

***Determinants of Loan Repayment Performance of Private Borrowers:
A Study on Commercial Bank of Ethiopia Jimma District***

***A Thesis Submitted to the School of Graduate Studies of Jimma University in
Partial Fulfillment of the Requirements for the Award of the Degree of Master
of Science in Accounting and Finance***

BY:

ABEBAW GIRMA



JIMMA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

MSC PROGRAM

JUNE 05, 2017

JIMMA, ETHIOPIA

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Under the Guidance of

Yonas Mekonnen (Assistant Professor)

And

Ganfure Tarekegn



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DECLARATION

I hereby declare that this thesis entitled “Determinants of Successful Loan Repayment Performance of Private Borrowers” has been carried out by me under the guidance and supervision of Yonas Mekonnen (Ass. Professor) and Ganfure Tarekegn.

The thesis is original and has not been submitted for the award of any Degree or Diploma to any university or institutions.

Researcher's name

Date

Signature

CERTIFICATE

This is to certify that the thesis entitles “Determinants of Successful Loan Repayment Performance of Private Borrowers”, submitted to Jimma University for the award of the Degree of Master of Science in Accounting and Finance (MSC) and is a record of bonafide research work carried out by Ato Abebaw Girma, under our guidance and supervision.

Therefore, we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree or diploma.

Main Adviser’s Name

Date

Signature

Co-Adviser’s Name

Date

Signature

Abstract

This study carried out on factors that determine the determinants of loan repayment performance of the borrowers in the case of Commercial Bank of Ethiopia, Jimma District using primary and secondary data collected through structured questionnaire. The secondary data was collected from the individual files of hundred credit borrowers. The study used explanatory design and qualitative research approach with a methodology of stratified and purposive. Hence the sample population was hundred (100), of which 75 (43.8%) were successful financed projects (non-defaulters), whereas the rest 25(14.6%) were non-successful ones (defaulters). The variables used in the study are age, education, past credit experience, house hold size, loan utilization, other source of income, repayment period of the loan, sector, and supervision of the bank and timeliness of loan released. In the study Logit model was used to identify variables which determine successful loan repayment performance. The paper reveals that education, loan utilization, other source of income; supervision and time were statically significant determinant of loan repayment performance of CBE's Jimma District financed projects. However, the analysis of the educational status of the borrowers is the most important determinant among the ten variables. The policy implications of the study recommends that Commercial Bank of Ethiopia, Jimma District might intensify its project monitoring and follow-up work in order to make well-informed decisions and provide technical assistance for its credit-assisted projects; decrease the loan processing time(disbursement or processing time) give; critically analyze the project implementation period at the time of appraising projects and enhance its project implementation capacity; and improve its efficacy of customer recruitment system by giving special considerations to educational level of borrowers. Finally, the bank might look out for the factors that significantly influence loan repayment before granting loans to the borrowers to reduce loan defaults.

Key Words: Loan repayment, Commercial Bank, Ethiopia

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ACRONYMS or ABBREVIATIONS

CBE	: Commercial Bank of Ethiopia
DBE	: Development Bank of Ethiopia
EDU	: Education
EXP	: Past credit Experience
HHS	: House Hold Size
Lou	: Loan Utilization
OOSINC	: Other Source of Income
REPPER	: Repayment Period
SEC	: Sector
SUP	: Supervision
TIME	: Timeliness of Loan Released
NBE	: National Bank of Ethiopia
SPSS	: Statistical Package for Social Sciences
CrP	: Credit Procedure

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

Financial sectors play a critical role for the growth and development of a country (Ferreti, F. 2007.). One of the financial institutions that play an intermediation function by mobilizing money from those who have excess fund and lend it to others who need it for their investment are Banks. As a result, providing credit to borrowers is one means of which Banks contribute to the growth of economy, thereby ensuring that the money available in economy is used for productive and fertile project purpose which can stimulate the economy as well. Hence, proper management of credit not only has positive effect on the Banks performance but also on the borrower firms and a country as a whole later (Foster, 1969). For that reason, Bank lending is guided by credit policies which are guidelines and procedures put in place to ensure smooth operations. Bank lending, if not properly assessed, involves the risk that the borrower will not be able to pay or willing to honor their obligation (Wondimagegnehu, 2012). In order to lend, Banks accept deposit from public against which they provide loans and other forms of advances and bear a cost for carrying this deposit. Banks undertake lending activities in order to generate revenue. The major source of revenue comprises margin, interest, fees and commission (Martin, 2007). Beyond the urge, to extend credit and generate revenue, Banks have to recover the principal amount in order to ensure safety of depositors` fund and avoid capital erosion. Bank lending therefore, has to consider interest income, cost of funds, statutory requirement, and depositor needs and risk associated with loan proposals. For these reasons Banks have overtime developed credit policies and procedures which stipulate the lending process. This process includes among others the credit appraisal, documentation, disbursement, and monitoring and recovery process of lending. However, Banks have continued to face an average of between 20-40% bad debt written off yearly (Rajan, 2003).

Commercial Bank of Ethiopia is one of the financial institutions play a critical role for the growth and development of a country (Wondimagegnehu, 2012). It established to spur the national Development agenda. The Bank`s focal point is the provision of customer focused lending in line with government priority areas by mobilizing fund from domestic and foreign

sources while ensuring its organizational sustainability. Hence the ability to collect the amount of loans disbursed to the client is crucial.

CBE has continued to extensively provide financial and technical support to government priority economic sectors (Bayeh, 2012). As it has been doing for many years, CBE has remained dedicated to assisting the development endeavors of the Country through availing financial and technical assistance in accordance with government policies. However, availing loan to borrowers is not an easy task; this is because of the high financial risk of the Bank as a result of failure to collect the disbursed loan from the customers. In Ethiopia different research was conducted in relation with loan repayment performance factors. Mengistu (1999), made an empirical analysis on the determinants of industrial loan repayment with particular reference to sixty five manufacturing firms in Addis Ababa. Kibrom (2010) to identify the determinants of loan repayment performance of borrowers. The researcher motivated to do this research that most of the undertaken studies were conducted at micro finance institution, this in turn that the type of the loans were short term and working capital loan and the NPLs status of the Bank. Moreover, the researcher has used data of the financed project in which provided in the year 2004/05 to 2008/09 E.C In that specific period no study has conducted to identify the determinant factors of successful loan repayment performance of private borrowers in south west part of Ethiopia except that kibrom at Northern part of Ethiopia a case study of DBE (Kibrom, 2010).

Therefore, this paper analyzed the determinant of successful loan repayment performance of private borrowers through different determinants and contributes to loan collection of CBE Jimma District and suggested sound strategy for decision makers on how to increase the loan collection of the Bank.

1.2 BACKGROUND OF COMMERCIAL BANK OF ETHIOPIA

Originally, the commercial bank of Ethiopia was known as the state bank of Ethiopia. However, the Ethiopian government decided to split the bank into the central bank of Ethiopia and the commercial bank of Ethiopia in 1963. Eventually, in 1980, the Ethiopian government decided to merge the Addis Bank with the commercial bank of Ethiopia, making Commercial Bank of Ethiopia the country's sole commercial bank (cbe.com).

Before it was merged with the commercial bank of Ethiopia, the Addis Bank was created by the Ethiopian government from the merger of the Ethiopian operations of Banco di Naplia and Banco di Roma with the newly nationalized Addis Ababa Bank.

The commercial bank of Ethiopia is noted as the pioneer of modern banking in the country. It was the first bank to serve ATM services for its local and the first to serve western union money transfer services in the country. Apart from this, the bank also plays a major role in directing Ethiopia's economy towards development and progress. Currently it has over 1200 branches stretched across the country.

1.3. Statement of the problem

Effective control of loan repayment is critical for sustainable and healthy growth of the Banking sector especially for those predominantly engaged in provisioning loans. In other words, the determinants of successful loan repayment performance in project financing have to be properly investigated because the survival and the sustainable operation of such institutions are directly influenced by these factors. Therefore, investigation of the major determinant for successful loan repayment of borrowers is especially essential for project financing Banks. Any loan granted by a financial institution is generally provided at a cost, referred to as interest on the debt, which is the primary incentive for the lender to engage in this loaning activity (William, 2007). And in such loan, each of these obligations and restrictions is enforced by a contractual agreement or loan covenants between these stakeholders that clearly states the rule of the game agreed upon by both parties on the different aspects including the purpose, disbursement schedule, repayment period and the charges associated with the loan. In the area of loan repayment performance researches have been done by Kibrom (2010), Mulugeta (2010) and Muluken (2014) under the Development Bank of Ethiopia. Kibrom, (2010) research had been conducted on Mekele branch specific to private borrowers. The result showed that educational level of the borrowers, repayment period of the loan, availability of other source of income, sector, purpose of the loan and type of labor determine successful loan repayment performance of the borrowers positively and significantly. Other variables such as, gender and household size have positive sign, but are not statistically significant. Moreover, variables such as age, loan diversion, other source of credit show negative sign but not statistically significant. The variable experience is statistically significant but show negative sign. Mulugeta (2010), research had been conducted specific to agricultural borrowers. The results showed that the age of borrowers, monitoring /follow-ups made by the bank/, loan issuing time (time taken to process a loan), marital status of borrowers, managerial experience of the project manager and education level of borrowers were statistically significant factors affecting repayment of agricultural loan.

Muluken, (2014) on his research he conducted specific to floriculture growers' borrowers. The result showed that among nine explanatory variables, which were hypothesized to influence loan repayment performance among floriculture credit borrowers, four explanatory variables namely education level, number of follow ups/supervisory project visit by credit officers, sustainable

floriculture certification status and farming experience were statistically significant while the remaining five were less powerful in explaining the variation in the dependent variable.

There were few other studies that have been conducted on the determinant of loan repayment performance under micro finance institutions in Ethiopia by, Abraham,(2002), Jemal, (2003), Mengistu (1997) and Bekele et al.

Concerning CBE there has been no significant change introduced on the general lending policy of the bank except shifting its attention towards loan collection than loan disbursement (CBE CrP, Volume No. 3).The bank has employed its screening criteria in order to select projects which it thought are credit worthy as well as in determination of the loan amount. The question here is whether these criteria employed are really the major determinants of the loan repayment performance of projects.

The repayment problem could arise either from the demand side, supply side, and both or other external factors. The supply side problems include change in the structure of the bank, change in the lending policy, failure in properly appraising the project document (i.e. in assessing the background of the promoter, technical capability, marketability, financial and economic viability of the project) and lack of responsibility and accountability of the staff members of the bank.

Therefore the problem on the supply side relies more on implementation of the rules and regulations of the bank and on the loan bank's efficiency of making proper credit assessment.

The demand side on the other hand, refers to borrower's age, sex, educational level, household size, management capacity, loan utilization, availability of other source of income, bank credit experience, specific situation of the enterprise (i.e. market condition, technical capability, specific location) while external factors mainly refers to the general economic condition of the country, government policy and weather condition. In order to combat these pressing problems, the major deterrents behind the poor repayment record should be identified first (Jaffe and Stiglitz (1990).

This research work is differing from that of the above mentioned researchers in that: it has included all sectors of the financed project at south west part of Ethiopia CBE's branch; as a result it represents the big picture of the Bank at western part of Ethiopia Jimma district. Secondly, the collected data of successful loan payer taken from the bank to identify the success factors, whereas those researchers have used only the status of the project on the period in which they have conducted to measure the success factors of their research work (NPL status of the

bank). Hence, the researches output could not fill up the gap on loan repayment performance of the Bank. Despite such a huge gap, no representative study has been done to investigate the factors that contribute to the poor performance in loan recovery through assessing the successful projects financed by the Bank.

1.4 Research Questions

The study tried to narrow the research gaps through focusing on factors affecting loan repayment performance of private borrowers of CBE, Jimma district and attempts to provide answers for the following basic research questions:

Do demand sides of loan repayment affect borrowers?

(Borrower's age, educational level, household size, loan utilization, repayment period of the loan, availability of other sources of income and bank credit experience and sector).

Do supply sides of loan repayment affect borrowers?

(Loan supervision and Timeliness of loan release)

1.5 Objectives of the Study

1.5.1 General Objective

In general the overall objective of the study is to examine and identify the major factors that determine the loan repayment performance of private borrowers in case of Commercial Bank of Ethiopia Jimma district.

1.5.2 Specific Objective

Specifically, the study would attempt to achieve the following specific objectives.

- To examine the effect of Age on loan repayment performance of private borrowers.
- To examine the effect of educational level of private borrowers on loan repayment performance.
- To examine the effect of house hold size of private borrowers on loan repayment performance.
- To examine the effect of proper utilization of the loan by private borrowers on loan repayment performance.
- To examine the effect of repayment period on loan repayment performance of private borrowers.

- To examine the effect of other source of income of private borrowers on loan repayment performance.
- To examine the effect of past credit experience of private borrowers on loan repayment performance.
- To examine the effect of type of the project on loan repayment performance of private borrowers.
- To examine the effect of supervision by the bank on loan repayment performance of private borrowers.
- To examine the effect of loan release time on loan repayment performance of private borrowers.

1.6. Hypothesis of the study

Various quantitative research proposals and writers use research questions Habtamu (2012). On the other hand, a more formal statement of a research employs hypotheses. These hypotheses are predictions about the outcome of the results to be estimated (more or less high, lower of something). Therefore, the study has been tested based on the following hypotheses.

Types of Hypothesis

This paper would have the two types of hypothesis;

Null Hypothesis (H₀)

There is no significant effect of borrowers' characteristics on loan repayment performance.

Alternative Hypothesis (H₁)

There is a significant effect between borrowers and loan repayment performance.

- **Hypotheses 1:** Age of the borrowers has a significant effect on successful repayment of the loan borrowed.
- **Hypotheses 2:** Educational level of the clients has a significant effect on successful repayment of the loan borrowed.
- **Hypotheses 3:** The size of household has a significant effect on successful repayment of the loan borrowed.
- **Hypotheses 4:** Proper utilization of the loan by borrower has a significant effect on successful repayment of the loan borrowed.

- **Hypotheses 5:** Repayment period of the loan has a significant effect on successful repayment of the loan borrowed.
- **Hypotheses 6:** Availability of other source of income has a significant effect on successful repayment of the loan borrowed.
- **Hypotheses 7:** Past credit experience of the borrowers has a significant effect on successful repayment of the loan borrowed.
- **Hypotheses 8:** Type of the project (sector) has a significant effect on successful repayment of the loan borrowed.
- **Hypotheses 9:** Supervision of the project by the bank supervisor has a significant effect on successful repayment of the loan borrowed.
- **Hypotheses 10:** Timeliness of loan release has a significant effect on successful repayment of the loan borrowed.

1.7 Scope and Limitation of the study

Scope of the Study

The study is limited to Bank and Borrowers specific factors even though macroeconomics has a huge impact on loan repayment performance. Thus the study has explored Bank specific factors determining successful loan repayment performance of the borrowers in project financing. Hence the study covered the repayment aspect of Commercial Bank of Ethiopia, Jimma District. The scope of the study has been restricted only to western part, Jimma district borrowers' of Commercial Bank of Ethiopia. Accordingly, the study focuses on loan repayment performance, which are all part of the borrower aspect based on data obtained from only one district. More over other schemes are not considered in this study. Nonetheless, there is no reason to rule out the possibility that the findings of the study might workout for other related schemes.

Limitation of the Study

Due to the confidential policy of banks, access to customer and banks information, except officially disclosed financial information, was not possible. The study was also limited to bank employees' and officials' personal perception and officially disclosed financial data of banks and absence of respondents at planned time during data collection.

1.8. Significance of the Study

CBE financed one hundred seventy one private borrowers in total. All of them are not paying their loan as per the agreed terms with the bank. This has an impact on the sustainable provision of credit to the potential investors and existence of the bank as a financial institution. It is therefore, important for the financial institutions to devise means to reduce the levels of loan default. This can be achieved if the Bank identifies the determinants of successful loan repayment performance in project financing. Thus this study is for:

- Policy makers to formulate successful credit policies and programs that would in turn help in allocating financial resources effectively and efficiently.
- Managers clearly understand the extent to which the impact of loan possessing time, number of project follow-up, project implementation period, amount of loan, education level, type of management for the loan repayment performance.
- The management of the Bank can understand the determinants the loan repayment performance of borrowers and evaluate the loan repayment performance.
- Helps other researchers to identify the factors behind successful loan repayment and to make research on related issues.

1.9. Organization of the Thesis

The thesis is organized into five chapters. The first chapter consists of background of the study, statement of the problem, objectives of the study, significance of the study, and delimitations of the study. The second chapter reviews the literatures relevant to the study which includes theoretical and empirical studies. Brief description of methodology that is the population and sampling technique of the study; the sources of data; the data collection tools/instruments employed; the procedures of data collection; and the methods of data analysis are presented in the third chapter. The results and discussions of the findings are presented in chapter four. Finally, the conclusion and recommendations of the study are presented in chapter five.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

These sections have two parts which is the theoretical and empirical literature so as to analyze and identify the main determinants of successful loan repayment.

2.1 Theoretical review of Banking

2.1.1 Banking

Banks are financial institutions that accept deposits from the general public and obtain money from such other sources as may be available to them (the 'haves') in order to extended loans to those in need of the money (the 'have-nots') . As Goosen et al.(1999) put it, banks provide channel (financial intermediation) for linking those who have excess funds with those who are in need of funds, thus ensuring the money available in economy is always put to good use. In so doing banks earn income when they lend money out at a higher interest rate than they pay depositors for use of their money. A Bank's main source of income is interest. A bank pays out at a lower interest rate on deposits and receives a higher interest rate on loans.

Role of Banks

The banking sector makes a meaningful contribution to the economic growth of every country. Banks contribution to the growth lies in the role they play in mobilizing deposits and allocating the resources efficiently to the most productive uses investment in the real sector. So making credit available to borrowers is one means by which banks contribute to the growth of economies. Banks pool resources together for projects that are too large for individual shareholders to undertake (Bagehot, 1873). They are also considered the most important enabler of financial transactions in any country's economy and are the principal source of credit (Rose, 2002). Bank finance is the primary source of debt funding.

Commercial banks extend credit to different types of borrowers for many diverse purposes, either for personal, business or corporate clients (Saunders & Cornett, 2003). Besides, banks are also the custodians of nation's money, which are accepted in the form of deposits and paid out on the client's instructions (Sinkey, 2002; Harris, 2003).

Commercial banks assist in the conversion of currencies, transfer of funds and negotiate foreign financing. Notwithstanding all other activities, banking industry considers lending as their most

important function for utilization of funds. Since the major portion of gross profit of the industry is earned from loans; the administration of loan portfolios seriously affects the profitability of banks (Wei-shong and Kuo-chung, 2006).

2.1.2 Bank Lending

Investment on a productive sector is the precondition for achieving the economic growth from a country perspective. Capital formation positively supports this investment function. Once a satisfactory level of capital is formed, the option of sound investment comes, that ultimately leads to flow of capital in the future. Financial institutions, mainly banks do these functions through different mechanisms such as loans (Islam, 2009). Provision of resources (granting loan) by one party to another is termed as lending. Lending presumes the fact that the second party doesn't reimburse the first party immediately rather arranges either to repay or return those resources at a later date, making it a debt. To enable them function as financial intermediaries, banks collect funds from savers in the form of deposit and then supply it to borrowers as loans. Thus banks accept customer deposits and use those funds to give loans to other customers or invest in other assets that will yield a return higher than the amount bank pays the depositor (McCarthy et al., 2010). It follows that customers' deposit is the primary source of bank loan and hence, increasing or guaranteeing deposits directly has a positive effect on lending. Commercial banks extend credit to different types of borrowers for many diverse purposes, either for personal, business or corporate clients (Saunders & Cornett, 2003). Bank finance is the primary source of debt funding. This intermediation functions benefit both the banks and the borrowers. The principal profit-making activity of commercial banks is making loans to its customers. In allocating funds, the primary objective of bank management is to earn income while serving the credit needs of its community (Reed and Gill, 1989). Lending represents the heart of the industry. Loans are the dominant asset and represent 50-75 percent to total amount of assets at most banks, generate the largest share of operating income and represent the banks greater risk exposure (Mac Donald and Koch, 2006). Loans and advances are defined in the respective laws of different countries. In Ethiopia, under Article 13 (FDRE 592/2008) and (NBE/2008) Article (4.5) loans and advances are defined as:

“... any financial assets of a bank arising from a direct or indirect advance (i.e. unplanned overdrafts, participation in a loan syndication, the purchase of loan from another lender etc.) or commitment to advance funds by a bank to a person that are conditioned on the obligation of the

person to repay the funds, either on a specified date or on demand, usually with interest. The term includes a contractual obligation of a bank to advance by the bank on behalf of a person. The term does not include accrued but uncollected interest or discounted interest.”

2.2. Credit (project financing)

Credit is defined as the power or ability to obtain goods and service in exchange for promise to pay for them later (Beckman and Foster, 1969). In a similar manner, credit is the power or ability to obtain money, through the crediting process, it come back for the promises to repay the obligation to obtain money, by the borrowing process, in return for the promises to repay the obligation in the future. Project financing is necessary in a vibrant economy because of time elapsed between the production of goods and its ultimate sale and consumption. The risk in extending credit is the probability that future payment by the financier of the project will not be made (Yogesh, 2006).

2.3 Credit Management Policies

Hoff and Stieglitz, (1990), pointed out that borrowers and lenders may have differential access to information concerning a projects risk, they may form different appraisal of the risk. What is clearly observed in credit market is asymmetric information where the borrower knows the expected return and risk of his project, whereas the lender knows only the expected return and risk of the average project in the economy. Lending institutions are faced with four major problems in the course of undertaking credit activity: a) to ascertain what kind of risk the potential borrower is (adverse selection), b) to make sure the borrower will utilize the loan properly once made, so that he will be able to repay it (moral hazard). C) to learn how the project really did in case the borrower declares his inability to repay and d) to find methods to force the borrower to repay the loan if the borrower is reluctant to do so (enforcement) (Ghatak and Guinnane, 1999). This problem of imperfect information and enforcement leads to inefficiency of credit market which in turn leads to default credit assessment that takes into account the borrowers` character, collateral, capacity, capital and condition (what is normally referred to in the banking circles as the 5C`s) should be conducted if they are to minimize credit risk (Sarat,2003).

2.3.1 Character or Credit Reputation:

Character refers to the borrower's reputation and the borrower's willingness to settle debt obligations. In evaluating character, the borrower's honesty, integrity and trustworthiness are assessed. The borrower's credit history and the commitment of the owners are also evaluated (Rose, 2000). A company's reputation, referring specifically to credit, is based on past performance. A borrower has built up a good reputation or credit record if past commitments were promptly met (observed behavior) and repaid timely (Rose, 2002; Koch & McDonald, 2003). Character is considered the most important and yet the most difficult to assess (Koch & MacDonald, 2003).

Bankers recognize the essential role management plays in a company's success. Critically analyzing quality of management has been one of the ways of assessing character. The history of the business and experience of its management are critical factors in assessing a company's ability to satisfy its financial obligations. The quality of management in the specific business is evaluated by taking reputation, integrity, qualifications, experience and management ability of various business disciplines such as finance, marketing and labor relations into consideration (Sinkey, 2002; Nathenson, 2004).

These factors can be regarded as a risk mitigates if a banker views these positively. Much of its success can in fact be attributed to competent leadership. Companies with strong and competent management teams tend to survive in an economic downturn.

2.3.2 Capacity

Capacity

Capacity refers to the business's ability to generate sufficient cash to repay the debt. An analysis of the applicant's businesses plan, management accounts and cash flow forecasts (demonstrating the need and ability to repay the commitments) will give a good indication of the capacity to repay (Sinkey, 2002; Koch & MacDonald, 2003). To get a good understanding of a company's capacity evaluating the type of business and the industry in which it operates is also vital .It plays a significant role since each industry is influenced by various internal and external factors. The factors that form the basis of this analysis includes: Type of industry, Market share, Quality of products and life cycle, whether the business is labor or capital intensive, the current economic conditions, seasonal trends, the bargaining power of buyers and sellers, competition and

legislative changes (Koch & MacDonald, 2003; Nathenson, 2004). These factors lead the banker to form a view of the specific company and industry. The banker would regard this as a potential risk mitigate if he/she is confident about the company and industry and prospects for both appear to be positive.

2.3.3 Capital

Capital refers to the owner's level of investment in the business (Sinkey, 2002). Banks prefer owners to take a proportionate share of the risk. Although there are no hard and fast rules, a debt/equity ratio of 50:50 would be sufficient to mitigate the bank's risk where funding (unsecured) is based on the business's cash flow to service the funding (Harris, 2003). Lenders prefer significant equity (own contribution), as it demonstrates an owner's commitment and confidence in the business venture.

2.3.4 Collateral

Collateral (also called security) is the assets that the borrower pledges to the bank to mitigate the bank's risk in event of default (Sinkey, 2002). It is something valuable which is pledged to the bank by the borrower to support the borrower's intention to repay the money advanced. Security is taken to mitigate the bank's risk in the event of default and is considered a secondary source of repayment (Koch & MacDonald, 2003).

The purpose of security is to reduce the risk of giving credit by increasing the chances of the lender recovering the amounts that become due to the borrower. Security increases the availability of credit and improves the terms on which credit is available. The offer of security influences the lender's decision whether or not to lend, and it also changes the terms on which he is prepared to lend, typically by increasing the amount of the loan, by extending the period for which the loan is granted and by lowering the interest rate (Norton and Andenas, 1998: 144).

2.3.5 Conditions

Conditions are external circumstances that could affect the borrower's ability to repay the amount financed. Lenders consider the overall economic and industry trends, regulatory, legal and liability issues before a decision is made (Sinkey, 2002). Once finance is approved, it is normally subject to terms and covenants and conditions, which are specifically related to the compliance of the approved facility (Leply, 2003). Banks normally include covenants along with conditions when credit facilities are granted to protect the bank's interest. The primary role of

covenants is to serve as an early warning system (Nathenson, 2004). Covenants can either be negative or positive (Sinkey, 2002).

2.4 Credit Methodology

Credit methodology encompasses every activity involved in lending including sales, customer selection and screening, the application and approval process, repayment monitoring, and delinquency and portfolio management. It is also linked with the institutional structure pertaining to the credit process. Quality of credit methodology is one of the most determinant factors for the efficiency, impact and profitability of the institutions. According to William (2007), the Criteria for Successful Loan Repayment are generally categorized as: Good Credit, Equity, Experience, Good Business Plan, and Collateral. Thus getting the credit methodology and product mix right is therefore one of the most demanding as well as rewarding challenges of every financial institutions (banks). The sections that follow discuss major issues in credit methodology that include credit information, credit analysis process, credit approval and credit monitoring processes.

2.4.1 Credit Information

Engagement in financing begins with customer recruitment. An issue of knowing the customer, customarily known as KYC (Know Your Customer) is so vital before proceeding to details. Banks use various means to obtain such information about the existing or potential customer. Use of financial statement, credit report from credit bureau, customers' history if not new is the potential sources of information (Ross et al., 1998). Credit providers use credit information to conduct credit risk analysis of prospective borrowers in order to mitigate credit risk. Kallberg and Udell (2003) highlight that information sharing is useful both at the origination stage and after credit has been extended. Especially at the origination phase, information sharing reduces the problems of adverse selection. In fact the exchange of credit information improves non-performing loan ratios, leads to fewer losses through write offs and decreases interest rates for good credit risks (Jentzsch, 2008: 538). Jentzsch (2008) further supports that sharing credit information between lenders intensifies competition and increases access to finance. Jappelli and Paggano (2005) indicate that credit information sharing results in improved bank's knowledge of applicant's character, easing adverse selection and reduce the informational rents that banks could otherwise extract from their customers. Credit information also acts as a borrower

disciplining device, by cutting insolvent debtors off from credit and eliminates or reduces the borrower's incentive to become over-indebted by drawing credit simultaneously from many banks without any of them realizing it. Further, Gehrig and Stenbacka, (2007) highlight that information sharing reduces adverse selection problems and thereby promotes financial stability; it serves as a borrower disciplining device and it reduces the informational rents that banks can extract within the framework of their established customer relationships.

2.4.2 Credit Assessment

Credit analysis is the first step in the process to tailor-make a solution to fit the customer's needs. The assessment starts with an understanding of the customer's needs and capacities to ensure there is a good fit in terms of the financing solution. Credit assessment is the most important safeguard to ensure the underlying quality of the credit being granted and is considered an essential element of credit risk management (Cade, 1999). The credit quality of an exposure generally refers to the borrower's ability and willingness to meet the commitments of the facility granted. It also includes default probability and anticipated recovery rate (Saunders & Cornett, 2003). Credit assessment thus involves assessing the risks involved in financing and thereby anticipating the probability of default and recovery rate.

A credit analysis is used by the credit official to evaluate a borrower's character, capital, capacity, collateral and the cyclical aspect of the economy, or generally referred to as the five capital, character, capacity, collaterals and conditions of the borrower.

2.4.3 Credit Approval

Extending credit is the careful balance of limiting risk and maximizing profitability while maintaining a competitive edge in a complex, global marketplace. Banks go through a thorough process in approving credit to hit the balance. Credit approval is the process of deciding whether or not to extend credit to a particular customer. It involves two steps: gathering relevant information and determining credit worthiness (Jordan, 1999). The quality of credit approval processes depends on two factors, i.e. a transparent and comprehensive presentation of the risks when granting the loan on the one hand, and an adequate assessment of these risks on the other. Furthermore, the level of efficiency of the credit approval processes is an important rating element. Due to the considerable differences in the nature of various borrowers and the assets to

be financed as well the large number of products and their complexity, there cannot be a uniform process to assess credit risks. The quality of the credit approval process from a risk perspective is determined by the best possible identification and evaluation of the credit risk resulting from a possible exposure.

2.4.4 Credit follow-up/ supervisory visits

Repayment of Bank loans

After the credit assessment and disbursement is done, the credit customer is expected to payback the installment as per agreed schedule. Each Bank has a different repayment mechanism. Based on the specifics of the Bank, customers can pay weekly, bi-weekly, monthly, quarterly, semi-annually or annually installments (Martin, 2007). In order to ensure good repayment, Banks have to ensure proper monitoring and follow-up actions.

It is an act of prudent Banking practice for Bankers from the point of disbursement of a loan to regularly monitor the client's utilization of the Bank's funds and the performance of the financed project from time to time and the ensuing life style of the client. These activities help to assert that the borrower has utilize the fund for the approved business purpose is what the Bank's funds are being committed to, that the clients business is making the expected progress as a result of commitment of the credit facility and that the client has not abandoned the project, to commit the Bank's resources to fund a extravagant life style that could endanger the Bank's resources. In the unusual extreme cases, effective supervision activities could lead to timely discovery of a fast deteriorating credit account that a quick action and decision could reveal. If the situation has challenged corrective action and redemption, the constant action could bring to an end and minimize losses by profession in the account and proceeding with the necessary steps for the Bank to recover whatever it maximally can (Osayameh, 1986). while regular re-assessments, monitoring and evaluation represent a very crucial part of the Banks own part of the strategic conditions subsequent to draw-down of a facility that forms the scheme of work for effective management of the credit facility from the point of approval to the point of liquidation.(Adewale. A,2008)

Supervision helps keeping a good loan good. It may be visiting the borrowers' premises to investigate the general state of affairs and maintenance of plant and equipment. Insufficient maintenance is often an early sign of financial distress. Also to be observed is the state of

employee morale and the physical stock of materials and finished goods. The general business policy and advice is considered. If a Bank is cleaning to business development it can revise its own credit and loan policies as well as advising its customers. Again keeping track of deposits and balances gives clue to the affairs of the borrowers. Hence, financial viability of any credit institution depends critically on selecting applicants who have a high probability of repayment and rejecting those who have a high probability of default Sewagudde (2000). In doing so loan officers in such financial institution is put at risk and the organization as a whole. As a way of scaling down loan, the default problem Gontaezjega (1996) added a risk premium to the price of the loan to cover loan losses. This risk premium results from the fact that at the time of the loan request, the lender is unable to clearly identify which borrower would repay and which borrower would default, as actual default losses are not known until a scheduled repayments are due.

2.5 Criteria for Successful Loan Repayment

According to William (2007), there are certain criteria that most project financing requires the business owner to meet its objectives the funds has to be released if the business needed. These hurdles or requirements are generally categorized as: Good Credit, Equity, Experience, Business Plan, and Collateral. The above mentioned list of credit requirement five guidelines of successful borrowers are reviewed as follows;

2.5.1. Good Credit – it deals with the requirement that one must have worth credit history which is not only good, but more to the outstanding side of the scale. The logic behind for this lender requirement according to the writer is that, at any time borrowers are might coming to Banks and borrowers applying for loans for a variety of reasons. The credit officer and the lending institution's management have an obligation to manage the project to the positive benefit of the owners and the Bank. Thus, at the time of injection of a loan should be provided only to those who have the least risk of failure to repay. Past repayment history (i.e. good credit) is the first and probably the most important requirement for a successful loan (William, 2007).

2.5.2. Equity- in borrowing can be thought of as similar to a down payment. The lender wants the borrower to have a financial commitment to the venture for which the loan is requested. The writer say that the borrower has to have some “skin” in this business “game” to insure his or her best efforts toward success and timely repayment of the borrowed funds. The capital investment is seen also as a proof for shareholder’s commitment in the business. This is to say, that even if all the other four criteria for successful borrowing; credit, experience, business plan, and

collateral are met; the Bank usually will not lend 100 percent of the funds requested William (2007).

2.5.3. Experience-According to William (2007), no rational lender wants to or will turn over monies to a borrower to manage and expend in a business or venture in which the person has no or very limited experience. This measure for successful borrowing should be easy to see from both the lender and borrower's point of view. Lenders need to be more certain that the person or persons borrowing the funds have the experience and expertise to manage the money and in the day to day the business is conducted in a careful manner. It is needed to cover positive results from the business and further indemnify that the lender will be repaid with interest and in a timely manner. The more experience and talent the borrower has shown in the past, the lower the risk in lending from the Bank's point of view. The minimum numeric value often expected here is that the borrower should have at least three years of experience in the management of the type of business in whose name he or she is borrowing the funds. This experience can be as an owner and/or management experience.

2.5.4. Business Plan- The fourth requirement of the Bank or lender is in depth analysis has been conducted, at the time of conducting the business plan of the project has to be researched and constructed business plan. This is a document in which:

- a) Assumed to be introducing the business in a clear and complete manner;
- b) Describes the business ,the potential market for the goods and service to be offered , the existing competition ,states who will be employed ,who will lead and manage and how the borrowed funds will be expended;
- c) The good business plan will have pro- forma (estimated) financial documents. These are the cash flow statement, income statement, and balance sheet.

2.5.5. Collateral- Finally according to the writer, after a borrower have shown good credit worthy, put in equity cash or goods, shown he/she have experience in the business and produced a positive cash flow business plan. The lender would be willing to provide money to the borrower based on the fulfillment of appraisal requirement.

Supplementary forms of safekeeping the customer can provide the lender. Giving a lender collateral means that an own asset is mortgaged, such as a property, to the lender with the agreement that it will be the repayment source in case the loan is not repaid from the established sources as per terms and conditions agreed for the financing. A guarantee, on the other hand, is

just that - someone else signs a guarantee document promising to repay the loan if the initial lender cannot. Some lenders may require such a guarantee in addition to collateral as security for a loan. Collateral is considered “the second way out” by the lender in case the credit goes wrong (Mihaela, 2010).

Collateral according to William (2007) is any asset of value that can be pledged by the borrower(s) as security that the loan will be re-paid in full and with interest. Collateral requirements in the process of borrowing for a business can range up to and above 100 percent of the loan principal. This percentage depends again on the amount of risk that the lender calculates that his institution is exposed from this particular loan and the accumulation of all loans currently in process.

2.6 Credit Documentation

Credit documentation and disbursement is another aspect of credit assessment process. It encompasses the conduct of key exposure control measures that ensures securities and documentation is obtained before funds are disbursed, and that modification on all credit facilities is approved within credit policy. It also includes the maintenance of orderly updated credit files and the imposition of relevant fee's, updating of records and prompts notification of credit reviews and renewal dates (McNaughton et al, 1996). Loan documentation involves the legal drafting, document review, collateral checks and the waiver of terms. While the disbursement function involves checking the validity of notes as well as ensuring that the documentation for the credit facilities are properly executed. Loan documentation defines the necessary security and covenant before the loan is made. It provides risk protection by providing grounds for the Bank to take legal action when borrowers fail to honor their obligations (Dayetal, 1996). Credit documentations clearly states the credit terms which are the conditions attached to the loan after the borrower's loan application has been favorably appraised.

2.7 Loan classifications in Ethiopia

The classification of loans into performing and nonperforming loan is not appropriate in reality. Loans may take different other status than these two extreme classifications. As per directive number SBB/43/2007 loans are classified into five classes.

2.7.1. Pass loans: these are the loans that have not become any problem, present no special risk than the normal risk inherent to any loan. Short term loans past due for less than 30 (thirty) days and medium and long-term loans past due for less than 90 (ninety) days.

2.7.2. Special mention loans: these are the loans that have shown some early signs of trouble, such as missing one payment, missing a few financial statements, deterioration of the collateral, etc. Some other events not under the borrowers control may also trigger some alarm, such as deterioration of the labor or political or security situation in the area where the business is located. Short term loans past due for 30 (thirty) days or more, but less than 90 (ninety) days and medium and long-term loans past due 90 days or more, but less than 180 days.

2.7.3. Substandard loans: - these are the loans that have become real problems, missing payments for two consecutive payments. They also present real weaknesses that jeopardize the orderly substandard. Short term loans past due 90 days or more, but less than 180 (one-hundred-eighty) days; Medium and long term loans past due 180 days or more, but less than 360 days

2.7.4. Doubtful loans: There are very serious questions about the borrowers capacity to repay, leaving the bank with a strong possibility of loss, at least partial loss. The following non-performing loans at a minimum shall be classified doubtful. Short term loans past due 180 (one-hundred-eighty) days or more, but less than 360 days; Medium and long term loans past due 360 (three-hundred-sixty) days, but less than 3 years.

2.7.5. Loss Loans: these are loans that are beyond hope after all means of recovery have been exhausted, or loans that have not been performing for over 1 year. The only course of possible action is to take legal actions to foreclose and write the loans off the book as a loss. Short term loans past due 360 (three-hundred-sixty) days or more; Medium and long term loans past due 3 (three) years or more;

Based on the above classification the loan of the banks considered as performing and nonperforming. If the loan fall under pass and special mention category they are classified as performing loan otherwise it is considered as non-performing loan (NBE, 2014).

2.8 Empirical Evidence

Various research works have been conducted on credit repayment in world among these research made in Iran and Bangladesh. Koopahi and Bakhshi (2002) to identify defaulter farmers from non-defaulters of agricultural Bank recipients in Iran research have conducted using of a discriminate analysis. The researchers found that using of machinery, length of repayment period, Bank supervision on the use of loan had statistically significant and positive effect on the agricultural credit repayment performance. In the contrary, incidence of natural disasters, higher level of education of the loan receiver and length of waiting time for loan processing had negative effect on dependent variable. Other study has been conducted at Bangladesh on the loan repayment performance of borrower obtained a statistical significant positive relationship between households asset/income position/ and its loan default status. Matin (1997) has conducted on the impact of loan repayment performance in Bangladesh and the output of the research shows that borrowers having relatively small loan size have a very strong demonstration compared to loans which large in size. The education statuses of the households were strong positive effect on non-defaulter status irrespective of the household's income position. Other variable which is land-holding of the households were negatively affected with the loan repayment. In addition to that Reza and Mansoori (2008) had studied the factors that influencing the loan repayment performance, the researchers used a logit model and the output were the farmer's experience, income, received loan size and collateral value, have a negative effect, whereas the loan interest rate, total application costs and number of installment have a negative effect on repayment performance of borrower.

There are few studies have been conducted on credit repayment in Africa. The probability of agriculture credit repayment indicated that crop sales, income transfers, degree of diversification and quality of information are positively related with credit repayment. While the size of club is negatively related the probability of repayment. Factors like amount of loan, sex, household size and experience were found to be insignificant (Chirwa, 1997). According to Geraid & Deograties (2013) study on credit rating and loan repayment performance indicated that years of experience in running the project, age , credit rationing, loan diversion, business management skills, alternative source of income , unfavorable weather conditions, amount of loan obtained by farmers, years of farming experience with credit use and level of education were the major factors that positively and significantly influenced loan repayment are among factors which

influence loan repayment performance. From the other perspective of viewing the impact of credit risk management on the performance of commercial Banks in Nigeria, the study used the panel regression model and came up with the Bank's nonperforming loans from their loan portfolios is caused by poor credit risk management practices of the Bank. (Idowu, 2014). Similarly Oladeebo et al (2008) had examined socio-economic factors such as amount of loan repaid, amount of loan collected and spent on agricultural production, annual net farm income, age, farm size cultivated, farming experience with credit use, and level of education influencing loan repayment among small-scale farmers in Ogbomoso agricultural zone of Oyo State of Nigeria. Among them amount of loan obtained by farmers, years of farming experience with credit use and level of education were the major factors that positively and significantly influenced loan repayment. However, age of farmers influenced loan repayment negatively but significantly. To determine loan repayment decisions among farmers in Southwestern Nigeria during 2005 study were conducted. The Data were collected from 180 respondents by multistage sampling technique. The results of the Tobit regression model has showed farming experience, farm location, and cost of obtaining loan, visitation, borrowing frequency, age of the beneficiaries, household size, level of education, occupation, amount of loan and education as important factors in determining loan repayment. Olagunju and Adeyemo (2007), Eze and Ibekwe (2007), Oladeebo (2008). In the contrary age of the borrowers, house hold expenditure and house hold size have negative influence on loan repayment performance with house hold expenditure being insignificant Oladeebo (2008).

Okovie (1996) in his study on major determinants of agricultural small-holder loan repayment in Nigeria reported that four factors had a tremendous effect on loan repayment performance. These factors include time of loan disbursement, nature of loan disbursement (in cash or in kind), number of supervisory visits made by credit officers after disbursement and profitability of enterprises on which loan funds were invested. Various research work have been conducted with a topic name of major determinants of small scale holder for loan repayment, determinant of agriculture loan repayment performance and factors influencing defaults in loan repayment are also researches made, by using Tobit and linear regression model and showed time of loan disbursement, level of education, attitude towards repayment, farm income and off- farm income, nature of loan disbursement (in cash or in kind), number of supervisor visits made by credit

officers, family dependency level, total farm cost and income of beneficiary, government policies, are major factors that also influenced default in loan repayments.

Agrekon (2004) Jama and Kulundu (1992) in their study on small-holder farmer's credit repayment performance in Kenya were used two stages least squares method to deal with indignity problem of the loan diversion where the loan repayment was used as dependent variable. Farm income, farmer's attitude toward loan repayment, proper amount of purchased farm input and source of income from farming activity had statistically significant effect on loan repayment performance.

Wongnaa and Awunyo (2013) examined factors affecting loan repayment performance among yam farmers in the Sene District, Ghana the study results from the probit model showed that education, experience, profit, age, supervision and off- farm income have positive effects on loan repayment performance. Conversely, gender and marriage have negative effects on loan repayment while the effect of household size was found to be ambiguous.

2.8.1 on Ethiopian Case

The determinants of successful loan repayment performance of private borrowers in the case of Development Bank of Ethiopia, North Region and Zeway research and had been conducted. The studies mainly focused on a single branch borrower's characteristics, source of income, education, work experience, project characteristics and loan characteristics are variables that determine successful loan repayment performance of the borrowers in Development Bank of Ethiopia North Region (Kibrom, 2010). To identify the factors behind successful loan repayment performance of the borrowers a probit model is used. The data used in the study is gathered through survey on 100 respondents that are carried out in two branches. The result of the study shows that educational level of the borrowers, repayment period of the loan, availability of other source of income, sector, purpose of the loan and type of labor determine successful loan repayment performance of the borrowers positively and significantly. Other variables such as, gender and household size have positive sign, but are not statistically significant. Moreover, variables such as age, loan diversion, other source of credit show negative sign but not statistically significant. The variable experience is statistically significant but show negative sign.

Kibrom (2010), Abraham (2002) and Muluken (2014) had used a probit regression model to analyze Factors affecting loan repayment performance of floriculture growers: the case of

Development Bank of Ethiopia. The result shows that among nine explanatory variables, which were hypothesized to influence loan repayment performance among floriculture credit borrowers, four explanatory variables namely education level, number of follow ups/supervisory project visit by credit officers, sustainable floriculture certification status and farming experience were statistically significant while the remaining five were less influential in explaining the variation in the dependent variable. Bekele et al. (2003) has employed a logistic regression model to analyze the factors influencing loan repayment performance of small holders in Ethiopia. The result of the study illustrated that larger loans had better repayment performance than those who took a smaller one. Further the results revealed that late disbursement of inputs purchased by the loan funds was an important bottleneck in loan repayment while livestock were found to be important in improving the farmers' repayment performance.

In Ethiopia an econometric estimation was conducted by Mengistu (1997), made an empirical analysis on the determinants of industrial loan repayment in Ethiopia with particular reference to manufacturing firms in Addis Ababa. The regression result employing Tobit model based on 65 manufacturing firms revealed that total investment cost, ratio of value of collateral to total loan amount, the firm's grace period, number of disbursement installments, and time were statistically insignificant, while repayment period and number of supervision visits are significantly and positively related to loan recovery rate. However, coefficients of loan amount and ratio of pre-operating interest to total loan amount are significant at 10% and 15% respectively and negatively related with loan recovery rate.

Aberham(2012) conducted study on determinants of loan repayment small scale enterprise in Ethiopia: case of private borrowers around Zeway area .The estimation result employing tobit model reveals that , loan diversion , other source of income, education, work experience in related economic activity before the loan and engaging on economic activities, the size of loan, grace period, and form of disbursement and credit experience of the borrower and loan repayment period are the factors that affect loan repayment performance .The evidences of both descriptive analysis and econometric regression show that loan diversion is found to be one of the major determinants adversely affecting the loan recovery rate. Loan diversion itself is found to be influenced by the size of loan, grace period, and form of disbursement and credit experience of the borrower. Borrowers who have other alternative income source are found to show better loan repayment record. Similarly, business experience in related economic activity

and education are found to be significantly and positively while repayment period and sex are negatively associated with loan repayment rate. Borrowers who have extensive experience in related activity and educated ones shows better repayment record while male borrowers and projects with long repayment period show poor repayment record. Another variable that significantly affect loan repayment status of borrowers is the type of activity that the promoter is engaged in. Borrowers who involved in agricultural sector are found to be relatively defaulters as compared with other sectors. This complies with the hypothesis that agricultural projects are more subjected to risk and uncertainty.

2.8.2 Research Gap

In the area of the determinant of loan repayment performance research have conducted at western European and other African countries. However, the economic performance, political, social and cultural factors are various from country to country. As a result the identified determinant factors might not use for Ethiopia in general and in particular CBE. Additionally, most of the undertaken studies were conducted at micro finance institution, this in turn that the type of the loans were short term and working capital loan. Moreover, the researcher has used data of the financed project in which provided in the year 2004/05 to 2008/09 to know the status of the loan in which it occurred because the bank has used the new management tools that is BPR and the Ethiopian economy has started increasing of economic growth. In that specific period no study has conducted to identify the determinant factors of successful loan repayment performance. This research work is differing from the conducted research work are: the researcher has used few of important variables such as education, age, bank credit experience, other source of income, timeliness, bank supervisory visits , type of sector and repayment period to identify the determinant of successful loan repayment performance in project financing. And also the study focuses on examining the determinants or the cause of the poor loan repayment performance of private borrowers in Commercial Bank of Ethiopia, Jimma district.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

Introduction

Chapter two has presented the review of the existing literature on the determinants of loan repayment performance and identified the knowledge gap. This chapter discusses the research design and methodology. The chapter is organized in seven sub section; Research design, Sample Design, sample size determination, population and sampling technique, types of Data and Tools/Instruments of data collection, methods of data analysis and operational definitions of variables.

3.1. Research Design

Research design is the arrangement of conditions for collection and analysis of data in a manner that` aims to combine relevance to the research purpose with economy in procedure. In fact, the research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data. As such the design includes an outline of what the researcher will do from writing the hypothesis and its operational implications to the final analysis of data (Kothari 1990).There are two research designs; experimental and non-experimental (David F).The main difference between these two methodologies lies in the control of extraneous variables and manipulation of at least one independent variable by the intervention of the investigator in experimental research.

In non-experimental research, there is no intervention beyond that needed for the purpose of measurement of the variable in question.

Therefore the research design employed is explanatory under non-experimental. The methodology to carry out the research is based on the objectives of the paper and the availability of relevant information. To comply with the objective of this research, the paper is primarily based qualitative research, which constructed an econometric model to identify and measure the determinants of successful loan repayment in project financing.

3.2 Sample Design

The sample selection would be based on stratified random sampling where borrowers are selected in such a way that it comprises their loan status. As of march, 2016 the total number of borrowers listed on the banks chart under Jimma District is 171. A sample of a 100 borrowers was taken. And the selection of the borrower was done judgmentally by the researcher not by the systematic or simple random technique.

3.3 Sample size Determination

For non-probability samples, the probability of each case being selected from the total population is not known and it is impossible to answer research questions or to address objectives that require you to make statistical inferences about the characteristics of the population. But with probability samples the chance, or probability, of each case being selected from the population is known and is usually equal for all cases. This means that it is possible to answer research questions and to achieve objectives that we require to estimate statistically the characteristics of the population from the sample (Yogesh, 2002). So, in this thesis the probability sampling technique was applied. Since the population of the study is known, for finite number of population of N, the sample size will be determined using

$$n = \frac{z^2 \times N \times p \times q}{E^2 \times (N - 1) + z^2 \times p \times q}$$

$$= \frac{(1.96)^2 * 171 * 0.75 * 0.25}{(0.05)^2 * (171-1) + (1.96)^2 * 0.75 * 0.25}$$

$$= \frac{150.46}{1.41} = 106.87 \approx 107$$

N= Total Population

z2= Confidence Level at 95% (Standard Value of 1.96)

E2= Precision Level

p = Estimated Proportion of the study. And q= 1-p

3.4. Population and Sampling Technique

Commercial Bank of Ethiopia Jimma district avails loans for one hundred seventy one borrowers. Since the population of the study is one hundred seventy one, the survey represented judgmentally one hundred samples of the actual private borrowers of Commercial Bank of Ethiopia, Jimma district based on stratification of the borrowers upon on their loan status after the sample size determination of the borrowers.

3.5. Types of Data and Tools/Instruments of data collection

In order to carry out any research activity, information should be gathered from proper sources. To comply with the research objectives, the researcher focused mainly on primary data; and secondary data, which shall be collected from CBE data base and individual borrowers' file, which are not manipulated for other studies. The primary data includes opinions, attitudes, perceptions and beliefs of the bank's clients. And the documents include annual reports, and other kind of records that are obtained from documents in Commercial Bank of performance of the borrowers in the bank. Hence, the sources of data for the analysis of the determinant of successful loan repayment performance of the financed project are the individual borrower file and financial reports of the borrowers '. According to the researcher specific objectives to identify the determinants of successful loan repayment performance, needs only the past and current status of financed projects. The data has been collected and analyzed for the financed project for the period between 2004/05 to 2008/09 in which the maturity period of the project up to June 2016(Sene 30, 2008).

To collect the primary data closed and open-ended questionnaire would be prepared and distributed to the borrowers and for the secondary source of data the researcher has used the individual project financed appraisal study documents, follow-up report, project audited financial statement and the project recruited manager from the Bank document.

The data was collected using a standard format prepared for the purpose of collecting all the necessary information from the individual file. The format prepared for data collection is taken from different previous similar studies: Aberham (2002), Kibrom (2010), Tinsae (2010) and Muluken (2014).

The collected data mainly include socio economic characteristics such as education, capital adequacy, market availability, Bank supervision, experience of the general manager, Loan utilization for the intended purpose, availability of other source of income other than the project and availability of sufficient infrastructure on loan repayment performance of private borrowers of Commercial Bank of Ethiopia. The dependent variable, Loan Repayment Performance would be measured (NBE Directive No SBB/48/2010) as a dummy, and takes 1 for all private credit borrowers whose loan position is categorized as pass and, and those which did not able to repay their loans, that their loan position is categorized in special mention, doubtful and loss are all categorized as defaulters and taking a value of 0.

3.6. Methods of Data Analysis

The collected data was analyzed by using descriptive statistics, and Econometric analysis methods using software called SPSS version 20.

3.6.1. Descriptive statistics

The descriptive statistics shows the mean of all independent variable with respect to dependent variable. Under this research works the researcher reviewed relationship between the dependent variables with independent variables and the correlation coefficient of the variable to describe the socio economic characteristics of the project borrowers/managers and the institutional factors. This can be used to examine the linear relationship between the explanatory variables to investigate the co linearity problem between variables.

3.6.2. Econometric Data Analysis

The successful loan repayment performance of financed project is measured on payment effected fully in their debt based on the contractual agreement. The financed project borrowers are either fully paid its debt according to the contractual agreement or not. To measure the effect of determinant on loan repayment performance of the borrower, logistics regression analysis model is adopted. The model is selected because successful loan repayment, which is the dependent variable, is binary, taking the value 0 and 1 for defaulter and successful loan repayment respectively. The use of logit regressions considers the simultaneous relationships amongst the multiple numbers of independent and dependent variables found across the regression model. The logit model is chosen from other similar models such as linear probability by its ability to resolve the problem of heteroscedasticity. Again it is chosen from others because it estimates the

probability of owning something (study) as a function of some socioeconomic variables. In the Tobit model, for example, the interest is in finding out the amount he/she spends on the study in relation to socioeconomic variables (Gujarati, 2004, p. 640). Linear Probability Model (LPM) is plagued by several problems such as non-normality and heteroscedasticity of the error term, possibility of the dependent variable laying outside 0-1 range most importantly it assumes that the mean value of the dependent variable is linearly related with the explanatory variable (C.R. Kothari, 2004). That is the marginal effect of the explanatory variable is remaining constant throughout, which seems patently unrealistic (Gujarati, 1995).

3.6.2.1 Specification of the Logit Model

This study would be intend to analyze which and how much the hypothesize regressors would be relate to the loan repayment performance of the borrowers. As already noted, the dependent variable is a dummy variable, which took a value zero or one depending on whether or not a borrower defaulted. However, the independent variables were of both types, that is, continuous or categorical. Probit and logit models are similar and yield essentially identical results.

The probit probability model is associated with the cumulative normal probability function, whereas, the logit model assumes cumulative logistic probability distribution. The advantage of these models over the Linear Probability Model is that the probabilities are bound between 0 and 1. Moreover, they fit best the non-linear relationship between the probabilities of the dependent variable and the explanatory variables, that is one which approaches zero at slower and slower rates as an explanatory variable (X_i) gets smaller and smaller and approaches one at slower and slower rates as X_i gets larger and larger (Chris, 2008).

3.6.2.2 The Purpose of Logistic Regression

The crucial limitation of linear regression is that it cannot deal with dependent variable's that are dichotomous and categorical. Many interesting variables are dichotomous: for example, consumers make a decision to buy or not buy, a product may pass or fail quality control, there are good or poor credit risks, an employee may be promoted or not. A range of regression techniques have been developed for analyzing data with categorical dependent variables, including logistic regression and discriminant analysis.

Logistical regression is regularly used rather than discriminant analysis when there are only two categories of the dependent variable. Logistic regression is also easier to use with SPSS than

discriminant analysis when there is a mixture of numerical and categorical independent variable's, because it includes procedures for generating the necessary dummy variables automatically, requires fewer assumptions, and is more statistically robust. Discriminant analysis strictly requires the continuous independent variables (though dummy variables can be used as in multiple regressions).

Thus, in instances where the independent variables are categorical, or a mix of continuous and categorical, and the dependent variable are categorical, logistic regression is necessary.

Since the dependent variable is dichotomous we cannot predict a numerical value for it using logistic regression, so the usual regression least squares deviations criteria for best fit approach of minimizing error around the line of best fit is inappropriate. Instead, logistic regression employs binomial probability theory in which there are only two values to predict: that probability (p) is 1 rather than 0, i.e. the event/person belongs to one group rather than the other. Logistic regression forms a best fitting equation or function using the maximum likelihood method, which maximizes the probability of classifying the observed data into the appropriate category given the regression coefficients.

Like ordinary regression, logistic regression provides a coefficient 'b', which measures each independent variable's partial contribution to variations in the dependent variable. The goal is to correctly predict the category of outcome for individual cases using the most parsimonious model. To accomplish this goal, a model (i.e. an equation) is created that includes all predictor variables that are useful in predicting the response variable. Variables can, if necessary, be entered into the model in the order specified by the researcher in a stepwise fashion like regression.

3.6.2.3 Assumptions of Logistic Regression

1. Logistic regression does not assume a linear relationship between the dependent and independent variables.
2. The dependent variable must be a dichotomy (2 categories).
3. The independent variables need not be interval, nor normally distributed, nor linearly related, nor of equal variance within each group.
4. The categories (groups) must be mutually exclusive and exhaustive; a case can only be in one group and every case must be a member of one of the groups.

5. Larger samples are needed than for linear regression because maximum likelihood coefficients are large sample estimates. A minimum of 50 cases per predictor is recommended.

Stock and Watson (2006) suggest that the logistic approach was traditionally preferred since the function does not require the evaluation of an integral and thus the model parameters could be estimated faster. Hence, the logistic model is selected for this study. Therefore, the cumulative logistic probability model is econometrically specified as follows:

$$P_i = F(Z_i) = F(\alpha + \sum \beta_i X_i) = \frac{1}{1 + e^{-Z_i}} \dots \dots \dots 1$$

Where, P_i is the probability that an individual will make a certain choice (default or does not default) given X_i

e denotes the base of natural logarithms, which is approximately equal to 2.0718;

X_i represents the i th explanatory variables; and

α and β_i are parameters to be estimated

It is tempting, but incorrect, to state that a 1-unit increase in x_{2i} , for example, causes a $\beta_2\%$ increase in the probability that the outcome corresponding to $y_i = 1$ will be realized. This would have been the correct interpretation for the linear probability model. However, for logit models, this interpretation would be incorrect because the form of the function is not $P_i = \beta_i + \beta_2 x_i + u_i$, for example, but rather $P_i = F(x_{2i})$, where F represents the (non-linear) logistic function. To obtain the required relationship between changes in x_{2i} and P_i , we would need to differentiate F with respect to x_{2i} and it turns out that this derivative is $\beta_2 F(x_{2i})$. So in fact, a 1-unit increase in x_{2i} will cause a $\beta_2 F(x_{2i})$ increase in probability. Usually, these impacts of incremental changes in an explanatory variable are evaluated by setting each of them to their mean values (Chris B., 2008).

Hosmer and Lemeshew (1989) pointed out that the logistic model could be written in terms of the odds and log of odds, which enables one to understand the interpretation of the coefficients.

The odds ratio implies the ratio of the probability (P_i) that an individual would choose an alternative to the probability ($1 - P_i$) that he/she would not choose it.

$$(1-P_i) = \frac{1}{1+e^{z_i}} \dots\dots\dots (2)$$

Therefore,

$$\frac{P_i}{(1-P_i)} = \frac{1+e^{-z_i}}{1+e^{z_i}} = e^{-z_i} \dots\dots\dots (3)$$

Or

$$\frac{P_i}{(1-P_i)} = \frac{(1+e^{-z_i})}{(1+e^{z_i})} = e^{(\alpha + \sum \beta_i X_i)} \dots\dots\dots (4)$$

Taking the natural logarithm of the equation (4)

$$z_i = \ln \left(\frac{P_i}{(1-P_i)} \right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_m X_m \dots\dots\dots (5)$$

If the disturbance term (U_i) is taking into account, the logit model becomes

$$z_i = \alpha + \sum \beta_i X_i + u_i \dots\dots\dots (6)$$

Description of the Dependent variables together with their expected models is given below:

Dependent variable (LR): Was defined as the loan repayment performance of borrowers, which is a dummy variable taking a value one if the borrower is non-defaulter and zero otherwise. The models for loan repayment is

$$LR = \beta_0 + \beta_1 F(AGE) + \beta_2 F(EDU) + \beta_3 F(HHS) + \beta_4 F(LOU) + \beta_5 F(REPPER) + \beta_6 F(OOSINC) + \beta_7 F(EXP) + \beta_8 F(SEC) + \beta_9 F(SUP) + \beta_{10} F(TIME) + U_i$$

Below are given the list of the variables together with their definitions.

LR = Loan Repayment Performance

AGE = Age

1 = 20-30

2 = 30-40

3 = 40-50

4 = >50

$$\beta + \beta_{1F} (AGE) + \beta_{2F} (EDU) + \beta_{3F} (HHS) + \beta_{4F} (LOU) + \beta_{5F} (REPPER) + \beta_{6F} (OOSINC) + \beta_{7F} (EXP) + \beta_{8F} (SEC) + \beta_{9F} (SUP) + \beta_{10F} (TIME) + U_i$$

EDU = Educational level of the borrower

1 = "Illiterate"

2 = "primary education"

3 = "Secondary education"

4 = "Tertiary educations"

5 = "BA/BSc degree holder"

6= Masters and above

HHS = House hold size

A continuous variable

Lou = Loan utilization

0 = no

1 = Yes

REPPER = Repayment period

1 = Medium

2 = Long

OOSINC = other source of income

0 = No

1 = Yes

EXP = Experience (Credit exposure)

A continuous variable

SEC = sector

1 = "agricultural"

2 = "construction"

3 = "hotel"

4 = "others"

SUP = Supervision

A continuous variable

TIME = Timeliness of loan release

0 = no

1 = Yes

E_i = Error term

β_0 = intercept of the model

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9$ and β_{10} = slope of each independent variable and they measure by what extent affect the dependent variable, i.e. loan repayment in this case.

3.7. Operational Definitions of Variables

3.7.1. Definition and Hypothesis of variables:-

The variables of the study which will affect the loan repayment of private borrowers are identified in the literature review of this paper. Among which the major variables are chosen based on the features of the project sector, the conditions in the country and the policy of Commercial Bank of Ethiopia. The selected variables for this paper are Loan repayment, education, financial availability, market availability, Bank supervision, and the associated problems, experience of the general manger, Loan utilization for the indented purpose, and availability of other source of income other than the project financed and Availability of infrastructure.

3.7.2. Dependent (Explained) variable

Successful Loan Repayment (SLR)

It is measured as a dummy variable and have been measured for all the financed project borrowers' that have fully repaid their loans according to the contractual agreement and takes one and zero for the project financed borrowers which could not paid its debt based on their contract.

3.7.3. Independent (Explanatory variables)

Age: - Age of borrowers (measured in years).At younger age, people are likely to be at career stages where higher future incomes are expected. It may also be argued that the growth rate of income increases in the early stage of the earning life cycle but then declines, as one gets older. On the other side, at older age a borrower may acquire stability, may gain a lot of experience in running a business or may feel a sense of more responsibility hence could be positively related to loan recovery. Hence age might have a positive or negative effect on loan repayment rates.

Education (EDU): - Level of education (measured in years of schooling).It is defined as the education status of either the owner or the manager who runs the project. Based on the education status interval the effect of education on the loan repayment of the borrower will be evaluated. It is assumed that as the borrower gets educated, he could acquire more Knowledge so that his efficiency in allocation of resources increases and so does the proper utilization of the loan. His ability to adopt himself to changing situation would be better than the illiterate ones; hence it will

have positive relation with loan repayment. It is also supported by Kibrom (2010), Wondimagegnehu (2012), and Abraham (2012).

Household Size (HHS):- Household size (measured in number of members of family). If the borrower has large household size; a considerable amount of income from the project could be diverted away from loan repayment to household consumption. Therefore, the sign is expected to be negative (borrowers with large family sizes may have lower repayment rates.).

Proper utilization of the Loan (LOU): - It is defined as the utilization of the disbursed loan for the planned action for which the bank is disbursed for the intended purpose. The proper utilization of the loan enables the borrowers to implement the loan timely, to run the project smoothly by having sufficient working capital. Hence the borrowers could be profitable; it will have a capacity to repay their loan. Thus the effect of loan diversion on the loan repayment performance of the bank borrower would be analyzed. It is also supported by Vigano (1993), Wondimagegnehu (2012), Aberham (2012) and Richard (2011).

Repayment Period (REPPER) :- (measured in number of payment within the production period). If it is relaxed, the amount of each installment required to pay will decrease, the debt burden on the borrower will be smaller hence will not face difficulty in properly meeting his debt obligation. Hence, positive sign is expected.

Availability of Other Source of Income (OOSINC): -

It is defined as income derived from other business activities outside the CBE loan. It is measured as a dummy, 1 if the borrower has other source of income and 0 otherwise. Hence the effect of other income of the borrower on the loan repayment performance of the borrower will be investigated. Borrowers with other sources of income may make loan repayment from the proceeds of those jobs. Thus, the borrowers with other sources of income may have higher repayment rates hence, a positive sign is expected. It is also supported by Kibrom (2010), Abraham (2012).

Experience (EXP): - It is a continuous variable measured in numbers of years. Hence the effect of past credit experience of the borrower /manager on the loan repayment performance of the borrower is investigated. Borrowers who acquired an experience in loan getting before could have better repayment record. Thus, a positive sign is expected. It is also supported by Solomon (2010), Wondimagegnehu (2012), Aberham (2012).

Sector (SEC): Loans extended to finance agricultural projects are expected to face loan default problem because they are more exposed to risk and uncertainty relative to other sectors of the economy. Hence, the variable is expected to have positive sign.

It is a dummy variable taking 1 for sectors such as agriculture, 2 for construction, 3 for hotel and 4 others. It is argued that different types of projects have different level of risks hence profitability. Thus, borrowers with different types of projects may have different repayment rates. However it is expected that borrowers who engage in service giving sectors are expected to have successful loan repayment performance, this is because now a days the demand for service giving sectors is highly increasing.

Bank Supervisory project visits (SUP): It is a continuous variable and measured in Number of supervisory project visits of the factory by the bank. Visits by the banks to borrowers will motivate the borrowers to work harder and make sure the loans given to them are not diverted to unintended purposes. Therefore, borrowers who are visited frequently may have higher repayment. It is also supported by Mengistu (1997), Wondimagegnehu (2012).

Timeliness of loan release (TIME): If loan is disbursed in time, it is unlikely that it will be diverted to non-intended purposes. Johnson and Rogaly (1997) noted that timeliness of loan disbursement is important when loans are used for seasonal activities such as agriculture. They argued that complicated appraisal and approval procedures, which might delay disbursement, influence a program of seasonal loans for farmers who use to buy inputs. Further they noted that this could in turn worsen the prospects of repayment by diverting loan to non-intended purpose. In such cases a positive sign is expected.

CHAPTER FOUR

DATA ANALYSIS PRESENTATION AND INTERPRETATION

4. Results and Discussions

This chapter presents the results from the descriptive and econometric analyses. The descriptive analysis made use of tools such as mean, percentage, standard deviation and frequency distribution. In addition, the chi-square test statistics was employed to compare defaulters and non-defaulters group with respect to some explanatory variables. Econometric analysis was carried out to identify the most important factors that affect the loan repayment performance and to measure the relative importance of significant explanatory variables on loan repayment.

4.1 Economic Model Discussions

4.1.1 Model Fit and the Likelihood Function

Just as in linear regression, we are trying to find a best fitting line of sorts but, because the values of Y can only range between 0 and 1, we cannot use the least squares approach. The maximum likelihood is used instead to find the function that will maximize our ability to predict the probability of Y based on what we know about X. In other words, maximum likelihood finds the best values for formula. Likelihood just means probability. It always means probability *under a specified hypothesis*. In logistic regression, two hypotheses are of interest: the null hypothesis, which is when all the coefficients in the regression equation take the value zero, and the alternate hypothesis that the model with predictors currently under consideration is accurate and differs significantly from the null of zero, i.e. gives significantly better than the chance or random prediction level of the null hypothesis. We then work out the likelihood of observing the data we actually did observe under each of these hypotheses. The result is usually a very small number, and to make it easier to handle, the natural logarithm is used, producing log *likelihood*. Probabilities are always less than one, so log likelihood's are always negative. Log likelihood is the basis for tests of a logistic model.

The likelihood ratio test is based on $-2\log$ likelihood ratio. It is a test of the significance of the difference between the likelihood ratio ($-2\log$ likelihood) for the researcher's model with predictors (called model chi square) minus the likelihood ratio for baseline model with only a

constant in it. Significance at the .05 level or lower means the researcher's model with the predictors is significantly different from the one with the constant only (all 'b' coefficients being zero). It measures the improvement in fit that the explanatory variables make compared to the null model. Chi square is used to assess significance of this ratio. When probability fails to reach the 5% significance level, we retain the null hypothesis that knowing the independent variables (predictors) has no increased effects (i.e. make no difference) in predicting the dependent.

Block 0

Table 4.1 Predicted and Observed

Observed			Predicted		
			What is the recent loan repayment status?		Percentage Correct
			Repayment on schedule & Reptyt in arrears(Not successful)	Fully repaid(Successful)	
Step 0	What is the recent loan repayment status?	Special mention, substandard & Doubt full (Not successful)	0	25	0.0
		Pass Loan(Successful)	0	75	100.0
Overall Percentage					75.0

Source: SPSS Result

Block 0: Beginning Block. Block 0 presents the results with only the constant included before any coefficients (i.e. successful and not successful) are entered into the equation. Logistic regression compares this model with a model including all the predictors to determine whether the latter model is more appropriate.

This table tells how the results of the analysis without any of the independent variables used in the model. This will serve as a baseline later for comparing the model with our predictor variables included.

In this classification table, the overall percentage of correctly classified cases is 75 percent. In this case, SPSS classified (guessed) that all cases would have fully repaid (only because there was a higher percentage of people answering yes for fully repayment). Later when the set of predictor variables is entered, the researcher will be able to improve the accuracy of these predictions.

Block 1: Method = Enter

Table 4.2 Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
	Step	24.583	10	.006
	Block	24.583	10	.006
	Model	24.583	10	.006

Source: SPSS Result

When skip down to the next section, headed Block 1, it tells how the model (set of predictor variables) is tested.

This presents the results when the predictors ‘*successful*’ and ‘not successful’ are included. Later SPSS prints a classification table which shows how the classification error rate has changed from the original 75.0%. By adding the variables we can now predict with 83% accuracy (see Classification Table). The model appears good, but we need to evaluate model fit and significance as well. SPSS will offer you a variety of statistical tests for model fit and whether each of the independent variables included make a significant contribution to the model.

The omnibus Tests of Model Coefficients gives an overall indication of how well the model performs, over and above the results obtained for Block 0, with none of the predictors entered into the model. This is referred to as a ‘goodness of fit’ test.

Model chi-square-The overall significance is tested using what SPSS calls the *Model Chi square*, which is derived from the likelihood of observing the actual data under the assumption that the model that has been fitted is accurate. There are two hypotheses to test in relation to the overall fit of the model:

H0: The model is a good fitting model.

H1: The model is not a good fitting model (i.e. the predictors have a significant effect).

The difference between $-2\log$ likelihood for the best-fitting model and $-2\log$ likelihood for the null hypothesis model (in which all the b values are set to zero in block 0) is distributed like chi squared, with degrees of freedom equal to the number of predictors; this difference is the *Model chi square* that SPSS refers to. Very conveniently, the difference between $-2\log$ likelihood values for models with successive terms added also has a chi squared distribution, so when we use a stepwise procedure, we can use chi-squared tests to find out if adding one or more extra predictors significantly improves the fit of our model. The $-2\log$ likelihood value from the Model Summary table below is 87.884.

For this set of results, we want a highly significant value (the sig. value should be less than .05). In this case, the value is .006(which really means $p < .05$). Therefore, the model is better than SPSS's original guess shown in Block 0, which assumed that everyone would report, fully-repaid their loan current status. The chi-square value, which will need to report in the result, is 24.583 with 10 degrees of freedom.

Table 4.3 Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	10.250	8	.248

Source: SPSS Result

If the *H-L goodness-of-fit test statistic* is greater than .05, as we want for well-fitting models, we fail to reject the null hypothesis that there is no difference between observed and model-predicted values, implying that the model's estimates fit the data at an acceptable level. That is, well-fitting models show non-significance on the *H-L goodness-of-fit test*. This desirable

outcome of non-significance indicates that the model prediction does not significantly differ from the observed.

The results shown in the table headed Hosmer and Lemeshow Test also supports our model as being worthwhile. This test, which SPSS states is the most reliable test of model fit available in SPSS. For the Goodness of Fit test, poor test is indicated by a significance value less than .05, so to support the model the researcher want a value greater than .05. In the result the chi-square value for the Hosmer-Lemeshow test is 10.250 with a significant level of .248. This value is larger than .05, therefore indicating support for the model.

Table 4.4 Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	87.884 ^a	.318	.583
a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.			

Source: SPSS Result

The above table of Model summary gives us another piece of information about the usefulness of the model. The Cox & Snell R square and the Nagelkerke R square values provide an indication of the amount of variation in the dependent variable explained by the model (from a minimum value of 0 to a maximum of approximately 1). These are described as pseudo R square statistics, rather than the true R square values. In this case the two values are .318 and .583, suggesting that between 31.8 percent and 58.3 percent of the variability is explained by this set of variables.

Table 4.5 Classification Table

Observed			Predicted		
			What is the recent loan repayment status?		Percentage Correct
			Repayment on schedule & Rept in arrears(Not successful)	Fully repaid(Successful)	
Step 1	What is the recent loan repayment status?	Special mention, substandard & Doubt full (Not successful)	13	12	52.0
		Pass Loan(Successful)	5	70	93.3
Overall Percentage					83.0

Source: SPSS Result

The above classification table, an indication of how well the model is able to predict the category (successful or not successful payer) for each case. The model correctly classified 83 percent of cases overall (sometimes referred to as the percentage accuracy in classification: PAC), an improvement over the 75 percent in Block 0.

The sensitivity of the model is the percentage of the group that has the characteristic of interest (full repaid) that has been accurately identified by the model (the true positives).

The positive predictive value is the percentage of cases that the model classifies as having the characteristics that is actually observed in the group. To calculate this ($5 + 70 = 75$ then $70/75 = 83. \%$).

Table 4.6 Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
VARAGE	.034	.387	.008	1	.931	1.034	.485	2.206
VAREDU	1.241	.434	8.183	1	.004	3.457	1.478	8.089
VAREXP	-.042	.286	.021	1	.885	.959	.548	1.680
VARHHS	-.204	.227	.808	1	.369	.815	.522	1.273
VARLOU	1.606	.779	4.253	1	.039	4.982	1.083	22.918
VAROOSINC	1.109	.560	3.928	1	.047	3.033	1.012	9.086
VARREPPER	.420	.589	.509	1	.475	1.522	.480	4.826
VARSEC	-.096	.190	.258	1	.611	.908	.626	1.317
VARSUP	.915	.377	5.877	1	.015	.401	.191	.839
VARTIME	1.216	.615	3.905	1	.048	3.372	1.010	11.260
Constant	-2.735	1.935	1.999	1	.157	.065		

a. Variable(s) entered on step 1: VARAGE, VAREDU, VAREXP, VARHHS, VARLOU, VAROOSINC, VARREPPER, VARSEC, VARSUP, and VARTIME.

The variable in the Equation table gives information about the contribution or importance of each of our predictor variables. This test that is used here is known as the Wald test, and you will see the value of the statistic for each predictor in the column labeled Wald. Scan down the column labeled sig. looking for values less than .05. These are the variables that contribute significantly to the predictive ability of the model.

The B values provided in the second column are equivalent to the B values obtained in a multiple regression analysis. These are the values that used in an equation to calculate the probability of a case falling into a specific category. Here attention is given whether the B value is positive or

negative. This tells the direction of the relationship (which factors increase the likelihood of a yes answer and which factors decrease it).

The other useful piece of information in the variables in the Equation table is provided in the Exp (B) column. These values are the odds ratios (OR) for each of your independent variables. According to Tabachnick and Fidell (2007), the odds ratio represents the change in odds of being in one of the categories of outcome when the value of a predictor increases by one unit (p. 461). In this case the odds of loan utilization saying yes is 4.98 times higher for someone who reports having not fully repaid, all other factors being equal.

In this result the confidence interval for the variable (OR = 4.98) ranges from 1.083 to 22.918. So, although the calculated OR as 4.98, the researcher can be 95 percent confident that the actual value of OR in the population lies somewhere between 1.08 and 22.92, quite a wide range of values with a statistically significant value of $p < .05$.

For odds ratios less than 1, it must be inverted (1 divided by the value). In this case $1/0.191 = 5.23$. This suggests that for each payment fails to pay a person gets the odds of not successful payer increases by a factor of 5.23.

4.1.2 Multi-collinearity

We say that there is multi-collinearity problem in an equation when there is correlation between variables employed in the regression model (when the assumption that $cov(x_1, x_2) = 0$ is violated). That is the existence of a "perfect" or exact linear relationship among some or all explanatory variables of a regression model (Gujarati, 1995). The inter correlation between the two variables can be measured by the partial correlation coefficient between one variable with another variable. As a rule of thumb, if the correlation coefficient between the two variables is greater than 0.8, one can conclude that there is a serious problem of multi-collinearity.

Accordingly, the test result shows that the correlation coefficient between all variables under consideration is less than 0.8 implying that the explanatory variables can separately contribute to the variation in the dependent variable. The table below clearly tells how there is no multi-collinearity in the model (results).

Table 4.7 Multi-collinearity-Tolerance and VIF

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	.088	.300		.295	.769	-.508	.685		
age of the borrower	.018	.058	.031	.315	.753	-.098	.134	.898	1.113
educational background of the borrower	.171	.057	.295	2.990	.004	.057	.284	.900	1.111
How many times did you take loan from CBE?	-.010	.043	-.024	-.243	.808	-.095	.075	.908	1.101
house hold size of the borrower	-.019	.031	-.061	-.615	.540	-.080	.042	.881	1.136
Did you use the entire loan for the intended purposefully	.230	.117	.195	1.967	.047	-.002	.462	.894	1.118
Do you have other sources of income before joining the program loan?	.179	.084	.205	2.131	.036	.012	.346	.948	1.055
What is the repayment	.058	.089	.065	.655	.514	-.118	.234	.875	1.143

period of the loan									
Type of Activity	-.023	.033	-.068	-.689	.493	-.087	.042	.906	1.104
How many times were you supervised?	-.135	.055	-.239	- 2.425	.017	-.245	-.024	.897	1.115
Did the borrower get the loan at the right time?	.169	.087	.189	1.945	.050	-.004	.341	.924	1.083

Source: SPSS Result

As we observe from the table of spss result the Tolerance value greater than 0.1 and the VIF value is less than 10. This tells us how there is no multicollinearity problem in the model.

Multi-collinearity problem arises when at least one of the independent variables is a linear combination of the others. The existence of multi-collinearity might cause the estimated regression coefficients to have the wrong signs and smaller t-ratios that might lead to wrong conclusions. Two measures are often suggested to test the presence of multi-collinearity. These are Variance Inflation Factor (VIF) for association among the continuous explanatory variables and contingency coefficients for dummy variables (Gujarati, 2003).

The VIF values displayed in the table above shows that all the continuous explanatory variables have no serious multi-collinearity problem. Similarly, contingency coefficients were computed for dummy variables.

4.2 Demand side of the Borrower vs. Successful Loan Repayment

4.2.1 Age

Age is one of the independent variables related with borrower's characteristics and expected to determine successful loan repayment performance of the borrowers. It is a categorical variable measured by years. Hence the minimum age of the sample borrowers as depicted on table 4.1 under special mention and doubtful loan and normal payment is b/n 20 and 30, and the maximum age which indicated above is 50 years. In addition, the mean age of the sample borrowers is 3.06 which indicated between 40 and 50 years. The percentage for the age under the table indicates 24%, 46% and 30% for the three age payer classification respectively. From the table result it can be conclude that most of the borrower exists in the age between 40-50.

This indicates that older households may accumulate more wealth than younger ones and through time household heads acquire experience in the business and/or credit use. Moreover, older borrowers may accumulate more wealth than younger ones.

Table 4.8 Age of the borrower

Source: Computed based on survey 2017.

		Result	Percentage /Total	Pass or Normal Loan /Percent	Special mention & Doubtful Loan Percent	Cumulative Percent	Std. Error	95% Confidence Interval	
								Lower	Upper
Valid	30-40		24	17	7	24	4.3	14.7	33.0
	40-50		46	35	11	46	5.7	35.7	57.0
	>=50		30	23	7	30	4.8	20.7	40.5
	Total		100	75	25	100	0.0	100.0	100.0
Mean		3.06		3.08	3		.07	2.94	3.21
Median		3.00					0.00	3.00	3.00
Std. Deviation		.736					.040	.645	.804
Minimum		2		2	2				
Maximum		4		4	4				

4.2.2 Education Status of the Borrowers

The loan repayment performance of the borrowers relative to their educational level as shown below table 4.2 summarizes the educational status of the borrowers, from primary up to tertiary education. The result revealed that, of all the borrowers, 44% were secondary level educated, and 29% and 27% were primary and secondary level educated.

The minimum and maximum educational levels for the normal and special mention/Doubtful borrowers were 2 and 4, which means secondary and tertiary education level.

From this table result we can conclude that most successful loan payer exists under secondary educational level.

Table 4.9 Educational background of the Borrower

		Result	Percentage /Total	Pass or Normal Loan /Percent	Special mention & Doubtful Loan Percent	Cumulative Percent			
							Std. Error	95% Confidence Interval	
								Lower	Upper
Valid	primary education		29	18	11	29	4.8	18.0	36.0
	Secondary education		44	33	11	44	5.2	34.7	55.3
	Tertiary educations		27	24	3	27	4.5	19.0	36.0
	Total		100	75	25	100	0.0	100.0	100.0
Mean		2.98		3.08	2.68		.08	2.85	3.14
Median		3.00					0.00	3.00	3.00
Std. Deviation		.752					.036	.665	.812
Minimum		2		2	2				
Maximum		4		4	4				

Source: Computed based on survey 2017

4.2.3 Experience (Credit exposure or past credit History)

Experience is crucial element for the success of business project running. According to the results of this study, the average experience of the borrowers for the two classifications was about 2. The minimum and maximum credit experience was the same for the two types of the loan classification; zero and 4 for respectively. And the mean were 1.59 & 1.52 which approaches to two times. Regarding the percentage, the highest percentage of the borrowers were 36% for one times credit experience and 31% for two times. From this it can be concluded that most borrowers has a credit exposure of more than one times.

Table 4.10 How many times did you take loan from CBE?

	Results	Percentage /Total	Pass or Normal Loan /Percent	Special mention & Doubtful Loan Percent	Cumulative Percent	Std. Error	95% Confidence Interval	
							Lower	Upper
							Valid	0
	1	36	29	7	36	5.2	27.0	46.3
	2	31	23	8	31	4.8	21.0	39.0
	3	17	12	5	17	4.3	9.7	25.5
	4	2	2		2	1.4	0.0	6.0
	Total	100	75		100	0.0	100.0	100.0
Mean	1.57		1.59	1.52		.11	1.30	1.77
Median	1.50					.48	1.00	2.00
Std. Deviation	.998					.060	.866	1.119
Minimum	0		0	0				
Maximum	4		4	3				

Source: Computed based on survey 2017.

4.2.4 Household Size

Regarding the household size of the borrower's characteristics, out of the 100 sample borrowers, as depicted on table 5.4, the minimum and maximum household size of the borrowers is 2 and 8. The average house hold sizes for the borrowers are 5. This result indicates most successful payer have more than two house hold sizes. Therefore, the larger the family members, the more the labor force available for production purpose. Therefore, there is a possibility to have more alternative sources of income to overcome credit risks and ability to repay the loan amount.

Table 4.11 House hold size of the Borrower

	Result	Percentage /Total	Pass or Normal Loan /Percent	Special mention & Doubtful Loan Percent	Cumulative Percent	95% Confidence Interval		
						Std. Error	Lower	Upper
Valid	2	1	1		1	.9	0.0	3.0
	3	9	7	2	9	3.0	4.0	15.0
	4	27	21	6	27	4.1	20.0	36.0
	5	23	16	7	23	4.0	14.7	32.5
	6	21	15	6	21	3.4	14.0	28.3
	7	13	10	3	13	3.6	6.0	21.3
	8	6	5	1	6	2.3	1.0	11.0
	Total	100	75	25	100	0.0	100.0	100.0
Mean	5.17		5.8	5.20		.14	4.88	5.48
Median	5.00					.17	5.00	6.00
Std. Deviation	1.407					.080	1.209	1.536
Minimum	2	4	4	3				
Maximum	8	8	8	8				

Source: Computed based on survey 2017

4.2.5 Loan Utilization

The loan utilization trend of the borrowers indicates that the unsuccessful borrower utilizes 76% and the successful borrower utilizes 87%. From this what we observe is the borrower who used the loan properly can pay his loan. Based on the respondents answer it can be concluded that the loan due to this their concentration is on loan utilization in the most effective and efficient manner. Furthermore because of the weak loan utilization, they are forced to take a lesser amount of loan which makes it difficult to run the intended business with that amount of loan they get from the bank.

Table 4.12 Did you use the entire loan for the intended purposefully?

		Result	Percentage /Total	Pass or Normal Loan /Percent	Special mention & Doubtful Loan Percent	Cumulative Percent			
							Std. Error	95% Confidence Interval	
								Lower	Upper
Valid	no		16	10	6	16	3.4	9.7	23.8
	yes		84	65	19	84	3.4	76.2	90.3
	Total		100	75	25	100	0.0	100.0	100.0
Mean		.84		0.87	0.76		.03	.76	.90
Median		1.00					0.00	1.00	1.00
Std. Deviation		.368					.033	.298	.428
Minimum		0		0	0				
Maximum		1		1	1				

Source: Computed based on survey 2017

4.2.6 Availability of Other Source of Income

According to the survey result shown on table 5.4 borrowers with other source of income out of the project are 57% of the total sample borrowers and 43% of them are no other income. Regarding their repayment performance, 57 % of sample borrowers who have other source of income repay their loan successfully and the mean was 0.57 which indicated most borrowers has other income source than the project income.

From the normal payer 48% is has other income source but for doubtful payer 9% has only other income. From this it can be concluded that the borrower who has other income other than the project has an ability to pay the borrowed loan amount, in this case 48% for the normal payer.

Table 4.13 Do you have other sources of income before joining the program loan?

		Result	Percentage /Total	Pass or Normal Loan /Percent	Special mention & Doubtful Loan Percent	Cumulative Percent	95% Confidence Interval		
							Std. Error	Lower	Upper
Valid	no		43	27	16	43	4.7	33.7	53.3
	yes		57	48	9	57	4.7	46.7	66.3
	Total		100	75	25	100	0.0	100.0	100.0
Mean		.57		0.64	0.36		.05	.47	.66
Median		1.00					.28	0.00	1.00
Std. Deviation		.498					.007	.475	.502
Minimum		0		0	0				
Maximum		1		1	1				

Source: Computed based on survey 2017

4.2.7 Repayment Period

The study result indicated that 61 of borrowers are a long term borrower. And 36% borrowers are medium borrowers. From this we can conclude that most the borrowers are a long term period borrowers. Out the 100 samples, 61 borrowers are the long term borrowers which are more than 10 years. Regarding the percentage 30% & 45% were medium and long term borrower. Under normal payer; 9% and 16% for doubtful payer.

Table 4.14 What is the repayment period of the loan

		Result	Percentage /Total	Pass or Normal Loan /Percent	Special mention & Doubtful Loan Percent	Cumulative Percent	95% Confidence Interval		
							Std. Error	Lower	Upper
Valid	medium		39	30	9	39	5.5	29.5	52.1
	long		61	45	16	61	5.5	47.9	70.5
	Total		100	75	25	100	0.0	100.0	100.0
Mean		.61		0.60	0.64		.05	.48	.71
Median		1.00					.20	0.00	1.00
Std. Deviation		.490					.012	.458	.502
Minimum		0		0	0				
Maximum		1		1	1				

Source: Computed based on survey 2017

4.2.8 Type of Activity (sector)

As shown on table 5.3, the percentage of sample borrowers who invest in agriculture, construction and hotel sectors is 60%, 20% and 19%. In addition, the loan repayment performance of the borrowers shows that 60 % of the borrowers who invest in the agricultural, 20% & 19% in construction sectors repay their loan successfully. Here 38% and 21% of the borrower were construction and agricultural borrower under pass/normal payer; and 15% & 6% were for the doubtful payer.

Table 4.15 Type of Activity

		Result	Percentage /Total	Pass or Normal Loan /Percent	Special mention & Doubtful Loan Percent	Cumulative Percent	Bootstrap for Percent			
							Bias	Std. Error	95% Confidence Interval	
									Lower	Upper
Valid	Agricultural		60	21	15	70	-.3	5.2	47.2	70.0
	construction		20	38	6	20	.5	4.1	13.0	29.3
	hotel		19	16	3	19	-.1	4.0	10.5	27.0
	Others		1		1	1	-.1	1.0	0.0	3.0
	Total		100	75	25	100	0.0	0.0	100.0	100.0
Mean		1.69		1.61	1.92			.13	1.47	1.94
Median		1.00						.22	1.00	2.00
Std. Deviation		1.308						.409	.717	1.952
Minimum		1		1	1					
Maximum		12		3	3					

Source: Computed based on survey 2017

4.2.9 Number of follow ups by the Bank

The study result indicated that, on average, the bank supervised the projects one times during the entire project life with minimum and maximum of zero times and three times respectively. From the result we see that for the supervision highly get would pay the loan. Out of this total supervision the average supervision of the borrower's project is one. And 32% of the borrowers under pass loan were supervised one times and 11% for the doubtful loan. Here the result indicates the borrower who has supervised could pay the borrowed loan amount than the unsupervised.

Table 4.16 How many times were you supervised?

		Result	Percentage /Total	Pass or Normal Loan /Percent	Special mention & Doubtful Loan Percent	Cumulative Percent	Bootstrap for Percent			
							Bias	Std. Error	95% Confidence Interval	
									Lower	Upper
Valid	0		25	22	3	25	.1	4.5	16.7	35.0
	1		43	32	11	43	.0	4.9	34.0	54.0
	2		31	21	10	31	-.2	4.4	21.5	39.3
	3		1	-	1	1	.1	1.1	0.0	3.3
	Total		100	75	25	100	0.0	0.0	100.0	100.0
Mean		1.08		.99	1.36			.08	.93	1.22
Median		1.00						0.00	1.00	1.00
Std. Deviation		.774						.039	.694	.832
Minimum		0		0	0					
Maximum		3		2	3					

Source: Computed based on survey 2017.

4.2.10 Timeliness of the Loan Released

As shown in the table below 62% of the successful borrowers do not get the loan at the right time. This will enforce them to enter into default. And also 38% of the borrowers get the loan at the right time. The mean (Average) loan released time is less than 0.38. It means that most of the borrower doesn't get the loan at the right time. It creates unconditional for the borrower whether they are in agricultural, construction or hotel sectors.

Table 4.17 Did the borrower get the loan at the right time?

		Percentage /Total	Pass or Normal Loan /Percent	Special mention & Doubtful Loan Percent	Cumulative Percent	Bootstrap for Percent			
						Bias	Std. Error	95% Confidence Interval	
								Lower	Upper
Valid	no	62	44	18	62	-.1	5.2	50.7	72.3
	yes	38	31	7	38	.1	5.2	27.7	49.3
	Total	100	75	25	100	0.0	0.0	100.0	100.0
Mean		.38	0.41	0.28			.05	.28	.49
Median		0.00					.11	0.00	.13
Std. Deviation		.488					.013	.450	.502
Minimum		0	0	0					
Maximum		1	1	1					

Source: Computed based on survey 2017.

4.3 Presenting the results from Logistic Regression

The results of this procedure could be presented as follows.

Direct logistic regression was performed to assess the impact of factors on the likelihood that respondents would report that they had a problem with their sleep. The model contained ten independent variables (age, education, credit exposure or experience, household size, loan utilization, other source of income, repayment period, sector, supervision and timeliness). The full model containing all predictors was significant, $\chi^2(10, N= 100) = 24.53$ $p < 0.05$, indicating that the model was able to distinguish between respondents who reported full and not full payment. The model as a whole explained between 31.8% (Cox and Snell R square) and 58.3% (Nagkere R squared) of the variance in full payment status and correctly classified 83% of cases.

As shown in the table below, only five of the independent variables made a unique statistically significant contribution to the model (education, loan utilization, other source of income, supervision and timeliness). The strongest predictor of reporting a not-full payer problem was difficulty staying not paying, recording an odds ratio of 4.98. This indicated that respondents who had difficulty staying in not paying regularly were over 4 times more likely to report in regular payment delay, controlling for all other factors in the model. The odds ratio of .191 for periodic payment (quarterly or yearly) per payment was less than 1, indicating that for every additional loan regular payment per period respondents were .191 times likely to report having a payment problem, controlling for other factors in the model.

Table 4.18 Logistic Regression predicting Likelihood of Report a not successful payer

Variables							95 % C.I.for Exp(B)	
	B	S.E	WALD	df	p	odds Ratio	Lower	Upper
VARAGE	0.034	0.387	0.008	1	0.931	1.034	0.485	2.206
VAREDU	1.241	0.434	8.183	1	0.004	3.457	1.478	8.089
VAREXP	- 0.042	0.286	0.021	1	0.885	0.959	0.548	1.68
VARHHS	- 0.204	0.227	0.808	1	0.369	0.815	0.522	1.273
VARLOU	1.606	0.779	4.253	1	0.039	4.982	1.083	22.918
VAROOSINC	1.109	0.56	3.928	1	0.047	3.033	1.012	9.086
VARREPPER	0.42	0.589	0.509	1	0.475	1.522	0.48	4.826
VARSEC	- 0.096	0.19	0.258	1	0.611	0.908	0.626	1.317
VARSUP	0.915	0.377	5.877	1	0.015	0.401	0.191	0.839
VARTIME	1.216	0.615	3.905	1	0.048	3.372	1.01	11.26
Constant	- 2.735	1.935	1.999	1	0.157	0.065		

Source: SPSS Result

4.3.1 Estimation Results

4.3.1 Logit Model Estimation Results

The logit result obtained using SPSS version 20 is given in table below.

Table 4.19 Logit model estimates of the determinants of successful loan repayment performance.

Variables							95 % C.I.for Exp(B)	
	B	S.E	WALD	df	p	odds Ratio	Lower	Upper
VARAGE	0.034	0.387	0.008	1	0.931	1.034	0.485	2.206
VAREDU	1.241	0.434	8.183	1	0.004	3.457	1.478	8.089
VAREXP	- 0.042	0.286	0.021	1	0.885	0.959	0.548	1.68
VARHHS	- 0.204	0.227	0.808	1	0.369	0.815	0.522	1.273
VARLOU	1.606	0.779	4.253	1	0.039	4.982	1.083	22.918
VAROOSINC	1.109	0.56	3.928	1	0.047	3.033	1.012	9.086
VARREPPER	0.42	0.589	0.509	1	0.475	1.522	0.48	4.826
VARSEC	- 0.096	0.19	0.258	1	0.611	0.908	0.626	1.317
VARSUP	0.915	0.377	5.877	1	0.015	0.401	0.191	0.839
VARTIME	1.216	0.615	3.905	1	0.048	3.372	1.01	11.26
Constant	- 2.735	1.935	1.999	1	0.157	0.065		

Source: SPSS Result

Out of the ten variables hypothesized to influence the loan repayment performance of the borrowers, five were found to be statistically significant. The maximum likelihood estimates of the logit regression model shows that education level, number of supervisions/ follow-ups by the bank, education, proper loan utilization, and other source of income and timeliness of loan released were important factors in determining the loan repayment performance of the borrowers. On the other hand, the other five explanatory variables, namely age, credit experience, house hold size repayment period and sector of the activity were less powerful in explaining the loan repayment performance of CBE's (Jimma District) borrowers.

4.3.1.1 Education

The variable education (educ) has a positive sign as expected and is statistically highly significant at 5% as shown on table 5.6. The result indicates that as the borrower reaches in secondary level of education, his/her capacity to repay his/her loan successfully will increase. This result is similar with the results by (Jemal, 2003) and (Abraham 2002) in Oromia Region. The result of the logit model shows that education level of the borrower has significant and positive effect on ability to repay their loan. It might be because of the fact that borrowers, who have higher education level, could find better market for their products, they could be cost conscious that is economical usage of resources (efficiency in allocation of resources increases and so does the proper utilization of the loan), their ability to adopt themselves to changing situation they could be able to coordinate the activities well, they will and they may have future investment plan working with the bank. These and other reasons make the borrowers who have a higher education status to have a good repayment performance. Increasing education level of a credit borrower by one level has the effect of increasing the probability of able to repay the loan by 1.241. This implies that a borrower will likely have greater loan repayment ability when he or she has a higher educational level and vice versa. This also confirms the results of Wongnaa and Awunyo (2013), Abraham (2002) and Muluken (2014).

4.3.1.2 FOLLOW UP

The Number of follow-up/supervisory visit is an important institutional factor, which is positively related to the borrower's ability to repay their loans and is significant at 5% probability level. Increasing the number of supervisory visits by one will increase the probability of a borrower able to repay the loan by .915. This means that the more the bank visits the borrowers, the better borrowers' repayment abilities and vice versa. In other words, this implies the borrowers with more accesses to technical assistance and guidance the activities during the visit were able to repay their loan as promised than those who had less or no visiting at all. The reason for this is that borrowers who have frequent contact with the bank's professionals are better informed about markets and production technologies as well as bank's rule and regulation on repayment of loan. This will motivate borrowers to work harder and there will be less probability of diverting the loans to unintended purpose. This is in line with the results of

Wongnaa and Awunyo (2013), Fantahun (2000) and Muluken (2014) have also reported the positive effect of this variable on loan repayment.

4.3.1.3 Loan Utilization

Another variable that adversely and significantly influence loan recovery rate is loan diversion. Borrowers who diverted the loan other than the intended purpose are found to be defaulters. The proper utilization of the disbursed loan for the intended purpose is an important institutional factor, which is positively related to the borrower's ability to repay their loans.

On the other hand loan diversion negatively affects the loan repayment performance of borrower significant at 5% probability level. This implies that the activities to which the loan was diverted are either non-productive ones or generate income less than what if it was properly utilized. In other words the loan diversion is mostly to less productive activities than the project under consideration. This result complies with the result obtained by Vigano (1993), Njoku and Odii (1991) and Okorie (1986) and Aberham (2012).

4.3.1.4 Other Source of Income

The association between other income and loan recovery rate is positive and significant indicating that borrowers who have other alternative source of income are found to be better payers relative to those for whom the project is the sole income source. This implies that income from the projects under consideration alone couldn't be able to properly meet their debt obligation. This somehow reflects the projects' limited financial capacity as one constraint behind their loan default problem. For a discrete change in dummy variable from 0 to 1, the loan recovery rate increases by 1.109 while the probability of default also decreases. This result supports the hypothesis and complies with result obtained on the descriptive analysis. Similar result was also obtained by Chirwa (1997) on agricultural credit repayment in Malawi.

4.3.1.5 Timeliness of Loan Release

The association between timeliness of loan release and loan repayment is positive and significant indicating that borrowers who got the loan at the right time found to be better payers relative to those for whom the loan release delayed. This implies that the loan released with a delayed time couldn't be able to properly meet their debt obligation. This means that the more the borrowers get the loan at the right time, the better borrowers' repayment abilities and vice versa.

Increasing the time of the loan by one will increase the probability of a borrower able to repay the loan by 1.216.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

Provision of credit only could not support the economic development of the country unless an effective monitoring and evaluation system is put in place to ensure efficient and effective utilization of the fund/credit for the intended purpose. More importantly, the Bank must ensure in advance that the loan will be repaid timely in accordance with the terms and conditions stipulated in the contractual agreement. In this study attempt was made to look into the factors that affect the loan repayment performance of borrowers of CBE Jimma District and to evaluate the loan rationing mechanism used by the institution.

To identify the determinants of successful loan repayment performance of borrowers a logit model is estimated. The logit model describes that educational level of the borrowers; utilization of loan, availability of other source of income; supervision and timeliness of loan release determine successful loan repayment performance of the borrowers positively and significantly.

In the study both primary and secondary data were used. The primary data is collected from 100 borrowers. The sample borrowers were asked using questionnaire. These questions are related to the demand side of the borrowers (such as age of the borrower, educational background of the borrower, experience of credit, household size of the borrower, loan utilization, availability of other source of income, repayment period and sector,). The second types of questions are related with the organizations work, which include supervision and timeliness of loan released.

The survey result reveals that age of the borrowers ranges from a minimum of 20 and above 50 years. The household size of the borrowers ranges from 2-8. The experience of the borrowers on credit exposure ranges from one to three times. The educational background of the borrowers reveals that 44% of them are in the secondary educational level and the rest 29% and 27% are primary and tertiary level. Regarding the availability of other source of income some of them, respond that they have other source of income and majority of them respond that they do not have other source of income. Regarding the sectors in which the borrowers engaged majority of them are in agriculture and construction.

Regarding the loan characteristics majority of the borrowers take a loan to be paid within five years and small proportion of the borrowers take loan to be paid with in short and long

repayment period. In addition, majority of the borrowers use the loan for fixed investment and small portion of the borrowers use the loan for working capital and for the combination of both working capital and fixed investment.

Both descriptive statistics and econometric analysis were carried out to accomplish the above-mentioned tasks.

The descriptive statistics show that 25 % of the respondents are defaulters. All of the respondents are literate; 44% and 27% of the borrowers are secondary and tertiary school. Regarding loan utilization 16.1% of the respondents have violated loan agreement, their main reasons being inconsistency of the agreement is the loan amount was not enough for the intended purpose and to repay another loan.

Factors that are found to be significant determinants of loan repayment performance were level of education, loan utilization, and other source of income, supervision and timeliness of loan released. All of these factors increase the probability of loan repayment. Even though they are insignificant, age, experience, household size, repayment period and sector reduce the loan repayment performance. These findings tally with those in the descriptive statistics mentioned above with the exception of loan size. Similar results were obtained regarding age, loan diversion and supervision in Berhanu (1999) and Mengistu (1997), while that of education and income is same in Abrham (2002), Reta (2000), Berhanu (1999) and Mengistu (1997).

Data and information for the study were collected from 100 files of individual borrowers at CBE Jimma District. The study shows that 75 (75%) of the financed project were successful projects (non-defaulters), whereas the rest 25 (25%) were non-successful ones (defaulters).

5.2 Conclusions

Based on the major findings of this study, the following conclusions could be drawn along with some policy implications to be brought to the attention of the institution and any other interested parties.

Generally the evidences in the study reveal that the overall repayment performance of the borrowers and the screening technique, which the institution follows to ration loan to its clients, were found to be sound.

This study is carried out to identify the determinants of loan repayment performance of CBE's borrowers, Jimma District. To investigate the thesis a logistic regression was used. The Hosmer and Lemeshow Test shows that five out of 10 predicted influencing factors were statistically significant with a (Chi-Square = 24.583, P-Value = 0.006, 10 degrees of freedom).

The study specifically identified critical factors and estimated the relative importance of factors in improving loan repayment performance of the borrowers. The result shows that among the ten explanatory variables, which were hypothesized to influence loan repayment performance among the borrowers, five explanatory variables namely education level, loan utilization, other source of income, bank supervision and timeliness of loan release statistically significant. Which means any increase (decrease) on the value of these variables leads to an increase (decrease) on repayment performance of Commercial Bank of Ethiopia. While the remaining age, experience, house hold size, repayment period and sectors were less powerful in explaining the variation in the dependent variable. The model result reveals that there is no contrary sign from priori hypothesized among the significant explanatory variables. Education level is one of the factors which have positive and significant influence on loan repayment performance of the borrowers of CBE. This implies that a borrower will likely have greater loan repayment ability when he or she has a higher educational level. The model result shows that number of follow-up/supervision has a significant positive influence on the loan repayment performance of CBE's borrowers. This is due to the fact that borrowers who have frequent contact with the bank's professionals are better informed on the banks rule and regulation, implementing and operating the project as per the planed action. As a result a borrower who has a frequent contact with bank's professional was more likely to be non-defaulter.

5.3 Recommendations

This study has a potential to support the Commercial Bank of Ethiopia, Jimma District to take corrective measures on the most important determinants of successful loan repayment performance of credit-assisted projects. Based on the results obtained in this study, it is recommended that credit institutions or lending agencies should look out for the factors that significantly influence loan repayment performance of the borrowers to reduce loan defaults; the following recommendations can be drawn.

An important implication is related to the strong association/relationship prevailing between education and successful loan repayment performance of the borrower. This relationship sheds light on the importance of incorporating, as well as giving high emphasis on, the requirement of educational level of the borrowers, in the Bank's credit policy before any loan is released for the reason that more educated borrower could be cost conscious that is economical usage of resources and probably they could overcome problems faced. Finally, producers should be encouraged to further their education and practice factor that encourage a higher repayment rate. Hence, it is fair to require educated borrower. Thus the borrowers should have educated for the better operational performance of their project and to repay their loan timely.

This requirement should be stipulated in the credit policy of the Bank as a basic requirement for loan provision. Therefore the lending institution should assess the education status of the borrowers. The lending institution should undertake close follow up of their borrowers and provide relevant information and technical support for the success of the borrower.

Routine visits by credit officers to the borrowers will help put producers on track and monitor the proper use of the loan they acquired. Hence, the bank should take serious consideration on supervision of the project in order to provide relevant information and technical support for the success of the borrower.

Conducting frequent project follow-up/supervision visits has also a direct bearing on successful loan repayment performance. In other words, implementing effective and efficient project follow-up/ supervision system and practices should be considered as a major part of credit activity because a borrower who gets robust and continuous information and technical advices from the Bank is more likely to be successful. Thus, the credit manager/policy maker should give more emphasis on supervision or follow-up of projects in order to provide pertinent information and technical support for the success of the projects established by the Bank's finance. To

reinforce the quality of project follow up/ supervision visits, the Bank should install effective monitoring and evaluation mechanisms to measure the output of each and every follow-up/supervision visit after having conducted appropriate project follow-up.

More over the lending institutions should disburse loans phase by phase based on the sequence of investment and operations after ensuring the previous disbursed loans are utilized for the intended purpose..

Projects with medium repayment period are relatively found to repay their loan successfully, while projects with short and longer repayment period are found to be high defaulters relative to that of medium repayment period, which are reflected by the positive and significant relationship between medium repayment period and successful loan repayment performance. This leads to suggest that repayment period should be set in a way that consider the financial viability of the project, loan size and market situation and the repayment period.

In addition, it is also recommended that the bank should give focus on evaluating the relevant loan utilization of the borrower during supervision due to the fact that the more proper utilization of the loans released could have a positive effect on the magnitude of project profit which enhance the timely loan repayment.

The bank needs to make sure that borrowed funds are being used for the intended purpose through enhanced timely credit monitoring after the loan is being disbursed.

Delay in loan processing time is the other variable, which is negatively correlated with the loan repayment performance of project finance. This implies that the Bank should improve its loan processing and project management system by putting in place an effective monitoring and evaluations system. To this end, the deadlines set for achieving various milestones should be critically evaluated in a win-win approach, and the important lessons learned in the process should be immediately implemented to improve subsequent performances on an ongoing basis. And the loan released time must be short as soon as possible.

Last but not least, the other source of income is one of the factors which statistical significant and positively determine the loan repayment performance of the borrowers of CBE Jimma District at 5% probability level. This implies that borrowers who have other income source rather than the project will likely have greater loan repayment ability. Therefore; the banks properly decide the type of project owner through assessing of the other income existence in aspect of the project appraisal.

5.4 Future Research Direction

In this study we have seen that only five out of ten variables that were significant in the loan repayment equation. This means that important information is being ignored as in the case where some variables contributing to good repayment performance are neglected when it comes to the use of these variables in identifying good borrowers with such characteristics. Thus, future researchers may be interested in validating the consistency of the result and provide supplementary results for this by including macroeconomic factors affecting nonperforming loans.

Finally there are some important points that may need further investigation. These issues may serve as points of departure for further research. We have seen that complementarily was observed between the credit scheme of the borrower and that of the moneylenders operating in the area of study. Since from the data collected for this study the number of respondents that reported having access to other credit sources is very high, this finding needs to be further studied. Also there may be a need to test if there is some sort of association between loan repayment and purpose of borrowing. And the loan utilization of the borrower with training on credit utilization must be considered in the future.

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Appendix I
Jimma University
College of Business and Economics
Department of Accounting and Finance
Graduate Program (MSc) in Accounting and Finance

Questionnaire

Standard Format Prepared For Data Collection

This format is prepared to collect data's from the borrower and files of individual credit borrowers financed by CBE to undertake my research title 'Determinants of successful loan repayment performance of private borrowers in Commercial Bank of Ethiopia: The Case of CBE, Jimma District.

Questionnaire for Borrower

I. Background Information

Address _____ Region _____

Zone _____ Woreda _____

Town _____ Kebele _____

1.1 Age ----- a) 20-30 b) 30-40 c) 40-50 d) Above 50

1.2. Sex

a) Female b) male

1.3. Marital Status

a) Single b) married c) Divorced d) widowed

1.4. Education

a) Illiterate b) primary education (1-8)
c) Secondary education (9-12) d) Tertiary educations (above grade 12)
e) BA/BSc degree holder f). Others (please specify) -----

1.5. Household Size (Number of dependents in the household) -----

1.6. How many individuals being supported by the borrowers outside household members?

II. LOAN UTILIZATION

2.1. Did you use the entire loan for the intended purposefully?

a) Yes b) No

2.2. If "No", how much did you spend for other purpose?

a) Fully b) partially

2.3. If your answer to Q. 2.1 is no, what is your reason for loan diversion?

- a) The loan released is not enough for the intended purpose
- b) It was your initial intention
- c) Market problem the project faced
- d) Others (specify) _____

III. SUPERVISION VISITS

3.1 Have you ever been supervised regarding loan utilization by CBE staff?

- a) Yes
- b) No

3.2 Have you ever been supervised for loan repayment?

- a) Yes
- b) No

3.3 If yes how many times were you supervised?

- a) One
- b) Two
- c) Three
- d) More than three times

3.4 Did you get any training before receiving loan?

- a) Yes
- b) No

3.5 If yes, what kind of training was it? _____

- a) Business
- b) Marketing
- c) Saving
- d) Book keeping
- e) other (specify)

IV. PROJECT IMPLEMENTATION

4.1. Was the grace period given enough for the existing project?

- a) Yes
- b) no

4.2. Was the project fully implemented within the intended period of time?

- a) Yes
- b) no

4.3. If 'no', what is the constraint behind project implementation problem?

- a) Financial constraint
- b) Shortage of materials
- c) technical constraint
- d) others (specify)

4.4. Again, If your answer to Q 4.2 is no, what was the reason for the problem?

- a) Inflation
- b) Underestimation of the initial investment cost
- c) Inabilities to raise own contribution
- d) Expansion of the project
- e) Inadequate loan released
- f) Others (specify) _____

V. For Other Source of Income

5.1. Do you have other sources of income before joining the program loan?

- 1) Yes 2) No

5.2 If yes, what is your source?

- a) Iddir b) Money lenders c) Friends/relatives d) Banks e) Other

5.3 What is the recent loan repayment status? _____

1. Fully repaid 2.Repayment on schedule 3. Repayment in arrears

5.4. If your answer 'Yes' in Question No 5.1 above, have you paid from the project income or other source of income?

- a) Project income only b) other income source as well

VI. Loan and Its Repayment

6.1. Were you well briefed about the loan contract before you sign it?

- 1) Yes b) no

6.2. Is the repayment period scheduled enough?

- a) Enough b) Medium c) Not enough

6.3. What is the repayment period of the loan that you take from Commercial Bank of Ethiopia Jimma District?

- a) Short b) medium c) long

6.4. How many times did you take loan from CBE?

- a) One b) two c) three d) more than three

6.5. Was the loan you took recently (i.e. this active loan) enough for the intended purpose?

- a) Yes b) no

6.6. Which of the following is the most important one in motivating you to repay your loan on time?

- a) Not to loss collateral
b) To keep social status
c) In expectation of getting another loan
d) Knowing that paying bank loan is my obligation
e) Others (specify) _____

6.7 Did you feel responsible to other members of your group?

- a) Yes b) No

6.8 Did you have the feeling that you might be sued in case of failure to repay the loan?

- a) Yes b)No

6.9 Do you attempt to know or monitor the loan utilization of the other members of your group?

- a) Yes b)No

6.9.1 If yes, what action do you take in case you observe wrong utilization of the loan, say usage of loan for non-intended purpose?

- a) Inform to CBE b) Accuse the diverter
c) Put social sanction d) other (specify) _____

VII.TO DEFAULTERS

7.1. Have you ever failed to repay according to the schedule?

- 1) Yes b) no

7.2. If yes, how many times?

- a) Once b) twice c) three and more times

7.3. If your answer to Q 7.1 is yes, what was the reason for failure?

- a) Market problem
b) Technical problem
c) Working capital shortage
d) Others (specify) _____

7.4. What mechanism you designed to pay the overdue loan balance?

- a) Change of the project site
b) Loan diversion
c) Sell of property
d) Others (specify) _____

Appendix II

Questionnaire for Bank Staffs

I. THE PROJECT

1.1. Name of the Project-----

1.2. Type of Activity or -----

1.3. Location-----

Region _____ Zone _____

Woreda _____ Town _____ Kebele _____

II. LOAN UTILIZATION

2.1. What was the purpose of the loan?

- a) For working capital
- b) For fixed investment

2.2. Was the loan released in cash or in kind?

- a) In cash
- b) In kind
- c) Both

2.3. How the loan was disbursed (released) for you?

- A). Once per year
- B). Quarterly
- C) semiannually
- D). Monthly

III. Timeliness

3.1. Did the borrower get the loan at the right time?

- a) Yes
- b) No

3.2. If 'no', what is the reason for delay?

- a) Lengthy period of time the bank took in processing
 - b) Failures to timely provide the necessary documents by borrower.
 - c) Failure of borrower to timely fulfill the preconditions stipulated on the loan contract
 - d) Delay in settlement of the previous loan by borrower
 - e) Others (please specify)
-

IV. SUPERVISION VISITS

4.1. Did the bank visit the project site before approval of the loan?

- a) Yes
- b) No

4.2. If your response is 'No', how the bank approves the loan?-----

4.3. When the bank visits the project after it started operation

- a) Regularly according to the bank policy
- b) Occasionally according to the need of the bank.
- c) According to the need of the project.
- d) According to borrowers request.
- e) Others

V. PROJECT IMPLEMENTATION

5.1. How long grace period is given for the project by the lending institute?

- a) 1 to 3 b) 3 to 7 c) 7 to 10

VI. TO BANK OFFICIALS ABOUT DEFAULTERS

6.1. What alternative measures were taken on the side of the bank to improve the repayment situation?

- a) Loan rescheduling
- b) Additional loan
- c) Frequently insisting the promoter
- d) Others (specify) _____

6.2. Were the measures taken brought an improvement in repayment status of the project?

- 1) Yes b) no

6.3. If no, what measure was taken by the bank to enforce repayment?

- a) Foreclosure b) court proceedings
- c) Others (Specify) _____

6.4. How was the loan enforcement mechanism?

- a) Effective b) ineffective

6.5. If ineffective, what is the reason behind this?

- a) Buyers don't want to buy some one's property because of bank loan
- b) limited purchasing power of the society
- c) High initial bid amount
- d) Others (specify) _____

6.6 What is the last measure taken if your answer to Q 11.4 is ineffective?

- a) Taking over the property
- b) Transfer to other individual on credit basis
- c) Others (specify) _____