



ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

**DETERMINANTS OF PROJECT LOAN DEFAULT:
EVIDENCE FROM DEVELOPMENT BANK OF ETHIOPIA**

BY EPHREM TADESSE

June 2020

ADDIS ABABA, ETHIOPIA

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**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY SCHOOL OF GRADUATE
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ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

This is to certify that the thesis prepared by Ephrem Tadesse, entitled “Determinants of project loan default: evidence from development bank of Ethiopia” and submitted for partial fulfilment of the requirements for the award of Master’s degree in Business Administration in Accounting and Finance compiles with the regulations of the University and meets the accepted standards with respect to originality and quality.

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DECLARATION

I, the undersigned, declare that this thesis is my original work; prepared under the guidance of Abreham G/giorgis(ASS.Prof). All resources 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 learning any degree.

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June 2020

ENDORSEMENT

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

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June 2020

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Table of Contents

| | |
|---|-----|
| DECLARATION | I |
| ENDORSEMENT..... | II |
| ACKNOWLEDGEMENTS | III |
| ABSTRACT..... | VII |
| CHAPTER ONE..... | 1 |
| INTRODUCTION | 1 |
| 1.1. Background of study | 1 |
| 1.2. Statement of the problem | 2 |
| 1.3. Research questions | 4 |
| 1.4. Objectives of the study..... | 4 |
| 1.4.1. General objective | 4 |
| 1.4.2. Specific objectives of the study | 4 |
| 1.5. Hypothesis of the study | 4 |
| 1.6. Scope of the study | 5 |
| 1.7. Significance of the study | 5 |
| 1.8. Organization of the Study | 6 |
| 2. LITERATURE REVIEW | 7 |
| 2.1. Introduction | 7 |
| 2.1.1. Definition of Non-performing loans | 7 |
| 2.1.2. Criteria for Differentiating NPLs..... | 8 |
| 2.1.3. Non-performing Loans Provisioning | 10 |
| 2.1.4. Effects of NPLs..... | 11 |
| 2.1.5. Theories underpinning non-performing loans | 12 |
| 2.1.6. Determinants of Non-performing loans | 15 |
| 2.2. Empirical review | 22 |
| 2.2.1. Empirical Evidence from other countries | 22 |
| 2.3. Empirical Studies in Ethiopia..... | 27 |
| 2.4. Summary and Knowledge Gap | 29 |
| 2.5. Conceptual Frame Work | 30 |

| | |
|---|-----------|
| CHAPTER THREE | 31 |
| METHODOLOGY | 31 |
| 3.1. Research Design..... | 31 |
| 3.2. Target Population | 32 |
| 3.3. Determination of Sample Size..... | 33 |
| 3.4. Sampling Method | 33 |
| 3.5. Sources and tools of data collection..... | 34 |
| 3.6. Validity and reliability of the instrument..... | 34 |
| 3.6. Data Analysis | 35 |
| 3.7. Study Variables | 36 |
| 3.7.1. Dependent variable | 36 |
| 3.7.2. Independent Variables | 37 |
| CHAPTER FOUR..... | 38 |
| 4. RESULTS AND DISCUSSIONS..... | 38 |
| 4.1. Introduction | 38 |
| 4.2. Demographic Presentation of Respondents | 38 |
| 4.2.1. Educational qualification of respondents | 38 |
| 4.2.2. Working experience | 39 |
| 4.2.3. Descriptive Analysis of the bank | 39 |
| 4.2.4. Descriptive analysis of data collection..... | 40 |
| 4.2.5. Question related to relation between credit assessment and occurrence of the nonperforming loans..... | 41 |
| 4.2.6. Question related to Employees Proficiency | 42 |
| 4.2.7. Questions concerning to Customer specific factors | 43 |
| 4.2.8. Questions concerning to Relation between collateralizing loans..... | 44 |
| 4.2.9. Questions concerning to Monitoring Ensures Loan Performance Statements | 44 |
| 4.2.10. Diagnosis Tests..... | 45 |
| 4.2.11. Normality Test..... | 45 |
| 4.2.12. Auto correlation Tests..... | 46 |
| 4.2.13. Heteroscedasticity Test | 46 |
| 4.2.14. Multicollinearity Test..... | 48 |

| | |
|---|----|
| 4.2.15. Results of Regression Analysis | 49 |
| 4.2.16. Interpretations of Variables | 50 |
| CHAPTER FIVE | 52 |
| SUMMARY, CONCLUSION AND RECOMMENDATIONS | 52 |
| 5.1. Introduction | 52 |
| 5.2. Summary of findings | 52 |
| 5.3. Conclusion..... | 53 |
| 5.4. Recommendation..... | 54 |
| REFERENCES | 55 |
| ANEXX 1..... | 62 |

ABSTRACT

This study assesses the determinants of project loan default: evidence from development bank of Ethiopia. The study revealed the important findings that were derived from quantitative and qualitative analysis: in line with the objective of this research the trend of determinants of project loan default: evidence from development bank of Ethiopia, In this study, employed descriptive research method and explanatory research design and tries to determinate of project loan default by adopted questionnaires to gather first hand and service period. Then, reliability and validity test was conducted in order to check the inconsistency of the data. The reliability was tested through statistical package for social sciences (SPSS) and Cronbach alpha correlation coefficient was used to satisfy the reliability tests. Purposively selects 6 credit units there have 300 employs directly engaged credit managing as target population by considering the loan number and loan diversification. The study had 155 questionnaires distributed and from those questionnaires 138 were collected and returned for analysis. In addition, as regression results show, the significance effects of the bank Credit assessment impact on increasing of project loan default with coefficient of 0.24, Customer factors 0.317, Credit monitors 0.18, collateralizing loans 0.12 and 0.054 Employees Proficiency 0.179. They are all positively related with all project loan default. Generally the study affirmed direct impact of Credit assessment, Customer factors, Collateralizing loans Employees Proficiency, and Credit monitors on project loan default. The policy implications of the study suggest that Development Bank of Ethiopia may need to exercise and develop both qualitative and quantitative method in its day to day making an effort to control and cunning action for all project loan default by the bank and revised its loan policy and procedure accordingly.

Key Words: Collateralizing loans, Credit assessment, Collateralizing loans Credit monitors, and Customer factors, DBE, Employees Proficiency and project loan default.

CHAPTER ONE

INTRODUCTION

This chapter gives a brief background of the study and introduces the thrust for the research and the beneficiaries of the study. The chapter also outlines the problem statement, states the objectives of the study and the proposed hypothesis for the study. The chapter also provides the significance of the study, scope of the study as well as limitations of the study. In short, it is the foundation upon which the rest of the research is going and guides the researcher in carrying out the research.

1.1. Background of study

No one can refuse the importance of financial institutions in any developed or developing Economy, as financial institutions are not only easing the credit flow in the economy but also improve the productivity by stimulating the investment in the long run (Richard, 2011). Economic growth is possible with a sound financial sector (Rajaraman and Visishtha, 2002). It is classified as good performance or poor performance in any country or region. Good performance of these financial institutions is the symbol of prosperity, whereas, poor performances of these institutions hinder the economic growth and structure of the particular region also affects the whole world (Khan and Senhadji, 2001).

The level of nonperforming loan (NPL), hereafter in a Bank's loan portfolio should be well managed in order to keep the quality of Bank asset, to maintain or improve the efficiency and effectiveness of a bank. In general, to undertake sustainable and sound credit operation good NPL management is among the crucial issues. An optimal NPL management mainly requires standardized and sustainable credit risk management and prudent pre and post credit administration practices which includes the following: undertaking due diligent assessment or know your customers (KYC) principles, standardized project appraisal, loan approval and continuous credit monitoring and evaluation, loan workout, taking timely and appropriate action before and after loan default (sources).

NPL has attracted more attention in recent decades. Several studies examined bank failures and find that asset quality is an indicator of insolvency (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, 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).

Development Bank of Ethiopia is one of public banks in Ethiopia that provide mainly long term (5-20 years) investment credit to borrowers in different sectors. Financing long term credit has high credit risk which in turn expose for high NPLs. According to loan portfolio report of the Bank as at June 30, 2018, the Bank's NPLs was Birr 15.44 billion; this accounted for 39.43% of the total loan portfolio. Currently this large and growing NPLs amount makes the issue of NPLs questionable and crucial in DBE (audited DBE financial report)

This study should be attempts to explore some of the Bank specific, external factors and borrowers' related factors for occurrence of NPL in the case of Development Bank of Ethiopia (DBE) which are causing bad loans by considering the opinion/perception of credit operators in DBE.

1.2. Statement of the problem

Successful project management is instrumental to bring about broad-based and sustainable development. Ethiopia aspires to become a middle-income country by 2025. Towards this end, the country has devised several projects. For these projects to contribute meaningfully to the development endeavor of the country there needs to be efficient and effective project financing, which is a vital tool that supports the realization of developmental projects thereby bring about economic development. As government owned bank, DBE is uniquely positioned in the banking industry as it is empowered to extend project finance along with working capital loans as a package. Accordingly, DBE extends sustainable credit facility for those engaged in manufacturing, agro-processing industries, mining or extractive industries and commercial agricultural projects. However, provision of credit alone does not support the economic development of the country unless it is supplemented with efficient utilization of the fund and repayment of loans as per the loan agreement (DBE, 2018).

The bank extends loans fund, are obtained from two sources. These are domestic and foreign sources of fund. If the Bank is to be sustainable alongside providing loan to the needy, ascertaining sustainability through appropriate loan recovery should be given priority. One of the mechanisms of sustaining the Bank's financial ability is making their payment performance of the bank's clients effective. This will help realize a better asset quality, among others. In fact, non-performing loan (NPL) ratio is used as measurement of a bank's asset quality. This is the standard criterion and one of the prudential standards, guidelines and rating systems for African Development Banks and Finance Institutions (AADFI) in which DBE is a member. As a member DBE has agreed to perform towards this standard, which clearly states that NPL should not exceed 15% of the gross loan portfolio or total outstanding loan (guidelines and rating system for African development banks finance institutions). However, NPL of DBE reaches as high a percentage as 39.34% (it accounts about Birr 15.44 billion) for the budget year ended June 30, 2018 (audited DBE financial report). This shows that the performance of the Bank is way below the standard. This evidently shows that there is a problem of loan collection, whose factors worth studying.

In fact, there are a lot of empirical studies on factors that affect banks nonperforming loan by Combining both bank specific and macroeconomic factors jointly. Among these studies, Wondimagegnehu (2012), on the determinants of NPLs of banking industry in Ethiopia; Seyoum, et.al, (2016) on the factors that affect NPL of DBE central Region are worth mentioning. The study conducted by Wondimagegnehu (2012) focused on bank specific determinants of NPL in the banking industry in general, while the second study focused on bank and borrower-related factors affecting NPL of DBE.

The major loop hole of both studies is the fact that they focusing on bank-specific variables. This study was contributes to fill this gap as its major departure from the above-mentioned studies, the current study uses econometrics model to identify determinants of project loan default and focuses on factors related not only to the Bank and borrowers. Based on the above listed motivations and the growing trend of project loan default in DBE in general and head office in particular, this study was a very strong justification to be undertaken.

1.3. Research questions

Having the above revealed statements of the problem, the subsequent research questions to be in this study are indicated as follow:

- i. What is the impact of credit assessment methods of the bank on NPL ratio level of the bank?
- ii. What is the impact of employee skill capacity on NPL ratio level of the bank?
- iii. What is the impact of customer specific factors on NPL ratio level of the bank?
- iv. Is there a relationship between Collateralized lending and non-performing loans?
- v. Does Credit monitoring determine loan default?

1.4. Objectives of the study

1.4.1. General objective

The main objective of this study is to examine the project loan default determinants of Development Bank of Ethiopia.

1.4.2. Specific objectives of the study

More specifically, the researcher assessed the following objectives:

- i. To examine there is a relationship between credit assessment and occurrence of project loan default.
- ii. To examine there is a relationship between employee skill capacities on the project loan default.
- iii. To examine there is a relationship between customer specific factors on the level project loan default ratio
- iv. To examine there is a relationship between collateralized lending and project loan default.
- v. To examine there is a relationship between credits monitoring and loan default in DBE.

1.5. Hypothesis of the study

The researcher proposes to test the following hypothesis:

- H1 There is a significant positive/ negative relationship between credit assessment of a bank and bank's project loan default.

H2 There is a significant positive/ negative relationship between Employee skill capacity gap of the bank and bank's project loan default.

H3 There is a significant positive/ negative relationship between customer specific factors of a bank and bank's project loan default.

H4 There is a significant positive/ negative relationship between Collateralized lending of a bank and bank's project loan default.

H5 There is a significant positive/ negative relationship between Credits monitoring of a bank and bank's project loan default.

1.6. Scope of the study

This study contributes to understanding and analysis of determinant factors affecting project loan default and to set effective and efficient credit management tools in DBE.

This research paper, which was essentially, identified determinant factors affecting project loan default in DBE researcher purposively, selects 6 credit units from 13 operating units in the bank by considering the loan number and loan diversification. The study covers from June 30 2018 NPL of development banks. Because the researcher in order to get recent and current data.

Limitation of the Study

The researcher faces the following challenges during the time of research:

- Unwillingness of some respondents to give necessary information and answer for the due the sensitivity of the issue in donor-grantee relationship.
- Resource limitation to include the top management perspective.

1.7. Significance of the study

The outcome of the study will provide useful input for both credit policy reviewers of the Bank to articulate prudent NPLs management policy, procedures and practices in the Bank's credit policy, for giving emphasis on major determinants of NPLs and undertaking proactive actions on causes of NPLs based on the recommendations of the study. In general, the study findings are important for sustainable and optimal NPLs management of the Bank as it identify the major causes and determinants of NPLs in the Bank. By doing so the bank will improve its asset quality, resource

mobilization, efficiency in areas of loan administration operations, project loan default and the study is also significant for the bank as it helps the bank in achieving its vision. Moreover, it may also help other researchers as a source of reference and as a stepping stone for those who want to make further study on the issue of NPLs in the DBE context afterwards. Finally, it may provide a possible opportunity to all stake holders to gain deep knowledge about the leading cause of NPLs in DBE and its solution in near future to be done by DBE in order to decrease NPLs.

1.8. Organization of the Study

This study is organized into five chapters. The first chapter deals with introductory parts, which have back ground of the study, statement of the problem, research questions, objectives of the study, significance of the study, and scope of the study and limitations of the study are addressed. The second Chapter discusses review of relevant theoretical and empirical literature. The third Chapter describes the research methodology. It explains the research design and approach, target population, sample size, sources and data collection instrument and data analysis techniques. The fourth Chapter briefly discusses the result and major findings of the study. The fifth chapter contains the conclusion and recommendation of the study.

CHAPTER TWO

2. LITERATURE REVIEW

2.1. Introduction

Credit lending remains the chief activity of the banking sector throughout the world. Banks can no longer survive without this activity. This is the reason that credit worth is considered as a key sign of financial health and soundness of financial institutions particularly the banks. The interests charged by the banks on advances and loans shape large part of the bank's assets (Saeed and Zahid, 2016). These assets constitute the primary source of income by banks. As a business institution, a bank aims at making a giant profit. Since loans and advances are more profitable than any other assets, it is willing to lend as much of its funds as possible. But banks have to be careful about the safety of such advances (Radha and Vasudevan, 1980). Despite the loan portfolio is typically the largest asset and the predominate source of revenue of banks, the function of granting credit is not free of risks (Casu et al. 2006). Risk takes many forms, each affecting the economic activity on a lesser or greater extent (Solomon & Muntean, 2012). In practice, loans are considered as the types of investment which have the highest levels of risks with regards to the difficulty of the funds' recovery. Commercial banks are exposed to numerous difficulties regarding the protection and recovery of funds granted in the form of loans and credit facilities. One of the main difficulties that the commercial banks are exposed to is the failure of borrowers to repay their obligations on time (Casu et al, 2006). As Heffernan (2005) noted the failure of the commercial banks' clients to repay their obligations caused the emergence of NPLs, and is considered the most serious financial problems facing commercial banks.

2.1.1. Definition of Non-performing loans

There is no global standard to define non-performing loans at the practical level. Variations exist in terms of the classification system, the scope, and contents (Chikoko et al, 2012). The extent to which authorities have been involved in developing criteria to distinguish between "good" and "bad" loans differs substantially between countries. Some countries use quantitative criteria (e.g., number of days of overdue schedule payments), while other countries exclusively rely on qualitative norms (such as the availability of information about the client's financial status, and management judgment about

future payments). Some countries (like German and U.K) do not give standard criteria at all. (IMF working paper, 2001)

Caprio and Klin-gebiel(1999) defined Non-performing loans as “loans which for a relatively long period of time do not generate income. This implies that the principal and or interest on these loans have been left unpaid for at least 90 days.” Another definition was given by VanGreuning, &Bratavonic(2003) as “a non-performing loan is an advance by a financial institution that is not earning income and full payment of principal. As such interest is no longer anticipated.” Moreover, Bloem and Freeman (2005) put a criterion for a loan to be called NPL as "a loan is NPL when payments of interest and/or principal are past due by 90 days or more, or interest payments equal to 90 days or more have been capitalized, refinanced, or delayed by agreement".

According to IMF a loan is non-performing 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” (International Monetary Fund, 2005).

2.1.2. Criteria for Differentiating NPLs

Different financial institutions have developed criteria to distinguish between performing and non-performing loans. Some countries use quantitative criteria (e.g. number of days of overdue schedule payments) while most countries exclusively rely on qualitative norms such as availability of information about the customers financial status, management and judgment of future payment. To improve the ability and comparison between banks across countries, the Institute of International Finance (IIF, 2009) has used following categories;

- A. Standard:** - Credit sound principal and interest payments are current. Repayment difficulties are not for seen under circumstances and full payments is expected.
- B. Watch:** Asset subject to conditions, if left on correct, could raise concerns about full payment. These require more than normal attention by credit officers.
- C. Sub-standards:** full payment is in doubt due to in adequate protection (example, Obligor net worth or collateral) or interest or principal or both are more than 90 days overdue, these assets show underling, well- defined weakness that could lead to probable loss if not

corrected and thus risk becoming impaired assets.

D. Doubtful: Assets from which collection /liquidation in full is determined by Bank management to be improbable due to current condition and interest or principal both are overdue more than 180 days. Assets in these categories are considered impaired but are not yet considered total losses because some spending factors may strengthen the asset quality.

E. Loss: an asset is downgraded to loss when management considers the facility to be virtually uncollectible or when interest or principle or both are overdue more than one year. This classification may indicate that there are two cases that have to be addressed. Loans that are a complete loss and loans whose quality significantly impaired (sub-standard or doubt full) and for which taken as a group experience source that a considerable portion of the future interest or instrument payments will never be made.

In accordance with the NBE Directives cited above, the DBE shall classify all its loans into five categories of pass, special mention, substandard, doubtful and loss based on the following criteria:

- A. **Pass:** Loans in pass category are fully protected by the current financial and paying capacity of the borrower and are not subject to any criticism. Accordingly, given the nature of the Bank and based on the directives of NBE, the following loans shall be classified as pass loans; for short term loans past due for less than 30 (thirty) days while for medium and long term loans past due for less than 180 (one hundred eighty) days; and
- B. **Special Mention:** The following loans at a minimum shall be classified as special mention; for short term loans past due for 30 (thirty) days or more, but less than 90 (ninety) days while for medium and long term loans past due six months or more, but less than 12 (twelve) months.
- C. **Substandard:** The following non-performing loans at a minimum shall be classified substandard; for short term loans past due 90 (ninety) days or more, but less than 180 (one-hundred-eighty) days while medium and long term loans past due 12 (twelve) months or more, but less than 18 (eighteen) months.
- D. **Doubtful Loans:** The following non-performing loans at a minimum shall be classified doubtful; for Short term loans past due 180 (one-hundred-eighty) days or more, but less than 360 (three-hundred-sixty) days while for medium and long term loans past due 18 (eighteen)

months or more, but less than 3 (three) years.

- E. **Loss:** The following non-performing loans at a minimum shall be classified loss; forshort term loans past due 360 (three-hundred-sixty) days or more while medium and long term loans past due three years or more.

2.1.3. Non-performing Loans Provisioning

National bank of Ethiopia directive requires all banks to maintain a provision for Loan Losses account which shall be created by charges to provision expense in the income statement and shall be maintained at a level adequate to absorb potential losses in the loans or advances portfolio. In determining the adequacy of the provisions for Loan Losses Account, provisions may be attributed to individual loans or advances or groups of loans or advances. The provisions for Loan Losses Account always have a credit balance. Additions to or reductions of the provisions for Loan Losses Account should be made only through charges to provisions in the income statement at least every calendar quarter.

Banks are required to maintain the following minimum provision percentages against the total outstanding principal balance of each loan or advance classified in accordance with the criteria for the classification of loans or advances.

Table 1: Table 1: Non-performing Loans Provisioning Percentage

| Classification Category | Minimum Provision (% against the total outstanding principal balance) |
|-------------------------|---|
| Pass | 1% |
| Special | 3% |
| Mention | |
| Substand | 20% |
| ard | |
| Doubtful | 50% |
| Loss | 100% |

Source: NBE Directive no SBB/43/2008

2.1.4. Effects of NPLs

For the last few decades' attention is given for the increment of non-performing loans (NPLs). Banks fail due to speedy consequence of large amount of NPLs in the banking system. (Dermirgue-Kunt, 1989; Barr and Siems, 1994), and that failing banking institutions always have high level of non-performing loans prior to failure.

Historically, the occurrence of banking crises has often been associated with a massive accumulation of non-performing loans which can account for a sizable share of total assets of insolvent banks and financial institutions, especially during episodes of systemic crises (WN Geletta, 2012). Deterioration in banks' loan quality is one of the major causes of financial fragility. Past experiences show that a rapid buildup of bad loans plays a crucial role in banking crises (Mohd Zaini Abd Karim, et al, 2010). As the NPLs amount is becoming larger and larger, it deteriorates Banks' asset quality, reduces banks' efficiency and income (due to increasing provision expenses held on increasing nonperforming loans) these all adversely affects banks': image reputation, resource mobilization capacity, soundness, financial intermediation role; these in turn result in reduction in: investment and related economic growth of countries.

2.1.4.1. NPL reduces profitability

NPLs rate is the most important issue that has negative effect on bank profitability and inability to survive. This is true because NPLs have serious negative impact on loan growth rate; in which case, there will be a negative effect on banks profitability as it reduces loan amount and interest income of the banks simultaneously (Ugoani, 2016). In line with National bank of Ethiopia regulations, the lending institution has to make provision and charges for credit losses (bad debt/impairment) which ultimately reduce the profit level. Beside this delay or failure of repayment of loan principal and interest on time and in full, negatively affects the profitability of the banks by reducing the interest income generated from granting more credit.

2.1.4.2. NPL hurts the bank's reputation

Reputation is everything in the banking business. A lowered reputation will steer away big customers and forces them to look for other banks. This will surely result in lower deposit and consequently, lower lending. (Onchomba, 2014)

2.1.4.3. NPL can cause insolvency

Banks kept only some money deposits as a reserve; the rest is lent out. If the lowered reputation due to NPLs results in withdrawal of deposits of big customers, the bank will effectively be insolvent.

2.1.5. Theories underpinning non-performing loans

Three theories underpinning on-performing loans have been explained by Warue(2013) as follow:

2.1.5.1. Deflation theory

(Fisher,1933), which suggests that when the debt bubble bursts the following sequence of events occurs; debt liquidation leading to distress selling and contraction of deposit currency, as bank loans are paid off. This contraction of deposits cause a fall in the level of prices, which leads to greater fall in the net worth of business, hence precipitating bankruptcies which leads the concerns running at a loss to make a reduction in output, in trade and in employment of labour. These cycles cause complicated disturbances in the rates of interest and a fall in the money value. The complicated disturbances described above can be summed as both external and internal forces (macro and micro factors) influencing state of over-indebtedness existing between, debtors or creditors or both which can compound to loan defaults.

2.1.5.2. Financial theory

Pioneered by Minsky (1974), also known as financial instability hypothesis, and attempted to provide an understanding and explanation of the characteristics of financial crisis. The theory suggests that, in prosperous times, when corporate cash flow rises beyond what is needed to pay off debt, a speculative euphoria develops, and soon thereafter debts exceed what borrowers can pay off from their incoming revenues, which in turn produces a financial crisis. As a result of such

speculative borrowing bubbles, banks and lenders tighten credit availability, even to companies that can afford loans and the economy subsequently contracts.

The theory identifies three types of borrowers that contribute to the accumulation of insolvent debt: The "hedge borrower" can make debt payments (covering interest and principal) from current cash flows from investments. For the "speculative borrower", the cash flow from investments can service the debt, i.e., cover the interest due, but the borrower must regularly roll over, or re-borrow, the principal. The "Ponzi borrower" borrows based on the belief that the appreciation of the value of the asset will be sufficient to refinance the debt but cannot make sufficient payments on interest or principal with the cash flow from investments; only the appreciating asset value can keep the Ponzi borrower afloat. Financial theory underpin this study in that, a hedge borrower would have a normal loan and is paying back both the principal and interest; the speculative borrower would have a watch loan; meaning loans“ principal or interest is due and unpaid for 30 to 90 or have been refinanced, or rolled-over into a new loan; and the Ponzi borrower would have a substandard loan, meaning the payments do not cover the interest amount and the principal is actually increasing. The primary sources of repayment are not sufficient to service the loan. The loan is past due for more than 90 days but less than 180 days. Watch loans and substandard loans are nonperforming loans, hence applicability of financial theory in this study.

2.1.5.3. Ownership structure theory

Pioneered by Jensen (1976) integrated the elements of theory of property rights (Ronald, 1937), the theory of agency (Ross, 1973) and Mitnick, 1974) and the theory of finance (Minsky, 1974). The theory explains why highly regulated industries such as public utilities or banks have higher debt-equity ratios for equivalent levels of risk than the average non-regulated firm. Jensen (1976) argues that, “ownership structure” rather than “capital structure” is the crucial variables to be determined, not just the relative amounts of debt and equity but also the fraction of the equity held by the manager.

On the other hand, Muriithi (2013) discussed four theories of nonperforming loans namely asymmetry theory, agency theory, transaction cost theory and stakeholder theory.

2.1.5.3.1. Asymmetry Theory

The theory explains that in the market, the party that possesses more information on a specific item to be transacted is in a position to negotiate optimal term for the transaction than the other party (Auronen, 2003). The party that knows less about the same specific item to be transacted is therefore in a position of making either right or wrong decision concerning the transaction. It may be difficult to distinguish good from bad borrowers (Richard, 2011). This may result into adverse selection and moral hazards problems. Adverse selection and moral hazards have led to significant accumulation of Non-Performing loan in banks (Bester, 1994).

2.1.5.3.2. Agency Theory

According to the Agency theory, the principal agency problem can be reduced by better monitoring such as establishing more appropriate incentives for managers. In the field of corporate risk management agency issue have been shown to influence managerial attitudes towards risk taking and hedging Smith and Stulz(1985). Theory also explains a possible mismatch of interest between shareholder management and debt holders due to asymmetries in earning distribution, which can result in the firm taking too much risk or not engaging in positive net value project (Smith and Stulz, 1987). Consequently, agency theory implies that defined hedging policies can have important influence on firm value (Fite and Pflleiderer, 1995).

2.1.5.3.3. Transaction Cost Theory

In transaction cost theory, does not contradict the assumption of complete markets. It is based on convexities in transaction technologies. Here, the financial intermediaries act as coalitions of individual lenders or scale or scope in the transaction technology.

Transaction cost theory has proven an essential framework for decision on the vertical boundaries of the firm. Transaction costs are the cost associated to the division of work. Williamson (2000), indicated that transaction occurs when a good or service is transferred across a technology separable interface. Variables that describe a transaction are among others, the specificity, the uncertainty, and the frequency of the transaction, whether an asset or a service is only or much more valuable in the context of a specific transaction. In the following human capital specificity, the asset specificity and the site specificity are taken into account (Reddy, 2002).

2.1.5.3.4. Stakeholder theory

Stakeholders' theory, developed originally by Freeman (1984) as a managerial instrument, has since evolved into a theory of the firm with high explanatory potential. Stakeholder theory focuses explicitly on equilibrium of stakeholder's interests as the main determinant of corporate policy. The most promising contribution to risk management is the extension of implicit contracts theory from employment to other contracts, including sales and financing (Cornell and Shapiro, 1987). In certain industries, particularly high-tech and services, consumer trust in the company being able to continue offering its services in the future can substantially contribute to company value. However, the value of these implicit claims is highly sensitive to expected costs of financial distress and bankruptcy. Since corporate risk management practices lead to a decrease in these expected costs, company value rises (Klimczak, 2005). Therefore, stakeholder theory provides a new insight into possible rationale for risk management. However, it has not yet been tested directly. Investigations of financial distress hypothesis provide only indirect evidence (Judge, 2006).

2.1.6. Determinants of Non-performing loans

Though there is no particular theoretical framework that emphasizes on the determinants of NPLs many empirical studies have been done on the determinants of NPLs. The key causes of non-performing loans in the banking industry are three pronged. These are factors specific to internal organization, factors relating to the macro-economic policies, which ultimately determine how the economy works, and finally those factors relating to the actual management of business (Mucheke, 2001). As both of them are factors specific to the bank, many researches merge factors relating to the actual management of business with factors specific to internal organization. The two concerns of the credit risk or the non-performing loans are (1) macroeconomic factors and (2) bank specific factors (Zurairah, 2010). Although there are researches which separately study the bank specific determinants and macroeconomic determinants alone many studies combine the two set of factors together to study the determinants of NPLs.

2.1.6.1. Credit assessment

Credit assessment is the first step in the process to tailor-make a solution to fit the customer's needs. The assessment begins with well understanding of the customer's desires and capacities to ensure there is a good ability in terms of the financing. 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 generally refers to commitments given to borrowers to meet with his ability and willingness for the facility granted. It shall consider default probability and anticipated recovery rate (Saunders & Cornett, 2003). Therefore, Credit assessment involves evaluating the risks involved in financing and anticipating the probability of default and recovery rate.

2.1.6.2. Capacity of employee

Training of MFIs' staff is considered to affect the performance. Loan collection may be affected by the quality of loan officers. Poor screening and insufficient monitoring of loans affect the quality of loans (Yaron, et.al, 1997).

Allan and Olomi (2003) however, concluded that banks have capacity constraints in credit and risk management. These findings therefore suggest that maybe the trainings obtained were not satisfactory or probably the number of staff do not tally with the number of borrower to monitor and supervise.

Employee productivity depends on the amount of time an individual is physically present at a job and also the degree to which he or she is "mentally present" or efficiently functioning while present at a job. Companies must address both of these issues in order to maintain high worker productivity, and this may occur through a variety of strategies that focus on employee satisfaction, health, and morale (Ron and Ronald, 2002).

2.1.6.3. Poor Loan Follow-up (Monitoring)

Regular monitoring of loan quality, possibly with an early warning system capable of alerting regulatory authorities of potential bank stress, is essential to ensure a sound financial system and prevent systemic crises. (Agresti et al., 2008).

The need to give due attention to borrower thus need not be overemphasized in order to ensure loan performance. There is a tendency by borrowers to give better attention to their loans when they perceive they got better attention. Some of the loans defaults ascribe to lower level of attention given to borrowers. It is advised that banks keep up with their loans timely (Mayers, undated).

Banks rarely lose money solely because the initial decision to lend was wrong. Even where there are

greater risks that the banks recognize, they only cause a loss after giving a warning sign (Machiraju). More banks lose money because they do not monitor their borrower's property, and fail to recognize warning signs early enough. When banks fail to give due attention to the borrowers and what they are doing with the money, then they will fail to see the risk of loss. The objective of supervising a loan is to verify whether the basis on which the lending decision was taken continues to hold good and to ascertain the loan funds are being properly utilized for the purpose they were granted.

In order to meet these objectives banks, need to see whether the character of the borrower, its capacity to repay the loan, capital contribution, prevailing market conditions and the value of the collateral that was taken during loan approval time continues to remain the same (George G, 2004).

Follow up the financial stability of a borrower can be done by periodically scrutinizing the operations of the accounts, examining the stock statements and ascertaining the value of security. Visiting the borrower periodically to have understanding of the progress of the borrower's business activity and thereby give advice as necessary is also among the methods Banks adopt to follow up their loans.

It is clear that effective credit monitoring involves looking into various operations of the company including operations of the loan, checking whether the company is properly managed, and the environment in which the company is carrying out its business is satisfactory.

Constant monitoring increases the chance that the company will respond to a bank's concern and provide information more willingly. A bank which always closely follows a company's standing can often point out danger or opportunities to the company, as well as quick agreement to request for credit. It thus establishes that monitoring is basically constructive, and not a panic reaction and carries more weight when it expresses concern (Donaldson, undated)

A bank should have clearly defined continuous procedures for identifying potential bad and doubtful loans. These procedures should include regular independent reviews of the loan portfolio. Within this system, there should be formal procedures for the continuous review of all large loans and all areas of lending concentration. These reviews should place particular emphasis upon the borrower's continuing ability to service the loan. Failure to do these continuous reviews and monitoring will lead to loss to banks or increases the risk of such losses.

From the regulatory point of view, Ethiopian banks are required to make continuous review of their loan and submit reports to the central bank. This function of banks has a legal as well as contractual base. But the detail as to the frequency of visiting the borrower's premises, verifying the use of the loan and other related circumstances is left to the discretion of individual banks. The legal base for banks to do the review is provided under Article 5 of Directive No.SBB/43/2008.

2.1.6.4. Customer specific factor

Auronen, (2003) states that the theory of asymmetric information makes it difficult to distinguish between good or bad borrowers and it arises when gaining information on the characteristics or on the behaviour of the borrower is costly for the financial institution.

According to Munene, Nguta and Huka (2013), microfinance are faced with the challenge high defaults as a result of their cash flow problem. The investigated the possible causes by using a descriptive survey design on the business characteristics of individual microfinance loan. The business characteristics considered included the type (industry) of business, Age, location and profits of the business. The level of business income is important in determining the credit worthiness of clients that is at low levels of income, business has little money to save while at higher levels much can be saved and even used to purchase collaterals which can be used as loan securities. This collaterals help to determine the lender's margin of safety.

2.1.6.5. Collateralizing loans

The term collateral refers to an [asset](#) that a lender accepts as security for a loan. Collateral may take the form of real estate or other kinds of assets, depending on the purpose of the loan. The collateral acts as a form of protection for the lender. That is, if the borrower [defaults](#) on their loan payments, the lender can seize the collateral and sell it to recoup some or all of its losses.

Berger/Udell (1990) empirically analysed the risk-collateral relationship. They used data from the 1988 "Survey of Bank Lending Terms" in the US and found a consistently positive relationship between risk and collateral. The authors use two alternative proxies for credit risk. The first is the fraction of borrowers with non-performing loans of each of their sample banks, i.e. an ex post measure for borrower quality. The drawback of this risk proxy is that the analysis is not on the level of individual borrowers but on an aggregate bank level. Their second risk proxy is the mark-up of

contracted interest rates on loans over a risk-free reference rate. This is an indirect and potentially biased measure of ex ante risk since the spread is determined by several factors of which a borrower's default risk is only one (see Harhoff/Körting (1998) and Elsas/Krahnen (1998) for empirical details).

Vandell and Thibodeau (1985) used a simulation analysis to demonstrate several non-equity factors overshadowing the equity effect on default which explained about households with zero or negative equity did not default, while others with positive equity. Clauretje (1987) has also argued that other non-equity factor like property value played a large role in affecting default levels. The default imposes personal costs on borrowers that include limits on occupational and credit opportunities, social stigma and damage to reputation (Kau, Keenan and Kim, (1993) and Vandell and Thibodeau, (1985)). The costs exceed the absolute value of negative equity. The borrower will not default when Paul Bennett et al. (1997) found that the structural change in the mortgage market had increased homeowners' propensity to refinance. Bajari et al. (2008) studied empirically the relative importance of the various drivers behind subprime borrower's decision to default. They emphasize the role of the nationwide decrease in home prices as the main driver of default. Foote et al. (2008) examined homeowners in Massachusetts who had negative home equity during the early 1990s and found that fewer than 10% of these owners eventually lost their home to foreclosure.

2.1.6.6. 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.

2.1.6.7. Loan growth

A rapid credit expansion is considered one of the most important causes of problem loans (Clair, 1992). Credit growth transmits information on general conditions in the credit market and reflects how easy it isto get access to credit and roll over earlier contracts, if necessary, in order to avoid default (Kattai, 2010).To maximize the short run benefits, managers seek to rapidly expand credit activities and may hence take inadequate credit exposures.Particularly, during periods of economic growth, the financial institutions engage in market share conquest campaigns discarding the necessary assessment of credit quality of borrowers (Fernandez De Lis et al., 2000). If so, the bank will be negatively affected by adverse selection. Higher levels of credit growth may increase the propensity for more defaults in the future because that increase might reflect that more risky loans are approved. This will contribute to an increasing rate of nonperforming loans in the future. Sinkey and Greenwalt (1991), Keeton (1999), Salas and Saurina (2002), Jimenez and Saurina (2006), Castro (2012) and Metaxas et al (2010) found out a direct (positive) association between Loan growth and the volume of NPLs.

2.1.6.8. Macroeconomic factors

The existing literature provides evidence that suggests a strong association between NPLs and macroeconomic factors. A great deal of studies like Salas and Saurina (2002), Jimenez and Saurina (2006), Jakubík (2007), Aver (2008), Bohachova (2008), Bonfim (2009), Kattai (2010) and Nkusu (2011), among others, concentrate their research basically on the impact of macroeconomic variables over the credit risk growth and stress that those variables should be included into the analysis since they have considerable influence on the changes of credit risk.

2.1.6.9. Trade openness

Trade openness is a degree of which countries or economies permit or have international trade with others. Higher trade openness can relate to higher bank lending but also makes a country more vulnerable to international shocks. Increasing trade openness in Sub-Saharan Africa exposes the banking system to adverse shocks Mpofu & Nikolaidou (2018). As Mpofu & Nikolaidou (2018) has found out trade openness have positive and significant impact on NPLs.

2.1.6.10. Real Lending Rate

The real interest rate affects the debt burden i.e increasing interest rates will lead to a higher NPLs ratio (Gonzalez-Hermosillo (1997), Aver(2008), Louzis, Vouldis & Metaxas(2012), Nkusu(2011), Fofack(2005), Quagliariello(2007) and Castro(2013)). Asymmetric information and the resulting adverse selection problem can lead to “credit rationing,” in which some borrowers are denied loans even when they are willing to pay a higher interest rate (Stiglitz and Weiss 1981). This occurs because as interest rates rise, prudent borrowers are more likely to decide that it would be unwise to borrow, whereas borrowers with the riskiest investment projects are often those who are willing to pay the highest interest rates. In this general setting, a higher interest rate leads to even greater adverse selection; that is, the higher interest rate increases the likelihood that the lender is lending to a bad credit risk and ultimately increases NPLs (Sinkey and Greenwalt (1991), Louziset al. (2010), Jimenez and Saurina (2006), Pasha and Khemraj (2009), Espinosa and Prasad (2010), Ahmad et al (2009) and Metaxas et al (2010)).

2.1.6.11. Exchange rate

One of the main determinants of economic instability is the exchange rate volatility (Zameer & Siddiqi, 2010). Its impact on NPL can be positive or negative (Nkusu 2011). Depreciation of the exchange rate can have mixed implications on borrowers’ debt servicing capacity. On the one hand, it can improve the competitiveness of export-oriented firms. As long as the value of domestic currency depreciated (lower), export-oriented firms can dominate the international market at lower price (since their production cost is covered in domestic currency which has lower value than foreign currency and their revenue is collected in foreign currency which has higher value as compared to the domestic currency. Hence, depreciation of exchange rate can improve the debt-servicing capacity

of export-oriented borrowers. On the other hand, it can adversely affect the debt-servicing capacity of borrowers who borrow in foreign currency (import-oriented firms). A negative correlation of real effective exchange rate and NPLs was founded by Castro (2013), Zribi&Boujelbene (2011), Gonsel (2012), Vogiazas&Nikolaidou (2011) and Fofack (2005).

Other studies such as: Kalirai&Scheicher (2002) and Aver (2008) have not identified any relationship between foreign exchange fluctuation and NPLs ratio.

2.1.6.12. Unemployment rate

Measures of unemployment appear to be a good predictor of problem loans in all countries (Gambera, 2000). Iuga and Lazea (2012) examined the influence of unemployment rate on non-performing loans in Romania during 2008- 2011. The results reveal that there is a strong correlation between unemployment rate and nonperforming loans. Nkusu (2011), Farhan et al. (2012), Selma and Jouini (2013), Akinlo and Emmanuel (2014), Vogiazas and Nikolaidou (2011), Bucur and Dragomirescu (2014) and Bofondi and Ropele (2011) also found positive and significant relationship between NPLs and unemployment. The reason behind the result is explained by the literatures as increase in unemployment negatively affects income of individuals thereby increasing their debt burden. In addition, increased unemployment in the economy negatively affected the demand for products of firms which ultimately affected the production/sales of the firms, which led to a decline in revenues of the firms and a fragile debt conditions.

Louzis, Vouldis& Metaxas (2012) explored the Greek banking industry in pre-crisis period and discovered that unemployment has a strong negative influence on credit risk. Also Valahzaghari et al (2012) analyze the unemployment rate influence on loan portfolio quality and their results indicate no significant relationship between unemployment rate and credit risk.

2.2. Empirical review

2.2.1. Empirical Evidence from other countries

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.

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.

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

Similarly, Shingjergji (2013) conducted study on the “impact of bank specific factors on NPLs in Albanian banking system”. In the study, capital adequacy ratio, loan to asset ratio, net interest margin, and return on equity were considered as a determinant factor of NPLs. The study utilized simple regression model for the panel data from 2002 to 2012 period and found as capital adequacy ratio has negative but insignificant whereas ROE and loan to asset ratio has negative significant effect on NPLs. Besides, total loan and net interest margin has positive significant relation with NPLs. The study justifies that an increase of the CAR will cause a reduction of the NPLs ratio. Besides, an increase of ROE will determine a reduction of NPLs ratio.

Besides, Mileris (2012) on the title of “macroeconomic determinants of loan portfolio credit risk in banks” was used multiple and polynomial regression model with cluster analysis, logistic regression, and factor analysis for the prediction. The finding indicates that NPLs are highly dependent of macroeconomic factors.

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

Chirwa (1997) used a probit model to estimate the probability of agriculture credit repayment in Malawi. The result indicated that crop sales, income transfers, degree of diversification and quality of information are positively related while size of club negatively related to the probability of repayment. Other factors like amount of loan, sex, household size and club experience were found to be insignificant.

Keeton and Morris (1987), investigated the causes of loan losses for a sample of nearly 2,500 US commercial banks for the period 1979–1985. Using simple linear regressions, they found out local economic conditions along with the poor performance of certain sectors like agriculture and energy explain the variation in loan losses recorded by the banks. The study also stated that commercial banks with greater risk desire tend to record higher losses.

Hu et al (2006) examined the relationship of ownership structure, size of banks and income diversification with NPLs of commercial banks in Taiwan with a panel dataset covering the period 1996-1999. The study shows that banks with higher government ownership recorded lower NPLs. Hu et al (2006) also show that bank size is negatively related to NPLs while diversification has not found a significant association with banks NPLs in Taiwan commercial banking sector

A study by Rahman et al (2017) on the impact of financial ratios on non-performing loans of Bangladesh commercial banks applied an econometric model to find out correlations among financial ratios and a sample of 96 observations has been analyzed from 20 banks out of 30 listed commercial banks during 2010-2015. The study mostly agrees with the existing literature that, credit-deposit ratio, net interest margin have a positive influence on the non-performing loans and capital adequacy ratio, return on assets have a negative influence on the non-performing loans. It also reveals that, sensitive sector's loan, priority sector's loan have significant positive influence on the non-performing loans and unsecured loans, profit per employee, investment deposit ratio have significant negative impact on gross non-performing loan.

Salas and Saurina (2002) analyze problem loans of the Spanish commercial and savings banks and find that credit risk is determined by microeconomic individual bank level variables, such as bank size net interest margin, capital ratio and market power, in addition to real GDP growth.

Louzis et al., (2010) examined the determinants of NPLs in the Greek financial sector using dynamic

panel data model and found as real GDP growth rate, ROA and ROE had negative whereas lending, unemployment and inflation rate had positive significant while loan to deposit ratio and capital adequacy ratio had insignificant effect on NPLs.

Vogiazas and Nikolaidou (2011) investigated the credit risk determinants of the Bulgarian banking sector by means of time series modeling approach covering the time period from January 2001 to December 2010. The results indicate that, the macroeconomic and financial markets' variables, specifically the unemployment rate, the construction index, the industrial production index and the real effective exchange rate jointly with the credit growth and the global financial crisis influence the NPLs of Bulgarian banks.

2.3. Empirical Studies in Ethiopia

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.

Wendemagegnehu(2012) in his study on Determinants of non-performing loans: the case of Ethiopian banks. The study intends to assess determinants of nonperforming loans. The researcher used mixed research approach for the study. Descriptive statistics was employed to analyze data and the results were tested with non-parametric tests of significance. Structure questionnaire was distributed for the survey in both private and state-owned Banks in Ethiopia to fill by professionals holding different positions. The findings of the study showed that the causes for loan default are poor credit assessment, failed loan monitoring, underdeveloped credit culture, lenient credit terms and conditions, aggressive lending, compromised integrity, weak institutional capacity, unfair competition among banks, willful default by borrowers and their knowledge limitation, fund diversion for unintended purpose, over/under financing by banks.

Geletta (2012) in his study on determinants of non-performing loans the case of Ethiopian Banks, using descriptive statistics approach that focus on Bank specific NPLs determinant variables; indicated that Poor credit assessment ascribing to capacity limitation of credit operators, institutional capacity drawbacks and unavailability of national data for project financing that had also led to setting terms and conditions that were not practical and/or not properly discussed with borrowers had been the cause for occurrences of loan default.

Geleta (2012) also despite the fact that credit monitoring/ follow-up plays pivotal role to ensure loan collection failure to do this properly was also found to be causes for sick loans. The research also indicated that over financing due to poor credit assessment, compromised integrity of credit operators were cause for incidences of NPL. In fact, cases of under financing loan requirement that meant shortage of working capital or not being able to meet planned targets were associated with defaults. In addition, the study also found out that due to underdevelopment of credit orientation/culture borrowers engaged in business that they had no depth knowledge, diverted loans advanced for unintended purpose and at times made a willful default.

YetimgetaAbera (2011) in his study, the impact of non-performing loans on the performance of financial institutions a case study in Development Bank of Ethiopia, the researcher used econometric models to make inference about some variables that explains non-performing loans. It is found that the effect of the amount of loan in arrear is significant and positively related with NPL and in addition, the variables, net income and collection are negatively related with non-performing loans where as doubtful debt expenses and disbursements are positively related with non-performing loans.

KassahunFiseha (2013) in his study on factors causing non-performing loan to Development Bank of Ethiopia Dilla Branch found out that non-performing loans were caused by both internal and external factor in the context of development bank of Dilla Branch. Internal factors such as poor credit policy, Weak credit analysis, poor credit monitoring and inadequate risk management. The researcher finding highlighted; external factor namely natural disaster, market failure and integrity of the borrowers. Findings shows the performance interims of profitability and liquidity of the bank is affected negatively by non-performing loans. In addition, loan diversion seen from most of the borrowers does not use the loan for intended purpose.

Seyoum, *et.al*,(2016),in his study on the “specific factors for non-performing loans” by using descriptive statistics (Mean, median, mode, standard deviation). Poor credit assessment and credit monitoring are the major causes for the occurrence of NPL in DBE. Credit size (includes aggressive lending, compromised integrity in approval, rapid credit growth and Bank’s great risk appetite); high interest rate, poorly negotiated credit terms and lenient/lax credit terms, and elongated process of loan approval were Bank specific causes for the occurrence of nonperforming loans. On the other hand, poor credit culture of customers, lack of knowledge of borrower for the business they engaged in, willful default, loan diversion, and project management problems were identified as the major customer specific causes of NPL.

2.4.Summary and Knowledge Gap

The literature review that are discussed so far showed that, banks NPLs are determined by customer factor and bank specific factors. The empirical evidence shows that, favorable bank specific factors conditions, such as credit assessment, Credit monitoring, employee skill capacity and Collateralized lending, tend to be associated with the bank project loan default.

However, Most of the literature that are discussed so far appeared to have focused on studies that were conducted in the banking sector of developed economies (such as united state of American, Spanish, Greek and Italian) and some emerging economies (such as Indian, Chinese, Malaysian, and Indonesia). Consequently, the Banking sectors in most developing economies like Ethiopia have so far received inadequate attention in the literature. Moreover, NPLs of different countries does not necessarily share identical immediate causes since those studies were based on the data from diverse countries. Apart from the data originated from, those literatures by themselves provided contradictory conclusions because of different models and methodologies they used. Hence, their results may not be applicable to Ethiopian banking sector.

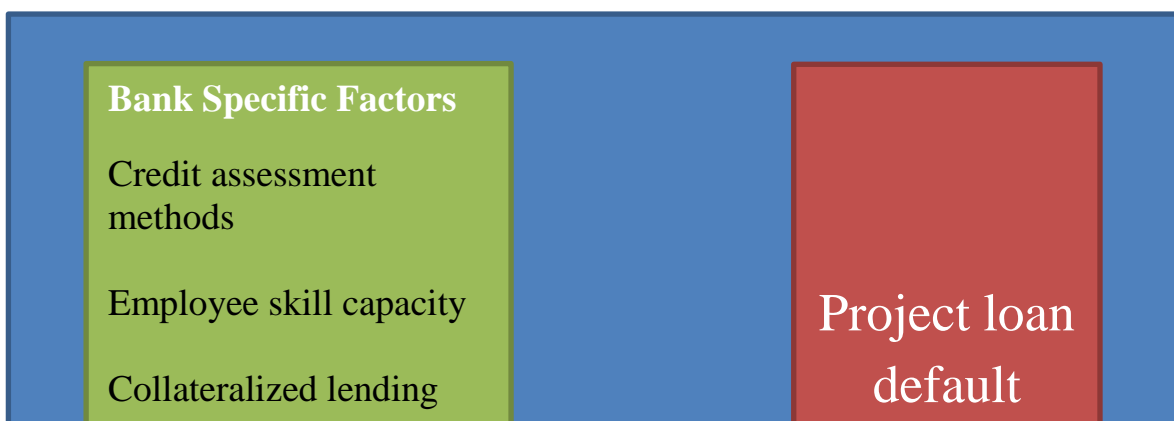
In the context of Ethiopia, the related study conducted by Negera (2012), assessed the determinants of NPLs in Ethiopian commercial banks by using bank-specific variables. Accordingly, this study clearly failed to identify macroeconomic determinants of NPLs which have found as a significant determinates of NPLs in many others studies like, Azeem et al. (2012) and Louzis et al. (2010). Furthermore, the study used only descriptive statistics and correlation matrix for the entire analysis. However, none of those methods are able to explain causal relationship between

variables (i.e., movements in a variable (dependent) by reference to movements in one or more other variables (independent)). For instance, a correlation between two variables measures only the degree of linear association between them (Brooks 2008). Wondimagegnehu (2012), on the determinants of NPLs of banking industry in Ethiopia; Seyoum, et.al, (2016) on the factors that affect NPL of DBE central Region are worth mentioning. The study conducted by Wondimagegnehu (2012) focused on bank specific determinants of NPL in the banking industry in general, while the second study focused on bank and borrower-related factors affecting NPL of DBE.

In general, the lack of sufficient research on the determinants of project loan default in the context of development bank of Ethiopia by using both the customer and bank specific factor as a variable and the existence of knowledge gap in the area initiate this study. Hence, the purpose of this study is to investigate the determinants of project loan default in development bank of Ethiopia sector by utilizing an econometrics model so as to estimate both the customer and bank specific factor.

2.5. Conceptual Frame Work

The main objective of this study is to examine the determinants of project loan default of in development bank of Ethiopia. Based on the objective of the study, the following conceptual model is framed. However, there are different factors affects project loan default as previously discussed in the related literature review parts, this study will use the following determinants based on the time and cost given to the study. Therefore, the following conceptual model is framed to summarize the focus and scope of this study in terms of variables included.





Sources: Adapted and Modified from Nelson & Victor (2009) related to Credit assessment, Credit monitors customer factor, loan related character (Florence & Daniel (2014).

CHAPTER THREE METHODOLOGY

Methodology involves a blueprint for the collection, measurement and analysis of data. Moreover, the chapter reveals an overall scheme, plan or structure conceived to aid the researcher in testing the research hypotheses. In this stage, most decisions about how research was executed and how respondents were approached, as well as when, where and how the research was completed is discussed. Therefore, in general this part of the study describes the research design and methodology that were used to guide the study under the following sub-headings: the research design, target population, sample and sampling design, sample frame, reason for the sampling, data collection instruments, data collection procedures, and data analysis procedures.

3.1. Research Design

The choice of research design depends on objectives that the researchers want to achieve (John, 2007). The plan represents the overall strategy used in collecting and analyzing data in order to test research questions. In this study, employed descriptive research method since, descriptive research examines a situation as it is and enables us to understand the way things to assess the project loan default in the Development Bank of Ethiopia. According to Kerlinger (1973) survey is a method that studies large population (universe) by selecting and studying the samples from the population to discover the relative incidence, distribution and interrelations of sociological and psychological variables.

Apart from the descriptive research design, the study also used explanatory research design and tries to determinate of project loan default. In exploratory research the focus is on gaining insight into the subject and to become familiar with the subject area for more rigorous investigation later (Cooper & Schindler, 2003).

3.2. Target Population

Target population is the specific population about which information is desired. According to Ngechu (2004), a population is a well-defined or set of people, services, elements, events, group of things or households that are being investigated. Mugenda and Mugenda (2003), explain that the target population should have some observable characteristics, to which the researcher intends to generalize the results of the study. There are 300 staffs directly engaged credit managing and administrating 5,204 loans in DBE at this time. Commonly the bank categorized its working units in head quarter, and district based on loan sanction limit. District can able to manage up to 45 million loan amount and any loan greater than 45 million loan amounts administered at head office (zena limat bank). For this study both units are included during the survey. The researcher purposively selects 6 credit units as target population from 13 operating units in the bank by considering the loan number and loan diversification. The selected working units have 300 staffs to pursue loans administration. See Table 1 below.

Table 12: Target population

| .No. | Selected units of the bank | Staff engaged in Credit related Activities |
|------|----------------------------|--|
| | Head office | 70 |
| | Addis Ababa District | 55 |
| | Adama District | 38 |

| | |
|-------------------|------------|
| Bahirdar District | 54 |
| Jimma District | 36 |
| Mekelle District | 47 |
| Total | 300 |

Source: DBE Human Resource Management Directorate

3.3. Determination of Sample Size

From the population frame the required number of subjects, respondents, was selected in order to make a sample. For this study Simple Random Sampling technique was used to select the sample. According to Cochran (1977). The sample size formula used for the study depicted in Equation 1 as follow.

Equation 1: Sample Size formula

$$n = \frac{NZ + \alpha^2 P(1-P)}{N\alpha + Z^2 P(1-P)}$$

Where:

N: Target Population size = 300

n: Sample size

Z: Confidence level = 2.58

P : Largest Possible Proportion = 0.50

α : Sampling error = 1%

$$n = \frac{(300)(2.58) + (0.01^2)(0.50)(1-0.50)}{(300)(0.01) + (2.58^2)(0.50)(1-0.50)} = \frac{774}{5} = 155$$

An appropriate sample size for this number of population (i.e. 300 individuals) is 155 employees working in credit areas of the bank from selected or stratified districts.

3.4. Sampling Method

The study limit participants because of time, financial related problems of the researcher. In order to simplify the study, purposive sampling was employed. Purposive sampling technique was employed deliberately in order to get general stand of bank project loan default from six credit units. Respondents were select by random sampling technique of lottery method from each unit. Further all positions and respective tasks were list involving credit processing, loan provisioning, monitoring and follow-ups. Furthermore, professionals may classified based on positions held in the structure of credit department. Such professionals include, loan officers, credit analysts, credit

directors, relationship managers and recovery & monitoring officers etc...

3.5. Sources and tools of data collection

The study used **primary data** which consists of questionnaire with directly engaged 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, brushes and 'zena limat bank' periodical used to overview the DBE performance during the previous years.

3.6. Validity and reliability of the instrument

3.6.1. Validity of the Research Instrument

Oroho (2009) suggests validity as the accuracy and meaningfulness of inferences, which are based on the research result. The questionnaires used in the study are standard questionnaires whose validity and reliability were tested by it's the researcher. However, they were discussed with research advisor for suggestion and got advisor's consent. Thus, questionnaires were distributed without additional pre-test.

3.6.2. Reliability of the Research Instrument

The reliability of the research measurement and its consistency of the research is very important task. Data reliability ensures the precision with which data is collected. Considering this the study used a pre-testing by distributing small number of questionnaires to sample in order to recognize either they understand or not the questions concepts. The study conducted pilot study to test the reliability and validity of the research instrument. The study used 10 percent of the population for pilot testing. Consequently, 10 percent of 155 translated into approximately 15 DBE's employee. The study used random sampling to select 15 credit managing and administrating employee and officers of who were not included in the main survey. With the exception of demographic characteristics, other variables were measured as construct. These variables had several items that measured the same concept or phenomenon. Thus this study tested for reliability based on the Cronbach's alpha values for each measurement construct and then for the overall items used in the 138 questionnaire. The reliability results for each measurement construct are presented in table. The result shows that the Cronbach's alpha for project loan default constructs is 0.757 with a total of 1 items. This implies that the items included in project

loan default are indicative of the same underlying disposition. The Cronbach's alpha for Customer factors, Employees Proficiency, Credit Assessment, Credit monitors and collateralizing loans constructs Cronbach alpha results were 0.742, 0.878, 0.930, 0.762 and 0.942 respectively. Implying that the items in the construct are indicative of the same underlying disposition. The value of the Cronbach's alpha for all measurement constructs is greater than or equal to the 0.7 value implying that the research instrument is reliable.

| Variable | Number of Items | Cronbach's Alpha |
|-----------------------|-----------------|------------------|
| Customer factors | 5 | 0.742 |
| Employees Proficiency | 6 | 0.878 |
| Credit Assessment | 9 | 0.93 |
| Credit monitors | 14 | 0.762 |
| collateralizing loans | 4 | 0.942 |
| Project loan default | 1 | 0.757 |

3.6. Data Analysis

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

The researcher analyzed the result of quantitative data with descriptive and qualitative analysis employed 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.

Econometrics model were employed in order to analysis determinants of NPL in Development Bank of Ethiopia. Regression models for linear outcomes allow a researcher to explore how each explanatory variable affects the according to the collected. The challenge of interpretation is to a summary of the way in which changes in the independent variables are associated with changes in the outcome that best reflect the key substantive processes without overwhelming yourself or your readers with distracting detail (Greene, 2003).

The Model specification will be as follow:

$$NPL = \beta_1 + \beta_2 \text{Empskill} + \beta_3 \text{CrdtMon} + \beta_4 \text{CollLen} + \beta_5 \text{Creasst c} + \beta_6 \text{Custfact } \mu$$

CrdtMon= credit monitoring, means follow up and control of disburse loan.

Empskill= employee skill capacity

CollLen = collateralized lending, this holding any assets for second way out of loan

Creasst = credit assessment

Custfact= customer specific factor

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

β_1 = intercept of the model

$\beta_2, \beta_3, \beta_4, \beta_5$ = slope of each independent variable.

3.7. Study Variables

Project loan default is dependent variables used in this study. It is measured in terms of Nonperforming loans to gross loan. Besides, explanatory variables included in this study are loan to deposit ratio, capital adequacy ratio, profit, lending rata and effective tax rate. As noted by Brooks (2008) including more than one explanatory variable in the model never indicates the absence of missed variables from the model. Thus, to minimize the effect of missed variables from the model, the researcher was included disturbance term in this study.

3.7.1. Dependent variable

Project loan default

Project loan defaults are loans that are outstanding both in its principal and interest for a long period of time contrary to the terms and conditions under the project loan contract. Any loan facility that is not up to date in terms of payment of principal and interest contrary to the terms of the loan agreement is NPLs. Thus, the amount of nonperforming loan represents the quality of bank assets (Tseganesh, 2012).

According to the Ethiopian banking regulation, “Nonperforming loan and advances are a loan whose credit quality has deteriorated and the full collection of principal and/or interest as per the contractual repayment terms of the loan and advances are in question” (NBE, 2008). NPL is a loan

that delays for the payment of principal and interest for more than 90 days. Deterioration in asset quality is much more serious problem of bank unless the mechanism exists to ensure the timely recognition of the problem. It is a common cause of bank failure. Poor asset quality leads nonperforming loan that can seriously damage a banks' financial position having an adverse effect on banks operation (Lafunte, 2012).It distresses the performance and survival of banks (Mileris, 2012).It is measured or indicated by the amount of NPLs to gross loans.

3.7.2. Independent Variables

Independent variables are explanatory variables that explain the dependent variables. In case, independent variable included in this study are indicators of credit monitoring, employee skill capacity, collateralized lending, credit assessment, and customer specific factor. Majority of these variables are modified and adopted from previously done studies based on the extent of their effect on nonperforming loan whereas one of these variable, that is effective tax rate is added from the researcher's own perception.

CHAPTER FOUR

4. RESULTS AND DISCUSSIONS

4.1. Introduction

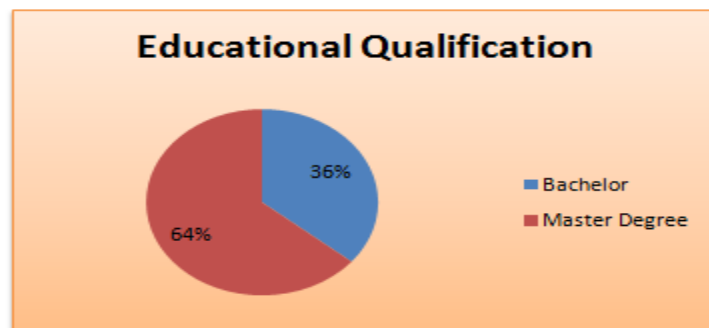
The chapter presents the descriptive statistics results of the study variables and presents analyzed results and interpreted discussions of the data obtained from the primary source as well as secondary sources. The primary data was obtained from the questioners which are designed to collect the necessary data to answer the research questions. The questionnaires are administered for one hundred and fifty five respondents from DBE employees. Secondary data was obtained from annual reports in order to show the progress of NPL of loan dispersed to different economic sector and credit policy and procedures in order to know the extent of implementation and related to project follow up. Hence all data collected from primary data as well as secondary data was analyzed.

4.2. Demographic Presentation of Respondents

This part shows the profiles of the respondents in the questionnaires i.e. total number of respondents

4.2.1. Educational qualification of respondents

Response was obtained from 138 employees of different branch 36% of the respondent is bachelor degree and 64% of the respondent have hold master degree. Its implies that the respondents have sufficient knowledge on project loan default and the responses they provide to be valid



Source; *computed based on own survey*

4.2.2. Working experience

With regard to the respondents duration of service, 39 % of the respondents indicated that they had worked with development bank of Ethiopia for between 5-10 years ,27 % of the respondents indicated that they had worked with development bank of Ethiopia for between 11-15 years, 20 % of the respondents indicated that they had worked with development bank of Ethiopia less than 5 years while 10 % of the respondents indicated that they had worked with development bank of Ethiopia for 16-20 years.This implies that the respondents had a good understanding and vast experience on the subject being researched on.

| DESCRIPTION | Frequency | % |
|--------------------|-----------|------|
| less than 5 years | 27.6 | 20% |
| 5-10 years | 53.82 | 39% |
| 11-15 years | 37.26 | 27% |
| 16-20 years | 13.8 | 10% |
| More than 20 years | 5.52 | 4% |
| Total | 138 | 100% |

Source; *computed based on own survey*

4.2.3. Descriptive Analysis of the bank

The annual approval of DBE is Birr 11.88 billion that is 93% of its planned target. The sector distribution of loan approved during the year is 51.5% for manufacturing, financial service 19.6%, SME financing 14.9%, and the remaining 14% goes for agriculture, mining, and staff loan. The annual approval performance compared from preceding year of the same period shown a decline of 9%.The annual total disbursement of the Bank is Birr 10.67 Billion which is 137% from the targeted Birr 7.79 Billion. With the exception of mining and energy sector, all other sectors surpass the targeted disbursement plans for the fiscal year. As compared from the previous year performance of disbursement all sectors registered an average growth of 51%. The major reason for the accomplishment is attributed by the foreign currency was assumed to have shortage under the year discussed however obtained foreign currency by export proceeds and from NBE was above anticipated amount.

On the other hand, the annual loan collection performance of the Bank showed 71% performance of the planned target of Birr 6.93 Billion. SME and mining & Energy sector have registered above the planned target while the other sectors have registered less than the planned target. From bottom up

manufacturing sector attained 68% that significantly affected the decline of the collection at aggregate level. However, the annual performance of loan collection increased by 2% for last year's performance. SME, Mining & Energy and financial service sectors registered significant increment as compared to the previous year performance.

| Sector | Loan Approval | | | Loan Disbursement | | | Loan Collection | | | Loan Outstanding | | |
|-------------------|---------------|--------|-------|-------------------|--------|-------|-----------------|--------|-------|------------------|--------|-------|
| | Plan | Actual | Prf.% | Plan | Actual | Prf.% | Plan | Actual | Prf.% | Plan | Actual | Prf.% |
| Agri. | 0.88 | 1.08 | 122 | 0.31 | 0.75 | 242 | 0.93 | 0.75 | 81 | 6.62 | 6.64 | 100 |
| Manufacturing | 7.62 | 6.00 | 79 | 5.02 | 5.77 | 115 | 4.25 | 2.71 | 64 | 28.39 | 31.88 | 112 |
| Mining & Energy | 0.31 | 0.36 | 118 | 0.39 | 0.36 | 91 | 0.31 | 0.28 | 91 | 0.64 | 0.36 | 56 |
| Financial Service | 0.99 | 2.44 | 246 | 0.51 | 1.57 | 310 | 0.98 | 0.72 | 73 | 2.16 | 4.57 | 211 |
| Service | 0.04 | 0.04 | 93 | - | 0.03 | | 0.15 | 0.11 | 71 | 1.16 | 0.17 | 14 |
| Lease Financing | 2.81 | 1.85 | 66 | 1.46 | 2.08 | 143 | 0.21 | 0.24 | 115 | 2.44 | 3.48 | 143 |
| Staff | 0.10 | 0.11 | 109 | 0.11 | 0.11 | 105 | 0.10 | 0.12 | 114 | 0.37 | 0.47 | 129 |
| Total | 12.76 | 11.88 | 93 | 7.80 | 10.68 | 137 | 6.93 | 4.94 | 71 | 41.78 | 47.58 | 114 |

Table 1: Summary of Credit Performance by Sector of DBE (2018/19)

From Table below, the mean average of DBE NPL ratio for the last 16 years is 26.75% with the highest ratio is 60% in year 2003 and in year 2012 was 8% which is the minimum ratio registered in the bank for 16 years. Regarding its trend it is decreasing from year 2003 to 2012 and then increasing.

Table 2: Summary of NPL ratio of DBE (2003-2018)

| Description | Mean | Median | Standard Deviation | Minimum | Maximum | Skewness | Kurtosis |
|-------------------------------|------|--------|--------------------|---------|---------|----------|----------|
| Over all NPL Ratio | 6.75 | 6.50 | 14.83 | 0 | 50 | .60 | |
| NPL Ratio Less than Median | 4.75 | | | | | | |
| NPL Ratio Greater than Median | 8.75 | | 10.00 | | | | |

Source: Own Survey, 2019

4.2.4. Descriptive analysis of data collection

In this section the Likert scale, median, regarding the views of bankers on the factors affecting the non-performing loan for all the variables used in the analysis are presented. The five Likert scales

were used to understand the views of the bankers. The lowest scale 1 was for the strongly disagree, 2 for disagree, 3 for neutral, 4 for agree and 5 for strongly agree. Results are presented in cumulative Tables to show the relationship between variables. In the single cell the figures represent that, the first row is frequency of the cell, second row represent row percentage and the third row is column percentage for all Table.

4.2.5. Question related to relation between credit assessment and occurrence of the nonperforming loans

Table below shows it shows that bankers agreed or strongly agreed that the factors indicating the bank easily admitted borrowers usually default relation in DBE in different form. This implied that the overall average response for the concerning related to easily admitted borrowers usually default relation was agreed by the respondents. All the questions under the category have got relatively high rate as explained by mean scores of each of 3.58, 3.69 and 3.312 related the question on Know your customer (KYC) policy Of Banks lead to high loan quality , Good loan underwriting ensures loan performance, Poor risk assessment would lead to loan default.

| Descriptive Statistics | | | | | | |
|--|-----|---------|---------|-------|----------------|--|
| | N | Minimum | Maximum | Mean | Std. Deviation | |
| Easily admitted borrowers usually default | 138 | 1 | 5 | 3.645 | 1.0928 | |
| Know your customer (KYC) policy Of Banks lead to high loan quality | 138 | 1 | 5 | 3.58 | 1.1258 | |
| Good loan underwriting ensures Loan performance | 138 | 1 | 5 | 3.696 | 1.0915 | |
| Poor risk assessment would lead to loan default | 138 | 1 | 5 | 3.312 | 0.9421 | |
| Valid N (listwise) | 138 | | | | | |

Source: SPSS output

4.2.6. Question related to Employees Proficiency

The first parts of the questioner were designed to have a knowhow about the Employees Proficiency.

For the first question raised to respondents regarding the Employees have insufficient knowledge relate to diverse project relate to diverse project, the majority of the respondent's i.e. 72 (52.17%) have disagreed. And also most of the respondents that account about 60.87% (84) have also disagreed that rating the existing work force composition in skill variety and level in credit in the bank.

All the questions under the category have got relatively high rate as explained by mean scores of each of 2.638, 2.413 and 2.27 related the question on T The bank has doesn't Measure Skills for different Industry Programmed, The bank don't facilitate Enough training on credit assessment for employees, T The bank don't facilitate training and specializations require to perform new credit forms like international credit project courses.

| Descriptive Statistics | | | | | |
|--|-----|---------|---------|-------|----------------|
| | N | Minimum | Maximum | Mean | Std. Deviation |
| Employees have insufficient knowledge relate to diverse project | 138 | 1 | 5 | 2.978 | 1.4371 |
| How do you rate the existing work force composition in skill variety and level in credit | 138 | 1 | 5 | 2.623 | 1.5483 |
| The bank has doesn't Measure Skills for different Industry Programme? | 138 | 1 | 5 | 2.638 | 1.2079 |
| The bank don't facilitate Enough training on credit assessment for employees | 138 | 1 | 5 | 2.413 | 1.3276 |
| The bank don't facilitate training and specializations require to perform new credit forms like international credit project courses | 137 | 1 | 5 | 2.27 | 1.2337 |
| Do you think lack of training offering from the bank side? | 138 | 1 | 5 | 2.109 | 1.1442 |
| Do you think the personnel of the bank have inadequate knowledge related to mechanical engineering | 137 | 1 | 5 | 2.445 | 1.4447 |
| Do you think the personnel of the bank have inadequate knowledge related to mechanical engineering? | 138 | 1 | 5 | 2.63 | 1.3886 |
| Valid N (listwise) | 136 | | | | |

Source: SPSS output

4.2.7. Questions concerning to Customer specific factors

The findings the study conducted on the level of Customer specific/Borrowers' related factors that the mean score value for the category in average was 87% which falls on an agree degree of agreement.

Regarding the Improper Loan customers are given enough information and explanations concerning the loans disbursed to them at all times, 76.81% of the respondents have agreed that it the bank give enough information and 3.899 mean score have related to Implementation delay is one the major problems that have caused project failure. The next question is concerned with Diversion of funds by the clients is also another major problem leading to project failure and increased NPLs. In this regard 63.77% (88) of the respondents have agreed. Regarding the Lack of awareness by the clients about the project, loan & mortgage agreement, repayment period etc is among the causes for project failure, 70.29% of the respondents agreed. For the question raised to respondents 4.101 and 3.978 mean score have related to Customers are always made aware of any changes in the terms and conditions of their loans repayment in a timely manner.

| Descriptive Statistics | | | | | |
|--|-----|---------|---------|-------|----------------|
| | N | Minimum | Maximum | Mean | Std. Deviation |
| Loan customers are given enough information and explanations concerning the loans disbursed to them at all times | 138 | 1 | 5 | 4.29 | 1.1912 |
| Implementation delay is one the major problems that have caused project failure and increased NPLs | 138 | 1 | 5 | 3.899 | 1.4105 |
| Diversion of funds by the clients is also another major problem leading to project failure and increased NPLs | 138 | 2 | 5 | 3.957 | 1.1131 |
| Lack of awareness by the clients about the project, loan & mortgage agreement, repayment period etc is among the causes for project failure and increased NPLs | 138 | 2 | 5 | 4.196 | 0.9655 |
| Customers are always made aware of any changes in the terms and conditions of their loans repayment in a timely manner | 138 | 2 | 5 | 4.101 | 1.0894 |
| Unwillingness of clients to pay their debts is also one of the major reason for increased NPLs | 138 | 2 | 5 | 3.978 | 1.0972 |
| Valid N (listwise) | 138 | | | | |

Source: SPSS output

4.2.8. Questions concerning to Relation between collateralizing loans

With regard to the bank not Collateralized project loan, 85.51 percent of respondents agree with statement that the bank not collateralized project loans respectively. The respondents are of the view that Are you think collateralizing loans help to decreased protect loan default had mean 4.043 and standard deviation 0.958.

| Descriptive Statistics | | | | | |
|--|-----|---------|---------|-------|----------------|
| | N | Minimum | Maximum | Mean | Std. Deviation |
| The bank not collateralized project loans | 138 | 2 | 5 | 4.319 | 0.7348 |
| Are you think collateralizing loans help to decreased protect loan default | 138 | 2 | 5 | 4.043 | 0.958 |
| Most of the time non collateralized loans are defaulted | 138 | 1 | 5 | 2.471 | 1.2274 |
| Valid N (listwise) | 138 | | | | |

Source: SPSS output

4.2.9. Questions concerning to Monitoring Ensures Loan Performance Statements

The findings the study conducted on the level of Monitoring Ensures Loan Performance Statements. On the question related to poorly assessed and advanced loans may perform well if properly monitored the responded the mean 3.406, standard deviation 1.2937. Other hand when the bank loan follow up is directly related to occurrence of nonperforming loans and Banks with higher budget for loan monitoring have lower non-performing loans the mean score 3.399 and 2.928 respectively.

| Descriptive Statistics | | | | | |
|--|-----|---------|---------|-------|----------------|
| | N | Minimum | Maximum | Mean | Std. Deviation |
| Poorly assessed and advanced loans may perform well if properly monitored | 138 | 1 | 5 | 3.406 | 1.2937 |
| The bank loan follow up is directly related to occurrence of nonperforming loans | 138 | 1 | 5 | 3.399 | 1.1497 |

| | | | | | |
|--|-----|---|---|-------|--------|
| Banks with higher budget for loan monitoring have lower non-performing loans | 138 | 1 | 5 | 2.928 | 1.2061 |
| Valid N (listwise) | 138 | | | | |

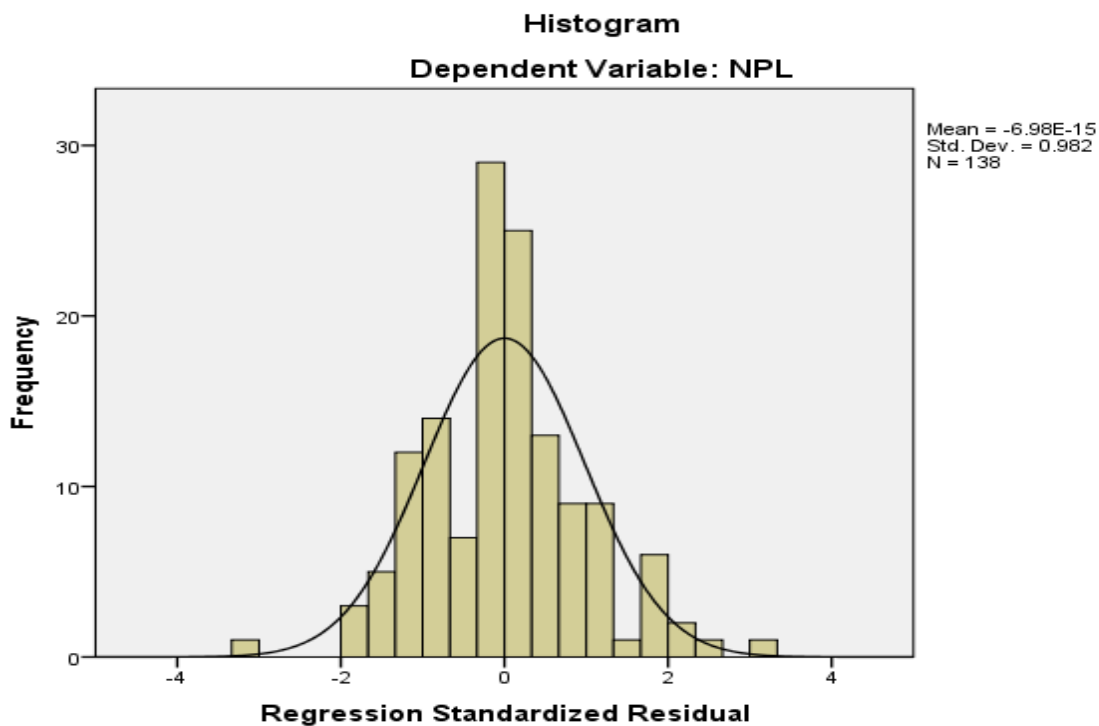
Source: SPSS output

4.2.10. Diagnosis Tests

Before applying regression analysis, some tests were conducted in order to ensure the appropriateness of data for further regression analysis as follows

4.2.11. Normality Test

As it can be seen from figure, although there are some residuals (e.g., those occurring around 0) that are relatively far away from the curve, many of the residuals are fairly close. Moreover, the histogram is bell shaped which lead to infer that the residual (disturbance or errors) are normally distributed. Thus, no violations of the assumption normally distributed error term



Source: SPSS output

4.2.12. Auto correlation Tests

According to Brooks (2008), the covariance between the error terms over time (or cross sectional, for that type of data) is zero. That means, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are auto correlated or they are serially correlated. To test the presence of autocorrelation, the Durbin Watson test is used. As noted in Brooks (2008), Durbin Watson is a test for first order autocorrelation (it is a test for a relationship between an error and its immediate previous value). This assumption stated that the covariance between the error terms over time (or cross sectionals, for that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are not uncorrelated with one another, it would be stated that they are auto correlated or that they are serially correlated (Brooks, 2008). To test the presence of autocorrelation, the Durbin Watson test is used. As noted in Brooks (2008), Durbin Watson is a test for first order autocorrelation (it is a test for a relationship between an error and its immediate previous value). If the Durbin Watson test approaches to two, it is an indication of the absence of autocorrelation. As per Brooks (2008) lagged the value is simply the value that the variable took during a previous period. A value of DW test result of 2 means there is no autocorrelation detected. Whereas, a value between 0 and 2 indicates positive autocorrelation and a value between 2 and 4 indicates negative autocorrelation. In this study the Durbin Watson test regression result DW is 1.649. Hence, as the test indicates there is absence of autocorrelation problem.

Table: Durbin-Watson –statistic test

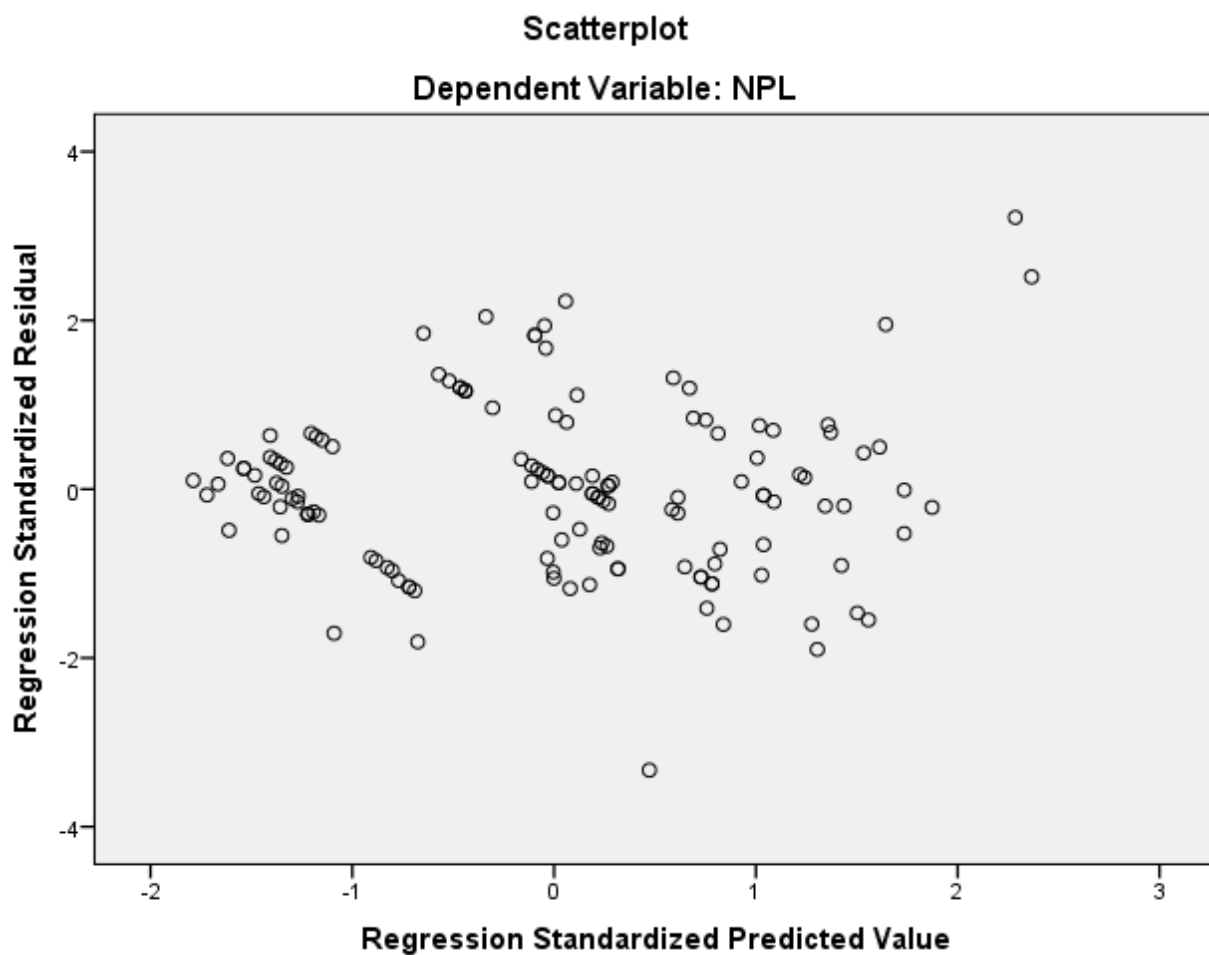
| | |
|--------------------------|-------|
| Durbin-Watson -statistic | 1.649 |
|--------------------------|-------|

Source: SPSS output

4.2.13. Heteroscedasticity Test

One of the important assumptions of the classical linear regression model is Heteroscedasticity. As noted by Brooks (2008) Heteroscedasticity assumption state that the disturbances u_i appearing in the population regression function are homoscedasticity; that is, they all have the same variance. The

variance of each disturbance term u_i , conditional on the chosen values of the explanatory variables, is some constant number equal to σ^2 . This is the assumption of Heteroscedasticity, or equal (homo) spread (scedasticity), that is, equal variance (Gujarati, 2004). If the error term u_i do not have constant variance its said to be there is Heteroscedasticity problem. Heteroscedasticity makes your parameter estimates no longer BLUE – they are still unbiased, but no longer have a minimum variance. Unfortunately, SPSS does not have built in procedure to test for heteroscedasticity. The test can be done by writing some codes. Despite not having built in procedure to test for heteroscedasticity, we can plot standardized residuals (ZRESID) against the standardized predicted values (ZPRED). If there is no heteroscedasticity, the plot should look random. As shown below in the plot the residuals have a random pattern, which signifies that there is no sign of heteroscedasticity.



Source: SPSS output

4.2.14. Multicollinearity Test

As referred by Brooks (2008), an implicit assumption that is made when using the OLS estimation method is that the explanatory variables are not correlated with one another. If there is no relationship between the explanatory variables, they would be said to be orthogonal to one another. However, a problem occurs when the explanatory variables are very highly correlated with each other, and this problem is known as multicollinearity. Malhotra (2007) stated that multicollinearity problems exist when the correlation coefficient among explanatory variables should be greater than 0.75. However, Brooks (2008) mentioned that if the correlation coefficient along with the independent variables is 0.8 and above, multicollinearity problems will exist. The method used in this study to test the existence of multicollinearity was by checking the Pearson correlation between the independent variables. The correlations between the independent variables are shown in table above. All correlation results are below 0.8, which indicates that multicollinearity is not a problem for this study.

| | NPL | CRE_MON | CUS_FAC | EMP_SPEC | COL_TERAL | CRE_ASS |
|-----------|-------|---------|---------|----------|-----------|---------|
| NPL | 1.000 | | | | | |
| CRE_MON | .645 | 1.000 | | | | |
| CUS_FAC | .682 | .224 | 1.000 | | | |
| EMP_SPEC | .687 | .121 | .687 | 1.000 | | |
| COL_TERAL | .820 | .521 | .541 | .550 | 1.000 | |
| CRE_ASS | .557 | .338 | .296 | .348 | .478 | 1.000 |

Source: SPSS output

4.2.4.10.1 Testing the model through ANOVA (Goodness of fit statistic)

ANOVA^a

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|-------|
| 1 | Regression | 55.301 | 5 | 11.060 | 60.618 | .000b |
| | Residual | 24.085 | 132 | .182 | | |
| | Total | 79.386 | 137 | | | |

a. Dependent Variable: NPL

b. Predictors: (Constant), CRE_MON, CUS_FAC, EMP_SPEC, COL_TERAL, CRE_ASS

From the ANOVA test in table it shows the Sig. value 0.0 is greater than the calculated Sig. value 0.000. It reflects there was a statistically significant correlation between dependent variable and independent variables at 1% significant level. Which means the explanatory variables; Credit assessment, Customer factors, collateral; Credit monitors and Employees Proficiency components have great contribution to NPL. Beside the F statistics (60.618) which is used to measure the overall test of significance of the model was presented, and null hypothesis can be clearly rejected since the p-value is 0.000 which is sufficiently low, the model is well fitted at 1 percent level of significance.

4.2.15. Results of Regression Analysis

The first regression analysis was undertaken to investigate the relationship NPL between independent variable by using simple linear regression model we can explain the extent to which significantly affect by the variable.

Coefficients^a

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------------------------------------|-----------------------------|------------|---------------------------|--------|------|
| | B | Std. Error | Beta | | |
| 1 (Constant) | -.707 | .339 | | -2.087 | .039 |
| Credit Assessment method | .204 | .145 | .137 | 1.409 | .161 |
| Employees Proficiency | .179 | .054 | .227 | 3.299 | .001 |
| Customer factor | .317 | .070 | .386 | 4.525 | .000 |
| Collateral factor | .120 | .067 | .112 | 1.775 | .078 |
| Monitoring Ensures Loan Performance | .188 | .047 | .220 | 4.041 | .000 |

a. Dependent Variable: NPL

Source: SPSS output

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|---------------|
| 1 | .835 ^a | .697 | .685 | .4272 | 1.649 |

a. Predictors: (Constant), Monitoring Ensures Loan Performance, Credit Assessment method, Stat Collateral, Employees Proficiency, Related to Customer

b. Dependent Variable: NPL

$$\text{NPL} = -0.707 + 0.204 \text{ CRE_ASS} + 0.179 \text{ EMP_PROF} + 0.317 \text{ CUS_FAC} + 0.120 \text{ COL_TERAL} + 0.188 \text{ CRE_MON}$$

The regression Analysis result shows R-squared statistics and adjusted R squared statistics value of 69.7% and 68.5% respectively. The result indicates that the change in the independent variable explain 69.7% of the change in the dependent variable. That is Credit assessment, Customer factors, collateral; Credit monitors and Employees Proficiency explains 69.7% of NPL of the bank .Based on the result of Table the coefficient of Credit assessment, Customer factors, collateral; Credit monitors and Employees Proficiency were 0.204, 0.317, 0.12, 0.188 and 0.179

4.2.16. Interpretations of Variables

The overall fit of the model is acceptable. The explanatory variables explain about 69.7 percent of the variation in the model. The F statistics rejects the null hypothesis that all the coefficients in the model are jointly insignificant. Moreover, the Durban Watson (DW) test result suggests that there is no autocorrelation problem. In addition, the various diagnostic tests undertaken like normality test, heteroskedasticity test, auto correlation Tests and Multicollinearity Test perform well indicating no problem about the regression analysis. That is, the estimated coefficients are statistically valid since the residuals are suggested to have all the required basic properties. No evidence of autocorrelations found in the residuals up to the second lag.

From the regression, analysis result the bank Credit Assessment method brought significant positive effect on project loan default. Thus, we can interpret the long run results as, Credit Assessment method will an impact on non performing project loan rate by 20.4%. This indicates that as the bank

amends better credit assessment method is attributes at DBE, there would be a decreasing of level of NPL.

The estimated long run coefficient of Monitoring Ensures Loan Performance attributes had significant contribution for NPL at 5% level of significance; this indicates that as the bank recompense better Monitoring Ensures Loan Performance attributes at DBE, there would be a better level of project loan NPL. To bring it to banking or finance perspective, a change/movement/ in Monitoring Ensures Loan Performance Attributes (from one point of scale to the other in the five scale likert i.e. agree to strongly disagree or neutral to agree and the like) increase the probability of projects financed being NPL by 18.8%.

The regression result evaluation of employees proficiency criteria had highly significant contribution for project loan default since the p-value for is 0.0001 which is less than the least significant level of 5%. This indicates that as the bank should concentrate better the level of the employee's proficiency parameters used during project appraisal and evaluation, to better will be the level of NPL. To bring it to banking or finance perspective, a change /movement/ in employees proficiency (from one point of scale to the other in the five scale likert i.e. agree to strongly disagree or neutral to agree and the like) increase the probability of projects financed being NPL by 17.9%.

Related to customer factor has significant and positive effect on project NPLs. This indicates that as the better the level of the customer factor management parameters used during project appraisal and evaluation, the better will be the level of NPL. To bring it to banking or finance perspective, a change /movement/ in inform customers (from one point of scale to the other in the five scale likert i.e. agree to strongly disagree or neutral to agree and the like) increase the probability of projects financed being NPL by 31.7%.

As we see from the table above, the regression analysis result Collateral project loans attributes had highly significant contribution for project loan default. This indicates that as the bank better to concentrate on how to collateral project loans to better will be the level of NPL. To bring it to banking or finance perspective, a change /movement/ in collateral (from one point of scale to the other in the five scale likert i.e. agree to strongly disagree or neutral to agree and the like) increase the probability of projects financed being NPL by 12%.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

This chapter of the research paper includes summary of the results of the research (findings), conclusion and recommendations.

5.2. Summary of findings

The study conducted survey of banks' employees (using self-administered questionnaires) and structured survey of documents. The survey had a response rate of eighty ninety percent.

The study revealed the following important findings that were derived from quantitative and qualitative analysis: in line with the objective of this research the trend of determinants of project loan default in development bank of Ethiopia, the researcher has adopted questionnaires to gather first-hand information from the respondents with heterogeneous age bracket, level education, field of study, and service period. Then, reliability and validity test was conducted in order to check the inconsistency of the data. As the validity was enhanced through discussion of the questionnaire contents directly engage in credit managing and administrating Directorate of Development Bank of Ethiopia. The reliability was tested through statistical package for social sciences (SPSS) and Cronbach alpha correlation coefficient was used to satisfy the reliability tests. The result shows 0.757 for project loan default Performances constructs with a total of 1item. For Customer factors, Employees Proficiency ,Credit Assessment, Credit monitors and collateralizing loans constructs Cronbach alpha results were 0.742, 0.878, 0.930 0.762 and 0.942 respectively. The study had 155 questionnaires distributed and from those questionnaires 138 were collected and returned for analysis.

Descriptive statistics: in determining the effective of Customer factors, Employees Proficiency, Credit Assessment, Credit monitors and collateralizing loans on NPL. The study registered an average of 4 or more than four in Likert scale, which indicated that the respondents were in

agreement that the effective of Customer factors, Employees Proficiency, Credit Assessment, Credit monitors and collateralizing loans on project loan default in development bank of Ethiopia.

In addition, as regression results show, the significance effects of the bank Credit assessment on project loan default with coefficient of 0.24, Customer factors 0.317, Credit monitors 0.18, collateralizing loans 0.12 and 0.054 Employees Proficiency 0.179. They are all positively related with all project loan default. Generally, the study affirmed direct impact of Customer factors, Employees Proficiency, Credit Assessment, Credit monitors and collateralizing loans on project loan default.

5.3. Conclusion

Based on the findings of the research here is the conclusion the researcher made from the questionnaire based on the scope of the study.

In order to address the objectives stated, the need for gathering data revolving around the subject was felt. Thus, quantitative and qualitative research methods of data were employed. The sources of the data were both primary and secondary. In order to generate data from primary sources, various means including, and questionnaire were used.

The study indicated that poor credit assessment ascribing to capacity limitation of credit operators, institutional capacity drawbacks and unavailability of national data for project financing that had also led to setting terms and conditions that were not practical and/or not properly discussed with borrowers had been the cause for occurrences of loan default.

The first investigate the determinate of project loan default in DBE was: Credit Assessment significantly influences project loan default. As the output showed were right so that researcher concluded the performance of project loan default depends on the performance of Credit Assessment and monitoring. The second part was: Employees Proficiency significantly influences project loan default. As the findings showed that was right. From these the researcher concluded that the way collateralizing loans will directly affects the performance of project loan default. The third part was: Customer factors significantly influence project loan default.

The multiple linear regressions result of project loan default also confirmed that Customer factors, Employees Proficiency, Credit Assessment, Credit monitors and collateralizing loans are variables that had a significant influence on the project loan default of development bank of Ethiopia.

5.4. Recommendation

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

This study has a potential to support the policy makers of DBE to take corrective measures on the most important determinants of successful to minimize the ratio of project default. The possible policy implications, emerged from the study, are forwarded below.

One of the vital policy implications has much to do with the strong relationship existing between the credit assessment methods with employee skill gap, collateral occurrence of NPL. This positive correlation suggests that the Bank should, at all times, provided up to date capacity building for its employees related credit risk management how they are look the dynamic nature of business environment in the global economy at large and national economy.

Another important policy implication is related to the weak association/relationship prevailing between poor credit assessment method and customer tracing related factors and strict monitoring and evaluation or follow up to ensures loan for case of NPL ratio due to the fact that the bank's staffs opinion shows that credit assessment like follow-up was not meet the required level. This relationship shows that that the bank should exercise and develop both qualitative and quantitative credit risk assessment method in its day to day manoeuvres for all loans administrated by the bank and revised its loan policy and procedure accordingly.

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ANEXX 1

Questions regarding determinants of

Project loan default in Development Bank of Ethiopia

Dear Respondent,

My name is Ephrem Tadesse. I am attending MBA St'Mary's University right now. I am conducting a research on the title the trend of determinants of project loan default: evidence from development bank of Ethiopia' as a partial fulfilment of the requirements for the degree of Master of business (MSC) in Accounting and Finance, St'Mary's University.

The purpose of the questionnaire is to collect data for research on **Determinants of project loan default: evidence from development bank of Ethiopia**. The principal purpose of this questionnaire is to obtain data for a study intended to investigate the trend of project loan default in Development Bank of Ethiopia. Therefore, your cooperation in providing the data collections through the questionnaire will be used strictly for academic purpose. Your genuine and honest response is very important for the success of the research and the researcher would like to thank you for your cooperation in advance.

Kind regards.

PART I: General Information Concerning the Respondents

The following questions concern about your personal information. Please place a tick in the appropriate box in each of these questions.

1. Your sex,

Male

Female

2. Your marital status Married Single Other

3. Your age group 30 years or less 31–40 years 41–50 years

 51–60 years More than 60 years

4. Highest level of education qualification PhD Master Bachelor

 Diploma Other

5 What is your current position at the sector you are working? Manager Non manager

6. Your work experience Less than 5 years 5–10 years 11–15 years

 16-20 years More than 20 years

Part II - Questions concerning concept of The Trend of project loan default in Development Bank of Ethiopia

Please put a tick (✓) sign to appropriate space of particular score, which is suitable to your agreement about the following statements.

| Credit Assessment method | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|---|-----------------------|--------------|----------------|-----------------|--------------------------|
| 1. Easily admitted borrowers usually default | | | | | |
| 2. Know your customer (KYC) policy Of Banks lead to high loan quality | | | | | |
| 3. Good loan underwriting ensures Loan performance | | | | | |
| 4. Poor risk assessment would lead to loan default | | | | | |
| Employees Proficiency | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 1. Employees have insufficient knowledge relate to diverse project | | | | | |
| 2. How do you rate the existing work force composition in skill variety and level in credit | | | | | |
| 3. The bank has doesn't Measure Skills for different Industry Programme? | | | | | |
| 4. The bank don't facilitate Enough training on credit assessment for employees | | | | | |
| 5. The bank don't facilitate training and specializations require to perform new credit forms like international credit project courses | | | | | |
| 6. Do you think lack of training offering from the bank side? | | | | | |
| 7. Do you think the personnel of the bank have inadequate knowledge related to mechanical engineering | | | | | |
| 8. Do you think the personnel of the bank have inadequate knowledge related to mechanical engineering? | | | | | |
| Related to Customer Statements | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 1. Loan customers are given enough information and explanations concerning the loans disbursed to them at all times | | | | | |
| 2. Implementation delay is one the major problems that have caused project failure | | | | | |

| | | | | | |
|---|-----------------------|--------------|----------------|-----------------|--------------------------|
| and increased NPLs | | | | | |
| 3. Diversion of funds by the clients is also another major problem leading to project failure and increased NPLs | | | | | |
| 4. Lack of awareness by the clients about the project, loan & mortgage agreement, repayment period etc is among the causes for project failure and increased NPLs | | | | | |
| 5. Customers are always made aware of any changes in the terms and conditions of their loans repayment in a timely manner | | | | | |
| 6. Unwillingness of clients to pay their debts is also one of the major reason for increased NPLs | | | | | |
| Statements related to Collateral | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 1. The bank not collateralized project loans | | | | | |
| 2. Are you think collateralizing loans help to decreased protect loan default | | | | | |
| 3. Most of the time non collateralized loans are defaulted | | | | | |
| Monitoring Ensures Loan Performance Statements | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
| 1. Poorly assessed and advanced loans may perform well if properly monitored | | | | | |
| 2. The bank loan follow up is directly related to occurrence of nonperforming loans | | | | | |
| 3. Banks with higher budget for loan monitoring have lower non-performing loans | | | | | |