St. MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DETERMINANTS OF NONPERFORMING LOAN IN DEVELOPMENT BANK OF ETHIOPIA

BY

MAMUYE ABDETA

JUNE, 2015

ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO ST.MARY'S UNIVERSITY SCHOOL OF GRADUATE STUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION (MBA)

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<u>DECLARATION</u>

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

_____   _____

St Mary's University, Addis Ababa   **June, 2015**

ENDORSEMENT

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

_____   _____
St Mary's University, Addis Ababa   **June, 2015**

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Acronyms and abbreviation

NPL- non performing loan

DBE- development bank of ethiopia

NBE- national bank of ethiopia

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ABSTRACT

The study examines the determinants of nonperforming loan in DBE. In the study, econometrics regression using liner probability model were used. In addition descriptive analyses of methodology were used. The finding using regression analysis revealed that the probability of NPL is high when the Bank lends by owning collateral rather than without non collateral lending. On the other hand the probability of NPL is high when the Bank risk taking is very large as compare to small one. Risk assessment is another variable that affect NPL significantly. The probability of NPL low when risk assessment of the Bank is very strong. Strict monitoring and follows up, which is also significantly affecting NPL of the Bank. The probability of NPL reduce when strict monitoring and follow up is undertaken for the disburse loan. On the other hand In a Likert scale measure the finding shows average respondents agreed that credit assessment is related to loan default. They also agreed with the fact that loans follow up /monitoring is related to occurrence of nonperforming loans. On the other hand the response on relation between collateral and loan default indicated agreement. Respondents were of the view that aggressive lending and compromised integrity lead to occurrences of NPL.

Keywords: NPL,DBE, determinants, LPM,

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Chapter one

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1. Introduction

1.1. Background of the study

Financial sector play a vital role for the growth and development of a country (Mabw and Robert, 2010). One of the financial institutions is bank in which they play an intermediation function by mobilizing money from those who have excess and lend it to others who need it for their investment. As a result providing credit to borrowers is one means by which banks contribute to the growth of economy thereby ensure that the money available in economy is used for productive and fertile project purpose which can stimulate the economy as well. Therefore, managing loan in a proper way not only has positive effect on the banks performance but also on the borrower firms and a country as a whole.

In Ethiopia there are 16 private banks and 3 government banks providing loan to investors as per National Bank of Ethiopia as of December 2014. The development bank of Ethiopia (DBE) is one of the financial institutions in Ethiopia engaged in providing short, medium and long term developmental credits. The Development Bank of Ethiopia is a state owned development finance institution, established in 1909 and currently the key mandate of the Bank is the provision of development credit to viable priority area projects along with technical support and advice by mobilizing resources from domestic and foreign sources. DBE continued to extensively provide financial and technical support to government priority economic sectors which are commercial agriculture, agro-processing, manufacturing and extractive industries.

As it has been doing for over hundred years, DBE has remained dedicated to assisting the development endeavors of the country through availing financial and technical assistance to viable projects in accordance with government policies. However, availing loan to borrower is not an easy task, this is because of the high financial risk of the bank as a result of failure to collect the disburse loan from the customers. According to NBE directive 2008, Loans or Advances whose credit quality has deteriorated such that full collection of principal and/or interest in accordance with the contractual repayment terms of the loan or advances in question is called Nonperforming loan (NPL).

Non-performing loans (NPL) has attracted more attention in recent decades. Several studies examined bank failures and find that asset quality is an indicator of insolvency (Demirguc-Kunt ,1989;and Shelagh Heffernan, 2005). Therefore; the large amount of bad loans in the banking system generally results in a bank failure. The NPL are among the main causes of the problems of economic stagnation (Monicah Wanjiru, 2011). Each impaired loan in the financial sector increases the possibility to lead company to difficulty and unprofitability. The minimization of NPL is a necessary condition for improving economic growth. When NPL retained permanently, these will have an impact on the resources that are enclosed in unprofitable areas. Thus, NPL are likely to hamper economic growth and reduce the economic efficiency (Hou, 2007). The problem to NPL can arise from factors specific to the bank (internal factors) or macroeconomic imbalances (external factors).

In DBE Non performing loan were reduced from 31.4% in 2004/2005 to 11.67% in 2010/11. However, the last four years shows a little increment in NPL ratio of the bank from 7.54% in 2011/12 to 10.69% for the end of December 2014 (DBE annual report 2013/14). As a result such huge figure experiencing in the bank leads to a negative impact on profitability of the bank and even it may affects the double digit economic growth of the country via its indirect effect through the projects.

Therefore, this paper analysis on what are the factors contribute to NPL of DBE and suggests sound strategy for decision maker how to minimize of nonperforming loan in the Bank.

1.2. Statement of the problem

A competent and well functioning financial sector is essential for the achievement of sustainable economic growth and development of the country. Banks exist to play a financial intermediation role by mobilizing money and lending to investors while at the same time to maximizing profit. Lending is considered the major function for existence of Commercial Banks to generate profit via providing loans and advances to scarce area of resources (Radha , 1980).

However, availing loan to borrower is not an easy task, this is because of the high financial risk of the bank as a result of failure to collect the disburse loan from the customers. A sound financial system, among other things, requires maintenance of a low level of non- performing loans which in turn facilitates the economic development of a country (Mabw and Robert, 2010). High level of nonperforming loan is linked with banks failures and financial crisis. Failure in one bank might lead to run on bank which in turn has contagious impact affecting the whole banking industry (Jonathan Batten and Peter G. Szilagyi, 2011). According to NBE directive 2008, Loans or Advances whose credit quality has deteriorated such that full collection of principal and/or interest in accordance with the contractual repayment terms of the loan or advances in question is called Nonperforming loan (NPL).

According to Barr and Siems, (1994), rising trend of NPL ratio harms asset quality of banks which eventually hindering solvency position of a bank. The main function of banks is credit creation through mobilization of deposits. Economic growth cannot prosper without strong financial sector. If financial soundness is week it can trim down credit flow in country which ultimately hampers the efficiency and productivity of growing financial institution (Kiran Jameel, 2014).

The trends of NPL in DBE had shown a great reduction from 31.4% in 2004/2005 to 11.67% in 2010/11; however, the average NPL from 2010/11 to 2013/14 is 9.3% (DBE annual report 2013/14) which is moderately high as compare to the acceptable threshold level in NBE below 5% as well as the vision of DBE which is 0%. This paper is different from other researchers conducted previously such as (Mitku Malede, 2014); it focuses on micro level or bank specific factors that can influence nonperforming loan. Particularly, in Ethiopian case, the number of studies conducted on determinants of nonperforming loan so far is few in number and limited in scope, in which further study is required.

Besides, the researcher find out that most of the researches conducted previously related to NPL of all bank in Ethiopia which lack homogeneity to have common conclusion, but this paper is focus on one specific bank (DBE) and found out problem behind such high default level.

1.3. Research question

The study examines the following research questions regarding determinants of nonperforming loan in DBE.

- What are determinants of non-performing loans in DBE?
- Which sector constitutes the majority of NPL in DBE?
- Does credit monitoring determine loan default?
- Is there a relationship between collateralized lending and non performing loans?

1.4. Objective of the study

The main objective of the study is to identify the major determinants of nonperforming loan in development bank of Ethiopia.

Specific objectives are:

- To identify the relationship between credit monitoring and loan default in DBE.

- To identify the relationship between collateralized lending and non performing loans

- To assess in which sector the majority of NPL registered.

1.5. Significance of the study

This study contributes to understanding and analysis of factors affecting non performing loan and to set effective and efficient credit management tools in DBE. The paper thus would help DBE to get insight on what it takes to improve the loan qualities and the NBE to examine its policy in banking supervision pertaining to ensuring asset quality banks maintain. In addition the study would also contribute to the existing body of knowledge regarding the determinants of nonperforming loans and motivate further research on banking context and more specifically on macroeconomic determinants of nonperforming loan which will not cover under this research.

1.6.   Scope of the study

Although macroeconomics variables have a significant impact on qualities and performance of loans, the paper is limited to bank specific factors. Thus the study

explored micro level bank specific factors that determine bad loans ratio in DBE. The study also limited to bank employees' and financial data of banks. Study were undertaken in head office and Addis Ababa branch; this is because of the researcher experienced that majority of credit is given at head office level (especially total investment cost is greater than 25 million birr).

1.6. Conceptual definition of terms

Nonperforming loans- loans or advances whose credit quality has deteriorated such that full collection of principal and/or interest in accordance with the contractual repayment terms of the loan or advances are in question; or when principal and/ or interest is due and uncollected for 90 (ninety) consecutive days or more beyond the scheduled payment date or maturity (NBE Directive, 2008).

Loans and Advances : means any financial assets of a bank arising from a direct or indirect advance or commitment to advance funds by a bank to a person that are conditioned on the obligation of the person to repay the funds, either on a specified date or on demand, usually with interest (NBE Directive, 2008).

Lending: - is the provision of resources (granting loan) by one party to another party where the second party doesn't reimburse the first party immediately there by generating a debt, and instead arranges either to repay or return those resources a later date (Wikipedia).

Credit risk - it is the risk that a financial contract will not be concluded according to the agreement. It is the risk that the counterparty to an asset will default (Wikipedia).

1.7. Organization of the paper

The study was organized to have five chapters. The first introduces the background and statement of the problem, the research objectives and questions, significance of the study,

the scope of the study, and definition of terms. The second chapter presents both theoretical and empirical review of the related literatures. The third chapter deals with methodology of the study. The fourth chapter is mainly concerned with the analysis of data collected. The last chapter which is chapter five presents the conclusion and the recommendation drawn from findings of the data in addition with implications for further research.

Chapter Two

2. Review of Related Literature

2.1. Introduction

The main purpose of this section is to review the theoretical and empirical literature so that it can help us to analyze and identify the main determinants of nonperforming loan.

Loans and advances constitute the primary source of income by banks. As any business establishment a bank also seeks to maximize its profit. Since loans and advances are more profitable than any other assets, a bank is willing to lend as much of its funds as possible. But banks have to be careful about the safety of such advances (Radha .M, et al, 1980). Bankers naturally try to balance the issue of maximizing profit by lending and at the same time manage risk of loan default as it would impair profit and thereby the very capital. Thus, a bank needs to be cautious in advancing loans as there is a greater risk which follows it in a situation where the loan is defaulted.

In other words loan loss or defaulted loans puts a bank in a difficult situation especially when they are in greatest amount. It is when such risks materialize that loans turn to be non- performing.

Non-performing loans generally refer to loans which for a relatively long period of time do not generate income; that is the principal and/or interest on these loans has been left unpaid for at least 90 days (Fofac, 2009). Non- performing loans are further defined as loans whose cash flows stream is so uncertain that the bank does not recognize income until cash is received, and loans those whose interest rate has been lowered on the maturity increase because of problem with the borrower.

Non Performing Loans (NPL) or bad loans arise in respect of the loans and advances which are given by banks to the whole range of different projects including but not exclusively retail or wholesale, personal or corporate or short, medium or long term projects. NPLs are a very sensitive element of a bank's operations.

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. Empirical evidences support for both sets of factors. However, because the matter of fact; the literature of this paper focuses on bank specific factors of nonperforming loans.

2.2. Theoretical review

Theoretical literature on bank specific variables of nonperforming loan is not that much developed and grows. Only few studies have investigated the association of NPLs with bank specific factors. Well known authors on such theories are Berger and DeYoung (1997). They used USA commercial banks data over the period of 1985-1994 and employed granger causality test to investigate the direction of causality among cost efficiency, loan quality and bank capital. Then, they presented and empirically tested 4 bank specific hypotheses in their study. This study reviewed the four hypotheses and other hypotheses from the existing literature.

2.2.1. Bad luck or Bad management hypothesis

Berger and DeYoung (1997), who studied the links between NPLs, cost efficiency and capitalization in the US commercial banks for the period 1985–94, found a two-way causality between cost efficiency to NPLs. They explained the causality from NPLs to cost efficiency as bad luck, driven mainly by deterioration in macroeconomic conditions. Due to macroeconomic events such as bad performance of economy in the form decreased production level, high unemployment, failure of capital availability, failure of manufacturing plant, energy crisis, unexpected events such as terrorist attacks; the economic activities in the country declines which results in the reduced earnings and profits of individuals and firms, leading to the growth in bad loans. In order to recover bad loans banks incurs extra operating costs in the form of additional monitoring expenses, attention divergence of top management, the costs of pricing, handling and disposing off collateral, negotiations with defaulters etc as a result the increase in bad loans erodes banks cost efficiency in the form of increased monitoring and recovering costs.

They also explained the causality from cost efficiency to NPLs through the hypothesis of bad management. Low cost efficiency (high cost inefficiency) signals the current bad performance of the senior managers in managing day to day activities and loan portfolio. The lower management also does not monitor and control operating expenses, which is reflected in the low cost efficiency almost immediately. Managers in such banks do not follow the standard practices of loan monitoring, controlling and underwriting. Thus as "bad managers" they have poor credit scoring, collateral evaluating and loan monitoring and controlling skills. When mangers are inefficiently managing the current banking

operations then it will lead to the future growth in NPLs. In particular, this hypothesis argues that low cost efficiency is a signal of poor Management practices, thus implying that as a result of poor loan underwriting, monitoring and control, NPLs are likely to increase (ibid).

2.2.2. Skimping hypothesis

An alternative hypothesis is skimping which was also proposed by Berger and DeYoung (1997) suggests a possible positive causality between high cost efficiency and NPL. Resource allocated for monitoring loans and underwriting effects the cost efficiency and loan quality of the banks, higher cost efficiency leads to the growth in NPLs. In order to achieve short term profits, banks prefer lower costs but in long run it will affect the quality of loans. Therefore managers have to decide tradeoff between cost efficiency and resource allocation for underwriting, appraising collateral, controlling and monitoring outstanding loans. Thus banks that prefer high cost efficiency dedicate less effort in ensuring quality of loans; however such banks have higher growth in NPLs during long run. In particular, they suggest that high cost efficiency may reflect little resources allocated to monitor lending risks and therefore may result in higher NPLs in the future.

2.2.3. Moral hazard hypothesis

The moral hazard hypothesis, which was discussed by Keeton and Morris (1987), argues that banks with relatively low capital respond to moral hazard incentives by increasing the riskiness of their loan portfolio, which in turn results in higher non-performing loans on average in the future. Banks having low capital tends to increase earnings through increase in loan portfolio riskiness by allocating funds to low quality borrowers, resulting in the future growth in NPLs. This practice of banks comes under moral hazard, because banks know that they are thinly capitalized but still increases the riskiness of loan portfolio. Thus low financial capital may leads to the future growth in NPLs.

The NPLs are significantly positively associated with loan to asset ratio, implying that with the increase in loan to asset ratio banks chance of insolvency increases due to the mismanagement of assets by the banks in long run. The mismanagement of assets refers to the extensive lending by the banks when they have excess time deposits. Thus under moral hazard it can be hypothesized that high loans to assets ratio or low financial capital are positively associated with NPLs.

Keeton and Morris (1987) indeed showed that excess loss rates were prominent among banks that had relatively low equity-to-assets ratio. The negative link between the capital ratio and NPLs was also found in Berger and DeYoung (1997). More generally, Keeton and Morris (1987) argued that banks that tend to take more risks, including in the form of excess lending eventually absorbed higher losses.

2.2.4. Soft Budget Constrained Hypothesis

Various studies have suggested in most of the transition economies when banks have high level of liquidity and savings, in order to utilize idle funds banks start extensive lending to households and firms, which result in the substantial loses to the economy because extensive lending by the banks leads to the growth in lending as compared to the investments and consumptions. This leads to the counter-productiveness of the funds by increasing the liabilities as compared to the income of households and firms. The inability to repay loan by the households and enterprise raises the NPLs of the banks. Thus by using soft budget constrain it can be hypothesized that soft budget constrain can result in the growth of NPLs.

2.3. Empirical review

There is large number of empirical literature on the study of determinants of nonperforming loan with macro level and bank specific analysis. Some of important studies that are relevant for this study are reviewed as follows:

Saba et al (2012) determinates of nonperforming loan in US banking sector from 1985 to 2010. They employed correlation and regression tests. The study considers the Real GDP per Capita, Inflation, and Total Loans as independent variables, and Non Performing Loan Ratio as dependent variable. The regression tests shows all the independent variables have significant impact on the depended variable, however, values of coefficients are not much high.

On the other hand, Joseph et al (2012) examined the causes of non-performing loans in Zimbabwe. They used descriptive analysis of interpreting factors affecting NPL. The paper revealed that external factors are more prevalent in causing non performing loans in CBZ Bank Limited. Their findings indicated that non performing loans were caused by

internal and external factors. In the context of CBZ Bank Limited, internal factors such as poor credit policy, weak credit analysis, poor credit monitoring, inadequate risk management and insider loans have a limited influence towards non performing loans. However, external factors namely natural disaster, government policy and the integrity of the borrower as the major factors that caused non performing loans in CBZ Bank Limited.

In another study, Messai and Jouini (2013) tried to detect the determinants of non-performing loans for a sample of 85 banks in Italy, Greece and Spain for the period of 2004 to 2008. They used macroeconomic variables and specific variables to the bank as determinates of NPL. The macroeconomic variables are included the rate of growth of GDP, unemployment rate and real interest rate with respect to specific variables opted for the return on assets, the change in loans and the loan loss reserves to total loans ratio (LLR/TL). After the application of the method of panel data, they found that NPL is negatively with the growth rate of GDP, the return on assets and positively with the unemployment rate, the loan loss reserves to total loans and the real interest rate.

In the contrary, Farhan M. et al, (2012) study the economic factors causing non-performing loans in the Pakistani banking sector. The study was conducted via a well structured questionnaire and data was collected from 201 bankers who are involved in the lending decisions or analyze the credit risk or handling non-performing loans portfolio. Correlation and regression analysis was carried out to analyze the impact of selected independent variables (Interest Rate, Energy Crisis, Unemployment, Inflation, GDP Growth, and Exchange Rate) on the non-performing loans of Pakistani banking sector. Top 10 Pakistani banks were selected as a sample. According to the results Pakistani bankers perceive that Interest Rate, Energy Crisis, Unemployment, Inflation, and Exchange Rate has a significant positive relationship with the non-performing loans of Pakistani banking sector while GDP growth has significant negative relationship with the non-performing loans of Pakistani banking sector.

Using panel data of eight commercial banks from 2005 to 2011, Mitku, 2014   analyzed determinants of commercial bank lending in Ethiopia. He used Ordinary least square (OLS) method to determine the impact of the predictor variables on commercial bank lending. He tested the relationship between commercial bank lending and its some determinants (bank size, credit risk, gross domestic product, investment, deposit, interest rate, liquidity ratio and cash required reserve). The result suggests that, there is significant

relationship between commercial bank lending and its size, credit risk, gross domestic product and liquidity ratio. But deposit, investment, cash required reserve and interest rate does not affect Ethiopian commercial bank lending for the study period.

Shingjergji and Shingjergji (2013) also analyzed the nonperforming loans in the Albanian banking system. They used a simple regression model. In the model are taken into consideration some macroeconomic and banking factors that have contributed to increase the nonperforming loans level. They found out that real effective exchange rate is positively related with the nonperforming loans according to which the international competition of the economy of a country is an important determinant of the credit risk. In other words any time there is a deterioration of the competition in a country's economy the nonperforming loans level that derives from the main export sectors is likely to increase.

In Kenya, Wanjiru (2013) examined the cause of nonperforming loan using multiple regressions over a period of 2008 to 2012. The study revealed that non-performing loans of commercial banks in Kenya are positively correlated with inflation rate. The study also found that non-performing loans are negatively correlated with real interest rate and growth rate in loans.

Similarly, Evelyn Richard (2011) critically examined the reasons for non performing loans (NPLs) in commercial banks in Tanzania and strategies employed in dealing with NPLs. A semi-structured questionnaire was administered to 48 bank officers from 14 commercial banks that provide corporate loans and had been in operations for at least five years. Findings suggest that use of funds for purposes different from agreed ones as a major factor that cause NPLs. Creating an environment to make banks seen as problem solvers and trusted advisor to borrowers was cited as the main strategy towards solving NPLs problems.

The study of Hippolyte Fofack, (2005) investigated the leading causes of nonperforming loans during the economic and banking crises that affected a large number of countries in Sub-Saharan Africa in the 1990s using causality and pseudo-panel models. Empirical analysis shows a dramatic increase in these loans and extremely high credit risk, with significant differences between the CFA and non-CFA countries, and substantially higher financial costs for the latter sub-panel of countries. The results also highlight a strong causality between these loans and, economic growth, real exchange rate appreciation, the

real interest rate, net interest margins and interbank loans, consistent with the causality and econometric analysis, which reveal the significance of macro and microeconomic factors.

2.4. Analytical framework for Determinants of nonperforming loan

Once we are reviewing theoretical and empirical literature on the determinants of NPL, the next step is driving variables that are affecting NPL for this paper. As shown from the literature, it is obvious that there is no a single, generalized and unified theory that explains the main determinants of nonperforming loan. Thus, the following are the major variables that are employed in analysis determinates of NPL;

2.4.1.Rapid credit growth and NPLs

The study of Keeton (1999) shows relationship between loans and speedy credit growth. The author has used a vector auto regression model on commercial banks in United States for the periods 1982-1996. Empirical studies show that lenient credit terms is one of the factors which increases NPLs. Boudriga, Boulila, &Jellouli (2009)indicate some factors which can reduce NPLs. These factors are foreign capital presence, appropriate capitalization and prudential provisional policy. To expand credit, banks have to ease the standards of credit terms, monitoring of borrowers and decrease the interest rates (Keeton, 1999).

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

Empirically, Kwan and Eisenbeis (1997) find a U-shaped relationship between bad loans and loans growth. At a low growth rate, loans growth has a negative effect on the number of bad loans. As loans growth rate exceeds a certain point, further loans growth adds increase bad loans.

2.4.2.Monitoring and NPLs

The banks, which incur more expenses on monitoring and assessing the borrowers, are less efficient in financial operations but these banks have lower NPLs (Hughes et al, 1996). Various studies show that state-owned banks are less efficient because they concentrate more on monitoring the NPLs. Salas and Saurina (2002) are of the view that inefficient bank management causes NPLs. The loans are more secured if the banks keep a continuous check on the borrowers. The banks need to give their borrowers full attention, so they are not relaxed at any stage about repayment of their loans. It has been seen that less monitoring of borrowers lead to NPLs (Agresti et al, 2008).

There are evidences in literature about poor monitoring, on the part of the banks, to be the main bank-specific factors behind creating NPLs. The banks carry on these practices in order to increase profit (Agresti et al, 2008, for US and Salas and Saurina, 2002, for Spain). There are also some other features present in them as inadequate monitoring system.

The study of Omar (2009) showed that banks are nationalized in the 1970s by the government. The state-owned banks possess 88% to 96% of NPLs in the whole banking sector. Due to this poor performance, government reconsidered its thinking. The reforms of 1991 allowed private banks operations in Pakistan. During 1997-2001 the private-owned banks become more strengthened when further reforms are structured to build an extensive and competitive environment.

2.4.3.Interest and NPLs

Various researchers have given a variety of findings about this relationship. According to some researchers high interest rate has a significant and positive relationship with Non-Performing Loans. They are of the view that when banks increase interest rate, there is an additional payment burden on borrowers resulting in increased defaults (Stiglitz and Weiss, 1981; Asari et al, 2011).

Some of studies have also shown a weaker or insignificant relationship between interest rate and Non-Performing Loans (Epinoza and Prasad, 2010). The study of Sinkey (2002) shows that increase in interest rate negatively impacts the loan defaults. Similarly the study of Rajan and Dhal (2003) indicates a significant association of high cost of borrowing and Non-Performing Loans (NPLs).

2.4.4.Risk assessment and NPLs

A weak Risk assessment can also play a role in increasing NPLs. The repute of borrowers to repay loan and the market value of securities are not adequately assessed while giving loans which become key reasons behind NPLs (Petersson, 2004). The study of Ning (2007) shows that the banks use their personal experiences in giving loans rather than using historical data, mature credit portfolio management skills and centralized information system. This causes NPLs to grow at even a higher pace. The banks should access information about creditability of the customers, so that NPLs can be reduced. In this regard responsibilities of banks should be clearly defined. It should be ensured that banks exercise effective policies and adequate risk management (Basel, 2001).

The study of Akerlof (1970) explains that due to adverse selection, the borrowers can be differentiated with respect to quality. Low quality borrowers cannot use amount of loan in productive ventures as compared with high quality borrowers. This can result in an increase in NPLs. The adverse selection problem indicates that when lenders cannot distinguish good from bad borrowers, all borrowers are charged a standard interest rate that reveals their collective practice. If this rate is elevated than valuable borrowers justify, it will drive some good borrowers out of the borrowing market, forcing in turn to banks charging even higher rates to the remaining borrowers. That's why the banks prefer to chose high quality borrowers. The selection of borrowers is a challenge in order to control NPLs.

Chapter Three

3. Research Design and Methodology

3.1. Sample and Sampling Techniques

Probability sampling techniques were used to collect primary data using questionnaire and in order to strength the finding in-depth interview has been conducted with top management.

The qualitative data mainly employed for in-depth personal interview with purposively selected samples from the given varied groups. Purposive sampling technique used to sample the target population of senior loan officer and senior management member in the Bank. Purposively 2 of the senior credit analysis, 2 of employee's senior rehabilitation

officers, 4 of senior credit and rehabilitation management members, 1 vice president of credit interviewed. For collecting quantitative data through questioner, simple random sampling technique used to select the representative samples.

Sample size determination is needed to increase the validity of the study, representative sample size and suitable sampling technique has been given special care and emphasis. To determine the sample size for categorical data Cochran's standard formula used (Cochran, 1998). According to Cochran's standard formula, sample size can be determined as follows:

$N = Z^2 P (1-P)/M^2$

Where:

N=the desired sample size

Z = standard normal variation at the required level of confidence

P = estimated proportion of study population to have particular characteristics
M = the margin of error (error researcher willing to accept)

Since there is no estimate of population of the targeted population which has particular characteristics 50% is recommended to use. Thus P=0.5, and p-0.5. The researcher considers 95% level of confidence, the desired level of confidence (margin) of error at (5% confidence) is 0.05 therefore the sample size is:

$(1.96^2)(0.5) (0.5)/ (0.05)^2 = 384$

Since the sample size exceeds 5% of the population (112*0.05=5.6), thus Cochran's correction formula should be used to calculate the final sample size as shown bellow.

N1= N0/ (1+N0/N) where

N =population size

N0 = required return sample size according to Cochran's formula and

N1= required return sample size use sample size is greater than 5% of population.

So the result is N1= N0/ (1+N0/N)

N1=384/ (1+384/112) = 86 is the required sample size for employees of the bank.

Thus, the target population of each of the given stratum and proportionate sample of the division can be summarized in the following table.

Table 1: Simple random sampling

No	Stratum	N	%	Selected Samples	
				N	%
1	Employees in credit and Rehabilitation process of head office	87	78	67	78
2	Employees in credit process of Addis Ababa branch	25	22	19	22
	Total	112	100	86	100

The total sample size of the target respondents' were the sum of employees in credit process and purposively selected senior loan officer and senior management member employees of the bank 86+2+2+4+1= 95 from each stratum as shown from the table above are united in order to produce the overall sample of the study. Then, using random sampling procedure questionnaires would distribute for the stratified sample unit as per number of each stratum.

3.2. Sources and tools of data collection

The study used **primary data** which consists of interview and questionnaire with senior bank credit process staffs to identify the reason behind such high loan default. The questionnaire is composed of structured questions and Likert scale questions. Moreover, **secondary data** such as DBE annual report, brushers and 'zena limat bank' periodical used to overview the DBE performance during the previous years. The questioners were administered only to employees in Addis Ababa because it was difficult to administer for employees all over Ethiopia. Besides, the researcher believed that at least including Addis

Ababa branch in the sample frame makes the results of the thesis more trustable and acceptable.

3.3. Methods of Data Analysis

After the data collected from both primary and secondary sources through questionnaire and interview methods, the researcher analyzed the results based on their nature and type accordingly.

3.1. Descriptive Analysis

The researcher analyzed the result of quantitative data with descriptive approach to describe the median values of the scores of the responses of the respondents' level of agreement and disagreement with a given statement under each Likert type of questions.

3.2. Qualitative data analysis

For qualitative data, descriptive and qualitative analysis employed. Voice message and the collected raw data transferred and organized in to text. Additionally, recorded notes coded and interpreted though qualitative analysis and interpretation with descriptive statements.

3.3. Econometrics Data Analysis

Econometrics model were employed in order to analysis determinants of NPL in Development Bank of Ethiopia. After, data gathered from the survey the researcher feeded into Statistical Package Software for Social Science (SPSS) and analysis through Liner Probability Model (LPM). The researcher intended to use Liner probability Model is because the dependent variable is captured through qualitatively since this paper is focus on Bank specific determinants of NPL in DBE. Thus, the researcher found out that Liner probability model is the fitted model for such scenario.

The Model specification will be as follow:

NPL= β_1 + β_2 **RskAss** + β_3 CrdtMon + β_4 CollLen + β_5 RskAppt + μ

Where:

NPL- non-performing loan in DBE and can be constructed via dummy variable as follow;

   NPL=1, the ith employee who thought that nonperforming loan in DBE is high

         0, the ith employee who thought that nonperforming loan in DBE is low (below

acceptable rate, i.e 5%)

RskAss= **risk assessment (risk rating),** means assessing the risk of existing or new company whenever the bank will agree to lend. So here we will construct a dummy variable how much good or poor was the risk assessment in DBE. The dummy can be constructed as follow;

RskAss=1, the ith employee who consider that risk assessment in DBE is poor

0, the ith employee who consider that risk assessment in DBE is strong

CrdtMon= **credit monitoring**, means follow up and control of disburse loan. Here again Dummy variable constructed as follow;

CrdtMon=1, the ith employee who believe that there is strict monitoring in DBE.

0, the ith employees who believes that there is poor monitoring in DBE.

CollLen= **collateralized lending**, this holding any assets for second way out of loan. Here also dummy variable can be constructed as follow;

CollLen=1, the ith employee who believe that collateral lending will reduce NPL in DBE

0, the ith employee who believe that collateral lending wouldn't bring reduction

NPL in DBE

RskAppt= **Risk appetite**, it is amount of risk willing to accept by the Bank. Here, we will use how much DBE is willing to accepts a risk for company's related each other (whether sister or brother companies). So we will construct a dummy variable as well.

RskAppt=1, the ith employee who believe that risk appetite in DBE is high

0, the ith employee who believe that risk appetite in DBE is low

μ = error term which captured other variables that are not included in the model.

β_1= intercept of the model

β_2, β_3, β_4, β_5= slope of each independent variable.

3.3.1.Liner Probability Model (LPM)

The linear probability model is the regression model applied to a binary dependent variable. To fix ideas, consider the following simple model:

$$Y_i = \beta_0 + \beta_1 X_i + U_i \ \dots\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

where X = independent variable

Y = 1 if the event occur

= 0 if the event doesn't occur

U_i is the disturbance term

The independent variable X_i can be discrete or continuous variable. The model can be extended to include other additional explanatory variables.

The above model expresses the dichotomous Y_i as a linear function of the explanatory variable X_i. Such kinds of models are called linear probability models (LPM) since $E(Y_i/X_i)$ the conditional expectation of Y_i given X_i, can be interpreted as the conditional probability that the event will occur given X_i; that is, $P_r(Y_i = 1/X_i)$. The justification of the name LPM can be seen as follows (Gujarati, 2004).

Assuming $E(U_i) = 0$, as usual (to obtain unbiased estimators), we obtain

$$E(Y_i/X_i) = \beta_0 + \beta_1 X_i \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.(2)$$

Now, letting P_i = probability that $Y_i = 1$ (that is, that the event occurs) and $1 - P_i$ = probability that $Y_i = 0$ (that is, that the event does not occur), the variable Y_i has the following distributions:

Y_i	Probability
0	$1 - P_i$
1	$\dfrac{P_i}{}$
Total	1

Therefore, by the definition of mathematical expectation, we obtain

$$E(Y_i) = 0\,(1 - P_i) + 1(P_i) = P_i \ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots.(3)$$

Now, comparing (2) with (3), we can equate

$$E(Y_i/X_i) = Y_i = \beta_0 + \beta_1 X_i = P_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(4)$$

That is, the conditional expectation of the model (1) can, in fact, be interpreted as the conditional probability of Y_i.

Since the probability P_i must lie between 0 and 1, we have the restriction $0 \leq E(Y_i/X_i) \leq 1$ that is, the conditional expectation, or conditional probability, must lie between 0 and 1.

CHAPTER FOUR

4. DATA PRESENTATION ,ANALYSIS AND INTERPRETATION

The previous chapters presented the introduction, literature review and the research methodology. This chapter presents results relating to the bank-specific and social factors affecting the Non-Performing Loans. This chapter tries to show the results of the survey conducted in Development Bank of Ethiopia.

4.1. Survey Results

The questionnaire was distributed in Development Bank of Ethiopia which related to the credit process including loan officers, appraisal officer, rehabilitation officers, credit principals, credit managers, credit directors of the Bank. The questionnaire was physically distributed to 86 employees who related with credit process. Out of 86 questionnaires 82 were completed and returned. So the overall response was 95.3 % which is impressive if we see it in the context of the research culture in developing country.

Table 2: Survey Response Rate

Sample Size	86
Completed and returned questionnaires	82
Response rate	95.3%

Source: Survey outcome and own computation

4.1.1. Descriptive Results

i)   Respondents' gender

Out of 82 valid responses, 85.4% were male and 14.6 % were female. This shows that credit process of the DBE is dominated by male employees. Therefore, it can be conclude that the Bank prefer male staff while giving jobs related to loan advancement.

Table 3: gender of respondent

		Frequency	Percent
Valid	MALE	70	85.4
	FEMALE	12	14.6
	Total	82	100.0

Source: Survey outcome and own computation

ii)   Respondents Job position

The survey respondents included 65.9% loan officers, 22 % Appraisal officer, 2.4 % credit principal, 8.5 % rehabilitation officers and 1.2 % appraisal principal.

Table 4: positions of the respondents in DBE

		Frequency	Percent
Valid	Appraisal Principal	1	1.2
	Appraisal Officer	18	22.0
	Credit Principal	2	2.4
	Loan Officer	54	65.9
	Rehabilitation officer	7	8.5
	Total	82	100.0

Source: Survey outcome and own computation

iii)   Working experience in credit process

The survey indicated that by means of experience 57.3 % of the respondents had 1 TO 5 years of experience in credit process. The second larger number of respondents belonged to the category of 6 to 10 years experience as their percentage was 26.8%. 8.5% of the respondents belonged to the category of less than 1 years of experience which was the third larger While 3.7% of the respondents have an experience of above 15 years of

experience in credit process. The last but highly experienced in the bank responds 2.4% of the total questioner who an experience between 11 to 15 years in DBE credit process. This shows that respondents had a good experience in the Banking sector specifically in credit process which increased the quality of the survey.

Table 5: respondents' working experience in credit process

		Frequency	Percent
Valid	1 TO 5	47	57.3
	11 TO 15	2	2.4
	6 TO 10	22	26.8
	ABV 15	3	3.7
	LESS 1	7	8.5
	Total	82	100.0

Source: Survey outcome and own computation

iv) Education level

As from Table 5 we can see that almost majority of the Bankers in DBE related to credit process are highly qualified. This can be seen from the below table in which most of respondents are above Bachelor degree.

Table 6: qualification of the respondents

		Frequency	Percent
Valid	DEGREE	66	80.5
	MASTER	15	18.3
	Total	82	100.0

Source: Survey outcome and own computation

v)   Factor affecting Non performance loan in Development Bank of Ethiopia

The study tried to assess the factors that affect NPL ratio of DBE. The study required respondents to show their agreement or disagreement to certain statements dealing with Bank specific factors affecting occurrences of nonperforming loans. Examining the results of the study in this connection reveals that about 78 percent of respondents agreed to the statement "factors affecting NPL of DBE are obvious and clear" while the rest disagreed and were neutral about it.

Table 7: determinants of NPL is obvious

		Frequency	Percent
Valid	Strongly agree	8	9.8
	Agree	56	68.3
	Neutral	14	17.1
	Disagree	4	4.9
	Strongly Disagree	0	0
	Total	82	100.0

Source: Survey outcome and own computation

Respondents were also asked to rank factors causing nonperforming loans in Development Bank of Ethiopia in order of importance (from one to eight). The results in this regard indicated that 31 percent of respondents ranked Poor credit policy and procedure as the top ranking factor causing occurrences of nonperforming loans followed by poor follow up as second factor as 17 percent of the respondent chosen while high risk appetite is ranked at third factor by 15 percent of the respondents. Thus poor credit policy and procedure, high risk appetite and poor credit monitoring by Banks were the top four factors ranked to cause occurrences of nonperforming loans. On the other hand, charging high interest rate and rapid loan growth were factors that were ranked as a bottom two (Table 8)

Table 8; Rank of factors affecting NPL in DBE

Factors affecting NPL	1st %	2nd %	3rd %	4th %	5th %	6th %	7th %	8th %
Rapid Loan growth by bank	4.88	2.44	13.41	6.10	10.98	14.63	29.27	19.51
High interest rate	2.44	3.66	4.88	7.32	13.41	24.39	17.07	28.05

Integrity if borrower	9.76	23.17	7.32	9.76	23.17	6.10	9.76	9.76
Poor monitoring/follow up	15.85	29.27	25.61	7.32	13.41	1.22	3.66	3.66
Poor risk assessment or risk grading	7.32	20.73	37.80	8.54	8.54	4.88	9.76	2.44
Without Collateral lending	10.98	7.32	7.32	26.83	12.20	15.85	6.10	9.76
High Risk appetite (risk taking)	17.07	7.32	3.66	24.39	9.76	12.20	14.63	10.98
Poor credit policy and procedure	31.71	6.10	0.00	9.76	8.54	20.73	9.76	15.85

Table 9 shows responses on factors indicating the relation between credit assessment and occurrence of the nonperforming loans. Only 43.9 percent of the respondents agree that easily admitted borrowers usually default. On the other hand 32.93 and 37.8 percent of the respondents strongly agree and agree respectively that having in place customer due diligence (CDD) policy lead to high loan quality. With regard to good loan underwriting, 60.9 Percent of the respondents agree that it ensures loan performance. Poor risk assessment is perceived to lead to loan default by 98 percent of the respondents (sum of agree and strongly agree).

Table 9; risk assessment and non performance loan in DBE

	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
Easily admitted borrowers usually default	7.32	43.90	28.05	20.73	7.32
Customer Due Diligence (CDD) policy of Banks lead to high loans quality	32.93	37.80	20.73	7.32	1.22
Good loan underwriting ensures loan performance	14.63	60.98	15.85	6.10	2.44
Poor risk assessment would lead to loan default	43.90	54.88	0	1.22	0

From the above result respondents strongly agree that Banks that employ a robust CDD policy in recruiting their customers and also do good risk assessment would have a better loan quality. On the other hand when the loan underwriting is poor, the loans would be prone to default. In general the outcome indicates that poor credit risk assessment cause occurrences of nonperforming loans.

Table 10: Relation between collateralizing loans and occurrence on NPL

		Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
1	Collateralizing loans help protect loan default	14.63	6.10	9.76	56.1	13.4

With regard to the relation between collateralizing loans and occurrence of nonperforming loans, only 14.63 and 6.10 percent of respondents strongly agree and agree respectively with statement that collateralizing loan protect loan default and on the other hand majority of the respondents disagree with the statement that collateralized loans would be defaulted. Thus, from the result we can conclude that when loans are collateralized the probability of unpaid of the loan is very high.

Table 11; Factors indicating credit monitoring and loan default

		Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
1	Strict monitoring ensures loan performance	51.22	46.34	2.44	0	0
2	Poorly assessed and advanced loans may perform well if properly monitored	3.66	41.46	19.51	35.37	0
3	Loan follow up is directly related to occurrence of nonperforming loans	10.98	52.44	10.98	23.17	2.44
4	Banks with higher budget for loan monitoring have lower non performing loans	7.32	51.22	24.39	15.85	1.22

Strict loan monitoring is believed to ensure loan performance by 97.56 percent of the respondents. On the other hand 35.37 percent of the respondents disagree with the assertion that loan might perform well if properly monitored despite poor assessment during sanctioning. This indicates that loan follow-up can never substitute proper credit assessment.

However, 63.42 percent of the respondents agree that occurrence of nonperforming loan is directly related loan follow up. On the other hand only 57.54 percent of the respondents agree that banks with higher budget for loan monitoring have lower nonperforming loans, while 24.39 percent of the respondents neutral about the relationship between higher budget for loan monitoring and lower nonperforming loans.

From the foregoing discussion it can be concluded that credit monitoring is directly related to loan performance. Despite this the respondents didn't support the argument that loan would perform well only by proper monitoring if proper assessment is not carried out while advancing the credit. Thus, in general we conclude that focusing on monitoring and follow up would reduce non performing loan of the bank.

Table 12. Credit growth relation with NPL

		Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
1	Aggression in giving loans can lead to higher NPLs.	7.32	60.98	20.73	9.76	1.22
2	Banks whose credit growth is rapid experience huge NPL level	6.10	28.05	24.39	40.24	1.22
3	Bank's great risk appetite is cause for NPL (Mean If the bank has the tendency of taking greater risks then this can increase NPLs)	13.41	50.00	19.51	15.85	1.22
4	Compromised integrity in lending leads to loan default	9.76	37.80	29.27	23.17	0
5	Giving loans to a large number of borrowers can increase chances of NPLs	9.76	32.93	17.07	35.37	4.88
6	Loans default rate is directly related to banks' size	4.88	19.51	42.68	32.93	0
7	There are more chances of high NPLs if advancement of credit by bank is rapid.	6.10	34.15	39.02	18.29	2.44

When we see to the response on the relation between credit growth and occurrence of nonperforming loans; almost 70 percents of them agreed to assertion that aggressive lending leads to occurrence of large magnitude of NPL. Similarly 63.41 percent of the respondents thought that banks' greater risk appetite would be cause for occurrence of nonperforming loans. The response on the relation between compromised integrity and NPL reveals that almost 47.56 percent are in agreement while 29.27 percent of the respondents are neutral.

So it can be stated that when banks pursue aggressive lending strategy and thereby experience rapid credit growth they might heap up large volume of nonperforming loans. Not only this but also compromised integrity in sanctioning credit is also believed to be cause for occurrence of loan default by respondents. The survey response on the relation between having large number of

borrowers and banks' size indicates that it is not the cause for the occurrence loan default. Responses to questions relating to bank size and occurrences on NPL are inclined towards disagreement.

4.1.2. Regression analysis (LPM)

This section analysis the determinants of nonperforming loan using data from survey. Liner probability model employed to analysis determinates of NPL in DBE.

Model

$$NPL = \beta_1 + \beta_2 \, \mathbf{RskAss} + \beta_3 \, CrdtMon + \beta_4 \, CollLen + \beta_5 \, RskAppt + \mu$$

Table 13:Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.763[a]	.583	.561	.24095

a. Predictors: (Constant), STRICT MONITORING AND FOLLOW UP, POOR RISK

ASSESEMENT, COLLATERAL, GREAT RISK APETTITE

Table14; ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6.402	4	1.600	27.565	.000[a]
	Residual	4.587	79	.058		
	Total	10.988	83			

a. Predictors: (Constant), STRICT MONITORING AND FOLLOW UP, POOR RISK ASSESEMENT,

COLLATERAL LENDING, GREAT RISK APETTITE

b. Dependent Variable: NPL

The ANOVA table shows that non performing loan is substantially explained by the variables included in the analysis. The R-squared reveals that 58.3% of the variation in nonperforming loan is explained by the independent variables. The F-statistic also indicates that model is significant/adequate as a whole, more specifically it mean that at least one of the explanatory variables is important in explaining the Nonperforming loan model.

TABLE 15; Diagnostic analysis of heteroscedasticity and multicollinearity test

estat hottest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of NPL
chi2(1) = 41.77
Prob > chi2 = 0.3698

Vif		
Variable	VIF	1/VIF
strictmoni~g	1.40	0.714952
greatriska~e	1.23	0.812928
Poorriskass	1.14	0.878571
collateral	1.09	0.913333
Mean VIF	1.22	

The diagnostic tests perform well indicating no problem about the regression analysis of model. Heteroscedasticity test is undertaken using Breusch-Pagan test. According to Breusch-Pagan test of the regression there is no heteroscedasticity problem since the model accepts the null hypothesis of constant residuals variance. So in this case the evidence is accepts the null hypothesis that the variance is homogeneous sensitive to model assumptions, such as the assumption of normality. On the other hand the multicollinearity test is applied using variance inflation factor (VIF) the model is free from any independent variable correlation. As it is show in the above table the VIF of the regression model is less than 10 so that the model is fits with the assumption of classical linear regression model.

Table 16; Regression result

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	.318	.079		4.003	.000
	COLLATERAL LENDING	.287	.063	.343	4.518	.000
	GREAT RISK APETTITE	.131	.061	.173	2.144	.035

STRONG RISK ASSESEMENT	-.173	.057	-.235	-3.038	.003
STRICT MONITORING AND FOLLOW UP	-.368	.079	-.400	-4.659	.000

a. Dependent Variable: NPL

The above table shows that all explanatory variables are significantly affecting nonperforming loan at 5% level. So that, once the model is adequate and each variables are significant we can proceed to the interpretation.

As it is shown in the table, the probability of NPL is high when the bank lends by owning collateral. As compared to non collateral lending collateral lending increase NPL by 28.7%.

On the other hand the probability of NPL is high when the bank risk taking is very large. High risk taking by the bank will increase NPL by 13.1% as compared to small level of leverage risk taking. Likewise, respondents also believe that if integrity is compromised in giving loans or there is tendency of bank to take greater risks, can lead to higher NPLs. This result has been supported by the studies of Berger and De Young (1997).

Risk assessment is another variable that affect NPL significantly. As shown in the table the probability of NPL high when risk assessment of the bank is very poor. As compare to strong risk assessment, poor risk grading will increase NPL of the bank by 31.8 %. These finding have been supported in the literature. Ning (2007) pointed out that poor risk assessment has an impact on the quality of loan.

The last variable is strict monitoring and follows up, which is also significantly affecting NPL of the bank. The probability of NPL high when poor monitoring and follow up is undertaken for the disburse loan. As compare to strict follow up and monitoring, poor monitoring and follow up will increase NPL by 31.8%. The result indicates that if a loan is poorly assessed then it can be avoided from default by adequate monitoring. The results

also indicate that credit monitoring directly affects the occurrence of NPLs. This result has been supported by the studies of Salas and Saurina (2002) and Agresti et al (2008.

Therefore, we can conclude that non collateral lending, moderate risk taking , strong risk assessment or grading , and strict monitoring and follow up are statistically determinants of nonperforming loan in Development Bank of Ethiopia which strength the descriptive analysis of the paper.

4.1.3. Secondary data analysis

4.1.3.1. Trend of non-performing loans

Figure 1; trend of NPL in DBE (2008 to 2014)
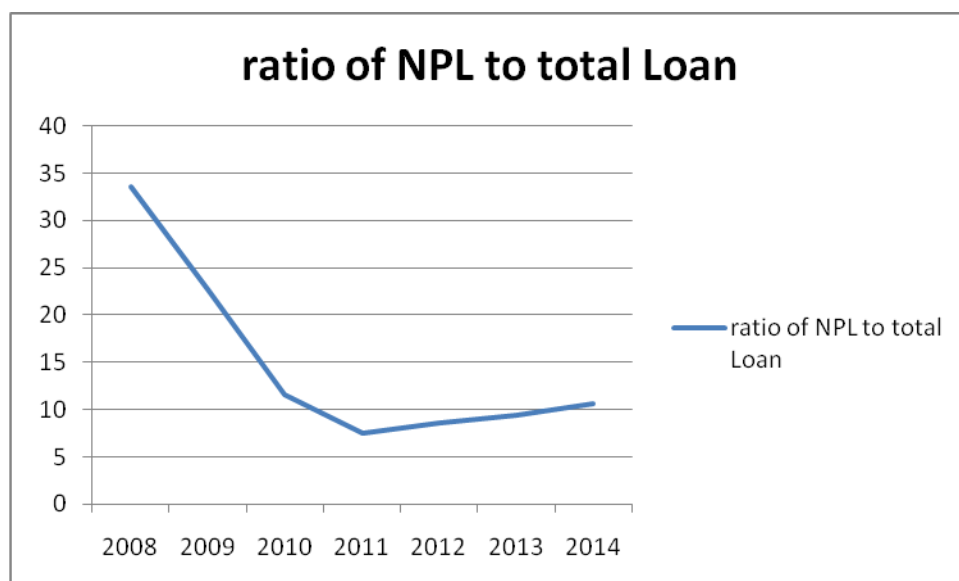
Source: Source: Data from credit process in DBE

The above figure shows the trend of non-performing loans ratios for the past seven year's period under review. As it is stated in the literature Non-performing loans ratio refers to the total amount of bad loans expressed as a percentage of the total loan portfolio during the period. The ratios of non-performing loans for the year 2008/09 was the highest rate registered in the bank during the last seven years while the year 2011/12   shows the lowest NPL ratio which is 7.5%. The trend of NPL ratio declines from 33.5% in 2008/09 to 7.5% in 2011/12 and shows a smooth increment after the year 2012. Despite, the trend shows a significant reduction in NPL ratio but the rate were still greater than 5% level which is high according to NBE guideline 2008.

4.1.3.2. Sector base analysis of NPL

Table 17; NPL share by sector

Year	agriculture	agriculture(%)	industry	Industry (%)	Service	service(%)	Total
2008	2,217,706.84	29.54	3,880,296.66	51.68	1,410,721.59	19	7,508,725
2009	2,147,732.00	22.79	5,812,069.00	61.66	1,466,200.00	16	9,426,001
2010	2,263,495.00	18.89	8,165,995.28	68.16	1,550,969.00	13	11,980,459
2011	3,052,016.79	20.36	10,185,342.83	67.95	1,751,742.29	12	14,989,102
2012	4,014,165.83	21.25	12,286,162.63	65.05	2,586,253.53	14	18,886,582

The above table shows nonperforming loan share by sector from 2008 up to 2012. As it shown industry sectors had a largest NPL occurred followed by agricultural sector. The industry sector loan default is not only large but also increasing as the NPL amount of the bank increases from time to time. On the other hand the service sector registered the lowest NPL in the bank.

DBE focuses on rendering loan to the priority area such as manufacturing, exporters and agriculture sectors to support national developmental agenda. However, NPL ratio of the bank is high and huge in these priority areas. Therefore we can conclude that the majority of bad loans are register in industry sector followed by agriculture and service sector.

4.1.3.3 Analysis of interview

In order to get deep understanding about the factors affecting nonperforming loans, in-depth interview was conducted with senior bank officials. All of the interviewees have had over 10 years credit experience in addition to their several years of banking experience. In terms of profile, credit vice presidents, credit process manger and senior credit analysis members participated.

The respondents have a lot in common as to what they believed cause occurrence of nonperforming loans. So that according to the interviewer's response the researcher summarize factors that affect Nonperforming loan in general and in DBE in particular as follows.

- Malpractice of loan policy and procedures
- Loan diversion

- Lack of collateral during loan granting

- Lack of close follow up

- Inadequate customer due diligence assessment

- Lack of skilled and efficient Management for the project

- Poor infrastructure in the project area

CHAPTER   FIVE

5. CONCLUSION AND RECOMMENDATION

5.1 Summary

Examining the determinants of nonperforming loan in DBE is the major objective of the paper. In this study, descriptive analysis, trend analysis and econometrics regression using liner probability model were been employed to found out factors affecting NPL of DBE. The study conducted survey of Banks' employees using questionnaires and structured survey of documents and unstructured interview. The survey had a response rate of 95.3%.

5.2 Conclusion

In a question where the respondents were requested to rate factors they believed cause occurrences of nonperforming loans in order of importance; Poor credit policy and procedure, poor monitoring and follow up by Banks, High risk appetite by Banks were rated to be the top three factors causing loan default. On the other hand charging high interest rate and rapid loan growth were rated among the least factors causing occurrences of nonperforming loans.

In a Likert scale measure average response indicated that respondents agreed that credit assessment is related to loan default. They also agreed with the fact that loans follow up /monitoring is related to occurrence of nonperforming loans. On the other hand the response on relation between collateral and loan default indicated agreement. Respondents were of the view that aggressive lending and compromised integrity lead to occurrences of NPL.

From regression analysis, the probability of NPL is high when the Bank lends by owning collateral rather than without non collateral lending. On the other hand the probability of NPL is high when the Bank risk taking is very large as compare to small one. Risk

assessment is another variable that affect NPL significantly. The probability of NPL low when risk assessment of the Bank is very strong. Strict monitoring and follows up, which is also significantly affecting NPL of the Bank. The probability of NPL reduce when strict monitoring and follow up is undertaken for the disburse loan.

An in-depth interview wherein seniors and executive staff were interviewed indicated that the critical factors causing occurrences of nonperforming loans include: Malpractice of loan policy and procedures, Loan diversion, Lack of close follow up, Inadequate customer due diligence assessment, Lack of skilled and efficient Management for the project, Poor infrastructure in the project area and Poor quality of products by the projects under finance.

5.3. Recommendation

Based on the research findings, the following possible policy implications are made to reduce Nonperforming loan in Development Bank of Ethiopia.

- DBE top management should ensure the adequate monitoring system.
- DBE should apply detail and adequate risk assessment. Therefore, latest assessment procedure should be adopted on selection of customers, credit analysis and sanctioning process.
- The Bank has to strengthen relationships with concerned organ especially with Ministry of foreign affairs and Ethiopian embassies abroad for KYC assessment and to protect the bank's interest from potential conflict of interest especially with regard to pro forma invoice and credit status of foreign applicant.
- Top management intervention in critical to solve the NPL of huge projects so as to recover the loans.
- The Bank has to ensure timely and proper follow up and technical support for all financed projects that help for strengthen the collection and realize the smooth implementation and operation of the projects.

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Appendix I

Diagnostic test

Collinearity Diagnostics[a]

Mod el	Dime nsion	Eigenval ue	Condition Index	Variance Proportions				
				(Constan t)	COLLATE RAL	GREAT RISK APETTITE	POOR RISK ASSESEM ENT	STRICT MONITOR ING
1	1	3.870	1.000	.01	.01	.02	.02	.01
	2	.641	2.456	.00	.02	.01	.70	.02
	3	.272	3.775	.02	.26	.69	.00	.00
	4	.144	5.179	.10	.63	.25	.00	.33
	5	.072	7.319	.88	.08	.04	.28	.65

a. Dependent Variable: NPL

Casewise Diagnostics[a]

Case Numb er	Std. Residual	NPL	Predicted Value	Residual
83	3.009	1.00	.2746	.72542

a. Dependent Variable: NPL

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	.1464	1.1004	.8452	.27760	84
Residual	-.68767	.72542	.00000	.23521	84
Std. Predicted Value	-2.517	.919	.000	1.000	84
Std. Residual	-2.852	3.009	.000	.976	84

a. Dependent Variable: NPL

Appendix II

Part I

SECTION ONE – BACKGROUND INFORMATION

1. Your current position in DBE

a) Loan Officer/senior officer ☐   d) Credit process manager ☐

b) Appraisal officer ☐   e) Rehabilitation officer ☐

c) Credit principal ☐   f) Vice president of credit ☐

Other, please specify _____

2. Indicate your work experience in DBE

a)Less than 1 year ☐   c) 11-15 years ☐   e) above 15 years ☐

b) 1-5 years ☐   d)6-10 years ☐

3. Indicate your Education background

a) Grade 1-12 ☐   c) first Degree ☐

b) Collage Diploma ☐   d) Master Degree and above ☐

4. Please indicate your gender

a)Male ☐   b) Female ☐

4. Indicate your work experience in bank credit processes

a)Less than 1 year ☐   c)6-10 years ☐   e) above 15 years ☐

b) 1-5 years ☐   d)11-15 years ☐

SECTION TWO – QUESTIONS ON THE DETERMINANTS OF NON PERFORMING LOANS

N.B Rank the factors in order of their importance in contributing to the occurrence of

Nonperforming loans from 1-8

Factor that causes occurrence of	Rank

nonperforming loan	1=highest ……8=lowest
Rapid Loan growth by banks	
High interest rate	
Integrity if borrower	
Poor monitoring/follow up	
Poor risk assessment or risk grading	
Without Collateral lending	
High Risk appetite (risk taking)	
Poor credit policy and procedure	

Please indicate your degree of agreement or disagreement to the statements pertaining to credit assessment and the occurrence of NPL

		Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
1	Nonperforming loan ratio in DBE is High					
2	Determinants of nonperforming loans are obvious					
3	Easily admitted borrowers usually default					
4	Customer Due Diligence (CDD) policy of Banks lead to high loans quality					
5	Good loan underwriting ensures loan performance					
6	Poor risk assessment would lead to loan default					

Please indicate your degree of agreement or disagreement to the statements pertaining to Collateral and the occurrence of NPL

		Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
1	Collateralized loans perform well					
2	Collateralizing loans help protect loan default					
3	Most of the time non collateralized loans are defaulted					

Please indicate your degree of agreement or disagreement to the statements pertaining to credit monitoring and the occurrence of NPL

		Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
1	Strict monitoring ensures loan performance					
2	Poorly assessed and advanced loans may perform well if properly monitored					
3	Loan follow up is directly related to occurrence of nonperforming loans					
4	Banks with higher budget for loan monitoring have lower non performing loans					

Please indicate your degree of agreement or disagreement to the statements pertaining to Credit size or credit growth and the occurrence of NPL

		Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)

1	Aggression in giving loans can lead to higher NPLs.					
2	Banks whose credit growth is rapid experience huge NPL level					
3	Bank's great risk appetite is cause for NPL (Mean If the bank has the tendency of taking greater risks then this can increase NPLs)					
4	Compromised integrity in lending leads to loan default					
5	Giving loans to a large number of borrowers can increase chances of NPLs					
6	Loans default rate is directly related to banks' size					
7	There are more chances of high NPLs if advancement of credit by bank is rapid.					

Part II

Instrument for In-depth interview

1. Summary of the respondent profile (age, education level, Banking experience, experience on credit, current status and the related)

2. Does your bank have a very clear project selection system or mechanism?

   2.1 If Yes, what is it?

   2.2 If No, why?

3. Do the managers or officers in credit process have the necessary and enough skills/ information to select appropriate projects?

   3.1. If no what is the reason?

4. Views of the respondents on the factors that determine occurrence of nonperforming loans in general and Development Bank of Ethiopia in particular.

5. Views of respondents on which factors answered in Q4 stand at the top and rating of the factors thereof in relation to the other.

6. Opinion of respondents that might have of any bearing on the occurrence of loan default in Development Bank of Ethiopia

7. Recommendation/ if any for mitigating occurrence of nonperforming loans proposed by the respondents.