intimate connection with VIF*j* (Variance Inflation Facto). The closer is TOL*j* to zero, the greater the degree of co linearity of that variable with the other regressors. (Gujarat, 2008).

Inline to this in a linear regression model. From Table 3 below all the value of VIFs is less than 10 and hence, these shows all the independent variables have no multi-co linearity.

Variable	VIF	1/VIF
NPLR	7.91	0.126345
OPE	7.66	0.130509
Loan	2.00	0.49884
Size	1.39	0.721818
Inflation	1.21	0.828021
Mean VIF	4.03	

Table 4: VIF

Source researcher data computation STAT 13

4.5.2 Test of Normality

To test normality, the researcher uses the Goldfeld Quandt GQ (1965) test. for heteroscedasticity. Base on the finding the model that the researcher used for analysis has a constant variance this means that there is no problem of heteroscedasticity. See the following for more information.

H_0: Constant variance

H_1: Not constant variance

chi^2 (1) = 0.38

Prob > chi^2 = 0.5373

Pearson's chi-squared test (χ^2) It is well known that Pearson's Chi-square ($\chi 2$) is a family of tests with the following assumptions

(1) The data are randomly drawn from a population;

(2) The sample size is sufficiently large.

The application of the Chi-square test to a small sample could lead to an unacceptable rate of type II error (accepting the null hypothesis when actually false). There is no accepted cut-off for the sample size; the minimum sample size varies from 20 to 50; and

(3) The values on cells are adequate when no more than 1/5 of the expected values are smaller than five and there are no cells with zero count. The source of these rules seems to be W. G. Cochran and they appear to have been arbitrarily chosen.

CHAPTER FIVE
CONCLUSION AND RECOMMENDATION

5.1 Conclusion

This study has investigated the effect of non-performing loan on profitability of Development banks of Ethiopia. The observations for the period of 1999/2000 to 2017/ 2018 have been analyzed using regression model. The estimated regression models reveal that NPLR has negative and statistically significant effect on the banks' profitability (ROA).However, it shows positive association between NPLR and bank profitability as measured by ROE. Bank size has positive and statistically significant impact on bank profitability ROA. Operating exp per total assets has positive and statistically significant effect on bank profitability of ROA. The estimated result shows that inflation rate has negligible effect on the profitability ROA of Development Bank of Ethiopia.

The findings of this study indicate that the data collected from the Bank's audited financial statement confirmed the independent variables clearly show the effect of nonperforming. This study concludes that profitability of Development Bank of Ethiopia is influenced by the non-performing loan ratio and other covariates like: bank size, Operating Exp and Inflation.

5.2 Recommendation

This study offers the following recommendations through which Development Bank of Ethiopia in which the bank can work to improve loan management and reduce non-performing loans to have an effective role in achieving better profitability ROA. The negative coefficient of 'non-performing loan ratio' with bank profitability indicates that there is higher level of loan loss provision charged against profit and eventually leads to reduce bank profitability (ROA). Thus, bank should strictly follow the prevailing NBE Directive as well as Basel II Accord while granting loan and advances to the customers. Compliance with the Basel II Accord means a sound approach to tackling credit risk and this ultimately improves bank profitability.

- The senior bank management should ensure that there is a periodic independent internal assessment of the bank lending policy, lending activities and loan collection procedures. The periodic such internal assessment can be of help to identify weakness and thus, bank

management can early exercise corrective action to keep NPL as low as possible which will enable to maintain the high profitability of the bank.

- The banks to senior management should maintain standardizing and improving work-out, legal enforcement and underwriting processes; and developing additional restructuring products for NPLs resolution mechanism.
- The bank's risk and compliance management should ensure that proper risk management action and assessment procedure of all risk that arises to erode the credit and cause of NPLs.
- Compliance with the bank's directives and procedure as sound approach to tackling credit risk and this ultimately improves bank profitability.
- The credit policy should incorporate collateral options to extend any credit, which will initiate the borrowers to be abide with their contractual agreement, instead of depending on equity contribution which is 25% of the project cost.

Moreover, this study is hoped to be useful to academicians as a source of knowledge for further research. The study is concentrated on only five factors and thus, further study should be carried out on the topic including other bank specific variables, industry variables and macro level factors to identify the major determinants of the profitability of Nepalese commercial banks.

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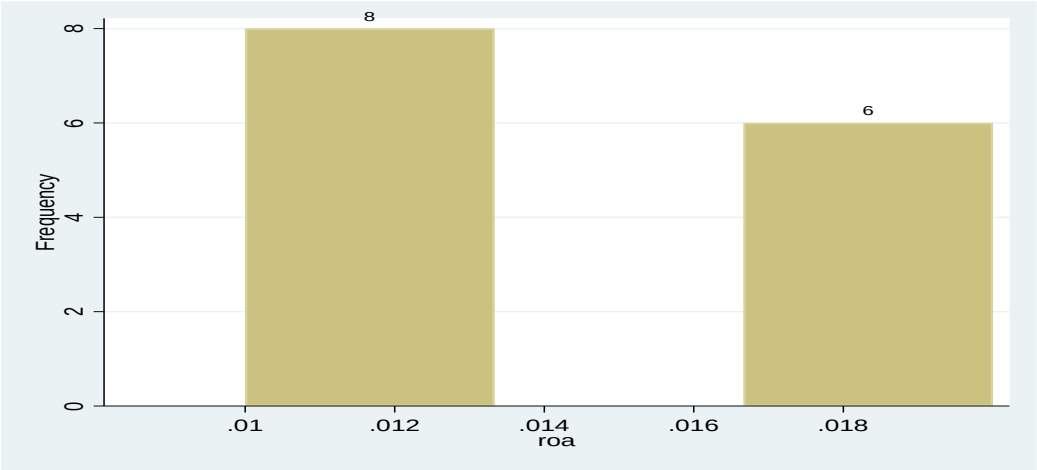
Wikipedia Definition of Nonperforming loans,

APPENDIX I

Graphical Representation

A. ROA



Source researcher data computation STAT 13

Figure 2: Frequency distribution of ROA

B. NPLR

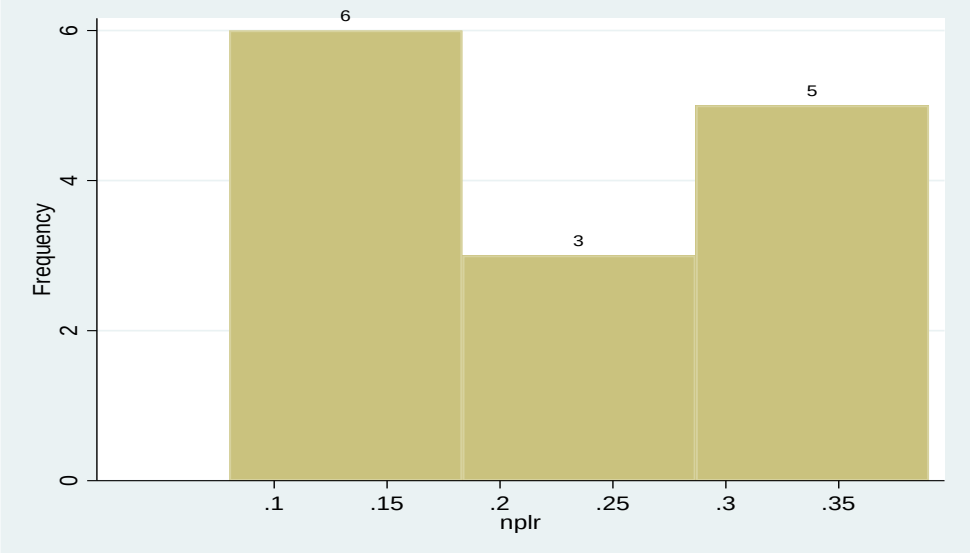


Figure 3: Frequency distribution NPLR

Source researcher data computation STAT 13

C. INFLATION

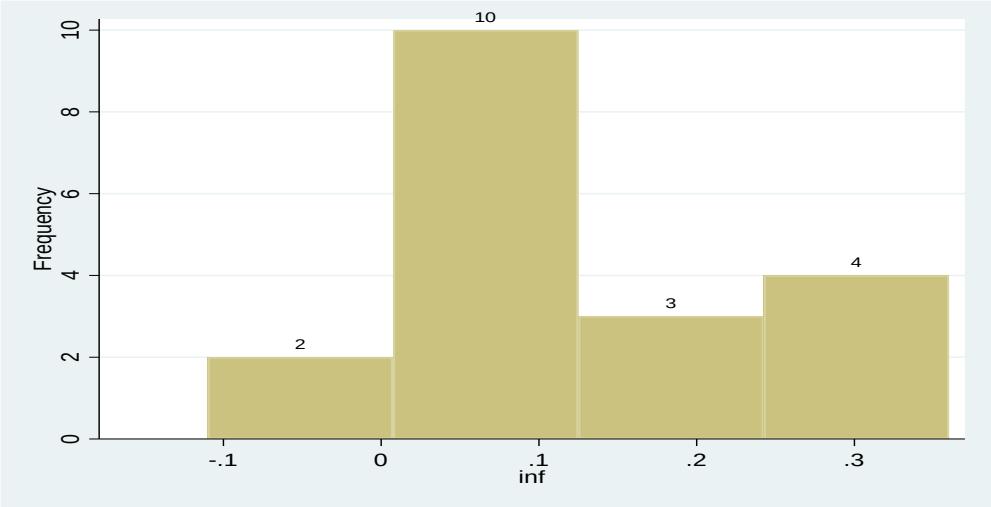


Figure 4: Frequency distribution Inflation

Source researcher data computation STAT 13

D. BANK SIZE

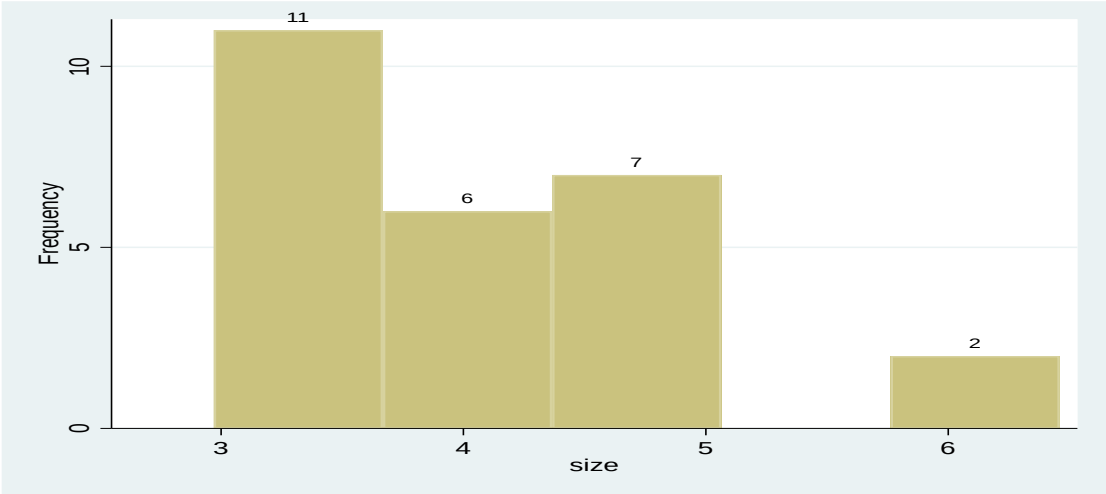


Figure 5: Frequency distribution of Bank size

Source researcher data computation STAT 13

E. OPE (operating Expense)

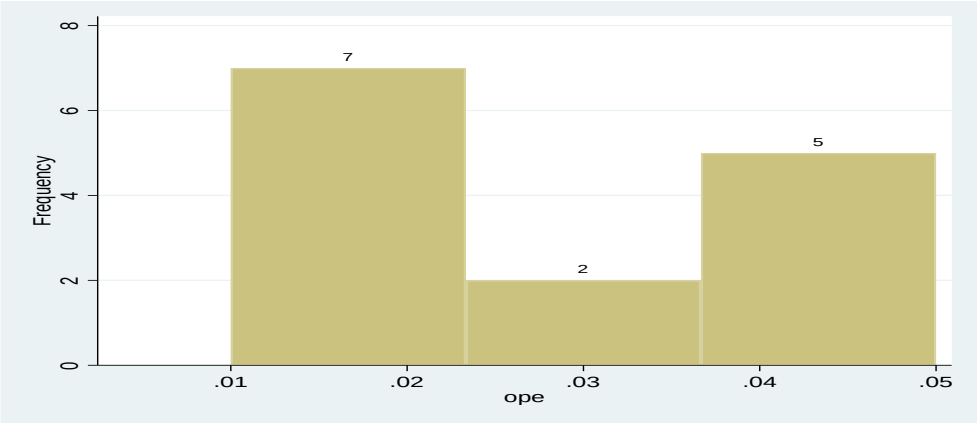


Figure 6: Frequency distribution of OPE

Source researcher data computation STAT 13

F. LOAN

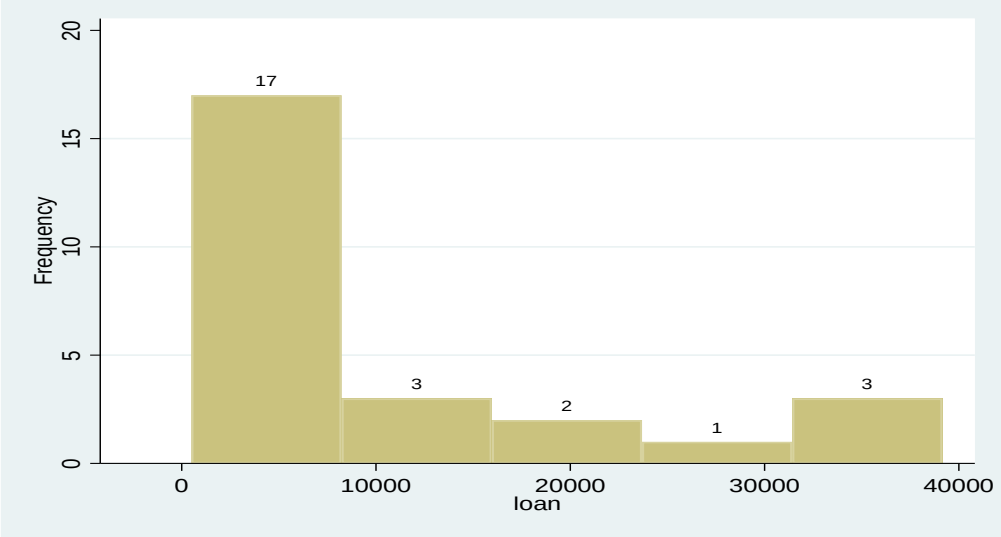


Figure 7: Frequency distribution of LOAN

Source researcher data computation STAT 13