ST.MARY UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF ACCOUNTING AND FINANCE

ASSESSMENT OF CREDIT RISK MANAGEMENT PRACTICE OF COMMERCIAL BANK OF ETHIOPIA

BY

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A THESIS SUBMITTED TO SCHOOL OF GRADUATE STUDIES OF ST.MARY'S UNIVERSITY IN PARTIAL FULFULIMENT OF THE REQUIRMENTS FOR THE DEGREE OF MASTER OF ACCOUNTING AND FINANCE

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Statement of Declaration

I Biruk Dejene declare that this research, titled “Assessment on credit risk management practice of commercial bank of Ethiopia” is done with my own effort. I have produced it independently except for the guidance and suggestions of my research advisor. I assure that this study has not been submitted for any scholarly award in this or any other university.

Biruk Dejene Signature —————————— Date ——————

Certification

Here with I state that Biruk Dejene has carried out this research work on the topic entitled "Assessment on credit risk management practice of commercial bank of Ethiopia" under my supervision. This work is original in nature and has not presented for a degree in any university and it is sufficient for submission for the partial fulfillment for the award of MSc degree in Accounting and Finance.

Zenegnaw A. (PhD) Signature ———————————— Date ——————

Abstract

Credit Risk management becomes major discussion issues in the financial institutions because of uncertainty related to borrower's business. The aim of this study is to assess credit risk management tools and technique that are being used in the bank and to what extent the current performance of the bank is supported by proper credit risk management policy, procedure and strategy. The study design is descriptive. The research applies quantitative research method and both primary data (questionnaire) and secondary data were collected to meet the objective of the study. 106 samples were involved at head office and district office who works on credit to get reliable and valid information about the study subject. The data was analyzed using descriptive statistics technique and frequency table by using SPSS software. From the findings the study concludes that the bank has well organized credit policy that counter to credit risk they are exposed to and it also conclude that the bank has good credit granting practice and uses suitable credit risk assessment tools and techniques including loan follow-up, risk identification, measuring, evaluating, monitoring and controlling mechanism. However, the study also concluded that the bank has pitfalls such as absence of training for customers which results to loan diversion, absence of credit risk model that predict the risk level of the business and the priority sectors of the bank in terms of credit facility are highly exposed to credit risk which directly contribute to the increment of NPL. Thus, it is recommended that Commercial Bank of Ethiopia should develop independent risk management policy and procedure from credit policy and procedure to overcome those problems and to take measure on the spot.

Key words: Credit Risk Management, Bank.

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Acronyms and Abbreviations

CBE= Commercial Bank of Ethiopia

NBE= National Bank of Ethiopia

CRM= Credit Risk Management

SPSS= Statistical Package for Social Sciences

KYC= know Your Customer

NPL= Non Performing Loan

MIS= Management Information System

LRM= Loan Review Mechanism

BOD= Board of Director

EL= Expected Loss

EAD= Exposure at Default

LGD= Loss Given Default

SET= Security Financing Transaction

OBS= Off Balance Sheet

GAAP= Generally Accepted Accounting Principle

VAR= Value at Risk

MTM=Mark to Market

DM= Default Mode

RCR=Rural Commercial Banks

SME=Small and Medium Enterprises

CSMI=Credit Scoring Methods for Individual

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Chapter One

1. Introduction

1.1. Background of the study

Banking industry is the largest and most dominant financial sectors which help the development and growth of countries economic transformation. Bank is a financial institution which collects deposit from depositors and lend to other business sectors as its main function.

For most banks, loans are the largest and most obvious source of credit risk Basel (1999). Kargi (2011) study and find out that there is a significant relationship between bank performance and credit risk management. Loans and advances and non performing loans are major variables in determining asset quality of a bank. These risk items are important in determining the profitability of banks in Nigeria. Where a bank does not effectively manage its risk, its profit will be unstable.

Credit risk is defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms. The goal of credit risk management is to maximize a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters. Banks need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions. Banks should also consider the relationships between credit risk and other risks. The effective management of credit risk is a critical component of a comprehensive approach to risk management and essential to the long-term success of any banking organization. (Greuning & Bratanovic 2009)

Hinnies (2003) states that despite innovation in the financial service sector over the years, credit risk is still the major single cause of bank failures, for the reason that more than 80% of a bank's balance sheet generally related to this aspect of risk management. The consultative paper issued by Basel (1999) also pointed out that the major cause of serious banking problem continuous to be directly due to the loose of credit standards for borrowers and counter parties, poor portfolio risk management and so on.

Loan is typically the largest asset and the predominant source of revenue. As such it is one of the greatest sources of risk to a bank safety and soundness. The very nature of the banking business is so sensitive because more than 85% of their liability is deposits from depositors (Saunders and Cornett, 2005). Banks use these deposits to generate credit for their borrowers, which in fact is a revenue generating activity for most banks. This credit creation process exposes the banks to high default risk which might lead to financial distress including bankruptcy.

The key principles in credit risk management are establishment of a clear structure, allocation of responsibility and accountability, processes have to be prioritized and disciplined, responsibilities should be clearly communicated and accountability assigned thereto. Organizing and managing the lending function in a highly professional manner and doing so pro-actively can minimize whatever the degree of risk assumed losses. Banks can tap increasingly sophisticated measuring techniques in approaching risk management issues with the advancements of technology (Yang, 2013).

The beginning of banking in Ethiopia, as in most other country of the world were non institutional banking operation were based on the private initiative of merchant or others possessing or in urgent need of money. Since 1963, Commercial Banks of Ethiopia have been performing commercial banking activities in Ethiopia. At present the bank has more than 970 branches and more than 22,000 employees with capital of 303.6 billion assets. In general CBE is the leading bank in Ethiopia and serve as the major source of finance to the national development effect. The bank provides different types of credit facilities such as Overdraft, merchandise loan facility, Pre-shipment Export Credit facility, Revolving Export Credit Facility, Special Truck Loan Financing, Short term loan, Medium and long term loans, Agricultural Input Loan, Agricultural Investment Loan, Coffee farming Term Loan Financing and Microfinance Institution’s Loan. From these types of loans provided by the bank priorities are given to manufacturing sector, agricultural sector and export. As indicated in the 2014/15 annual performance the report, it has been possible to mobilize a total deposit of 48.8 billion birr that makes the Bank's deposit position 241.7 billion birr. During the 2014/15 budget year, the Bank disbursed a total loan of 89.6 billion birr. Therefore, this research assesses credit risk management practice of the bank and the policy environment and ways of alleviating credit risk also assessed in the research.

1.2. Statement of the problem

Banking industry is a major source of finance for any type of business it may be in the form of loan. Loan is one of the mechanisms used by financial institutions as a major source of income. Also the process of repayment default is also fraud for the institutions.

Non-performing loans or uncollectable loans or bad loans are reducing the profitability of the bank. This NPL are highly ties huge amount of capital that can be used for productive purpose by giving loans and advance to various economic sectors and profitable business and investments in different sectors. At present from the total loans and advance disbursed amount 111,435,273,000.00 birr which is Birr 1,987,873,000.00 or 1.78% is under the category of NPL in Commercial Bank of Ethiopia (CBE) as at June 2015. Even-if the NPL ratio is below the required level of NBE it is increasing in the past five consecutive years from 293,370,000.00 birr in year 2011 to 1,987,873,000.00 birr in year 2015 (Commercial Bank of Ethiopia, 2015). There are a number of studies on credit risk management in Ethiopia:

Tibebu (2011) in his paper examine the impact level of credit risk management towards the profitability of selected commercial banks in Ethiopia in general. He argues that credit risk management has significant impact on profitability of banks of our country. He took seven selected banks such as Commercial bank of Ethiopia, Nib International bank, Dashen bank, Awash International Bank, Bank of Abyssinia, Wegagen Bank and United Bank.

Hagos (2010) in his study of credit management– A Case Study of Wegagen Bank Share Company in Tigray Region attempt to indicate the importance of credit management in financial institutions such as commercial banks, micro finances and others. Thus, the rationale behind undertaking the study is to deeply investigate the causes of credit management problems and to suggest the possible solutions that enable the bank to run its operation in a safest way as credit is known to be the main focus of all banks.

Solomon (2013) assesses credit risk management practice of Nib International Bank S.C and find out that risk which emanates from credit is due to high degree of credit concentration in few sector and borrowers, the use of collateral as number one technique to alleviate credit risk and absence of proper evaluation model. He goes on to state lesser value for MIS, absence of advisory service, dependency of administration mechanism, override in appraisal process, absence of proper follow up and no formal way of penalizing loan officers is the major cause of credit risk in NIB international bank.

Tesfaye (2014) investigates factors influencing credit risk in the Ethiopian commercial banks. The main purpose of the study is to follow a comprehensive approach towards identifying credit risk influence factors.

Yalemzewd (2013) assess credit management practice of Bunna International Bank S.C and analyzed the process of accessing credit, credit control process and credit collection strategy against non performing loan of the bank.

As mentioned above most of the researches are conducted on different private banks in which large amount of their loans are dispersed to private business but this paper is conducted on CBE a government owned bank in which large amount of its loans are dispersed to government project and on three priority sectors(i.e. manufacturing, export and agriculture). This gap and the above mentioned problem of NPL call research to assess the credit risk management practice of Commercial Bank of Ethiopia.

The major issue of this paper is to assess and find out what tools and techniques are used in the bank and to what extent their current performance are supported by proper credit risk management policy, procedure and strategy and to what extent Commercial Bank of Ethiopia can manage its credit risk.

1.3. Research questions

The researcher tries to answer the following question**:**

- ✓ What are the gap between credit risk management practice of the bank and the theory of credit risk management?
- ✓ What are credit risk management techniques and tools used by the bank?
- ✓ How does the bank identify, measure, monitor, evaluate and control credit risk?
- ✓ Which of the three priority sectors of credit facility is highly exposed to NPL?

1.4. Objectives of the study

1.4.1. General objectives

The general objective of the study is to assess the credit risk management practice of commercial bank of Ethiopia.

1.4.2. Specific objectives

- ✓ To assess credit risk management practice of CBE with theoretical framework.
- ✓ To identify which of the three priority sectors of credit facility is highly exposed to NPL?
- ✓ To evaluate the implemented credit risk management technique.
- ✓ To review the credit risk management process of CBE.

1.5. Significance of the study

Since credit is the back bone of bank industry in generating income, the outcome of the study will help policy maker, loan processing and credit appraisal department, credit administration department and credit risk management department by forwarding relevant information from outcome of the study in order to improve their credit risk management practice.

Moreover, the study also have importance for other Ethiopian banks policy makers by providing empirical data that help in improving or formulating the policy environment for credit risk management practice of the banks. Also the research will be input for further study in the area of credit risk management practice.

1.6. Scope of the study

The focus of the research is assessment of credit risk management practice of Commercial Bank of Ethiopia and the researcher mainly focuses on credit administration, credit appraisal, customer relationship managers department and related area at head office level, risk management department and consumer loan at district level in order to gather relevant information about the area of study.

Therefore, the study is limited to the credit activity and risk management area of Commercial Bank of Ethiopia on the four districts found in Addis Ababa. Other operation of the CBE is not the subject matter of this research.

1.7. Organization of the Research Report

This study comprises five chapters. Chapter one provides information on background of the study, general and specific objective, research question, significance, and definition of terms, scope of study and statement of the problem. Chapter two reviews literatures by different authors and theoretical framework and empirical studies on issues related to the study. Chapter three deals with method of the research, research design, target population, sampling and data collection method. In chapter four findings, analysis and discussion will be present, chapter five the last chapter is discussion of the findings puts conclusion and recommendation of the study.

Chapter Two

2. Literature review

2.1. Credit risk

Beasens and Gestel(2009) defines credit risk as the risk that a borrower fails to pay and does not act according to their obligation to service debt. They state that the causes for the failure to pay could be incapability of the other party to pay or failure to pay on the due date. Besides they mentioned that by its character credit risk is the most apparent risk of a bank. In addition to this the writer characterize credit risk by ways of three aspect the first one is default risk is the possibility that payment is not issued at least within three month this delay will happen due to Counterparts with a weak financial situation, high debt burden, low and unstable income have a higher default probability, sector information and management quality. The second aspect is loss risk or loss given default (LGD) which is a fraction of exposure in the case of failure to pay and exposure risk is ambiguity on the accurate amount at risk at the very instant of a future default.

In the same way Singh (2013) states that another term for credit risk is default risk and defines it as the bank's risk of loss arising from a counterparty that does not make payments in accordance with his/her promise. He also points out credit risk is the earliest and the main source of risk in the banking sector.

Credit risk encompasses both the possibility that a borrower will default by failing to repay principle and interest in timely manner, and the possibility that the credit quality of the obligor will deteriorate, leading to an economic loss (Ong, 2006).

Credit risk occur when one of the counter parties to a transaction does not clear up in full either when the fund are outstanding or on some later date and it may result in bankruptcy of counterparty (C.Baker, 1998).

According Anuj A. (2011), credit risk is delay of one's own obligation in accordance with stetted contractual financial obligation within the deadline of payment by counter party. Credit risk is the possibility that debtors or borrowers incapability of paying its obligation in a way that predetermined contractual agreement made during credit approval process which adversely affect the working environment of the lender.

Credit risk is defined as the probability that a bank borrower or counterparty will fail to meet its obligations in accordance with contracted terms Basel (2000).

Credit risk arises whenever a lender is exposed to loss from borrower, counterparty, or an obligor who fail to honor their debt obligation as they have agreed and contracted Colquitt (2007)

The Basel (2001), defines credit risk as a chance when borrowers fail to repay their loan partially or fully due to different circumstances. It also state that the extent to which the bank exposed to higher credit risk will lead to unexpected financial crises and lower credit risk will minimize the probability of the crises because large amount of profit will be generated from this department of the bank

2.1.1. Types of credit risk

According to Brown and Moles (2014) there are two sub-types of credit risk country risk and industry risk which affect multinational enterprises.

i. Country risk

Arise from having contact to individuals and institutions in countries that have legal systems, business codes and standards that differ from those of the lender. There are four factors relevant to this. The first is political risk, which arises when a country's government is challenged externally or from within national borders. Political risk is more problematic in long-term lending agreements than for short-term transactions. The second is Economic risk, which arises from depressed or declining economic stability in a country. The third factor is currency risk, which always arises with cross-border lending.

Finally, the fourth factor is the enforcement risk from the legal system in the debtor country. Because a creditor has to go through a foreign legal system, it has been known for debtors to use their domestic legal process to stand or attempt to avoid paying, claiming that rules from their home country apply.

ii. Industry risk

This applies particularly when the domestic or international economy is in recession and the poor economic conditions particularly affect certain industries. Industry structure may have credit consequences because of the supply chain within which most firms operate. It is a form of concentration risk.

According to Baesens & Gestel (2009) Credit risk consists of pre-settlement and settlement risk:

iii. Pre-settlement risk

Pre-settlement risk is incapability of borrower to perform their obligation through the life of loan repayment period. It can occur over long period of time from contractual period up to settlement. And when the borrower residence countries forbid and block all foreign payment.

iv. Settlement risk

Settlement risk is the exchange of transaction through the involvement of third party this may create suitable environment for settlement risk because the default of the third party during the transaction will directly affect the other party (lender of bank). Longer time duration, payment in different time zone and different currency is the most important factor to increase settlement risk.

2.2. Credit Risk Management

According to Singh (2013) credit risk management includes all management function such as identification, measurement, monitoring and control of the credit risk exposure. The writer further indicated that for long term achievement of banking sector effective credit risk management practice is a vital issue in the current business environment and poor credit risk management policy will create serious source of crisis in the banking industry.

According to Atakelt (2015) Credit risk management practice define as the process of analyzing and renewing Credit risk management documents and apply constantly in actual Credit granting process, Credit administration and monitoring and risk controlling process with suitable Credit risk environment, understanding and identification of risk so as to minimize the unfavorable effect of risk taking activities and the effectiveness of credit risk management process is dependent on different variables such as proper application of best Risk management documents, Staff quality, Credit culture, devoted top management bodies, sufficient training program, proper organizational structure, ample level of internal Control and Performance of intermediation function. This indicates that credit risk management includes different issues such as developing and implementing suitable credit risk strategy, policy and procedure, accurate identifications of risk, best credit granting process, credit administration, monitoring and reporting process determining and controlling the frequency and methods of reviewing credit policy and procedure and setting authority and responsibility clearly. Besides he mentioned that by establishing suitable credit risk environment, acceptable level of credit limit, best credit granting process, proper monitoring and controlling credit risk and optimizing risk return of a bank credit risk management develop credit performance.

Cebenoyan & Strahan (2004) examine empirically how active management of credit risk using loan deal affects capital structure, lending, profits, and risk of banks. They find that banks which are Active in the loan sales market hold less capital and make more risky loans than other banks. They conclude that advances in credit risk management improve credit accessibility rather Than decrease risk in the banking system.

The management of credit risk has become a key objective for all financial institutions across the world. The goal of credit risk management is to maximize a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters Basel (1999).

According to Anuj A. (2011) through designing and implementing a Credit Risk Framework, Performing a Credit Risk Assessment, Building Credit Risk Scoring Models and Credit Risk Reporting control panel and Forecasting Loan Loss we can construct effective credit risk management and he also believe that most effective credit risk management focuses on processes, culture, people and organization because we are working with them.

“Credit risk management includes both preventive and curative measure. Preventive measure comprise risk assessment , risk measurement , and risk pricing , early warning system to pick signal of future default in advance and undertake better credit portfolio diversification. The curative measure aim at minimizing post sanction loan losses through steps such as securitization, derivative trade, risk sharing and legal enforcement” (Jain, 2014, p3).

2.3. Overall life cycle of credit risk management

Whither the institution in to bankrupts or profitability depends on the level of credit risk management strategy and proper implementation credit process in each credit risk management life cycle.

According to George, Sinba and Murat (2008) they put four levels of credit risk management life cycle:

1. Collect obligor (borrower) and loan data: Parties needed her is borrower, loan and external data. The key task and challenges of this stage is interpretation of financial information, system integration, getting the borrower and loan data, data quality and getting external rating data.

2. Compute credit risk: In this stage credit risk will be calculated in the form of risk rating of meaningful differential risk among different firms and exposure. The main task and challenges her is developing rating model, calculating the probability of default, rating approach, comprehensiveness of data, comprehensiveness of model, calculating loss given default (LGD), exposure at default (EAD) and expected loss (EL) are the major one. 3. Monitoring and managing risk rating: This stage is a stage of monitoring and managing the risk rating system. The main activity and challenges her is interface with

internal collection, perform back testing of rating, reduction of manual dependency feedback and alert, develop workflow to manage approval of rating and ensure notification on external rating change.

4. Managing portfolio and allocation of capital: This level of credit risk management life cycle is the most difficult and challenging in the financial world today. The most important activities and challenges of this stage is compute and monitor portfolio risk, allow transfer of risk, reporting on risk, stress testing /scenario analysis and stress testing/back testing challenge are the most important activity expected to be performed at this level.

2.4. General measurement principle of credit risk exposure

"A bank should disclose balances of credit exposures, including current exposure and, where applicable, future potential exposure, by major categories." Basel (2000)

According to Basel (2013 & 2014) a bank's total Exposure Measure is the sum of the following exposures: (a) on-balance sheet exposures, (b) derivative exposures, (c) securities financing transaction exposures, and (d) other off-balance sheet exposures. The specific treatment for these four main exposure categories is defined below.

a. On-balance sheet exposures

Banks must include all on-balance sheet assets in their Exposure Measure including on-balance sheet derivative collateral and collateral for securities financing transactions (SFTs) (but excluding some of on-balance sheet derivative and SFT assets. l GAAP recognizes on-balance sheet fiduciary assets, these assets can be excluded from the Exposure Measure. Physical or financial collateral, guarantees or credit risk mitigation purchased are not allowed to reduce on-balance sheet exposures.

On-balance sheet, non-derivative exposures are included in the Exposure Measure net of specific provisions and valuation adjustments (e.g. credit valuation adjustments).

b. Derivative exposures

Treatment of derivatives: derivatives create two types of exposure: (a) an exposure arising from the underlying of the contract and (b) a counterparty credit risk exposure. The leverage ratio framework uses the method set out below to capture both of these exposure types. Banks must calculate their derivatives exposures, including where bank sells protection using a credit derivative, as the replacement cost for the current exposure plus an add-on for potential

Total Exposure = replacement cost (RC) + add-on

RC = the replacement cost of the contract (obtained by marking-to-market), where the contract has a positive value.

Add-on = an amount for potential future credit exposure over the remaining life of the contract calculated by applying an add-on factor to the notional principal amount of the derivative.

c. Securities financing transaction (SFT) exposure

Securities financing transactions (SFTs) are included in the Exposure Measure according to the following treatment. The treatment recognizes that secured lending and borrowing in the form of SFTs is an important source of leverage and ensures consistent international implementation by recognizing the main differences across accounting frameworks

d. Off balance sheet exposure

This section explains the incorporation into the Exposure Measure for off-balance sheet (OBS) items, as defined under the risk-based framework. For example, the OBS items include commitments (including liquidity facilities), unconditionally cancellable commitments, direct credit substitutes, acceptances, standby letters of credit, trade letters of credit, failed transactions and unsettled securities (Basel, 2014).

2.5. Operating under a sound credit granting process

According to **Saunders and Allen (2002) & (Thomas (2002))** the expert analyzes five key factors, subjectively weights them, and reaches a credit decision:

1. Character: A measure of the reputation of the firm, its willingness to repay, and its repayment history e.g. age factor.

2. Capital: The equity contribution of owners and its ratio to debt (leverage). These are viewed as good predictors of bankruptcy probability. High leverage suggests a greater probability of bankruptcy.

3. Capacity: The ability to repay, which reflects the volatility of the borrower's earnings.

4. Collateral: In the event of default, a banker has claims on the collateral pledged by the borrower. The greater the priority of this claim and the greater the market value of the underlying collateral, the lower the exposure risk of the loan.

5. Cycle (or Economic) Conditions: The state of the business cycle; an important element in determining credit risk exposure, especially for cycle dependent industries.

2.6. Principles for the Assessment of Banks' Management of Credit Risk

Financial institutions are facing several problems due to lack of adequate credit risk management principles, proper implementation credit standards of borrower and counterparties and poor portfolio risk management or lack of attention to changes in economic or other circumstances that can lead to worsening in the credit standing of a bank's counterparties. Sound principles of banks credit risk management will be covered on five areas as follows Basel (2000).

i. Establishing an appropriate credit risk environment: The strategy of the bank should reflect the bank's tolerance for risk and the level of profitability the bank expects to achieve for incurring various credit risks. Such policies and procedures should address credit risk in all of the bank's activities and at both the individual credit and portfolio levels. Banks should identify and manage credit risk inherent in all products and activities.

ii. **Operating under a sound credit granting process**: Banks must operate within sound, well defined credit granting criteria. These criteria should include a clear indication of the bank's target market and a thorough understanding of the borrower or counterparty, as well as the purpose and structure of the credit and its source of repayment.

Kim (1987) state that Credit granting process involves an exchange between the supposed default risk of the credit application and possible returns from granting requested credit.

iii. **Maintaining an appropriate credit administration, measurement and monitoring process**: Banks must monitor the condition of individual credits, including determining the adequacy of provisions and reserves with consistent rating system in nature, size and complexity of a bank's activities with information systems and analytical technique.

iv. **Ensuring adequate controls over credit risk**: Banks must establish a system of independent, ongoing assessment of the bank's credit risk management processes and ensure that the credit-granting function is being properly managed and their credit exposure level.

V. **The role of supervisors**: Supervisors should conduct an independent evaluation of a bank's strategies, policies, procedures and practices related to the granting of credit and the ongoing management of the portfolio and couch practical limits to restrict bank exposures to single borrowers or groups of connected counterparties.

2.7. Credit risk measurement

Credit risk measurement relies on the lenders analytics and risk measurement tools rather than the borrowers. It also has three goals the first one is to limit the credit risk exposure that the lender accepts when extending the debt. The second goal is to insure that adequate compensation is earned for risk undertaking. It is concerned with the revenue and profit margin earned on the products and services that lenders provide. The third goal is to mitigate the credit risk exposure by structuring transaction to protect against loss as well as in to asset classes that can be marketed to third party investor Colquitt (2007).

The risk measurement concerns the actual measurement of the risk in a risk grade or on a total portfolio. The measurement quantifies the actual default risk (probability of default), the loss risk (loss given default) and the exposure risk (exposure at default). A simple way of risk measurement is to learn from past data when available (Beasens and Gestel, 2009)

2.8. Credit risk Models

Risk model deals with the understanding and prediction of risk levels (Beasens and Gestel, 2009)

Credit risk modeling methodologies allow a tailored and flexible approach to price measurement and risk management. (Basel, 1999)

i. **Value at Risk Model (VAR)**

It is one of the newer risk management tools. The Value at Risk (VAR) indicates how much a firm can lose or make with a certain probability in a given time horizon. VAR summarizes financial risk inherent in portfolios into a simple number. Though VAR is used to measure market risk in general, it incorporates many other risks like foreign currency, commodities, and equities. (Thirupathi K. & M. Manojkumar (2013)

Credit VAR models can be gathered in two main categories: 1) Default Mode models (DM) and 2) Mark-to-Market (MTM) models. In the former, credit risk is identified with default risk and a binomial approach is adopted. Therefore, only two possible events are taken into account: default and survival. The latter includes all possible changes of the borrower creditworthiness, technically called “credit migrations”. In DM models, credit losses only arise when a default occurs. On the other hand, MTM models are multinomial, in that losses arise also when negative credit migrations occur (Altman, 2006).

ii. The Merton model

The basic intuition behind the Merton model is relatively simple: default occurs when the value of a firm’s assets (the market value of the firm) is lower than that of its liabilities. The payment to the debt holders at the maturity of the debt is therefore the smaller of two quantities: the face value of the debt or the market value of the firm’s assets. Under these models, all the relevant credit risk elements, including default and recovery at default, are a function of the structural characteristics of the firm: asset levels, asset volatility (business risk) and leverage (financial risk). The RR is therefore an endogenous variable, as the creditors’ payoff is a function of the residual value of the defaulted company’s assets Altman (2006). The probability of a firm going bankrupt depends crucially on the beginning period market value of that firm's assets relative to its outside debt and the volatility of the market value of a firm's assets (Altman & Saunders, 1998).

iii. Credit Metrics model

Credit Metrics is a tool for assessing portfolio risk due to changes in debt value caused by changes in obligor credit quality. We include changes in value caused not only by possible default events, but also by upgrades and downgrades in credit quality. Also, we assess the value-at-risk (VAR) the volatility of value not just the expected losses. Importantly, we assess risk within the full context of a portfolio. We address the correlation of credit quality moves across obligors. This allows us to directly calculate the diversification benefits or potential over-concentrations across the portfolio. In addition, Credit Metrics allows us to capture certain market risk components in our risk estimates. These include the market driven volatility of credit exposures like swaps, forwards, and to a lesser extent, bonds. J.P Morgan (1997)

iv. Internal Rating System

An internal rating system assist financial institutions to manage and control credit risks they face through lending and other operations by grouping and managing the credit-worthiness of borrowers and the quality of credit transactions. Thirupathi K. & M. Manojkumar (2013)

Capital market looks to credit rating as a determinant of an obligor's financial health. Rating agencies use different grading system to rank borrower according to their ability to service their obligations (Ong, 2006).

2.9. Credit scoring System

According to Hussein & John (2011) Credit scoring has been regarded as a core appraisal tool in which the idea of reducing the probability of a customer defaulting, which predicts customer risk, is a new role for credit scoring, which can support and help maximize the expected profit from that customer for financial institutions, especially banks. One of the most important things, to classify a bank's customers, as a part of the credit evaluation process to reduce the current and the expected risk of a customer being bad credit, is credit scoring. Hand & Jacka, (1998, p. 106)

Credit scoring is purely judgmental approach in which credit analyst decision is based on five Cs (i.e. character, capacity, capital, collateral and condition). Thomas (2002)

According to Beasens and Gestel (2009) Credit scoring is a credit risk management technique that analyzes the borrower's risk. In its early meaning, "credit scores" were assigned to each customer to indicate its risk level. The more highly discriminative the scoring system, the better are the customers ranked from high to low risk. Commonly focuses on the values of the 5 Cs of a customer (i.e., Character, Capital, Collateral, Capacity and Condition**.)**

Credit scoring is the set of decision models and their underlying techniques that aid lenders in the granting of consumer credit. These techniques assess, and therefore help to decide, who will get credit, how much credit they should get, and what operational strategies will enhance the profitability of the borrowers to the lenders (Thomas, 2000).

The judgmental techniques rely on the knowledge and both past and present experience of credit analysts, who evaluate the required requisites, such as the personal reputation of a client, the ability to repay credit, guarantees and client's character. (Abdou, El-Masry & Pointon, 2007).

Credit scoring is mechanical system for analysis of the loan applicant and used to increase the correctness in the approval of loans to creditworthy customers, which can result in increased profits or rejection of those customers who are not creditworthy.
The main reasons for the use of credit scoring are to reduce bad debts and to improve operational efficiency (Janeska, Sotiroski, & Taleska, 2014).

The main aspect generally used in credit scoring models include the borrowers'' personal characteristics such as income, age, gender, education, occupation, region, time at present address, residential status, marital status, and followed by the borrower'' banking relationship such as collateral value, loan duration, time with bank, number of loans, and current account (Marian G. & Fotini G., 2010, p.15).

According to Beasens and Gestel(2009) Different customer scoring stage are listed as follows: Marketing score: a marketing activity aims to reduce the cost of customer acquisition and to minimize customer inconvenience and dissatisfaction. Application score: Application scoring systems summarize all applicant information into one overall score measuring the creditworthiness of loan applicants in order to predict the probability of repayment problem. Fraud score: simply by observing and counting the number of days in payment arrears, to claim as fraudulent or a credit application as containing fraudulent information. Performance score: The goal of performance scoring is to monitor the existing portfolio, its future performance and losses. Behavioral score: Behavioral scoring analyzes the risk of existing customers based on their recently observed behavior once credit has been granted, banks can subsequently start to monitor the repayment and financial behavior of their customers. It allows lenders to make better decisions in managing existing clients by forecasting their future performance Thomas (2002). The behavior score analysis the customer's previous payment and purchase behavior as well as the customer's social demographic (Charlotte & Camilla, 2010). Early warning score: Early warning systems aim to early detect potential crises with counterparts. These counterparts are put on a watch list for closer inspection and follow up. Collection score: Collection scoring is a decision support tool to manage bad debt. One rank orders customers already in payment arrears based on the probability of successfully collecting the outstanding debt. Profit score: Developing customer level profit scoring models is typically very complex because of several practical implementation issues. Direct and indirect benefits and costs need to be considered and also the timing of the cash flows and the corresponding discount factors need to be taken into account. Credit lenders wish to change from minimizing the risk of a consumer defaulting to maximizing the profit a consumer brings them Thomas (2002).

2.10. Credit Risk Mitigation

According to Dohnal (2008) Credit Risk Mitigation (CRM) defined as a mechanism used by different credit institution in order to minimize their credit risk related with exposure which the institution continuous to hold. He also further point to that credit risk mitigation techniques can be distinguish in to two parts the first one is funded credit protection which includes real estate and financial instrument. The reduction of the credit risk exposure of a credit institution draw from the right of the credit institution in case of default to liquidate or retain, to obtain transfer or appropriation of certain assets, to retain certain assets, to reduce the amount of the exposure and to replace the amount of the exposure. The other one is unfunded credit protection which includes guarantee. The reduction of the credit risk exposure of a credit institution derives from the responsibility of a third party to pay an amount in the occasion of borrowers incapability to pay their loan or on the incidence unexpected events.

2.11. Credit Risk Mitigation technique

"A bank should disclose the effect of credit risk mitigation techniques, including collateral, guarantees, credit insurance and legally enforceable netting agreements". (Basel 2000)

i. Funded credit protection

a. Collateral

Collateral is an asset that serves as security against counter party risk. Anderson and Joeveer(2014)

A collateralized transaction is a transaction where the credit exposure or potential credit exposure of the credit institution to a counterparty is hedged in whole or in part by collateral posted by the counterparty or by a third party on behalf of the counterparty. Basel (2004)

Collateralized credit exposures must have a risk biased exposure amount less than the same credit exposure without credit protection. The collateral can be in the form of real estate, receivable and other form of physical collateral. Dohnal (2008)

b. On-balance sheet netting

According to Basel (2004) Banks where legally enforceable netting arrangement for loans and deposits they may calculate capital requirement on the bases of net credit exposure. The claim between the credit institution and counter party may be recognized. They also indicated that Master netting agreements covering repurchase transactions and/or securities or commodities lending or borrowing transactions and/or other capital market driven transactions.

ii. Unfunded credit protection

The amount that the safety provider has carried out to pay in the event of the default or non-payment of the borrower or on the event of other specified credit situation is the value of unfunded credit protection. where the amount that the protection provider has carry out to pay is not higher than the exposure value, the value of the credit protection shall be reduced by 40%; where the amount that the protection provider has carry out to pay is higher than the exposure value, the value of the credit protection shall be no higher than 60% of the exposure value Basel (2004)

a. Guarantees

A guarantee must represent a direct claim on the guarantor with the extent of the cover being clearly defined and unquestionable. A guarantee must be irrevocable; there must be no clause in the guarantee that would allow the guarantor to cancel unilaterally the cover of the guarantee or that would increase the effective cost of cover as a result of deteriorating credit quality in the guaranteed exposure. A guarantee must also be unconditional; there should be no clause in the guarantee outside the direct control that could prevent the guarantor from being obliged to pay out in a timely manner in the event that the original counterparty fails to make the due payment. The indirect guarantee covers all credit risk elements of the claim; both the original guarantee and the indirect guarantee meet all the operational requirements for guarantees except that the indirect guarantee need not be direct and explicit to the original claim. Basel (2008)

b. Loan Commitments

A loan commitment is a facility which gives the obligor the option to borrow at his own discretion. In practice, this essentially means both a loan (equal to the amount currently drawn on the line) and an option to increase the amount of the loan up to the face amount of the facility. The counterparty pays interest on the drawn amount, and a fee on the undrawn amount in return for the option to draw down further. For these exposures three factors influence the revaluation in future rating states: the amount currently drawn; expected changes in the amount drawn that are due to credit rating changes; and the spreads and fees needed to revalue both the drawn and undrawn portions. All of these factors may be affected by covenants specific to a particular commitment. J.P Morgan (1997)

2.12. Tools of Credit Risk Management

According to Sunitha and J. K. Raju (2013), Thirupathi & M. Manojkumar (2013) , Bhaskar (2014) and Nayan & M.Kumaraswamy (2014) the tools through which credit risk management is carried out are:

a) **Exposure Ceilings**: Prudential Limit is linked to Capital Funds - say 15% for individual borrower entity, 40% for a group with additional 10% for infrastructure projects undertaken by the group, Threshold limit is fixed at a level lower than Prudential

Exposure; Substantial Exposure, which is the sum total of the exposures beyond threshold limit should not exceed 600% to 800% of the Capital Funds of the bank (i.e. six to eight times).

b)**Review/Renewal**: Multi-tier Credit Approving Authority, constitution wise delegation of powers, Higher delegated powers for better-rated customers; discriminatory time schedule for review/renewal, Hurdle rates and Bench marks for fresh exposures and periodicity for renewal based on risk rating, etc are formulated.

c) **Risk Rating Model**: Set up comprehensive risk scoring system on a six to nine point scale. Clearly define rating thresholds and review the ratings periodically preferably at half yearly intervals. Rating migration is to be mapped to estimate the expected loss

d) **Risk based scientific pricing**: Link loan pricing to expected loss. High-risk category borrowers are to be priced high. Build historical data on default losses. Allocate capital to absorb the unexpected loss.

e**) Portfolio Management**: The need for credit portfolio management emanates from the necessity to optimize the benefits associated with diversification and to reduce the potential adverse impact of concentration of exposures to a particular borrower, sector or industry. Stipulate quantitative ceiling on aggregate exposure on specific rating categories, distribution of borrowers in various industry, business group and conduct rapid portfolio reviews.

f) **Loan Review Mechanism**: This should be done independent of credit operations. It is also referred as Credit Audit covering review of sanction process, compliance status, and review of risk rating, pickup of warning signals and recommendation of corrective action with the objective of improving credit quality. It should target all loans above certain cut-off limit ensuring that at least 30% to 40% of the portfolio is subjected to LRM in a year so as to ensure that all major credit risks embedded in the balance sheet have been tracked.

2.13. Empirical studies

Different researchers were conducted on this area of studies in different financial institutions.
Yang Wang, (2013) find out that the key principles in credit risk management are establishment of a clear structure, allocation of responsibility and accountability, processes have to be prioritized and disciplined, responsibilities should be clearly communicated and accountability assigned on his research title Credit Risk Management in Rural Commercial Banks in China.

Atkilti (2015) in his study find out that Credit risk, liquidity risk and operational risk are the three important types of risks the banks mostly facing. The three widely used Risk identification method were identified and ranked as Financial Statement Analysis firstly and followed by audit and physical inspection and then internal communication. The study further confirmed that four aspects of Basel's Credit risk management principles explain a significant level of variation on Credit risk management practice of Ethiopian commercial banks. Furthermore, Establishing an appropriate Credit risk environment and Ensuring adequate Controls over credit risk were found to be the most influential variables on level of Credit risk management practice. It is finally observed insignificant difference between public and private commercial banks in all aspect of Credit risk management principles and practice.

Girma (2011) point out on his study credit risk management and its impact on performance in Ethiopian commercial banks that the default ratio of any bank in Ethiopia depends on credit risk management quality of the institution.

Solomon (2013) studied credit risk management practice of Nib International Bank of Ethiopia and in his assessment the researcher come across that factors lead to wrong decision making and increase NPL level of the bank are concentration of credit in few sector and borrower, collateral as number one technique of credit risk management, absence of credit risk model of credit portfolio, lesser attention for MIS and advisory service to customers and absence of proper follow up.

Tibebu (2011) examined that credit risk management and profitability of commercial banks in Ethiopia. Find out that Both nonperforming loan ratio and capital adequacy ratio has a negative impact on profitability‘s of commercial banks in Ethiopia. He also state that the impact level of nonperforming loan ratio is negative which means, a single unit increase in nonperforming loan ratio leads in (.594077) decrease of profitability of commercial banks of Ethiopia.

Tesfaye (2012) study factors influencing the level of credit risk in the Ethiopian commercial banks. The study find out that quantity of risk and quality of risk management related variables has got much influence on the credit risk level of banks. Nevertheless, risk direction related measures, which are mostly external focus, have limited influence on credit risk. More specifically the variation in the effect of stock and flow measures entails banks to further enhance mostly two of Basel principles: operating under a sound credit granting process and maintaining an appropriate credit, administration, measurement and monitoring process.

Akotey J.O. (2012) the study has examined the credit risk management of selected rural banks in Ghana and has discovered that credit risk management plays a significant and dynamic role in the business of rural banking. The researcher find out sampled ruler commercial banks have poor credit risk management practices and hence the high levels of the non-performing loans in their loans portfolios. Despite the high levels of the NPLs, their profit levels keep rising as an indication of the transfer of the loan losses to other customers in the form of large interest margins. Therefore the findings indicate a significant positive relationship between non-performing loans and rural banks' profitability informative that, there are higher loan losses but banks still earn profit.

Bajpai et.al. (2015) The researcher find out that BPR Ltd has a credit management system however it needs to be reviewed and adopted more to current Rwandan environment. The researcher also indicated that there is a direct relationship between credit risk management and profitability of commercial banks and recommended that BPR Ltd should review and improve its credit policy and adopt it to Rwandan market and context and BPR Ltd should provide continuous training and bring up to date its staffs.

CHAPTER THREE

3. Research methodology

3.1. Research design

In this study the researcher uses descriptive type of research and the researcher tries to describe the credit risk management practice, and the controlling mechanism and measurement tools and techniques of the Commercial Bank of Ethiopia.

Besides, the study deeply described these variables by using both primary and secondary data. The primary data was collected by distributing structured questioner to credit administration and appraisal department, consumer loan, risk management and loan recovery department and secondary data from annual reports (in order to know the progress of NPL), credit policy and procedures, central bank directive and other relevant document was used to analyze the extent of implementation.

Finally, the collected data from both primary and secondary data was analyzed, summarized, concluded and recommended accordingly.

3.2. Types of data collected and used

In this study the researcher used both primary and secondary data. The primary data was collected through questioner and the secondary data, was collected from credit policy and procedures and central bank directives to analyze the extent of implementation and CBE annual report used to see the progress of NPL. In addition to this, Secondary data was used to collect the information which was not addressed by the questioner or to get more clarification on other issues such as detailed policy, structure of credit risk management practice of Commercial Bank of Ethiopia.

3.3. Method of data collection and sampling technique

In order to select relevant respondent stratified random sampling was used. The population of the study was segmented in to different branches and head office. Respondent was selected from the segment randomly. The researcher used this sampling technique because it helps to gather relevant information from the concerned department (i.e. credit and risk management area of the bank both at head office and district level)

3.4. Sampling size

Commercial Bank of Ethiopia has 971 branches of these branches 175 and four district offices exist in Addis Ababa as of Jun, 2015. For this study only credit appraisal and management department, loan recovery, credit analyst expert and expertise in risk management department at head office level and consumer loan (credit administrator and manager relationship and consumer loan officer) department at district level which exist in Addis Ababa was selected as a sample. Because almost all grade one up to four branches do not involved on credit assessment and approval process of credit because the process of credit approval from credit appraisal to approval were under authority of head office level departments for all district under Addis Ababa except consumer loan.
The total sample size selected was from 152 individual 110 employees were selected from head office from different credit and risk management department. The total sample size selected and number of participants in the study was 110.
Formula:

1. n= N/1+Ne^2 =152/1+152*0.05^2
   = 110

Description:
n= required sample size
t= confidence level at 95% (standard value of 1.96)
p=estimated employees at CBE head office and district level credit professionals.
m= margin of error at 5% (standard value of 0.05)

3.5. Target group

Everyone who works at a bank has different qualification, knowledge and experience even for those who work at the same department. Therefore, in order to gather necessary, valid and reliable information regarding credit risk management practice of CBE the sample selected was risk expertise, expert credit analyst, corporate credit managers, credit administration, risk management, credit appraisal, loan recovery department and customer relationship managers and consumer loan in the organization.

3.6. Data analysis

All data collected in this research was analyzed using descriptive statistic technique. Thus, percentage and frequency count and table was used to analyze data collected by both primary and secondary data by using SPSS.

Chapter four

4. Data Analysis, Finding and Discussion

4.1. Data Analysis

This chapter 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 ten respondents from all sections of credit and risk management department of Commercial Bank of Ethiopia both at head office and district level. 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. Hence all data collected from primary data as well as secondary data was analyzed.

4.2. Results of data gathered from questionnaire

This part has six sections in relation to data of questioners. The first section deals with the demographic data of respondents. The second section deals with credit risk level of loan dispersed to different economic sectors. An internal and external factor that challenges implementation of credit risk management policy of the organization and factors facilitate increase NPL level of the bank are presented in third and fourth section respectively. Fifth and sixth section deals with tools and techniques of credit risk management used by the organization and its credit risk mitigation mechanism respectively.

4.3. Background information of respondent and validity, reliability and ethical issues

One hundred and ten questionnaires was distributed to the respondent and out of one hundred and ten questionnaires 106 of them was collected 4 of them are not collected with a response rate of 96%. The research is study is reliable since the respondent was selected based on their duty and responsibility and their past experience on credit management and appraisal, credit analyst expert, credit administrator, loan recovery department and risk management expert those directly attached to credit activities and their answer was expected to be reliable. Moreover, the research analysis takes into consideration not only finding from the primary data but also secondary data have also been gathered and interpreted. Secondary data which are officially published sources and which cannot be manipulated by the researcher as well as by respondent i.e. annual reports, credit policy and procedure. The demographic characteristic includes job title, level of education, field of specialization and work experience. Table 1 to table 4 below shows details of background information of respondent. Due consideration is given to obtain consent from each participant about their participation in the study. It was conducted on voluntary bases the researcher tries to respect the participant right and privacy. The finding of the research was presented without any variation from the outcome of the research. In addition the research full acknowledgment to all reference material used in the study.

Table 1: frequency distribution of respondent by level of education

Educational level		Frequency	Percent
	Master Degree	45	42.5
	Degree	61	57.5

Source: survey and SPSS frequency out put

Regarding the respondent educational qualification as indicated on above table-1 (42.5%) of the respondents are post graduate degree holder and the rest (57.5%) of respondents are undergraduate degree holder. the research tries to identifies the respondent by their educational level in order to know the qualification of the respondent to analyze weather their response are pertinent. From this it is possible to suppose that the composition of the respondents include well qualified to explain about the subject matter of the study.

Table 2: frequency distribution respondent by field of specialization

Field of specialization		Frequency	Percent
	Accounting and finance	44	41.5
	Management	33	31.1
	CPA	1	.9
	Economics	28	26.4

Source: survey and SPSS frequency out put

As shown from the above table-2, 41.5% are studied Accounting and Finance, 31.1% study Management and the rest 26.4% graduate of Economics. Therefore the backgrounds of all respondents are from business department and it is possible for them to understand the term raised on the questionnaires that contributed to validity of the information they provided.

Table 3: frequency distribution Respondent by current position

Positions		Frequency	Percent
	Expert	28	26.4
	Managerial	46	43.4
	Professional	32	30.2
	Total	106	100.0

Source: survey and SPSS frequency out put

As shown on the above table -3 from the total respondent 43.4% of them was managerial, 30.2 % professional and the rest 26.4% are experts. Such a segregation of the respondent is important to suppose the research choose the right professionals which have direct relationship with the subject matter and in order to gather the necessary information regarding credit and risk management of the organization.

Table 4: frequency distribution respondent by Work experience

Work experience		Frequency	Percent
Valid	0-5 years	31	29.2
	6-10 years	28	26.4
	11-20 years	40	37.7
	More than 20 years	7	6.6
	Total	106	100.0

Source: survey and SPSS frequency out put

As presented on the above table-4 majority of the respondent (37.7%) have been working for CBE for 11-20 years and 26.4% of them have been working for the organization for 6-10 years. In general, almost more than half of the respondents have been working for more than 5 years in CBE, which indicate their long period of experience and that contribute to both the reliability and validity of the information they offer.

4.4. Credit risk assessment

This section shows survey results regarding credit risk management practice of CBE.

4.4.1. Level of Credit Risk

Table 5: Level of credit risk on loan category by economic sector.

Economic Sectors	No Risk		Low Risk		High Risk		Very High Risk	
	freq	% age	frequency	% age	frequency	% age	Frequency	% age
Agricultural loan	-	-	7	6.6	54	50.9	45	42.5
Manufacturing loan	-	-	59	55.7	43	40.6	4	3.8
Import and export loan	-	-	30	28.3	68	64.2	8	7.5
Domestic trade and service loan	1	0.9	72	67.9	32	30.2	1	0.9
Building and construction loan	3	2.8	65	61.3	34	32.1	4	3.8
Personal and ESL and mortgage loan	25	23.6	76	71.7	5	4.7	-	-

Source: survey and SPSS frequency out put

Table 5 above shows the responses given to indicate the level of credit risk being faced by the bank on loan category by economic sector. The research asks this in order to know the type loan on which the bank is highly exposed to credit risk. The result shows that agricultural loan is 93.4% and Import and export loan 71.7% contain the highest and second highest level of credit risk as replied by respondent. Currently, the bank provide loan to three priority sectors (i.e. agricultural, manufacturing and export sector) which directly attached to the economic development of the country. As the bank is owned by government the bank is expected to give due attention to the development sector of the country. According to Wang (2013) find out that, as agricultural producers businesses are largely depends on weather and because of the unpredictability of natural environments, the sector is highly exposed to credit risk. The export businesses are also highly affected by overseas market due to fluctuation in foreign exchange rate. However, the researcher only point out the mitigation mechanism of credit risk emanated from fluctuation of exchange rate. According to Solomon (2013) on the study about credit risk management practice of NIB the research tries to indicate that manufacturing loan have the highest percentage share from overall credit portfolio of the bank and this leads to high level of credit concentration risk on single economic sector but the research does not tells us the risk level of loan dispersed to each sectors on credit portfolio. However, this research tries to see the levels of risk faced by each sectors in the credit portfolio of CBE and their contribution to NPL. According to result shown in the above table 5 the two priority sectors are highly exposed to credit risk according to respondent. This indicates the bank is highly vulnerable to agricultural loan risk and Import and export loan risk. According to C.Baker (1998) as indicated on literature review part Credit risk occur when one of the counter parties to a transaction does not clear up in full either when the fund are outstanding or on some later date and it may result in bankruptcy of counterparty. Therefore, the risk exposure of the above two sectors are high and bank excepted to give due attention and follow up and when loan dispersed to all sectors exceptionally for this two sectors and should prepare efficient credit risk mitigation mechanisms.

4.5. Credit risk management practice

Table 6: principles of credit risk management used.

		Used		Not Used	
Position		Freq	Percent	Freq.	Percent
	Establishing an appropriate credit risk environment	93	87.7	13	12.3
	Operating under a sound credit granting process	97	91.5	9	8.5
	Maintaining an appropriate credit administration, measurement and monitoring process	97	91.5	9	8.5
	Ensuring adequate controls over credit risk	90	84.9	16	15.1
	The role of supervisors	84	79.2	22	20.8

Source: survey and SPSS frequency out put

The success and survival of commercial banks are greatly depending on effective Credit risk management system and practice (Atakelt & Veni, 2015).According to Basel (2000) as stated on literature review part financial institution are facing several problems due to lack of adequate credit risk management principles, proper implementation credit standards of borrower and counterparties and poor portfolio risk management or a lack of attention to changes in economic or other circumstances that can lead to a worsening in the credit standing of a bank's counterparties. Thus, as shown in the above table 6 (87.7%) respondents agree on the bank impalements Basel (2000) principles of establishing an appropriate credit risk environment, (91.5%) operating under a sound credit granting process, (91.5%) for maintaining an appropriate credit administration, measurement and monitoring process, (84.9%) ensuring adequate controls over credit risk and (79.2%) role of supervisors. Thus, the bank uses all principles of credit risk management principles stated on Basel (2000) for enhancement of its credit risk management system. According to Desalegn (2013) on his study on risk management in Ethiopian commercial banks find out the importance of establishing a formal risk management structure and developing written policy and procedure create effective risk management. Wang (2013) identified eight major expectations for a sound credit risk management models in China RCBs, including comparable, integrated with other risk management models, based on existing and available data, practical-based, quantitative and qualitative combined, easy to use, adaptable to changes and simple and straight forward. Bajpai et.al. (2015) confirmed that on the study done on Assessing Credit Risk Management Practices and Performance of Commercial Banks in Rwanda, BPR Ltd has put in place a very strong credit risk management to ensure that loans are granted and managed effectively and efficiently. Singh A. (2013) discussed on Credit Risk Management Policy of Indian commercial banks that dictates the Credit Risk Strategy. These policies spell out the target markets, risk acceptance/avoidance levels, risk tolerance limits, prefer levels of diversification and concentration, credit risk measurement, monitoring and controlling mechanisms of Indian commercial banks.

4.6. Challenges in effective implementation of credit risk management policy

Table 7: internal factors and CRM policies of the bank

Internal Factors	Very Highly challenging		Highly challenging		Least challenging		Not challenging	
	Freq	% age	Fre q	% age	freq	% age	Fre q	% age
High cost of information technology.	9	8.5	59	55.7	31	29.2	7	6.6
Lack of technical knowledge.	23	21.7	50	47.2	24	22.6	9	8.5
Lack of training within the organization about CRM.	19	17.9	56	52.8	23	21.7	8	7.5
Lack of employee's motivation to implement.	16	15.1	31	29.2	43	40.6	16	15.1
Difficult to understand the policy and procedure.	10	9.4	32	30.2	40	37.7	24	22.6
Access to material related to CRM	9	8.5	47	44.3	43	40.6	7	6.6
Difficulty in quantifying risk	31	29.2	55	51.9	20	18.9	-	-
Information gap	48	45.3	43	40.6	13	12.3	2	1.9

Source: survey and SPSS frequency out put

According to Singh (2013) as indicated chapter 2 literature review part that for long term achievement of banking sector effective credit risk management practice is a vital issue in the current business environment and poor credit risk management policy will create serious source of crisis in the banking industry. Solomon (2013) tries to identify the major challenge of NIB facing in implementation of the credit risk policies of the bank (NIB) are high cost of information technology, lack of knowledge within the organization and conflicting business priorities are the major challenging factors in implementation of credit risk policy of NIB. But the result in this paper shows on the above table 7 are the major hindrance factor of listed variables on the implementation of credit policy of the bank are ranked as information gap 85.9%, difficult in quantifying risk 81.1%, Lack of training within the organization about CRM 70.7%, Lack of technical knowledge 68.9%, High cost of information technology 64.2%, Access to material related to CRM 54.8%

Lack of employee's motivation to implement 44.3% Difficult to understand the policy and procedure 39.6%. This shows that the bank is expected to file the gap by overcoming the challenges in order to insure effective implementation of the policy at all level credit department of the bank by taking remedial action in order to improve the gap of employees. According to Atkilit (2015) discussed in chapter two effectiveness of credit risk management process is dependent on different variables such as proper application of best Risk management documents, Staff quality, Credit culture, devoted top management bodies, sufficient training program, proper organizational structure, ample level of internal Control and Performance of intermediation function. Desalegn (2014) states the most difficulties that the banks are currently facing in managing risk are: lack of adequate, weak information management system, lack of competent and experienced staff, lack of exposure to the outside world and lack of awareness about the concept of risk management due to its newness in the institutions. Bajpai et.al. (2015) find out that the effective implementation of credit risk management affects profitability of commercial banks in Uganda. The researchers further indentified that the challenges of credit risk management implementation in the Ugandan commercial banks are the following: Insufficient skills of some of credit risk managers in managing risks, Continuous changes in Rwandan market which destabilize market factors and thus bring default risk and Clients are not professional enough to carry on their business effectively in order to pay back credit given by commercial banks

4.7. External factor and the effectiveness of CRM

Table 8: external factors and CRM of the bank

Macro factor	Positively Affect		Negatively Affect		Both Pos & Neg Affect		Do Not Affect	
	Freq	% age	Freq	% age	Frequency	% age	freq	% age
Government policy	55	51.5	24	22.6	21	19.8	6	5.7
Infrastructure facility	59	55.7	26	24.5	11	10.4	10	9.4
Background of the society	41	38.7	39	36.8	17	16	9	8.5
Level of Economy	48	45.3	37	34.9	18	17	3	2.8
Global economic crisis	22	20.8	61	57.5	15	14.2	8	7.5

Source: survey and SPSS frequency out put

As shown on the above table 8 all external factors have positively affect the bank credit risk management practice with percentage of 51.5% government policy, 55.7% infrastructural facility, 38.7% background of society and 45.3% level of economy but negatively affected by global economic crises 57.5% according to the respondent. Since, the bank is owned by government the policy and strategy drawn by government supports the bank credit policy. On the other hand, the bank is extending its branch inside and outside the country by providing different credit products for its customer which creates exposure to global economy. For example export and import credit facility. So the bank expected to consider the global economic situation during loan approval process. Wang (2013) states on his research that, in China the government dominates the economy and the government has frequently changed its policy such as credit policy, financing policy for Sannong, rural development, housing policy and so on. When those policies change, many SMEs have to bear the consequences of these changes; some gains and some losses. This is going to affect the credit risk management practice of china commercial banks. In addition to this the main external environmental triggers include, among others, globalization of markets and the internationalization of business, major economic, political and social events, technological advancements, customer expectations, supplier requirements, increasing competition, organizational growth, and fluctuations in business cycles are raised in China RCBs. According to survey conducted by Solomon (2013) on NIB bank, the bank is negatively influenced by the government policy and infrastructural facility 45% and 44% respectively.

4.7. Factors Contributing for Occurrence of NPL

Table 9: the extent of Factors contributing for occurrence of NPL in the bank.

	Most Important		Important		Least Important		Not Important	
	Freq	% age	Freq	% ag	freq	% age	freq	% age
Interest rate	15	14.2	10	9.4	42	39.6	39	36.8
Poor credit assessment technique	46	43.4	38	35.8	19	17.9	3	2.8
Size of the institution or the bank	8	7.5	31	29.2	36	33	32	30.2
Ownership type	17	18	46	43.4	34	32.1	9	8.5
Knowhow of employees	28	26.4	35	33	38	35.8	5	4.7
Credit culture of the society	52	49.1	32	30.2	21	19.8	1	0.9
Know your customer (KYC) principle	62	58.5	31	29.2	11	10.4	2	1.9
Growth of loan demand.	22	20.8	46	43.4	33	31.1	5	4.7
Lack of follow up by credit department	46	43.4	48	45.3	11	10.4	1	0.9
Diversion of the loan for other activities	53	50	33	31.1	14	13.2	6	5.7
Behavior of the customer	56	52.8	40	37.7	10	9.4	-	-
Time duration of loan	20	18.9	68	64.2	13	12.3	5	4.7

Source: survey and SPSS frequency out put

Currently Commercial Bank of Ethiopia (CBE) provides different type of credit product as indicated on the background part of this study. the bank is one of the largest bank in terms of financial as well as non financial capitals in Ethiopia so the increase in level different type of credit product will create suitable environment for the increment of NPL unless the bank properly manage factor causing the occurrences of nonperforming loan. According to Solomon (2013) point out that the major contributing factors for the increment of NPL in NIB bank are poor risk assessment, poor monitoring/follow-up, credit culture and relaxed credit terms. Bajpai et.al. (2015) find out the causes for the increase in NPL of the commercial banks in Uganda are Poor credit risk management, Poor credit analysis, Economic development of the country, Unsuccessful financed project and Unsuccessful financed project were listed as the major one. The researcher also shows that mismatch of the bank's assets and its profitability was caused by many factors including high rates of NPLs. In addition to this poor management of credit risk led to an increase of NPLs which lead to increase of bad debts provision and finally reduces profitability. Thus, if the credit policy is not effectively implemented the banks' profitability will be adversely affected.

As shown in the above table 9 all factor have their own contribution for the increment level of NPL but know your customer (58.5%), behavior of the customer(52.8%), diversion of loan for other activity(50%) and credit culture of the society (49.1%) are the grand factor for the occurrences of NPL. Poor credit assessment techniques, Ownership type, knowhow of employee, growth of loan demand and time duration of loan also have unquestionable impact according to respondent. The bank must know by whom the loan is requested and its relationship with a bank, its behavior, types of business (legal or illegal), its capacity to repay, negative record on other loan repayment and 5C (capacity, capital, character, condition and collateral) were followed before and after loan approval in order to minimize NPL level.

4.8. Factor of credit granting process

Table 10: the importance of factors considered in credit granting process in the bank.

5Cs	Most Important		Important		Least Important		Not Important	
	Freq	% age	Freq	% age	freq	% age	Freq	% age
Character	75	70.8	26	24.5	2	1.9	3	2.8
Capital	47	44.3	57	53.8	2	1.9	-	-
Collateral	41	38.7	34	32.2	29	27.4	2	1.9
Capacity	77	72.6	20	18.9	3	2.8	6	5.7
Condition	48	45.3	45	42.5	12	11.3	1	0.9

Source: survey and SPSS frequency out put

As discussed on the literature review parts of the study different scholars point out that in order to operate on sound credit granting process the implementation of the above listed 5C plays important role.

As result on table 10 above shows all 5C are highly used in credit granting process of Commercial Bank of Ethiopia. Capacity to repay (72.6%), characteristics of the business and owner (70.8%), conditions of borrower (45.3%), capital of the borrower (44.3%) and collateral (38.7%) used respectively according to respondent. Even if the bank uses capacity or ability to pay and willingness to pay as major point the bank must also give due attention to collateral in the credit granting process as risk mitigation mechanism because Collateral is an asset that serves as security against counter party risk. Anderson & Joeveer(2014). Mark K. (2010) Find out, the extent that capacity/competition and conditions are mostly used as in screening and risk analysis before awarding credit to clients. It was further found that extent that collateral/security and character of borrower were used in screening and risk analyses before awarding credit to clients are moderate impact in financial institutions in Kenya.

4.9. Advisory service to credit customer

Table 11: Response to advisory service to credit customer

Advisory service		Frequency	Percent
Valid	Yes	96	90.6
	No	10	9.4
	Total	106	100.0

Source: survey and SPSS frequency out put

As indicated on the above table 11 96% of respondent confirmed that there is type of advisor service to credit customers such as technical and financial aspect of proposed business entity and about loan process.

4.10. Credit risk measurement techniques

Table 12: Extent Credit scoring technique used by the bank

Credit Score	Most Important		Important		Least Important		Not Important	
	Freq	% age	Freq	% age	Freq	% age	Freq	% age
Marketing score	50	47.2	42	39.6	7	6.6	7	6.6
Application score	37	34.9	40	37.7	24	22.6	5	4.7
Fraud score	36	34	41	38.7	22	20.8	7	6.6
Performance score	55	51.9	38	35.8	12	11.3	1	0.9
Behavioral score	58	54.7	35	33	9	8.5	4	3.8
Early warning score	47	44.3	39	36.8	14	13.2	6	5.7
Collection score	46	43.4	48	45.3	9	8.5	3	2.8
Profit score	40	37.7	54	50.9	10	9.4	2	1.9

Source: survey and SPSS frequency out put

As shown in the above table 12 all respondent uses all credit scoring stage in order to measure the risk level of the business to make decision in the credit approval process. Behavioral score, Marketing score, Early warning score, Performance score, Collection score, Application score, Profit score and Fraud score with 47.2%, 34.9%, 34%, 51.9%, 54.7%, 44.3%, 43.4% and 37.7% respectively used most importantly by the respondent. This helps the bank to properly assess, analyze and decide on credit process.

According to Beasens and Gestel (2009) as discussed on chapter two Credit scoring is a credit risk management technique that analyzes the borrower's risk and used to assess and decide, who will get credit, how much credit they should get, and what operational strategies will enhance the profitability of the borrowers to the lenders.

According to Zaidi & Samareen (2012) uses demographic factor(Gender, Client's locative situation , Education level, Proximity towards bank branches, Marital status, Age, No. of dependents, Loan tenure, Occupation, Working period with the last employer, Working period with the current employer, Loan period, Banking references at Bank, Monthly net income of the applicant, Credit History and Loan from other banks) as a means of measuring the credit worthiness of the individual borrower in Pakistan commercial banks. As stated by researchers all factors have their own contribution on estimation or prediction of the creditworthiness of individual borrower when we assess the credit score (CSMI) from this the most important factor that must be considered is the credit history of the applicants those borrowers who have defaulted previously can be predicted to default in the future. However, the researchers consider only applicant score they don't consider the other scoring factor. Abdou, El-Masry & Pointon (2007) analysis that those applications that have been accepted, some of which later proved to be bad. Of course, some of the initially rejected applications may have led to recommendations of acceptance. Some of the predictor variables have not normally been used in published studies of credit scoring models, for example: corporate guarantee, branch, and loans from other banks. There are particularly appropriate within the Egyptian environment.

4.11. Credit risk model

Table 13:Credit risk models used in the bank.

	Frequency	% age
Value at risk model	14	13.2
Credit metrics model	9	8.5
Altman's z-score model	-	-
Merton-based models	6	5.7

Source: survey and SPSS frequency out put

As shown in the above table 13 most of the respondent does not specify the credit risk model used by their bank. Credit Risk model deals with the understanding and prediction of risk levels. Beasens & Gestel (2009). The researcher advices the banks to adopt those models to assess and predict the credit risk level. However, the bank developed other risk rating or grading according to respondent to predict the risk level of the business. Grade-1 risk are exceptionally low risk (bankable), Grade-2 risks are very low risk(bankable) but higher than grade-1 risk, Grade-3 risk are low risk(bankable), Grade-4 risks are moderate risk(bankable), Grade-5 risks are potential risk (exceptionally bankable), Grade-6 risk are high risk(very exceptionally bankable), Grade-7 risk are very high risk (not bankable) and Grade-8 risk are default risk(not bankable) as stated on (Commercial Bank of Ethiopia credit procedure 2013). According to Desalegn (2014) the Ethiopian commercial banks uses combination of quantitative and qualitative tools of risk measurement tools such as statistical tools, analytical tools, scenario analysis, value at risk and using experience and intuition.

According to the finding of Wang (2013) on chine rural commercial banks there are problems of complications on credit risk management models and lacking of data, so RCBs are expected to develop their own credit risk management system and model. The researcher further elaborate that the problem of existing models that was mainly based on the data from an advanced market economy exclusive of localities in a particular economy like China where capital market is still in the development stage and the government domination in the economy is strong. The training given to employees are mainly focus on the theories of quantitative evaluation models such as logistic, regression model, ZETA model which doesn't focus on how to use and implement on their own banks. The existing model also does not take into account macro-economic policy from the top level government instead the existing models are too micro and market focused and they ignore the policy impact. However, The researcher do not discuss on how to modify and simplify their training on credit risk management models applied in chine rural commercial banks in order to reduce the complexity of the models.

4.12. Activity performed to reduce credit risk

Table 14: level of listed Activities used in order to reduce credit risk by the bank.

	Highly used		Used		Least Used		Not Used	
	Freq	% age	Freq	% age	Freq	% age	freq	% age
Develop MIS	63	59.4	36	34	7	6.6	-	-
Periodic credit calls	39	36.8	34	32.1	30	28.3	1	0.9
Periodic visits of borrowers	60	56.6	39	36.8	5	4.7	2	1.9
Credit risk rating	66	62.3	31	29.2	9	8.5	-	-
Annual review of accounts	45	42.5	48	45.3	12	11.3	1	0.9
Risk scoring	59	55.7	38	35.8	9	8.5	-	-

Source: survey and SPSS frequency out put

The table 14 above shows the level of activity used by the bank in order to reduce the risk level of credit product. This question is asked by researcher in order to investigate the level of activities performed by bank in order to minimize the credit risk level. According to the respondent 62.3% Credit risk rating, 59.4% develop MIS, 56.6% Periodic visits of borrowers, 55.7% risk scoring, 91.5% and are highly used mechanism above 50%. Annual review of account 42.5% and Periodic credit calls 36.8% are highly used but relatively below 50%. A study done on NIB bank shows development of MIS given list attention according to Solomon (2013). But this study justifies in Commercial Bank of Ethiopia there is no problem in development of MIS instead the bank gives least attention to annual review of accounts is very important factor because it is directly attached to know your customer principle reviewing the customer account tell the current status of the customer and it can help us to follow up the borrower. Predict credit call also help us to the current status of the customer business. So the bank has to give attention to these two important issues.

4.13. Credit risk management process

Table 15: credit appraisal

Credit Appraisal	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	Fre.	%	Fre.	%	Fre	%	freq	%	freq	%
There is credit policy and procedure with clearly stetted eligible criteria.	58	54.7	34	32.1	10	9.4	3	2.8	-	-
There is independent risk management policy and procedure from credit policy and procedure in your organization.	8	7.5	14	13.2	11	10.4	29	27.4	44	41.5
There are time credit granting and monitoring process is overridden by directors, senior management influential staffs	13	12.3	37	34.9	21	19.8	14	13.2	21	19.8
The bank carried out credit processing activities independent of appraisal function	32	30.2	35	33	5	4.7	16	15.1	18	17
The bank checks the borrower history before granting loans	64	60.4	38	35.8	2	1.9	1	0.1	1	0.1
Credit granting approval process establish accountability for decision taken	50	47.2	45	42.5	6	5.7	4	3.8	1	0.1
The bank properly assessed the customer ability to meet obligation	59	55.7	39	36.8	7	6.6	1	0.1	-	-

Source: survey and SPSS frequency out put

As shown above on table 15 the bank has clearly stated credit policy and procedure with eligible criteria expected to be fulfilled by borrower when they need credit facility from the bank. However, the bank does not have independent risk management policy and procedure from credit policy and procedure instead it is included on credit policy and procedure.

Credit appraisal is a process of investigating borrower's background history and sustainability of income of its business by using 5C's. The researcher asks the above questions in order to know the effectiveness of credit appraisal techniques. As shown in the above table 15 the respondent agree (86.8%) in statement that the bank has credit policy and procedure with clearly stated eligible criteria expected from borrower which maximize the effectiveness of credit risk management process.

With regard to the statement there is independent risk management policy and procedure from credit policy and procedure in your organization (79.3%) of respondent disagreed. The absence of independent risk management policy and procedure hinders the effectiveness of the appraisal process as well as overall risk assessment process which finally create an opportunity for the increment of NPL of the bank in the long run.

The survey tells us (47.2%) of respondent agree that there are time credit granting and monitoring processes are overridden by directors, senior management influential staffs 33% disagree 19.8% neutral. the bank should avoid the interference of higher level manger in the credit process except the exception stated in the credit policy and the bank could clearly state segregation of duties within the credit structure of the bank unless the bank is highly exposed to fraudulent action which facilitate way to NPL.

From the total respondent 63.2% agree with statement that the bank carried out credit processing activities independent of appraisal function this shows that there is check and balance or "four eyes principle" in the credit process which is the best practice of the bank in order to manage the credit risk.

96.2% of respondent also agree that there is accountability in the decision taken in the credit granting process. The existence of accountability will minimize the negligent act of staff member which is involved in the credit approval decision.

The investigations with regard to assessment on customers' ability to meet their obligation 89.7% of respondent agree that there is proper assessment technique used by the bank in order to know the borrower's ability to meet their obligation. Thus, the bank should continue its best practice of assessment techniques. Desalegn (2014) identified most recognized method used to identify risk is auditing or physical inspection, product portfolio analysis, experimentation of past experience are the three important method. Brain storming and process mapping and workshop also recognized as risk identification methods. The research shows the overall risk identification method but the research doesn't tell the individual risk identification method. Solomon (2013) shows on his study NIB bank have adequate policy procedure and defined credit granting criteria and the bank lend by properly checking the borrowers history. The bank does not have clear risk measurement and evaluation approach and the research don't indicate whether the bank has independent credit risk management policy and procedure with credit policy and procedure.

Table 16: credit administration

Credit Administration	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	Freq.	% age	Freq	% age	Freq.	% age	freq	% age	freq	% age
The bank has well structured documentation tracking system for credit and collateral files	39	36.8	50	47.2	10	9.4	3	2.8	4	3.8
The process of credit administration is performed independently of individual involved in the business organization of credit	16	15.1	20	18.9	22	20.8	21	19.8	27	25.5

Source: survey and SPSS frequency out put

As shown on the above table 16 from the total respondent's 84% agrees on the statement that the bank has well structured documentation tracking system for credit and collateral files. In the credit process from appraisal to dispersement level a well structured document tracking system is needed in order to simplify the tracing process. So the bank has a proper document tracking techniques which is highly appreciated.

The investigation with related to the process of credit administration is performed independently of individual involved in the business organization of credit 45.3% of respondent disagree with the statement. This indicate that the credit administrator separately perform its activity from the individual involved business organization of credit.

Table 17: monitoring control of credit

Monitoring Control of Credit	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	Fre.	% age	Fre q	% age	Fre .	% age	freq	% age	freq	% age
The bank regularly undertake stress testing on overall credit portfolio	35	33	38	35.8	14	13.2	14	13.2	5	4.7
Collateral coverage is regularly assessed and related to the borrowers financial health	49	46.2	42	39.6	8	7.5	6	5.7	1	0.9
The banks periodically prepare credit quality report for warning sign loan loss in any portfolio.	44	41.5	46	43.4	14	13.2	2	1.9	-	-
The bank monitor the business of client after granting credit on regular bases	44	41.5	36	34	13	12.3	12	11.3	1	0.9
Customer are often given sufficient training on loan usage	14	13.2	10	9.4	12	11.3	44	41.5	26	24. 5

Source: survey and SPSS frequency out put

Credit monitoring and controlling process is the main point in the credit granting process because every loan must be monitored and controlled by the lender or the bank with proper monitoring and controlling mechanism.

As shown on the above table 17 (68.8 %) of respondent agrees with the statement that the bank regularly undertake stress testing on overall credit portfolio. The bank tests the stress of borrowers in order to make remedial action on the spot.

From the total respondent 85.8% of them agreed that collateral coverage is regularly assessed and related to borrowers' financial health. This process will create the mitigation mechanism simple and the bank keeps on doing that.

In the statement the banks periodically prepare credit quality report for warning sign loan losses in any portfolio 84.9% of respondent agree. This shows that the credit quality is checked properly and it create good environment for credit risk management.

Large percentage (75.5%) of respondent also agreed on after granting credit on regular bases the bank keeps an eye on the business of client. This can help the bank to know the status of the business and repayment capacity and willingness of borrowers.

The survey brought out that 66% of respondent disagree with the statement that Customers are often given sufficient training on loan usage. This shows that there is no training facility for borrower on how to use the credit disbursed which create ground for loan diversion to other sector instead of using for the proposed purpose. Thus, this situation creates complexity in credit risk management process. Therefore, the above issues except customers are given sufficient training on loan usage the bank have best practice that other bank learns from it.

According to Desalegn (2014) the risk management policy, procedure and limit are adequate to identify, measure, monitor and control risk of banks. It should have well established internal control system, which includes segregation of duties, clear management reporting lines and adequate operating procedure. The finding on monitoring and controlling of credit, Solomon (2013) concluded that there is no proper functioning monitoring and controlling of credit in NIB bank.

Table 18: Managing loan recovery.

Managing Loan Recovery	Strongly Agree		Agree		Neutral		Disagree		Strongly Disagree	
	Fre.	% age	Fre q	Freq	% age	% age	Freq	% age	freq	% age
The bank has appropriate criteria for credit classification provisioning and write off	56	52.8	48	45.3	1	0.9	-	-	1	0.9
The bank has loan recovery procedure that clearly set out how problem credit is to be managed.	65	61.3	35	33	3	2.8	2	1.9	1	0.9
Adequate measures are put in place to recover nonperforming loans	58	54.7	46	43.4	1	0.9	1	0.9	1	0.9

Source: survey and SPSS frequency out put

Non-Performing Loans (NPLs) shall mean bad debts as defined in the Directives of the National Bank of Ethiopia. In order to independently manage these loans, the Loan Recovery Team was established primarily entrusted to protect the interest of the Bank.

As shown in the above tables large number of respondent agrees on the bank has appropriate criteria for credit classification provisioning and write-off. This manifest the bank has a well stated credit classification and write-off criteria in order to collect NPL.

Most of the respondent about 94.3% agrees on statement that the bank has loan recovery procedure that clearly set out how problem credits are to be managed. As stated on loan recovery procedure the bank have independent loan recovery department that deal on credit problem of the bank. Thus, the bank has a well organized loan recovery department that stand for the benefit of the bank.

From the total respondent 98.3% of them agree on the existence of adequate measures to recover nonperforming loans. This clearly stipulates that the bank has adequate measurement criteria to recover from NPL.

Loan recovery mechanism of the bank

The bank has well structured loan recovery procedure to recover from non performing loans. As stated on loan recovery procedure 2013 basically there are three types of recovery loan follow-up systems, which the Loan Recovery Officer is expected to perform. These are:

i. Physical Follow-Up
ii. Financial Follow-Up, and
iii. Legal Follow-Up

i. Physical Follow-Up

Physical follow-up helps to ensure existence and operation of the business, status of collateral properties, correctness of declared financial data, quality of goods, conformity of financial data with other records (such as VAT/excise taxes, register books), availability of raw materials, labor situation, marketing difficulties observed, undue turnover of key operating personnel, change in management set up, etc.

2.10.1.2 Financial Follow-Up

1. Financial follow-up is required to verify whether the assumption on which the restructuring decision was taken continues to hold good both in regard to borrower's operation and environment.
2. The concerned Loan Recovery Officer has to make strict and continuous follow-up on each customer's loan account performance and reports to the Manager – Loan Recovery Team and forwarded to the Manager – Credit Research and Portfolio Management Team on regular basis for overall bank-wide consolidation.

2.10.1.3 Legal Follow-Up

1. The purpose of legal follow-up is to ensure that the legal recourse available to the Bank is kept alive at all times. It consists of obtaining proper documentation and keeping them alive, registration, and proper follow-up of insurances.
2. The Loan Recovery Officer and the Attorney are jointly responsible for legal follow-up.
3. Some of the major legal follow-up issues include:
   i. Whether contracts are properly executed by appropriate persons and documents are complete in all aspects
   ii. Obtaining revival letters in time (revival letter refers to renewal letter for registration of security contracts that have passed the statutory period as laid down by the law).
   iii. Ensuring loan/mortgage contracts are updated timely.

4.14. Credit risk management tools and techniques

Table 19: tools and techniques of credit risk management

		Used		Not Used	
		Freq.	Percent	Freq.	Percent
	Collateral	103	97.2	3	2.8
	Risk rating	85	80.2	21	19.8
	Loan recovery /healing	93	87.7	13	12.3
	portfolio management	90	84.9	16	15.1
	Credit approval authority	83	78.3	23	21.7
	Diversification	26	24.5	80	75.5

Source: survey and SPSS frequency out put

According to survey collected and shown on the above table 19 all techniques are used in the bank as credit risk management techniques except diversification technique. Thus, collateral 97.2 % in the first place and 80.2%, 87.7%, 84.9%, 78.3%, and 24.5% risk rating, loan recovery, portfolio management, credit approval authority and diversification respectively according to their usage in the bank. Diversification is used as least level in credit risk management practice of the bank. In order to create effective credit risk management techniques the bank is expected to use all component of credit risk management techniques.

4.15. Risk reporting

Table 20: risk reporting Schedules

Report		Frequency	Valid Percent
Valid	Quarterly	40	39.6
	Annually	24	23.8
	Monthly	37	36.6

Source: survey and SPSS frequency out put

According to Desalegn (2014) the risk report should provide a forward looking assessment of risk shouldn't rely on past data. The report should contain forecasts or scenarios for key market variables and the effect on the bank so as to inform the board and senior management of the likely trajectory of the banks risk profile in the future. Accurate, timely and complete data is a foundation for effective risk management.

As shown above on table 20 the respondent indicated that 39.6% quarterly, 36.6% monthly, and 23.8% annually. This result shows that there is no regular and uniform risk reporting period in the bank which creates difficulty in estimating periodic status of the creditor or borrower. In order to properly monitor and control the creditor predict status and to know the NPL level in the credit portfolio the bank should establish effective and regular credit risk reporting schedule to all level of the employee working on credit.

4.15. Risk mitigation mechanism

Table 21: Credit risk mitigation techniques

		Frequency	Valid Percent
Valid	YES	99	98.0
	NO	2	2.0

Source: survey and SPSS frequency out put

As discussed in chapter two Dohnal (2008) defined Credit Risk Mitigation as a mechanism used by different credit institution in order to minimize their credit risk related with exposure which the institution continuous to hold.

As shown in the above table 21 the bank the bank uses collateral as the best way of credit risk mitigation techniques. About 99% of respondent answer 'yes' for the statement does the bank demand collateral before granting the loan? This question is asked by the researcher in order to know for what type of loan and by what criteria the bank lend its credit product. As stated on chapter two literature review part Collateral is an asset that serves as security against counter party risk. Anderson and Joeveer (2014). Collateralized credit exposures must have a risk biased exposure amount less than the same credit exposure without credit protection. The collateral can be in the form of real estate, receivable and other form of physical collateral Dohnal (2008). Thus, the bank request collateral for all type of loan to mitigate its credit risk based on the credit risk rating or grading the risk level for loan Grade 1and 2 minimum 75% collateral required by the bank for loan Grade 3 (85%) collateral required and for loan Grade 4and above 100% collateral is required for all type of loan except revolving per shipment export credit facility under clean bases. Collateral is not necessarily used as primary concern rather it is secondary way of risk mitigation according to respondent and clearly stated on CBE credit procedure (Commercial Bank of Ethiopia credit procedure 2013).

4.16. Secondary data analysis

In order to further analyze the credit risk management practice of the bank data on total loan and non performing loan was used and discussed. Thus, this part deal with the actual operation results of credit activity. The bank provides different kind of loan facility to different economic sector for both governmental and private businesses by prioritizing sectors as shown below:

Table 22: total loan and NPL level of different economic sector and beneficiary.

COMMERCIAL BANK OF ETHIOPIA
MANAGEMENT INFORMATION SERVICE
NON-PERFORMING LOAN BY ECONOMIC SECTOR AND BY BENEFICIARY

Economic Sector					('000 Birr)
SECTORS	June 2011	June 2012	June 2013	June 2014	June 2015
Agriculture	22,357	42,559	164,998	141,320	126,115
Manufacturing	85,577	160,738	591,280	552,145	248,318
Dom. Trade & Services	56,798	75,319	83,993	98,621	234,628
Foreign Trade	94,252	87,563	518,908	327,085	358,706
EXPORT	69,728	75,143	508,757	316,945	336,120
IMPORT	24,525	12,420	10,151	10,140	22,586
Bldg & Construction	21,774	42,035	172,053	130,947	53,122
Personal & Emergency Staff Loan & mortgage loan	12,611	22,136	35,912	22,627	966,983
Co-finance of Projects					
TOTAL NPL	293,370	430,351	1,567,143	1,272,746	1,987,873
TOTAL LOANS	34,217,686	58,326,982	70,432,283	89,665,182	111,435,273

('000 Birr)

BENEFICIARIES	June 2011	June 2012	June 2013	June 2014	June 2015
PRIVATE	249,640	401,190	1,097,232	795,727	1,947,989
PUBLIC	39,436	26,545	466,193	475,416	33,412
COOPERATIVES	4,293	2,617	3,719	1,603	6,471
TOTALS	293,370	430,351	1,567,143	1,272,746	1,987,873

Source: MIS report 2015

As shown on the above table 21 the NPL status of the bank is below the NBE directive but it shows an increasing the past five consecutive years. The NPL amount emanated from various sector and beneficiaries discussed below:

- Agricultural sector increases from birr 22,357 million in amount in 2011 from the total loan dispersed birr 34,217,686 billion to birr 126,115 million in 2015 from the total loan dispersed birr 111,435,273 billion.
- Manufacturing sector birr 85,577 million in amount in 2011 from the total loan dispersed birr 34,217,686 billion to birr 248,318 million in 2015 from the total loan dispersed birr 111,435,273 billion.
- Domestic trade & services birr 56,798 million in amount in 2011 from the total loan dispersed birr 34,217,686 billion to birr 234,628 million in 2015 from the total loan dispersed birr 111,435,273 billion.
- Export sector birr 69,728 million in amount in 2011 from the total loan dispersed birr 34,217,686 billion to birr 336,120 million in 2015 from the total loan dispersed birr 111,435,273 billion.
- Decreases from import sector birr 24,525 million in amount in 2011 from the total loan dispersed birr 34,217,686 billion to birr 22,586 million in 2015 from the total loan dispersed birr 111,435,273 billion.

- Building and construction sector birr 21,774 million in amount in 2011 from the total loan dispersed birr 34,217,686 billion to birr 53,122 million in 2015 from the total loan dispersed birr 111,435,273 billion.
- personal, emergency staff loan and mortgage loan sector birr 12,611 million in amount in 2011 from the total loan dispersed birr 34,217,686 billion to birr 966,983 million in 2015 from the total loan dispersed birr 111,435,273 billion.
- Private sector birr 249,640 million in amount in 2011 from the total loan dispersed birr 34,217,686 billion to birr 1,947,989 million in 2015 from the total loan dispersed birr 111,435,273 billion.
- Public sector birr 39,436 million in amount in 2011 from the total loan dispersed birr 34,217,686 billion to birr 33,412 million in 2015 from the total loan dispersed birr 111,435,273 billion.
- Cooperatives sector birr 4,293 million in amount in 2011 from the total loan dispersed birr 34,217,686 billion to birr 6,471 million in 2015 from the total loan dispersed birr 111,435,273 billion.

Therefore, the major contributor for the increment of the NPL of Commercial Bank of Ethiopia is come from private sector as shown in the above table. Thus, the bank could manage the credit risk level of loan processed to private sectors by using different risk measurement models, proper follow-up mechanism by visiting the business status and by creating effective mitigation mechanism in order to predict the future business conditions of borrowers and to minimize loss.

Chapter five

5. Summary of findings and Recommendation

In this chapter, a conclusion of the research findings that has been discussed and analyzed in detail in the previous chapters is briefly presented. In addition, general conclusions that are highly related with the research objective of this paper are offered. Furthermore, possible recommendations based on the findings are made.

5.1.1. Summary of findings

Based on the findings, the following conclusions are drawn.

As the bank is becoming large in terms of financial and non financial capacity and owned by the government it is expected to finance the government project and focus on developmental sector of the country. Depend on this the bank have three priority sectors (i.e. Agriculture, Export and Manufacturing sector) of credit facility. As the finding shows that agricultural loan and import and export loan are highly exposed to risk. The study result also shows that the NPL of the bank was increasing in the past five consecutive years from 293,370,000.00 birr in year 2011 to 1,987,873,000.00 birr in year 2015. Hence, unless the bank gives especial attention to these two sectors the NLP level will increase in the long run.

The study result also illustrate that the bank has well organized credit policy and procedure that state duty and responsibility of all department with clearly stated eligibility criteria expected from borrower for all types of credit product facilitated by the bank. In the bank procedure credit appraisal expert and customer relationship managers do their activity independently in order to insure “four eyes principle” or check and balance by creating single point of contact with the customer and customer relationship manger. However, the result shows that the bank does not have independent risk management policy and procedure from credit policy and procedure instead it is included on credit policy and procedure. This could create a multifaceted credit risk management process.

The study demonstrates the bank uses different credit risk mitigation mechanism by grading the credit risk level. The bank request collateral for all type of loan to mitigate its credit risk based on the credit risk rating or grading the risk level. If the risk grade of the loan is Grade 1and 2 minimum 75% collateral required by the bank for loan Grade 3 85% collateral required and for loan Grade 4and above 100% collateral is required for all type of loan except revolving per shipment export credit facility under clean bases. Collateral is not necessarily used as primary concern rather it is secondary way of risk mitigation tool. The bank also uses 5C (i.e. capacity, capital, character, condition and collateral) as major risk mitigation techniques in the credit granting process in order to identify by whom the loan is requested and its relationship within a bank, its behavior, types of business (legal or illegal), its capacity to repay, negative record on other loan repayment to minimize the NPL of the bank.

As the result confirm the bank uses different credit risk measurement techniques from this credit scoring used to properly assess, analyze and decide on credit process by measuring the risk level. The bank also developed internal risk rating or grading model to predict the risk level of the business. Grade-1 risk are exceptionally low risk (bankable), Grade-2 risks are very low risk(bankable) but higher than grade-1 risk, Grade-3 risk are low risk(bankable), Grade-4 risks are moderate risk(bankable), Grade-5 risks are potential risk (exceptionally bankable), Grade-6 risk are high risk(very exceptionally bankable), Grade-7 risk are very high risk (not bankable) and Grade-8 risk are default risk(not bankable) to determine the amount of collateral required to mitigation the credit risk.

The result also shows that the bank also adopted the five sound principles of banks credit risk management establishing an appropriate credit risk environment, operating under a sound credit granting process, maintaining an appropriate credit administration, measurement and monitoring process, ensuring adequate controls over credit risk and the role of supervisors stated by Basel (2000) guideline.

Generally, the bank has good practice in credit risk management from credit appraisal to the final stages of credit recovery that will be used as benchmark. However, there are major points recommended by the researcher to fill the gap shown in the finding and to reduce NLP of the bank.

5.1.2. Recommendations

Based on the above finding and conclusion the researcher forwarded the following recommendation to the organization.

As indicated above the bank does not have independent risk management policy and procedure. As the bank is becoming large and complex it needs separated risk management policy and procedure. Therefore, the bank could develop or adopt independent risk management policy and procedure in order to build up proper and effective risk management system.

As indicated on procedure there is single point of contact for customer. This could expose the credit process to fraudulent activities which finally create credit risk. Thus, the bank should consider this issue when the procedure reviewed since the procedure is reviewed every three years.

The bank do not have credit risk model that predict the level of risk originate from the business instead the bank only uses internally developed risk grading technique. Therefore, the bank should adopt credit risk measurement models in its credit assessment process in order to construct effective credit risk management techniques.

The finding indicates that there is no regular and uniform risk reporting period in the bank which creates difficulty in estimating periodic status of the creditor. Thus, bank should establish effective and regular credit risk reporting schedule to all level of the employee working on credit.

As the result from finding shows agricultural and import and export loan have high risk which directly increase NPL of the bank. Hence, the bank should create especial credit risk mitigation mechanism.

Survey result shows there is no training for customers how to use the loan dispersed this will create diversion of loan for other sectors. Hence the bank should facilitate short training program for creditor to overcome this kind of serious problem.

The bank uses centralized credit processing technique in Addis Ababa which means all type of loan except consumer loans are processed at center of head office level. Thus, the bank should segregate the duty and responsibility at branch level in order to create effective follow-up.

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Questioner

Dear respondents

The purpose of this self-administered Questionnaire is to gather data relating to the **"Assessment on credit risk management practice of commercial bank of Ethiopia."** For fulfillment of the requirements of the thesis for the Masters in Accounting and finance program of St.Mary University (MSc). The research will be conducted to assess credit risk management practice of commercial bank of Ethiopia(CBE).I feel that your contribution which means information obtained from you is essential for success of this research. Thus, I appreciate your cooperation to give me your time for the success of this research thesis. I assure you that the information to be shared by you will be used only for academic purpose and kept confidential.

For further information and need my assistance while you fill the questionnaire please contact me:

E-mail: biruk190@gmail.com or
birukdejene@cbe.com.et

Thank you for your cooperation
Yours sincerely
Biruk Dejene

Part I: Respondent profile

Please use this mark in the box "X" Where it applies

1) Job Title: ___________________________

2) Highest educational level obtained

High school complete ☐ Certificate ☐ Diploma ☐

Bachelor Degree ☐ Masters Degree ☐ PhD ☐

3) Area (field of specialization) or major field of study

Accounting ☐ Management ☐ CPA ☐

Economists ☐ Others please specify ____________

4) Years of work experience

0-5 years ☐ 6-10 years ☐ 11-20 years ☐ More than 20 years ☐

Part II. Research related question

Please tick the level of credit risk being faced by your bank on the following economic sector.

	No Risk	Low Risk	High Risk	Very high risk
Agricultural loan				
Manufacturing loan				
Import and export loan				
Domestic trade and service loan				
Building and construction loan				
Personal and ESL and mortgage loan				
Co finance of project loan				

Please rank which of the following best describe the major challenges faced in successful implementation of credit risk management policy within your organization? **1-very highly challenging, 2- highly challenging, 3-least challenging and 4-not challenging.**

	1	**2**	**3**	**4**
High cost of information technology.				
Lack of technical knowledge.				
Lack of training within the organization about CRM.				
Lack of employee's motivation to implement.				
Difficult to understand the policy and procedure.				
Access to material related to CRM				
Difficulty in quantifying risk				
Information gap				

What is the following factor of the Ethiopian environment on your banks affect credit risk management practice?

	Positive	Negative	No effect	Both side
Government policy				
Infrastructure facility				
Background of the society				
Level of Economy				
Global economic crisis				

Which of the following bank specific factor do you think are facilitate the occurrence of nonperforming loans in your bank? Please rank the factor in order of their importance in contributing to the occurrence of nonperforming loans in your bank.

1-most important, 2-important, 3-less important and 4- not important

	1	**2**	**3**	**4**
Interest rate				
Poor credit assessment technique				
Size of the institution or the bank				
Ownership type				
Knowhow of employees				
Credit culture of the society				

Know your customer (KYC) principle				
Growth of loan demand.				
Lack of follow up by credit department				
Allocation of the loan for other activities				
Behavior of the customer				
Time duration of loan				

Tools of credit risk management

Which technique do you use for credit risk management in your bank? You can choose more than one answer.

1) Collateral 2) Risk rating 3) Loan recovery 4) portfolio management

5) Credit approval authority 6) Diversification 7) Please state if any …………

Please rank the importance of the following factors in your credit granting process.
1-most important, 2-important, 3-less important, and 4- not important

	1	**2**	**3**	**4**
Character: measures the borrower's character and integrity				
Capital: measures the difference between the borrower's assets				
Collateral: measures the collateral provided in case payment problems occur				
Capacity: measures the borrower's ability to pay				
Condition: measures the borrower's circumstances				

Please tick which of the following credit risk model you use for evaluation of credit risk.

Value at risk model	
Credit metrics model	
Altman's z-score model	
Merton-based models/KMV model/	
Any Other, please specify ……………………………………….	

Does the bank demand any collateral security before granting loan to its clients?

Yes ☐ No ☐

If yes, is collateral demanded for all type of loan?

Yes ☐ No ☐

If No, specify the type of loan.

The bank lends up to ………………….. Percent of the value of the security offered.

Which of the following credit risk scoring is important in your bank? Please tick according to their importance. **1-most important, 2-important, 3-less important, and 4- not important**

	1	**2**	**3**	**4**
Marketing score				
Application score				
Fraud score				
Performance score				
Behavioral score				
Early warning score				
Collection score				
Profit score				

Does your bank perform the following technique for credit risk management? Please tick

	Highly Used	Used	Least Used	Not used
Develop management information system				
Periodic credit calls				
Periodic visits of borrowers				
Credit risk rating				
Annual review of accounts				
Risk scoring				

What are problem encountered during debts recovery from customers?

…………………………………………………………………………………………………

……………………………………………………………………………………………....

What step /procedure do you follow to recover non performing loan?

…………………………………………………………………………………………………

…………………………………………………………………………………………………

What forms of penalties are there for officers or credit approval committee which later turns out bad?

…………………………………………………………………………………………………

………………………………………………………………………………………………...

Which of the following best describes the way risk management is reported within your organization? Risk reporting takes place:

Never ☐ Annually ☐

Quarterly ☐ Monthly ☐

Does the bank provide any advisory service to its loan customer?

Yes ☐ No ☐

If yes, what form does it take?

…………………………………………………………………………………………………

…………………………………………………………………………………………………

Please provide your level of agreement as follows:

1-Strongly agree, 2-Agree, 3-Neutral,4-Disagree, 5-Strongly disagree

Credit processing/appraisal	1	2	3	4	5
There is credit policy and procedure with clearly stetted eligible criteria.					
There is independent risk management policy and procedure from credit policy and procedure in your organization.					
There are time credit granting and monitoring process is overridden by directors, senior management influential staffs					
The bank carried out credit processing activities independent of appraisal function					
The bank checks the borrower history before granting loans					
Credit granting approval process establish accountability for decision taken					
The bank properly assessed the customer ability to meet obligation					
Credit administration					
The bank has well structured documentation tracking system for credit and collateral files					
The process of credit administration is performed					

independently of individual involved in the business organization of credit					
Monitoring and control of credits					
The bank regularly undertake stress testing on overall credit portfolio					
Collateral coverage is regularly assessed and related to the borrowers financial health					
The banks periodically prepare credit quality report for warning sign loan loss in any portfolio.					
The bank monitor the business of client after granting credit on regular bases					
Customer are often given sufficient training on loan usage					
Managing problem credit/recovery					
The bank has appropriate criteria for credit classification provisioning and write off					
The bank has loan recovery procedure that clearly set out how problem credit are to be managed					
Adequate measures are put in place to recover nonperforming loans					

Which of the following principles improve the quality and capacity of credit risk management the bank?

-Establishing an appropriate credit risk environment ☐

-Operating under a sound credit granting process ☐

-Maintaining an appropriate credit administration, measurement and monitoring process ☐

-Ensuring adequate controls over credit risk ☐

-The role of supervisors ☐

Please write if you have suggestion and comment.

……………………………………………………………………………………………
……………………………………………………………………………………………