DETERMINANTS OF BORROWERS' LOAN REPAYMENT PERFORMANCE: A CASE OF SELECTED COMMERCIAL BANKS IN ADAMA TOWN

A THESIS SUBMITTED IN PARTIAL FULFILLMENT FOR THE REQUIREMENT OF DEGREE OF MASTER OF BUSINESS ADMINISTRATION

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DECLARATION

I, the under signed, declare that this thesis is my original work and all sources of materials used for this thesis have been duly acknowledged. The paper has never been presented in this or any other university for the award of any academic degree, diploma or certificate.

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ABSTRACT

Nowadays the sources of finance for almost all businesses, sole or partner or corporation, in addition to the owners' contribution is debt from financial institutions. It is needless to mention that banks take the lion share in that regard. While lending, the creditors may face problem of non-performing loans that costs many financial institutions fortunes in bad debts. Particularly, because of lack of information on credit defaulters, many credit officers and managers are likely still lend out funds that may never be recovered. The loans taken by the businesses are obviously expected not only to provide returns to the particular businesses, but also to boost the economy in general. However, that may not be true due to various reasons. In lieu of that this study tried to identify some of the factors that lenders could look out for and the foresight they would need to have in order to avoid default of credit using primary and secondary data from eight commercial banks at Adama. Purposeful and convenient sampling techniques were used to select borrowers from the respective banks and questionnaires were administered to the whole credit staff of the banks. The descriptive analysis result revealed that lenient credit monitoring or follow-up, business slow down or bankruptcy, fund diversion and family liquidation had impact on repayment performances of borrowers. However, credit analysis and lending interest rate had no impact comparatively. The secondary data about borrowers were analyzed using logistic regression and the result showed that age of borrowers, education level of borrowers, length of experiences in borrowing, and loans type were found to have statistically significant impact on repayment performances. However, sex, marital status and the type of bank the borrowers used had no statistically significant impact on repayment performance of borrowers. In lieu of that the banks are recommended to give due attention to the credit processing and approval processes along with the borrowers' related aspects including the nature of their businesses they run ahead of loan disbursement.

Key Words: Repayment performance, logistic regression, Commercial banks, Adama

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CHAPTER ONE
INTRODUCTION

1.1. Background of the Study

The agreement that was reached in 1905 between Emperor MinilikII and Mr.MaGillivray, representative of the British owned National Bank of Egypt marked the introduction of modern banking in Ethiopia. Following the agreement, the first bank called Bank of Abyssinia was inaugurated in Feb.16, 1906 by the Emperor. The Bank was totally managed by the Egyptian National Bank. From then onwards many private banks including government banks came to scene to the extent that there are nineteen numbers of banks in the country of which sixteen are private banks.

The service sector is one of the major role players in the economy of Ethiopia. According to the National bank report during the fiscal year 2012/13, GDP showed extraordinary growth of 9.7 percent compared to the 5.6 percent forecast for sub-saharan Africa countries for 2013. Of this percentage the highest contribution was that of the service sector, which accounted 46.1 percent (NBE, 2012/13).

Banks, as being one of the service providers in a given country, provide individuals and businesses with purchasing power to buy now on credit rather than waiting until they have the money to purchase inputs and capital goods. The banks get money from their depositors and extend the same in the form of loan to borrowers.

Lending as one of the major activity of a bank comprises of 50 to 75 percent of the assets of most banks, creates the largest portion of the banks' operating income and also are sources of risks due to possible non-payment by the concerned borrowers (Mac Donald and Koch,2006, as cited in Wondimagegnehu,2012).Lending has been, and still is, the mainstay of banking business. This is more true to emerging economies like Ethiopia where capital markets do not exist (Richard, 2008).In line with the aforementioned fact, the first thing that many business men coming to banks ask is whether the bank has got loan facility or not. If not, even they do not prefer to become saving customer of the same. This shows that not only the bank, but also the customers need loan facility very badly to become successful in their business venture by the end of the day. However, the question is how many of these interested customers to the bank will be

successful in repaying the loan disbursed to them according to the repayment schedule? The answer obviously is that some will and some other may not be.

According to Wondimagegnehu(2012), unpublished data from NBE shows that the industry average for NPL ratio is below threshold. In spite of that the study reported that the NPL ratio for Cooperative Bank of Oromia in 2010, for example, is11.54% which is higher than the minimum ratio set by National bank of Ethiopia (NBE).

The national bank of Ethiopia (NBE) indicated that the banking system in the country is underdeveloped. It further reported that though it is underdeveloped it has exhibited a significant expansion over the past few years and as such there is a need of strong risk management practices. Moreover, in the same report it is elaborated that credit risk is a key risk and that it cannot exist in isolation from other various risks like liquidity risk, market risk and operational risk, rather, it is intertwined with those risks(NBE, 2008).

1.2. Statement of the Problem

Lending is the main business of financial institutions and loans is naturally the main asset and the major source of revenue for banks. In other words banks in general are taking funds from depositors in one hand and lend the same to borrowers on the other hand. While taking the fund from one customer, depositor, managing that needs care and disbursing the fund to the other customer, borrower, and getting back the same involve even more risk and needs experience and skill. Information asymmetry is also the case for repayment problems. This study has tried to deal with some borrowers' characteristics, lenders' failure to thoroughly go through credit processing activities and some other external phenomena impacting repayment performance of borrowers so that the respective commercial banks take those factors into consideration while screening customers to extend loans to the same. In other words, lenders have to try to keep the money they take from the depositors as safe as possible so that it does not deteriorate eventually due to poor repayment performance of borrowers above all due to improper credit analysis of the respective commercial banks and information asymmetry.

However, that may not be the case in some situations. Taking this particular study, for instance, hundred borrowers were found to be defaulted due to various reasons. To mention some of the reasons, among many other, information asymmetry is the major one. To put simply limited knowledge of lenders about their borrowers is one of the major reasons for eventual accumulation of non-performing loans in the same.

In lieu of that unless the respective commercial banks uncover the possible reasons and try to solve the problems as much as they can they will end up with the loss of the largest assets, which is loan. That in turn results failure of the banks to be liquid and they will fail to provide credit anymore. According to Nketani(2007), the availability of credit facilities from financial institutions, or indeed the lack thereof, can determine the difference between economic progress or retardation of a country.

Accordingly, knowing the major factors that causes default is very vital for the concerned banks in particular and the country in general to take the necessary precautions ahead of time.

In lieu of that only few researchers studied the impact and cause of credit default in Ethiopia. In other words, as nonperforming loan has a very big impact on ones country economic performance and that many research findings indicated that nonperforming loan has negative relation with GDP, in depth study needs to be conducted in the area. Moreover, as to the knowledge of the researcher is concerned those studies conducted so far did not consider the customer side.

Accordingly, this particular study tried to see relationship between some explanatory variables and repayment performance as perceived by the respective bank officers and it also tried to look into the some possible determinant variables of repayment performance from the borrowers' side. The later one has not been looked at so far in Ethiopia as to the knowledge of the researcher.

Consequently, this study tried to provide answers to the following research questions:

- ✓ To what extent does the demographic character of borrowers have impact on their repayment performance?
- ✓ How do the type of loans, bank type and borrowing experiences of debtors impact their repayment performance?
- ✓ What factors are perceived to be determinants of repayment performance of borrowers from the perspective of commercial banks in Adama?

1.3. Objectives of the study

1.3.1 General Objectives

The major objective of the study is assessing and explaining factors which determine the repayment performance of borrowers in selected commercial banks in Adama.

1.3.2 Specific Objectives

- ✓ To examine the impact of demographic characteristics of borrowers on their repayment performance
- ✓ To examine the impact of loans type, bank type and borrowing experiences of debtors on their repayment performance
- ✓ To examine factors that are perceived to be determinants of repayment performance from the perspective of commercial banks in Adama

1.4. Significance of the Study

It is obvious that banks are making most of their profits out of the credit they extend to the credit customers with reasonably higher interest rate than the rate they pay for their saving account holders. Doing the same entails that the banks are providing golden opportunity for the debtors to prosper in wealth directly, and boost the country's economy indirectly. This to happen knowing the causes of customers' credit default, which enables the banks to take all the necessary measures before it happens, would be paramount. This would minimize the rate that customers' credit deteriorate in quality and consequently keeps the banks and the borrowers from getting into trouble.

This paper highlighted the actual excuses that the bank customers' credit happen to be changed into nonperforming and so expected to shed light for other researchers to investigate some other factors that impact the repayment performance of credit customers.

The paper could also serve as a reference document to concerned government offices, including the National Bank of Ethiopia, to design a type of guideline for banks to consider during the process of credit analysis and also after loan disbursement to the concerned borrowers.

1.5. Scope and limitation of the Study

This study focused on the analysis of causes of credit default in selected eight commercial banks at Adama, two from the government and six from the private, by collecting data from both primary and secondary sources. Furthermore, due to the very high confidentiality policy of the concerned banks on the area, the study was restricted to encompass only few independent variables that possibly affected the repayment performance of credit customers. Accordingly, whether borrowers fund diversification condition, credit analysis processes and clients follow up or monitoring activities, family liquidation or death of client, business slowdown or bankruptcy were factors as seen by the respective banks or not, and the impact of demographic aspects of borrowers, number of years elapsed as borrower, bank type and loan types were investigated.

However, other possible factors which may determine the creation of non-performing loans like family size, loan size and loan rate, modes of repayment, fraud and access to market were not included in the study.

The other important limitation of this study was that borrowers who took loans from more than one bank were not included in the sample based on information provided by National bank of Ethiopia via its website, but that might not be reliable sometime.

1.6. Organization of the paper

This paper is organized into four chapters. The first chapter comprises of background of the study, statement of the problem, objective of the study, significance of the study, scope of the study and limitations of the study. The second chapter reviewed literature related to the study both in Ethiopia and outside of Ethiopia, the third chapter dealt with the research methods, materials and procedures which includes sources and method of data collection, method of sampling, method of data analysis and conceptual frame work. The fourth chapter dealt with results and discussion of the study and finally, the fifth one dealt with conclusion, recommendation, and future research area prediction.

CHAPTER TWO
LITERATURE REVIEW

2.1 **What is banking business?**

A bank is a financial intermediary and money creator that creates money by lending money to a borrower, thereby creating a corresponding deposit on the bank's balance sheet. Lending activities can be performed directly by loaning or indirectly through capital markets. Due to their importance in the financial system and influence on national economies, banks are highly regulated in most countries. Most nations have institutionalized a system known as fractional reserve banking, central banking, under which banks hold liquid assets equal to only a portion of their current liabilities. In addition to other regulations intended to ensure liquidity, banks are generally subject to minimum capital requirements based on an international set of capital standards, known as the Basel Accords.

2.2Banking Industry in Ethiopia

In fact, the history of banking in Ethiopia dates back to the turn of the century, when, in1905, the Bank of Abyssinia was established in Addis Ababa, under the reign of Menelek II. This event marked the introduction of banking in the country. National Bank of Egypt havingbeen entrusted of the project, the new institution was chartered in Cairo and its shares were subscribed in a number of countries besides Ethiopia. The Bank of Abyssinia was given a 50-years concession and was engaged in issuing notes, collecting deposits and granting loans, but its clients were mostly foreign businessmen and wealthy Ethiopians. A few years later, disappointed by the behavior of this bank, mainly devoted to profit-making rather than promoting economic development, the Emperor supported the establishment of a wholly Ethiopian bank. Haile Sellassie, after acceding to the throne in 1930, could not accept that the country's issuing bank was foreign-owned and, in agreement with National Bank of Egypt, decided liquidation of the Bank of Abyssinia. A new bank, the Bank of Ethiopia, under Government control, was established in 1931 and retained management, staff, premises and clients of the old bank. Italian occupation in 1936 brought the liquidation of the Bank (Ebisa,2012).

In spite of this long year history of banking in Ethiopia, the industry has not achieved as such encouraging progresses so far.

There was fragile and inefficient state of the banking sector in Ethiopia during the Derg regime. Consequently, the economic progress of the country was retarded to significant extent. To combat this and other related problems in the sector, there were various reforms enacted by the current government. Among the reforms enacted, restructuring of the two development banks into commercial banks, introduction of new banking and monetary proclamation that has more room for autonomy to the NBE and further clarification its role as regulator and supervisor of the banking sector. Of course, those measures have brought improvements in efficiency and competition, but there still a need to come up with creative work so that the banking sector role in mobilizing savings and allocating funds to optimum usage would be achieved eventually that fits the need of the economy and the society at large(Admassu and Asayehgn, 2014).

2.2.1Banking Industry in Adama

Adama being very populated and filled with different types of commercial activities,the are many private and government bank branches rendering banking services not only to the people living at Adama, but also to the majorities of societies residing around the town.

Accordingly, all the banks in the country except Enat bank have branches at Adama. Even the later one is in the process of opening a branch in Adama. The first two banks which were opened in Adama were commercial bank of Ethiopia and Construction and Business bank. They were opened in the year 1975 and 1977 respectively.

Table 2.1 below presents the names of the banks, the date they were opened and the number of branches they have in Adama.

Table 2.1 List of banks in Adama

S.N	Name of the bank	Year opened(G.C)	No. of branches
1	Abay Bank	2011	1
2	Addis International bank	2012	1
3	Awash International bank	1995	5
4	Bank of Abysinia	2001	2
5	Berhan International bank	2010	2
6	Bunna International bank	2010	2
7	Commercial bank of Ethiopia*	1975	10
8	Construction and Business bank	1977	2
9	Cooperative bank of Ethiopia	2005	4
10	Dashen bank	2003	2
11	Debub Global bank	2013	1
12	Development bank of Ethiopia	1977	1
13	Lion International bank	2007	1
14	Nib international bank	2002	1
15	Oromia International bank	2010	2
16	United bank	1999	2
17	Wegagen bank	2002	3
18	Zemen bank	2014	1

*Commercial bank of Ethiopia has additional two outlet branches

Source: Own Survey (2015)

2.3Concept and definition of Non-performing Loans

The bad loans also called non-performing loans were defined in various ways across different financial institutions in different countries.

Bloem & Freeman(2005), defined non-performing loan as follows:

> A loan is non-performing when payments of interest and/or principal are past due by ninety days or more have been capitalized, refinanced, or delayed by agreement, or payments are less than ninety days overdue, but there are other good reasons- such as a debtor filing for bankruptcy-to doubt that payments will be made in full.

According to Cortavarria,Dziobek, Kanaya, and Song(2000), non-performing loans are loans which exhibit the characteristics of well known weaknesses in their performances in which case the paying capacity of the borrower is questionable, and collection from borrowers is improbable even though partial recovery might be still possible.

Credit default is any payment of principal or interest on a loan or any credit facility that is in arrears (Mwiya, 2005).

National bank of Ethiopia has defined non-performing loans as:

> Non-performing means loans or advances whose credit quality has deteriorated such that full collection of principal and/or interest in accordance with the contractual repayment terms of the loan or advance is in question or loans or advances with pre-established repayment programs are non-performing when principal and/or interest is due and uncollected for 90 (ninety) consecutive days or more beyond the scheduled payment date or maturity (NBE, 2007).

The national bank of Ethiopia has also classified loans into five categories. Namely; pass, special mention, substandard, doubtful, and loss. Accordingly, the first category consists of loans or advances which are no more problems to the respective bank as they are fully secured, both in terms of principal and interest by cash or cash equivalent. The second category comprises of loans or advances having pre-payment schedule and past due thirty consecutive days or more, but not beyond ninety days, or those loans or advances and overdrafts which do not have pre-established prepayment programs and the debt remains unpaid for more than thirty consecutive days, but less than ninety days, or the debt exceeds the approved limit for more than thirty consecutive days, but less than ninety days, or interest is unpaid for more than thirty consecutive days, but less than ninety days, or overdraft accounts which have been dormant for more than thirty consecutive days, but less than ninety days. Third category is similar to the second category in every respect, but the boundary is more than ninety days, but less than one hundred eighty days. The fourth category is also similar to the second and third category, but the limit or the boundary is more than one hundred eighty days, but less than three hundred sixty days. Finally, the last category is also analogous to the last three categories; however, in this case the loans or advances have to stay outstanding for three hundred consecutive days or more to be classified as loss (NBE,2007).

It is noted in many literatures that lending to a business, government, and individual is one of the main services that banks provide though it is also the riskiest.

A business might seek to borrow money for various reasons which may include, but not limited to, making up shortage in operating capital, expanding an existing business to another location, developing an area or new idea within existing business, or creating an entirely new business.

Loans are obviously provided for meeting extraordinary capital expenditures, fixed working capital requirements, refinancing of funded debt, redemption, and/or shares retirement of debt with interest and even conversion of preference shares into loans with an eye to the tax advantage attached.

Though providing loans to business is known to benefit society in particular and countries in general for the very reason that it brings economic development, banks need to evaluate the credit worthiness thoroughly while offering credit to customers.

The first thing that lenders do is a proper appraisal of a loan proposal. This appraisal takes the form of several feasibility studies like technical feasibility, economic feasibility, managerial competence, and financial feasibility.

Of course, study shows that proper credit appraisal by the concerned credit extending companies can extraordinary decrease the credit risks. Quality credit risk assessment and risk management along with sufficient provision for bad and doubtful debts significantly reduces banks' credit risk (Kwambai and Wandera, 2013).

In a nutshell loan is an important contributor for the economic development of a given society in particular and a country in general. Especially loan is very important for the society like ours where the people have physical and mental capacity to do work but do not have financial capacity. However, banks are expected to take every precaution while disbursing loans to their respective customers as bad loans results in bank failures.

It is necessary to establish a proper credit risk environment, sound credit granting processes, appropriate credit administration, measurement, monitoring and control over credit risk, policy and strategies that clearly summarize the scope and allocation of bank credit facilities as well as the approach in which a credit portfolio is managed i.e. how loans are originated, appraised, supervised and collected, are basic elements for effective credit risk management (Basel, 1999).

S.Rose and C.Hudgins (2008) stated that risky or not the principal reason many financial firms are issued charters of incorporation by state and national governments is to make loans to their

customers. In other words it means risk is evitable, but what matters is banks need to take every care in order to minimize the possible risks associated with the loan portfolios.

Of course, loan is expected to benefit both the lenders and their customers, because loans support the growth of new businesses and jobs within the lender's trade territory.

Despite all the benefits loans have for both parties, the process has to be handled with great care at all times.

According to Aremu, Ekbo, and Mustapha(2013), a study conducted on Nigerian banks, stated that credit risk and capital adequacy were seen to be of the major factors to affect bank profitability rather than bank size and cost efficiency which did not affect profitability significantly.

Strengthening the aforementioned fact (Hou, 2007, as cited by Messai and Jouini, 2013), stated that NPL is likely hamper economic growth and reduce economic efficiency.

According to S.Rose and C.Hudgins (2008), lenders get into financial problem that stems usually from loans that have become uncollectible due to mismanagement, illegal manipulation, misguided policies, or unexpected economic decline.

Almost all financial companies without exception need security to offer loan to their customers. The collateral the financial institutions request borrowers varies depending on several factors like marketability, life of the collateral, and basic riskiness associated with the collateral(Horne and Wachowicz, 2001).

There is strong evidence that as nonperforming loans increase in a bank it causes the bank to perform poorly and eventually results not only in failure of the respective bank, but also in financial crisis (Ahmad and Bashir,2013).

According to Abadi,Achsani, and Rachmina(2014), credit risk is one of the major risks bank face in business operations and large NPL in a given bank is an indicator for the presence of credit risks. Furthermore (Khemraj and Pasha, 2009, as cited by Abadi et al, 2014) stated that interest rates were one of the major factors that increase NPL.

This means that lenders, financial institutions, and borrowers need to be protected equally as they play vital role in the economic development of one's country.

In lieu with that lenders do implement credit analysis before they offer credit to their customers. It means that they analyze a business's records and financial affairs to determine its credit worthiness. It is stated that when drawing up a loan agreement the lender may impose certain obligations and restrictions in order to protect the investment in the business loan covenants

often form a part of a loan agreement and may deal with accounts, other loans, dividend payments, and liquidity (Atrill and McLaney, 1997).

According to Messai and Jouini(2013), bad loans are one of the major causes that results problems in banking system and eventually causes in financial crisis of even developed economies.

There are enormous reasons why banks undertake credit risk analysis. But, how much varying reasons banks may have in that regard, the major one could be associated with knowing whether a given business has a possibility of failure or not. In a situation that the business has a possibility of failure banks would be hindered from disbursing loans to the potential debtor. The very important things that banks need to know in order to determine whether a business has a tendency of failure or not is knowledge about the contributors of failure in business. In other words, knowing the critical factors that contribute to business failure and analyzing the same in detail is paramount. These factors are critical and referred to as critical success factors and improper management of them would result in business failure and in turn banks lose huge amount of money (Richard, 2011).

Million, Mathewos & Sujata(2015), revealed that commercial banks need to enhance their credit risk management system in order to at least maintain the existing profit margin. The study also indicated that non-performing loans are the major indicators of credit risk in commercial banks.

Prakash & Poudel(2012), also stated that credit risk is an important predictor of bank financial performance.

In spite of the existence of covenants and security we often see banks being in problem when the business becomes insolvent and the banks try to get their money back according to the agreement made between the banks and the business. This pauses a question of poor management of loan by the concerned personnel in the bank-specifically, the loan approval procedures of many banks lack clarity and is susceptible to fraud and cheating. Banks need to act immediately when they encounter any breach of activities to be performed by a given borrower.

It is reported that breach of restrictive covenants can have serious consequences for the business. The lender may require immediate repayment of the loan in the event of serious breach(Atrill and McLaney, 1997).

The department responsible or division responsible for analyzing and making recommendations on the fate of most loan applications is the credit department.

According to S.Rose and C.Hudgins (2008), of the three major questions that need to be addressed by the credit department about each loan application is the creditworthiness of the borrower. Creditworthiness is about whether or not the customer can service the loan-that is, payout the credit when due.

According to Moti, Haron, Masinde, Mugenda, & Sindani(2012), knowing the clients properly is paramount for effective credit management and that also enables the creditors to efficiently manage the credit lines. The study further elaborated that in order to minimize exposure to bad debt, over-reserving and bankruptcies; creditors need to know their customers properly as to their credit score history, financial strengths and dynamic payment patterns.

Kwambai and Wandera (2013) stated that commercial banks may not have adequate information about their borrowers' credit history and consequently the borrowers may use such weak aspects of the banks to get a lot of money as loans and eventually they may happen not to repay according to the terms they get into.

The theory of asymmetric information tells us that it may be difficult to distinguish good from bad borrowers which may result into adverse selection and moral hazards problems.

According to Kofi(2012), poor credit approval techniques, inadequate monitoring, diversion of funds, business failure and high interest rate were among the factors found to be the most important in causing non-performing loans in Sinapi Aba Trust microfinance in Ghana.

Khemraj and Pasha(2009), also found out that banks which charge higher interest rate and have excessive lending practice would possibly incur non-performing loans.

Family liquidation which ends up with the separation of the two heads of the family, husband and wife, obviously affects the loans taken prior to the conflict. With regard to that even though the research has not found any evidence of empirical study conducted considering this variable as determinant of NPL, during the pilot survey in search of the most prevailing factors for creation of non-performing loans in commercial banks at Adama, the respondents confirmed that family liquidation is one of the possible major causes.

This shows that the lending party has to try to grasp idea on all the aforementioned things before it extends loans to its customers. In short that implies knowing the behavior of credit customers ahead of extending large sum of money to the same.

According to Joseph,Edson,Manuere,Clifford & Michael(2012), borrowers integrity was among the many major factors that cause non-performing loans.

Bankers tended to lend to customers they knew well often times the depositor themselves. It was not longer, however, before bankers recognized that by lending the proceeds of deposits to others, they could create a profitable business. To attract more deposits they began to pay back something in return for the deposits that they held for their customers, a fee known as interest. Bankers paid one fee for the depositors and charged a higher fee to the borrowers and lived on the spread between these two fees (Saunders, 1999).

According to (Abedi, 2000, as cited in Moti et al, 2012), this involves study of five aspects of a loan application in general.

Character

Character refers the likelihood that credit customers will to try to repay the debt. This implies that the loan officer must be convinced the customer has a well-defined purpose for requesting credit and a serious intention to repay. In other words the moral character of credit customers is paramount. This can be checked through investigation of the customers' credit history. In doing so if there is any serious doubt, the request for loan has to be rejected.

Capacity

Capacity is a measure of the ability of a credit customer to generate sufficient cash to repay the debt. Thus the evaluation of this factor is based on primarily on the cash income by the borrower. This is measured by looking at the customers' historical record, business methods and sometimes this can be supported by physical observation of the businesses' plant and stores.

The capacity to borrow money involves checking by the loan officer that the customer has the authority to request a loan and the legal standing to sign a binding loan agreement.

Capital

The common yardstick to measure capital is the general financial conditions of the borrowers which could be revealed through financial statement analysis. The analysis is made through computation of different financial ratios like debt to asset ratio, and current ratio. In short the concern here is the amount of equity capital sacrificed by the borrowers.

According to S.Rose and C. Hudgins (2008), borrowing customers do have only three sources of cash to repay their loans. These are cash flow from sales or income, from sale or liquidation of assets, or funds raised by issuing debt or equity securities.

Collateral

Collateral is the borrowers' secondary source of repayment or security in time of default. This refers to the borrowers' possessing adequate support for the loan.

According to Moti et al (2012), collaterals are defined as assets pledged by borrowers mostly in the form of hard assets like real estate and office or manufacturing equipment.

Conditions

Conditions refer to both the general economic trends and to special developments in certain areas or sectors of the economy that might affect the borrowers' ability to meet its obligations. In other words conditions refer to the knowledge about the borrower's line of work or industry and how changing conditions might affect the loan.

2.4 Types of loans

There are various types of loans that commercial banks offer to their customers. According to A.Ross, et.al(2001), there are three major types of loan. These are pure discount loans, interest only loans, and amortized loans.

Some books categories loans in some other way. For instance, according to Barth, et al.(2002), loan finance can be seen as short-term borrowing-bills of exchange and bank over drafts , Medium-term borrowing-term loans, and long-term borrowing-mortgage loans.

Likewise according to S.Rose and C.Hudgins(2008), loan types are seen into seven broad categories. These are real estate loans, financial institution loans, agricultural loans, commercial and industrial loans, loans to individuals, miscellaneous loans, and lease financing receivables.

In the context of commercial banks in Adama, there are variety numbers of loans available to the borrowing customers. Accordingly, some of the major loan types and their brief description are presented below.

Overdraft

Overdraft is a type of facility with which borrowers are allowed to draw beyond the deposited amount of money in their current accounts with limit for a specified period of time.

Merchandise loan facility

It is a short term credit facility extended to customers against merchandise or its documentary evidence. Like Railway Receipts, Warehouse Receipts, Airway Bills. In short it is type of loan granted to customers by pledge of their merchandise as collateral.

Overdrawal

It is the type of loan made available to customers who need temporary funding to execute contract based activities. Such loans are granted against reliable evidence that future proceeds from a contracting party will be used to repay the loan.

Domestic Trade and Services Term Loan

Type of loan facility that provides working capital for business entities that are engaged in wholesale or retail trade and/or the service sector such as hotel, tourism, health, education, etc.

Pre-shipment Export Credit facility

It is a short term loan extended to customers engaged in export business for purchase of raw material, processing, warehousing, packing, transporting the finished goods to shipment.

Building Construction Term loan

Type of loan used for renovating houses or to meet fund requirement at the completion phase of buildings

Transport Service Term Loan

Working capital loan granted to customers who are engaged in public, freight and fleet transport services.

Automobile Term Loan

Type of loan provided for purchasing automobiles (new or used) for business or personal use.

Short term loan

It is a loan granted to customers to finance their working capital needs and /or other short term financial constraints.

Medium and long term loans

These loans are extended to customers to partially finance acquisition or leasing of fixed business assets, establishment of new projects and expansion of an existing business.

Agricultural Input Loan

It is a short term loan granted to customers for the purchase of fertilizers, improved seeds and agro-chemicals.

Micro –Finance Institution's Loan

It is a short to medium term loan granted to Micro –Finance Institution to alleviate their financial constraints while providing credit to micro-entrepreneurs.

2.5Empiricalliterature

There are several studies done on determinants of non-performing loans outsideEthiopia, and limited number of the same in Ethiopia as far as the knowledge of the researcher is concerned. Putting in a simple language, there are studies done on related topic at hand in different developing countries like Tanzania, Zambia and Ethiopia, however, as far the knowledge of the researcher concerned only few empirical studies were conducted in Ethiopia.

2.5.1 Summary of Empirical studies in Ethiopia

The study by Zewdu (2010) which dealt with the assessment of the impact of reducing or restricting loan disbursement on the performance of banks in Ethiopia could be mentioned as one of related researches conducted in the area. The study also attempted to examine the possible factors that compel the banks to reduce or restrict lending. Zewdu tried to show the relations between banks health (NPL) and lending, and also NPL as a measure of performance in Ethiopian banks.

Teshome(2010), had found out that Dashen bank, Mekelle branch, exhibited huge amount of non-performing loans during the year 2005-2009. The study further elaborated that the huge amount of non-performing loans were resulted partly due to the failure of the bank to diligently and properly monitor and appraise the loans, and lack of proper supervision, and partly due to inefficiency of individual borrowers because they did not possess the proper education in doing business and lack of sufficient income among many other reasons.

Tseganesh(2012) who studied on the determinants of bank liquidity and their impact on financial performance found out among others that capital adequacy, interest rate margin and general inflation rate have positive relationship with bank liquidity and consequently, had significant impact on banks liquidity. However, loan growth and GDP growth rate had insignificant impact on liquidity in Ethiopia. Further it was indicated that NPL and short term interest rate had negative and significant impact on financial performance of banks. But, even though interest rate margin and general inflation rate affects bank's liquidity, they did not have significant impact on financial performance.

Wondimagegnehu(2012) addressed the perception of banks towards the nonperforming loans and found out first that strict adherence to credit analysis procedure and admitting customers for loan accordingly and NPL have negative relationship. Second collateralized loans and NPL do not have relationship or they do have neutral relationship. Third credit monitoring and NPL do have

negative relationship. Fourth developed credit culture and NPL have negative relationship. Fifth indulgent credit terms contributed to NPL. Sixth rapid credit growth and NPL do not have significant relationship. Finally, the study found out that bank size and ownership have no impact on NPL.

Among other things it was found out that NPL had negative and significant impact on private commercial banks profitability (Bekalu, 2013).

Gadise(2014) analyzed the determinants of non-performing loans in commercial banks of Ethiopia using secondary panel data and obtained among others that LTD ratio had positive whereas INFR had negative, but insignificant effect on NPLs. However, bank's profitability measured in terms of ROE, capital adequacy ratio and lending rate had negative and significant effect on non-performing loans.

2.5.2 Summary of Empirical studies abroad

In Zambia, it is conformed that access to credit by the private sectors is difficult. This is so because lenders perceive great credit risk when lending to the private sectors. The banking sectors claim that Zambians have poor credit culture (Mwiya, 2005). The finding of this particular research indicated that as banks extend more credit to the private sector, the credit default also increased.

In Uganda the findings of a study conducted on bank of Barclays showed that failure to properly monitor and follow up loans once disbursed and not having central reference point that enable the bank to access credit history of customers were among the factors that contributed to the bank's NPL(Omara,2007).

In Zimbabwe the major causes of credit default among others according to (Mwiya, 2005), are high interest rate, lack of infrastructure to trace bad debtors, efficiency and accuracy in credit default prediction.

Research conducted in Tanzania, pointed out that there are numerous causes for credit default. Diversification of funds, weak credit analysis, lack of transparency by borrowers, change of country policies and business failure / inexperienced or lack of knowledge associated with the borrowers are among the many (Richard, 2011).

Messai & Fathi(2013), stated that deterioration in quality of loans portfolio of banks was the one that did hurt even the developed economies' banking system severely, and on the contrary, minimization of NPL is supposed to play very vital role in bringing about economic boom.

Kwambai and Wandera(2013), who studied about the effects of credit information sharing on non-performing loans in Kenyian bank, concluded that borrowers behavior, fund diversion by borrowers, lack of repayment commitment by borrowers and high interest rate were among the many factors that resulted in bad loans.

After examining the effect of bank failure on Nigerian economic development using OLS regression model, it was revealed among others that NPL reduced GDP of the country by 1.57 in the year 2001 to 2010(Elegbe,2013).

According to Ogeisa,Ondeika, Douglas, & Gerisham(2014), a study conducted in Kakamega county, revealed that there was positive and significant relationships between borrower characters on loan repayment. The study further elaborated that the way borrowers behaved both before or after acquiring credit from the bank, had a lot of effect on the relationship that is formed during the lending process and would also affect both the effectiveness and efficiency of loan repayment.

Collins & Wanjau(2011) in Kenya using primary and secondary data sources found out that increase in the cost of loans charged on the borrowers of performing assets had a tendency of having impact on assets non-performance and also results in decreases in the demand of loans.

In Pakistan Farahn,Sattar, Chaudhry, & Khalil(2012) found that interest rate, energy crisis, unemployment, inflation and exchange rate fluctuation have positive relationships and significant impact on nonperforming loans(NPL), and GDP has significant impact, but the relationship is negative.

CHAPTER THREE
RESEARCH METHODS, MATERIALS AND PROCEDURES

3.1. Sources and Method of Data Collection

Pilot survey through unstructured interview with operation managers was made in order to have highlight on those possible determinants of nonperforming loans at Adama commercial banks per the perception of the bank staff. Accordingly, based on the result of the interview and previously done studies in the area detail information about the possible determinants of nonperforming loans was collected from credit department staff of the respective banks which included loan officers, operation managers, and customer service managers using self-administered questionnaire. Moreover, information about variables related to credit customers, both defaulters and non-defaulters, which were supposed to determine nonperforming loans based on previous studies conducted were collected from the respective banks.

Collecting primary data from bank staff is very paramount as bankers are the one who actually dealing with the issue of nonperforming loans. In other words, bankers can better describe factors causing bad loans.

The result obtained from the questionnaire was tested for reliability using Cronbach's alpha test and alpha was obtained to be 0.803 which is above the standard 0.7. Moreover, the questionnaire was pretested for testing its validity.

3.2. Method of Sampling

Of the eighteen total numbers of banks operating at Adama, only eight commercial banks were selected. The base of selection was the number of years the banks have been in operation and the purpose they were established for. Accordingly, the study was conducted on eight commercial banks at Adama which have been in operation for more than ten years.

With regard to the customers' selection from each bank, being the number of credit customers 1221 in the eight banks currently, the researcher took 200 credit customers per Carvalho sample size determination technique (National Archive, 2005). The table depicting the technique is shown hereunder.

Table 3.1 Sample determination Technique

Population	Number of sample size		
	Low	Medium	High
51 – 90	5	13	20
91 – 150	8	20	32
151 – 280	13	32	50
281 – 500	20	50	80
501 – 1200	32	80	125
1201 – 3200	50	125	200
3201 – 10000	80	200	315
10001 – 35000	125	315	500
35001 – 150000	200	500	800

Source: Carvalho, the National Archive (2005)

Therefore, according to the above table the sample size assigned to the population range between 1201 and 3200 is 200. Thus;

Population size= N=1221

Sample size= n = 200

Then after, all defaulters in the commercial banks at Adama were included in the two hundred sample size purposefully. The defaulters' number, which is 100, comprises of approximately 8.19 percent of the total population. With regard to non-defaulters the same number of credit customers again selected as a control group purposefully and conveniently. They were conveniently selected rather than random selection as it was not possible to get the complete list of credit customers due to confidentiality policy of the respective banks to disclose the same and equal number of non-defaulters as defaulters was taken purposefully. In other words, if there were three defaulters in x bank, for example, then three non-defaulters were selected from the same. It is to mean that the number of non-defaulters to be included in the sample was dependent on the number of defaulters in the respective banks.

In regard to the bank staff, all individuals working in the credit department and accomplishing activities related to credit in the respective banks were made to fill the questionnaire prepared.

The research design is more of explanatory and descriptive in its nature. Accordingly, information from the credit staffs of the respective banks analyzed descriptively and information about the borrowers was analyzed through logistic regression model using explanatory variables.

3.3. Method of data analysis

The information gathered was analyzed using descriptive and inferential statistics. The information which was collected from the concerned bank staff was analyzed descriptively. More specifically, to see the possible relationship between credit defaults, which is a dependent variable and independent variables listed hereunder of the respondents were analyzed descriptively.

- ✓ The credit analysis process of the respective banks;
- ✓ Credit monitoring or borrowers follow up activities by the concerned banks;
- ✓ Business slow down or bankruptcy;
- ✓ Family liquidation or disturbances;
- ✓ Diversion of funds for unintended purpose by borrowers; and
- ✓ Lending interest rate.

Whereas, to analyze the information obtained about the credit customers from the respective banks which included sex, age, marital status, educational level, experience as a borrowing customer, business or loan type and bank type logistic regression model was used to see the impact of the listed independent variables on dependent variable, which is default using SPSS version 20.

3.4. Model Description

Logistic regression can be used to predict a categorical dependent variable on the basis of continuous and/or categorical independents; to determine the effect size of the independent variables on the dependent; to rank the relative importance of independents; to assess interaction effects; and to understand the impact of covariate control variables.

The impact of predictor variables is usually explained in terms of odds ratios (Pallant,2005).

According to Peng, Lee and Ingersoll (2002), the main thing that makes up the concept of logistic regression is the logit-the natural logarithm of an odds ratio. This model could also accommodate categorical variables that are polytomous in addition to dichotomous variables. The simple logistic model has the form

$$\log it(Y) = natural \log(odds) = \ln\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta X \text{ ------(1)}$$

Where α is constant, β the regression coefficient or is the logit, Y is the dependent variable and X is the predictor.

Taking antilog of equation 1 on both sides, one can drive an equation to predict the probability of the occurrence of the outcome of interest as follows:

$$\pi = probailty\left(Y = outcome\,of\ \text{int}\ erest\ such\ that\ X = x, a\ specific\ value\ of\ X\right) = \frac{e^{\alpha+\phi x}}{1+e^{\alpha+\beta x}} \text{ -----(2)}$$

Where π is the probability of the outcome of interest or event, in this case defaulter or non-defaulter, α is the Y intercept, β is the regression coefficient, and $e = 2.71828$ is the base of the system of natural logarithms.

X can be categorical or continuous, but Y is always categorical. According to equation 1, the relationship between logit(Y) and X is linear. Yet, according to equation 2, the relationship between the probability of Y and X is linear. Yet, according to equation 2, the relationship between the probability of Y and X is non-linear.

Consequently, the natural logarithm transformation of the odds in equation 1, is necessary to make the relationship between categorical outcome and its predictor(s) linear. The value of the coefficient β determines the direction of the relationship between X and the logit Y (Peng et al.,2002).

Hence looking at equation 1 and referring Peng et al.(2002) statements, it is possible to extend the application of the simple logistic regression to formulate model for the researcher's multiple predictors, that is, sex, age, marital status, educational level, borrowing experiences of debtor, business or loan type taken by the borrower, and bank type as follows.

$$\log it(Y) = \ln\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta x_1 + \beta x_2 + \beta x_3 + \beta x_4 + \beta x_5 + \beta x_6 + \beta x_7 \text{ ----------(3)}$$

$$\pi = probability\begin{pmatrix} Y = outcome\,of\ \text{int}\ erest\ such\ that\ X_1 = x_1, X_2 = x_2, X_3 = x_3, X_4 = x_4, X_5 = x_5, \\ X_6 = x_6, X_7 = x_7 \end{pmatrix}$$

$$= \frac{e^{\alpha+\phi_1 X_1+\beta_2 X_2+\beta_3 X_3+\beta_4 X_4+\beta_5 X_5+\beta_6 X_6+\beta_7 X_7}}{1+e^{\alpha+\phi_1 X_1+\beta_2 X_2+\beta_3 X_3+\beta_4 X_4+\beta_5 X_5+\beta_6 X_6+\beta_7 X_7}}$$

Where π the probability of default or non-default, α is the Y (defaulter or non-defaulter) intercept, β_S are regression coefficients, and X_S are the aforementioned predictors.

In line with (Haberman,1978; Schlesselman, 1982, as cited in Peng et al., 2002), since logistic regression model uses the method called the maximum likelihood to estimate α and β_S, it is preferred over the weighted least squares approach.

Furthermore according to (Pindyck and Rubinfeld, 1981, as cited in Solomon and Addisu,2013), logistic regression model has got advantage over linear regression when the dependent variable is binary in which case the analysis in the later is complex and even is not efficient while the former is.

The citation made by Solomon and Addisu(2013) indicated that the main drawback of using dichotomous variable as dependent categorical one rather than continuous variable, would result in loss of some information in the dependent variable.

3.5. Variables and their description

Dependent Variable

The dependent variable for this particular study is loan repayment performance of individual borrower. Accordingly, if an individual fails to obey his obligation or if loans are in arrears for a particular individual due to failure in repayment per the agreement made with the bank he will be assigned 1, which means the person is defaulter. Otherwise, 0 which means that there is no loan in arrears against an individual or the individual is non-defaulter.

Independent Variable

After going through pilot survey using oral interview as a tool and collecting information on possible determinants of non-performing loans with respective managers and loan officers of commercial banks at Adama, it was found among other many factors, the credit analysis process, business slowdown or bankruptcy, credit monitoring or follow up, fund diversification, family liquidation or death of client, and lending interest rate to be variables expected to affect the repayment performance of borrowers and these variables were taken as independent and analyzed descriptively to see which one of them is perceived more in the bank side to affect repayment capacity of borrowers.

Here the research has got three groups of independent variables. The first one are institutional variables, the second is variable external to both the borrowers and the institutions, and the third one are variables based on certain aspects related to borrowers.

List and descriptions of the institutional variables

Credit Analysis Process: - proper and thorough credit analysis by the concerned banks naturally expected to have positive relationship with repayment performance of the borrowers.

Credit monitoring: - banks' follow up after loans disbursement is expected to have positive relation with repayment performance

Lending interest rate: - high cost of borrowed money or rate of interest is expected to have negative relation with repayment performance as it could affect the paying ability of the borrower.

Bank type: the credit processing activities of commercial banks in order to know their customers and also the follow up or monitoring policy they apply both before and after loan disbursement varies in general. However, due to the unwise competition among the private banks and positive attitude individuals have towards state owned banks, borrowers in private banks tend to default more than in the government. This is analyzed using logit model as nominal, coded 0 for government and 1 for private banks.

List and description of variable external to both the borrowers and the banks

Business slowdown:- surely business failure for so whatever reason will inevitably results in liquidity problem in the borrowers side and obviously expected to have negative relationship with repayment performance of borrowers.

Business or loan types: banks do have different types of loan products based on the type of business borrowers run. Some have good market opportunity or are not seasonal, but some are seasonal or have little market opportunity. Consequently, some could have positive and some

other negative impact on repayment performance. This variable is a dummy one having six categories and was analyzed using logit model making the 'other type of loans' as reference category. The first category Working Capital loan coded 1, the second export coded 2, the third Agricultural coded 3, the fourth Hotel & tourism coded 4, the fifth Machinery rental & Construction coded 5 and the last one Other Type of loans coded 6.

List and description of variables related to borrowers

The third groups of the independent variables were seen into two categories again. The variables in the first category are the one which were analyzed only descriptively. The second category which comprises of demographic characteristics of borrowers (sex, age, marital status, and educational level) analyzed through logistic regression model. The list of the variables in the second category along with how they were input into the model is depicted in the table 3.1 below.

Variables in the first category related to borrowers

Family liquidation or disturbances:- this is the situation when there is a conflict between husband and wife and the marriage ends. So, that scenario expected to have negative relationship with repayment performance of a client.

Fund diversion:- this is a situation when the borrowers allocate the loans disbursed to them for some unintended purpose. Naturally, this practice of borrowers is expected to have negative relationship with repayment performance.

Table 3.2 list and description of variables in the second category related to borrowers

Variables	Type	Description
Sex	Nominal or categorical	1 if male and 0 if female
Age	Continuous	Number of years
Marital Status	Nominal or categorical	0 if single, and 1 if married
Education level	Categorical	Based on the maximum education level or grade achieved
Borrowing customer experience as a debtor	Continuous	Number of years

Sex: - the sex of borrowers is expected to have either positive or negative impact on loan repayment performance. It is to mean that either males or females may repay frequently based on the prevailing situations at Adama. Of course, females may be expected to be more responsible and disciplined for repayment.

Age: - in general it is expected that as age of a borrower increases, the maturity level increases and so the individual's repayment performance is expected to enhance as he/she gets older and older. In other words older people are expected to repay diligently and responsibly.

Marital Status:- it is again natural to expect married people feel responsible than unmarried or divorced or single or widowed/er in every aspect. As such with regard to repayment also married people are expected not to default most of the time.

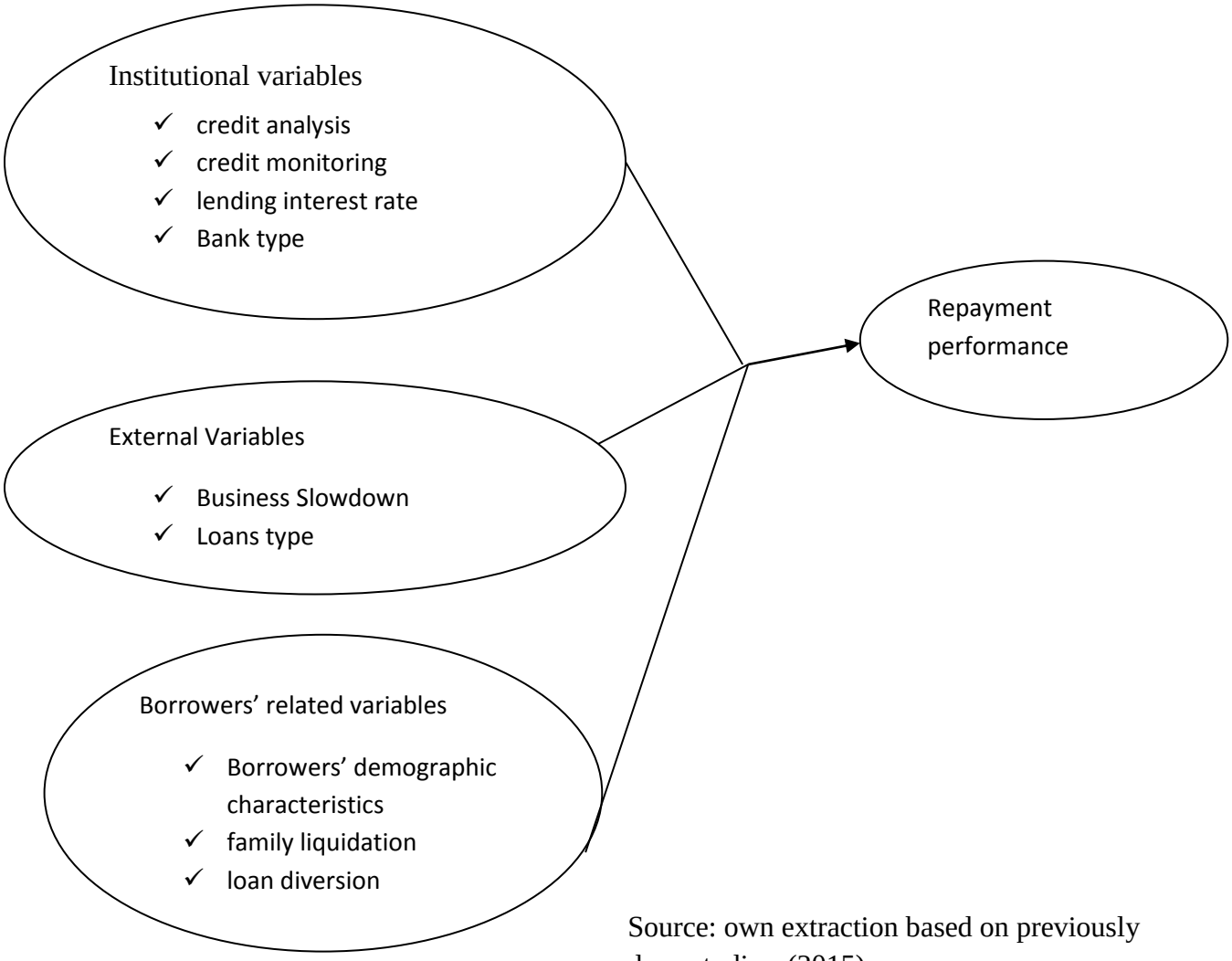
Education level:- as individuals progress through their education, they become more conscious towards negative consequences like the legal and moral consequence of not discharging their duties or simply the money borrowed per the agreement reached with financial institutions. Hence, more educated people are expected to repay in line with the contractual agreement.

Experiences as borrowing customer:- As the borrowers have experience of doing business with the money borrowed from financial institutions for longer period of time, they are expected to know the pros and cons of not repaying. Even they are expected to know what types of businesses are profitable. Consequently, experienced borrowers are expected not to default by the end of the day.

3.6. Conceptual Model

Conceptualizing the overall picture of the study is vital as it is an integrated way of looking into the problem. Jabareen(2009) defined conceptual framework as," a network, or " a plane," of interlinked concepts that together provide a comprehensive understanding of a phenomenon or phenomena."

The researcher based on intensive review of previous studies on the area and taking into consideration the Adama commercial banks' conditions has derived the conceptual model relating the explanatory variables and the dependent variable as depicted in figure below.



Source: own extraction based on previously done studies, (2015)

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter dealt with results obtained and the discussion by the researcher. It incorporated the analysis of the responses given by the banks' staff through self-administered questionnaire, in which case only credit department staffs of the banks were asked to fill the questionnaire designed to investigate the possible determinants of non-performing loans. Moreover, results and discussion pertinent to credit customers which were analyzed through logistic regression using SPSS version 20 are also presented in the chapter.

4.1 Descriptive Analysis

4.1.1 Profile of Respondents

Bank Staff Respondents

This subsection describes the profile of the eight bank staffs who participated in filling the questionnaire distributed and the rate of responses thereof. The researcher distributed to all bank staffs working on loan processing and provision activities of the bank. In line with that totally 26 questionnaires were distributed and only 3 were not collected. That makes the collection rate to be 88.46%.

Since all respondents were those who directly engaged on credit related activities of the banks it can be guessed that the composition of the respondents is relevant to get information about the factors contributing to non-performing loans in the commercial banks in Adama. Summary of their profile is presented in table 4.1.

Table 4.1 Summary of sex of Respondents

Sex	Frequency	Percent	Valid Percent	Cumulative Percent
Female	7	30	30	30
Male	16	70	70	100.0
Total	23	100.0	100.0	

Source: Own survey data (2015)

As depicted in table 4.1 above, 30% and 70% male and female respondents were participated in the study.

Table 4.2Age distribution of Respondents

Age	Frequency	Percent	Valid Percent	Cumulative Percent
20-29	6	26.1	26.1	26.1
30-39	14	60.9	60.9	87.0
40-49	3	13.0	13.0	100.0
Total	23	100.0	100.0	

Source: Own survey data (2015)

As shown in table 4.2 above, the age of the respondents were categorized into three intervals. Accordingly, 26.1% of the respondents composed of 20-29 age categories, 60.9% of them is in the 30-39 age categories and only 13% of the respondents lied in the 40-49 age categories. That shows most staff of the banks, who were working on credit related position, were youngsters the time the survey was taking place.

Table 4.3 Summary of Marital status of respondents

M.Status	Frequency	Percent	Valid Percent	Cumulative Percent
Single	8	34.8	34.8	34.8
married	15	65.2	65.2	100.0
Total	23	100.0	100.0	

Source: Own survey data (2015)

Table 4.3 above, shows that 34.8% of the respondents did not get married, but 65.2% get married while the survey was taking place. This implies that most of the respondents working on credit related positions of the selected banks were married people.

Table 4.4 Education levels of respondents

Education level	Frequency	Percent	Valid Percent	Cumulative Percent
Degree	16	69.6	69.6	69.6
masters	7	30.4	30.4	100.0
Total	23	100.0	100.0	

Source: Own survey data (2015)

Regarding the education level of respondents, as depicted in table 4.4, all of the respondents working on credit related position had education level of degree and above. To put simply, 69.6% of the respondents had first degree and the remaining 30.4% had master's degree while this particular survey was going on implying that the banks have got well equipped staff in qualification levels.

Table 4.5 Bank type the respondents belong

Bank Type	Frequency	Percent	Valid Percent	Cumulative Percent
Private	16	69.6	69.6	69.6
government	7	30.4	30.4	100.0
Total	23	100.0	100.0	

Source: Own survey data (2015)

The survey included both state owned and private commercial banks for the study. In lieu of that table 4.5 above depicts that 69.6% of the total respondents were from private owned banks and the remaining 30.4% were from government owned banks.

Table 4.6Current positions respondents held

Position held	Frequency	Percent	Valid Percent	Cumulative Percent
Manager	8	34.8	34.8	34.8
loan officer	13	56.5	56.5	91.3
CSM	2	8.7	8.7	100.0
Total	23	100.0	100.0	

Note: CSM represents Customer Service Manager

Source: Own survey data (2015)

Positions held by the respondents in their respective banks were also assessed and presented in table 4.6aboveand it shows that, the positions held by the respondents while the survey was taking place, were manager, Loan Officer and Customer Service Manager (CSM). Accordingly, 34.8%, 56.5% and 8.7% of the respondents held Manager, Loan Officer and CSM positions respectively implying the qualification mix of the respondents in the banks were good.

Table 4.7 Summary of experiences of respondents in credit related position

Experience	Frequency	Percent	Valid Percent	Cumulative Percent
1-2yrs	3	13.0	13.0	13.0
3-4yrs	9	39.1	39.1	52.2
>=5yrs	11	47.8	47.8	100.0
Total	23	100.0	100.0	

Source: Own survey data (2015)

Most of the respondents had experiences on credit related positions for three or more than three years. In other words, 87% of the respondents had 3 or more than 3 years experiences and only 13% had 1 to 2 years experience in credit related positions as it is presented in table 4.7 above implying that the experiences of the respondents are quite satisfactory.

4.1.2 Descriptive analysis of responses of bank staff respondents

The respondents were asked questions that were assumed to answer the possible factors that contribute to non-performing loans at Adama. Knowing those factors will enable the respective banks to curb the problem of accumulation of loans which do not perform ahead of time or before they cause any problem on the assets of the banks. Accordingly, summary of responses given by the respective employee of the banks to 28 questions under three major items are put as below.

For analysis purpose, in addition to the Likert's scale of interval for the degree of agreement of the respondents which ranges from strongly agree (5) to strongly disagree (1), criterion used by Motwani,Shrimali,& Agarwal(2014) was adopted. It is listed hereunder.

The score from 1.00 to 1.80 means Strongly Disagree
The score from 1.81 to 2.60 means Disagree
The score from 2.61-3.40 means Neutral or Not certain
The score from 3.41-4.20 means Agree
The score from 4.21-5.00 means Strongly Agree

Table 4.8 Credit analysis process

Item	Mean	Standard deviation	Overall response (in mean)
The bank offers sufficient training on credit analysis	3.70	0.88	Agree
Borrowers requested to submit financial statements as soon as they appear for loans application	4.35	.71	Strongly Agree
There is in depth assessment of credit application	2.60	1.84	Disagree
The loans requested are approved as fast as possible	3.76	1.09	Agree
The bank has ways for accessing credit history of borrowers	2.34	1.96	Disagree
Average	**3.35**		

Source: Own survey data (2015)

Table 4.8 above reveals that the overall average result on credit analysis is 3.35 and that implies the respective banks had undertaken the credit analysis process properly. However, the assessment of borrowers' credit applications and accessing credit history of them were at poor status. Whereas, the banks performed well in making borrowers to bring their financial statements as soon as they appear for loan request.

Table 4.9 Business slowdown or bankruptcy

Item	Mean	Standard deviation	Overall response (in mean)
Crisis on business return was reported	3.70	0.82	Agree
The financial performance of some borrowers as seen by the credit staff of the bank deteriorates from time to time	3.83	0.49	Agree
Some of the loans in the loan portfolio are restructured more than two times	3.78	0.60	Agree
Borrowers show willingness to make payments according to the arrangements made, but cannot repay due to liquidity problem	3.83	1.07	Agree
Average **3.79**			

Source: Own survey data (2015)

Table 4.9 above shows that the overall response measured in mean which is computed to be 3.79 is in the agreement category and that shows that the respondents confirmed the existence of business slowdown with their borrowing customers. Of course, the mean result of every item is also in support of the overall average obtained, the lowest being report on business return crisis, and highest deterioration of financial performance as seen by the bank and willingness but liquidity problem of borrowers comparatively. That in general implies there was non-repayment of loans due to business return crisis.

Table 4.10Credit monitoring or borrowers follow up activity

Item	Mean	Standard deviation	Overall response (in mean)
There is customer advice service on loan management after loan disbursement	2.42	1.40	Disagree
The bank staff often visit the business places of borrowers	2.40	1.35	Disagree
The concerned bank staff often check the financial health of the borrowers by going through their financial statements	2.82	1.32	Not certain
The bank has credit policy on borrowers who are under stress	3.42	1.036	Agree
The bank gives training on how to manage the fund to borrowers often	1.53	1.57	Strongly Disagree
There is awareness creation program for borrowers	2.13	1.64	Disagree
Clients with difficulty in loan payments are usually given extension period	3.44	0.74	Agree
Average**2.59**			

Source: Own survey data (2015)

The average result, 2.59, shown in table 4.10 above reveals that the respective banks performed poor on credit monitoring or follow up activities of their respective borrowers in general. Specifically, they performed the lowest on rendering training on loan management to their respective borrowers and the highest on provision of extension period for those borrowers under stress comparatively. The result obtained in general implies that the respective banks done poorly on awareness creation and training provision activities.

Table 4.11Fund diversion by borrowers

Item	Mean	Standard deviation	Overall response (in mean)
Some borrowers do additional businesses with the loan disbursed to them	4.35	0.49	Strongly Agree
Some borrowers seen returning portion of the loan given to them	2.59	1.09	Disagree
There is a time that defaulted customers seen employing the loan given to them for some other purposes	4.08	0.42	Agree
Some borrowers are interested to get more loans to buy some luxuries things like automobile for personal use	3.78	0.80	Agree
The loan taken was injected for the intended purpose by most customers	3.83	0.58	Agree
Average	**3.73**		

Source: Own survey data (2015)

As it can be seen from the average result of the analysis in table 4.11above, the respondents reply in general confirmed that borrowers often divert the loans disbursed to them for unintended purpose the average being 3.73. Particularly, the respondents showed disagreement on situation where the borrowers return portion of the loan they took item only. From the result obtained it is possible to infer that there is loan diversion by borrowers.

Table 4.12Incidence of client death or family disturbance

Item	Mean	Standard deviation	Overall response (in mean)
There were cases when repayment ceased due to death of client	3.38	0.85	Not certain
Family liquidation was one of the reasons for default	3.70	0.88	Agree
Average3.54			

Source: Own survey data (2015)

The average result obtained in table 4.12 above, shows that there was incidence of client death or family disturbance in general. Particularly the respondents in general were not sure cases of non-repayment due to death of client. However, they confirmed that there was incidence of family liquidation which caused non-repayment of loans in the respective banks implying that family liquidation is one of the determinant factors of repayment performance at commercial banks in Adama.

Table 4.13Lending interest rate of the banks

Item	Mean	Standard deviation	Overall response (in mean)
The lending interest rate of the bank is fair	3.78	0.90	Agree
Borrowers often time ask for reduction of lending interest rate	3.65	0.83	Agree
Lending interest rate was one of the possible cause for non-repayment	2.54	0.99	Disagree
Average3.32			

Source: Own survey data (2015)

As it is indicated in table 4.13 above, the overall responses of respondents expressed in average declares that the respondents were not sure whether the lending interest rate for different loan products is really a factor that determines borrowers' repayment performance or not. However, looking at the three items in table 4.12 above, it is obvious that the respondents did not perceive that lending interest rate is a factor for non-performing loans formation though borrowers asked

for the reduction of the rate often implying that lending interest rate was not determinant of repayment performance at commercial banks in Adama.

Table 4.14 Credit Default situation

Item	N	Mean	Std. Deviation	Overall response (in Mean)
There are so many occasions that loans for some customers in arrears	23	4.17	.83406	Agree
There are many irregular repayments	23	3.87	.69442	Agree
There are doubtful loan outstanding for some borrowers in which case the portfolio is at risk	23	3.91	.66831	Agree
There are customers who divert the loans	23	3.78	.90235	Agree
Valid N (listwise)	23			
Average 39.3				

Source: Own survey data (2015)

Table 4.14 above reveals that all respondents had expressed their agreement about the existence of non repayment situation in their respective banks.

Table 4.15 Correlation among variables

Variables	Overall CA	Overall BSD	Overal CM	Overall FD	OverallLIR	Overall FL	Overall CD
OverallCA	1.000	.381	.113	.000	.396	.005	-0.716
OverallBSD	.381	1.000	.270	.199	-.013	.073	0.773
OveralCM	.113	.270	1.000	.174	.195	.085	-0.979
OverallFD	.000	.199	.174	1.000	.166	.156	0.916
OverallLIR	.396	-.013	.195	.166	1.000	.068	0.302
OverallFL	.005	.073	.085	.156	.068	1.000	0.723
OverallCD	-.716	.773	-.979	.916	.302	.561	1.000

Note: CA, BSD, CM, FD,LIR, FL and CD represent Credit Analysis, Business Slowdown, Credit Monitoring, Fund diversion , Lending Interest Rate, Family Liquidation and Credit Default respectively.

Source: Own survey data (2015)

The other important test is multicollinearty tests both among independent variables and between dependent and independent variables. Accordingly, the correlation coefficients were computed to see the relationships among variables as depicted in table 4.15 above.

So, the result shows that there is strong association between dependent and all independent variables except lending interest rate in which case the correlation is medium. However, there is small correlation among the independent variables in general. Moreover, the direction of the relationships between the dependent variable, credit default, and the independents business slowdown, fund diversion, lending interest rate and family liquidation are positive; whereas, between the remaining two is negative. From the result obtained it can be inferred that there is association between the dependent and the independent variables but not among the independent variables implying that the independent variable can independently explain the dependent variable.

Table 4.16 Overall mean comparisons among independent variables

Variables	N	Mean	Std. Deviation	Overall response (in mean)
overall credit analysis process	23	3.35	.34784	Agree
Overall business slowdown situation	23	3.79	.40805	Agree
overall credit monitoring or follow up	23	2.59	.32201	Disagree
overall fund diversion	23	3.73	.25398	Agree
overall family liquidation	23	3.54	.47569	Agree
over all lending interest rate	23	3.32	.40037	Not certain
Valid N (listwise)	23			

Source: Own survey data (2015)

As table 4.16 above reveals, the respondents confirmed that there were proper credit analysis by the respective banks, and existence of business slowdown or bankruptcy, fund diversion and family liquidation problems from the borrowers' aspect. However, the respondents did not decide either to consider or not lending interest rate as one factor that affects repayment performance of borrowers; whereas, they agreed on the absence of proper credit monitoring or follow up of borrowers in the respective banks. In this regard the highest mean of overall response is 3.78 for business slowdown situation and the lowest is 2.59 for the credit monitoring activities implying that there is strong indication of borrowers' business slowdown and existence of lenient credit monitoring that affect repayment performance of borrowers at Adama commercial banks.

Profile of Credit customers

The researcher took 200 credit customers profile from the respective banks. The information taken from the respective banks about the customers were information about the sex, age, marital status, experience as a debtor, the type of business the loan borrowed for and education level of borrowers. Of the two hundred credit customers, 100 were defaulters and the remaining 100 were non-defaulters which were selected purposefully and conveniently. Putting it simply, the 100 credit customers were not repaying the loans according to the term and agreement when it was

due and were selected purposefully; whereas, the other 100 who repay their loans according to the term and agreement whenever it was due were selected to the convenient of the bank.

Table 4.17: Sex distribution of credit customers

Sex	Repayment status				Total		Chi2	Odds ratio
	Defaulter		Non-defaulter					
	Freq.	Percent	Freq.	percent	Freq.	percent		
Male	75	75	67	67	142	71		
Female	25	25	33	33	58	29	0.114	0.775
Total	100	100	100	100	200	100		

Source: Own survey (2015)

As it is depicted in table 4.17 above, the study composed of 58 females or 29% and 142 males or 71% of the total sample taken. Out of which 50% non-defaulters, who paid the loans they took before it was in arrears, and equal percentage who did not pay the loans taken as per the term entered. The table also shows that being male or female did not affect the loan repayment performance of the borrowers statistically with chi2 value 0.114 and odds ratio 0.779.

The result obtained is in line with the result of the research conducted by Solomon and Addisu(2013) at Dodota district, but is opposite to the result obtained by Mokhtar, Nartea, & Gan(2012) in Malaysia.

4.18 Age distribution of credit customers and loan repayment status

Characteristics	**Repayment status**			**Total**	**Chi2**	**Odds ratio**
		Defaulted	**Non-defauted**			
Age(in yrs)	**Mean**	**32.3400**	**48.9400**	**40.640**	**5.526****	**0.879**
	St.dev	**3.83029**	**10.84120**	**11.61918**		
Minimum age		**25**	**27**	**25**		
Maximum age		**55**	**71**	**71**		

Note: ** Significant at 5% significance level

Source: Own survey data (2015)

The youngest and oldest borrowers among the eight banks as shown in table 4.18 above are 25 and 71 respectively with mean 40.64 and standard deviation 11.619. The table also reveals that age is statistically significant on formation of non-performing loans at commercial banks in Adama with Chi2 value 5.526 and odds ratio 0.879. This finding is also in support of the finding of Solomon and Addisu (2013), and against Mokhtar et al.(2012) finding.

Table 4.19 Marital status of borrowers and loan repayment status

Marital Status	Repayment status				Total		Chi2	Odds ratio
	Defaulter		Non-defaulter					
	Freq.	Percent	Freq.	percent	Freq.	percent		
single	8	11.94	41	30.83	49	24.5	0.379	0.625
Married	59	88.06	92	69.17	151	75.5		
Total	67	100	133	100	200	100		

Source: Own survey (2015)

As shown in table 4.19, of the total borrowers 11.94% and 88.06% were single and married defaulters respectively; whereas, 30.83% and 69.17% were single and married non-defaulters respectively. Putting simply, 24.5% and 75.5% unmarried and married borrowers with respect to the total sample size were included in the study. The result of the analysis showed that marriage status of borrowers had no significance on their loan servicing performance statistically with chi2 value 0.379 and odds ratio 0.625. This finding is in support of the finding of Mokhtar et al.(2012).

Table 4.20 Education levels of borrowers and loan repayment status

Education level	Repayment status				Total		Chi2	Odds ratio
	Defaulter		Non-defaulter					
	Freq.	Percent	Freq.	Percent	Freq.	percent		
<=primary school	57	57	14	14	71	35.5	3.236*	0.306
>=secondary school	43	43	86	86	129	64.5		
Total	100	100	100	100	200	100		

Note: * Significant at 10% significance level

Source: Own survey data (2015)

The researcher grouped borrowers' education level into two groups for analysis. The first group is those who had education up to primary school, inclusive and the second one secondary school and above. Accordingly, pretty large number of non-defaulters (43%) and relatively few number of defaulters (21.5%) had secondary school and above. However, relatively few number of non-defaulters (7%) and 28.5% had only primary and below education levels as revealed in table 4.20 above. The result also showed that level of education is statistically significant at 10% level of significance with Chi2 value 3.236 and odds ratio 0.306 implying that those borrower with higher education are most likely to repay their loan in full and in time.

Table 4.21 Borrowers' experiences as debtors and loan repayment status

Characteristics	Repayment status			Total	Chi2	Odds ratio
		Defaulted	Non-defauted			
Experiences(in yrs)	Mean	2.1600	4.9700	3.5650	8.421***	0.377
	St.dev	0.80050	1.87732	2.01397		
Minimum experience		1	1	1		
Maximum experience		6	10	10		

Note: *** Significant at 1% significance level

Source: Own survey data (2015)

Here the researcher tried to see the impact of borrowing experience on loan servicing performances of the debtors. Table 4.21 above shows the minimum experience in borrowing is a year and the maximum one is 10 years with a mean 3.57 and standard deviation 2.01. The table also reveals that experience in borrowing is statistically significant on formation of non-performing loans at commercial banks in Adama with Chi2 value 8.421 and odds ratio 0.377. That implies more experienced borrowers are less likely to default compared to less experienced borrowers.

Table 4.22 Borrowers' loans type

Type of loan	Repayment status				Total		Chi2	Odds ratio
	Defaulter		Non-defaulter					
	Freq.	percent	Freq.	percent	Freq.	percent		
Working Capital	33	26.61	5	6.58	38	19	2.314	5.042
Export	28	22.58	4	5.26	32	16	0.079	0.718
Agricultural	53	42.74	13	17.11	66	33	4.862*	7.714
Hotel & Tourism	4	3.23	27	35.53	31	15.5	0.382	0.494
Machinery R and C**	2	1.61	9	11.84	11	5.5	0.081	1.526
Other type***	4	3.23	18	23.68	22	11		
Total	124	100	76	100	200	100		

Note: *, **, **** represents significant at 5% significance level, Machinery rental & construction loan and other type of loan respectively.

Source: Own survey data (2015)

The researcher dealt with the different types of loan products disbursed from the loan portfolio of the banks to the borrowers under study and categorized the variable into six groups based on the extent or the number of times the loans were given to the borrowers and since the variable has got more than two categories, 6 level, is treated as dummy so that it can be analyzed through logistic regression. The most frequent ones were grouped from one to five, and the remaining, disbursed but not many in number were encoded under the title "other type" as depicted in table 4.22 above.

Accordingly, the result found after logistic regression was that the types of loans taken by the borrowers had statistically significant impact on the loan servicing performance of the debtors with overall p value of 0.026. Moreover, among all loan types only the third, agriculture loan is statistically significant with respect to the reference category having chi2 value 4.862 and odds ratio 7.714.

Table 4.23 Bank type used by borrowers

Bank Type	Repayment status				Total		Chi2	Odds ratio
	Defaulter		Non-defaulter					
	Freq.	Percent	Freq.	Percent	Freq.	percent		
Private	82	82	55	55	137	68.5	0.207	0.731
Government	18	18	45	45	63	31.5		
Total	100	100	100	100	200	100		

Source: Own survey data(2015)

Table 4.23 reveals that of the total 200 sample size taken 31.5% of the borrowers were from state owned banks, and the remaining 68.5% of them were from private owned banks. Moreover, 9% defaulters were from government owned banks and 41% from private. With respect to non-defaulters 22.5% and 27.5% from government and private banks respectively. The result of the analysis showed that the type of bank the borrowers belong was not statistically significant in affecting the repayment performance of the clients' with chi2 value 0.207 and odds ratio of 0.731.

4.2 Determinants of Loan repayment performance

Table 4.23 reveals the impact of the independent variables on loans repayment performance of borrowers. All of the outputs tables of the logit, including this one, are shown in Appendix B for reference and some of them which were used to test the fitness of the model were discussed in the diagnostic test of the model section. A total of six variables were used in the model as the factors affecting the borrowers' loan repayment performance. Among which four of them were found to be significant factors affecting the borrowers' loan repayment performance and the remaining variables are not significant factors in affecting loan repayment performance in Adama condition.

Table 4.24 Logistic regression output showing impact of predictor variables

		Coefficient	S.E.	Chi2	Df	P-value	Exp(B)
Step 1[a]	Sex	-.254	.752	.114	1	.735	.775
	Age	-.129	.055	5.526	1	.019**	.879
	MaritalS	-.471	.764	.379	1	.538	.625
	Edulevel	-1.184	.658	3.236	1	.072*	.306
	Experience	-.976	.336	8.421	1	.004***	.377
	BusinessT			12.753	5	.026**	
	BusinessT(1)	1.618	1.063	2.314	1	.128	5.042
	BusinessT(2)	-.332	1.177	.079	1	.778	.718
	BusinessT(3)	2.043	.927	4.862	1	.027**	7.714
	BusinessT(4)	-.706	1.143	.382	1	.537	.494
	BusinessT(5)	.423	1.484	.081	1	.776	1.526
	BankT	-.313	.688	.207	1	.649	.731
	Constant	8.693	2.286	14.464	1	.000	5958.727

Note: *, **, *** represent significance at 10%, 5% and 1% respectively

Source: Own survey data & Logit output (2015)

Age of borrowers

The result obtained was as expected and was in line with the finding of (Solomon & Addisu, 2013). Accordingly, as age increases people become more responsible and committed to make repayments according to their agreements. Table 4.24 reveals that the direction of relationship between the age variable and default is negative and statistically significant with p value 0.019 which is less than 0.05. Hence increase in age is likely to decreases the probability of default by 0.129 unit or the odds of default decreases by 87.9% as age increases.

Education level of borrowers

It was natural to expect positive and significant impact on repayment performance of individuals as they step up the next educational ladder and the researcher did the same prior to the logit analysis. Eventually, after the logit analysis, it was found out that progress in education level had negative relationship with default and decreases the probability of default by 1.184 unit or the odds of default decreases by 30.6% as table 4.24 reveals. In other words, as borrowers update

themselves in education, they will have more chance of managing their loans properly, hence enhancing their repayment performances.

Experiences of borrowers as a debtor

Prior to the logit analysis it was expected that as individuals borrow and do business with the borrowed money for longer period of times they would get the opportunity to learn how to handle and manage the borrowed money properly implying that positive and significant relationship between borrowing experiences and repayment performance. Fortunately, the logit analysis produced the same result with the expectation as shown in table 4.24 above. In other words, increase in experiences of individual borrowers is likely to decreases the probability of default by 0.976 unit or the odds of default decreases by 37.7% as experiences increase.

Business Type

Earlier to the logit analysis it was expected that the nature of the business which determines the type of the loan to be taken by the borrowers, could have either positive or negative and significant impact on repayment performance based on factors like lending interest rates. As expected the type of loan products taken by the borrowers were found to have positive relationship with default and be significant statistically.

Here the since the variable has six level of categories, it was encoded dummy during the analysis process where the type of loan coded 6, other type of loans, was made to be in the reference category.

Accordingly, the overall p value of loan types was calculated to be 0.026 which is significant as it is less than 0.05. However, export, hotel and tourism, Working capital, and Machinery rental and construction types of loans were found to be statistically insignificant compared with the reference category, with all having p value greater than 0.05. Moreover, the first, the third and the fifth loan products had positive relationship with default,and the second and the fourthhad negative relationship as depicted in table 4.24 above. The agricultural loan type, controlling all others, had positive relationship with default and statistically significant compared with the reference category. In other words, disbursing agricultural loans, which had p value of 0.027, to borrowers increases the probability or estimated logit of default by 2.043 unit or the odds of

default increases by 71.4% with increase of more loans on agricultural activities controlling the remaining ones and compared with the reference category.

The result found is in conformation with the finding of Mokhtar et al.(2012) which concluded that borrowers who took loans to do agricultural activities were in problem in making the repayments.

4.3 Diagnostic test of the model

The assumptions of logistic regression model which are multicollinearity, sample size and outliers were checked. Accordingly, looking at the S.E(standard error) column of table 4.24 above, since no value is greater than 2 it can be conclude that there is no multicollinearty among independent variables, or else running simple correlation the result showed that in every case r was less than 0.9 as depicted in Appendex C. According to Pallant(2005) multicollinearty exists if r between the independent variables is greater or equal to 0.9 which should not be in binary logistic and of course was not.

With regard to sample size, literature has not provided rule which is fixed (Peng et al, 2002). But several authors recommended 10 to1 ratio (Lawley & Maxwell, 1971; Marascuilo & Levin, 1983; Tabachnick & Fidell, 1996, 2001, as cited in Peng et al., 2002). That is 10 cases for 1 predictor. That ratio was also recommended by (Hosmer and Lemeshow, 2000).

For this particular study there were 200 cases and only seven independent variables implying that almost 29 cases per each independent variable. Moreover, looking at the residuals and as there is well goodness of fit of the model there were no effect due to outliers. In a nutshell every assumption of the model was satisfied.

Furthermore, in the logistic output headed Block 0, the overall percentage of correctly classified cases were 50 as shown in Appendix B. This was the logistic regression prediction without predictors, which was improved to 93.5% after entering the predictor variables which increased the accuracy of the prediction by 43.5%.

The omnibus Tests of the model coefficients also indicated that the model performs well in prediction with p value less than 0.05, chi2 value 195.145 and degree of freedom 11. The result in the table headed Hosmer and Lemeshow test also conforms the goodness of fit of the model with p value greater than 0.05 which is 0.454. According to Pallant(2005), p value greater than 0.05 for Hosmer and Lemeshow test is an indicator of good fit.

CHAPTER FIVE
CONCLUSION AND RECOMMENDATION

5.1Conclusion

Financial institutions are indispensable for the forward economy movement of one's society in particular and the country in general. To make that work there is a need of protecting them from liquidity problems, especially because of bad assets. These are assets whose quality deteriorated as a result of among others due to non-performing loans.

This particular study tried to look into the most prevalent causes for creation of bad assets due to the accumulation of loans which are not performing by collecting primary data from 23 credit staff of eight commercial banks at Adama through self-administered questionnaires, which were analyzed descriptively. Moreover, the study tried to explore the impact of some borrowers' related issues on repayment performances taking 200 borrowers of the same using logistic regression model.

The descriptive analysis result showed that there were weak credit analysis processes before loans approval, lenient credit monitoring activities and absence of physical visit of borrowers' place of business, borrowers' business slowdown, and failure of the respective banks to render awareness to their respective borrowing customers on how to manage the disbursed loans. On top of that there is no reliable means of knowing borrowing customers' credit history. In support of the above result, multicollinearty test also confirmed that there was strong association between the independent variable, credit default, and the five independent variables excluding lending interest rate implying that the respective bank officers were not giving due attention to the key elements of loans processing duties in spite of its impact on the largest asset of the banks in particular and that of the public in general. Moreover, from the results obtained it can be inferred that the respective banks among others became highly ignorant on the impact of training and awareness creation activities on loan repayment performance of the borrowers even though they perceived these elements as determinants of the same.

The result also showed that the respective bank staffs were looking into the financial performances of borrowers when there are non-repayment situations strengthening the conclusion that in general the banks are poor in their loan follow up duties.

The logistic regression analysis revealed that the direction of relationships between default and the variables sex, age, marital status, education level, the type of bank the borrowers belong and borrowing experiences of the borrowers was negative. But among those variables only age, education level and experiences had statistical significance. The other variable investigated was type of loans taken by the borrowers and the result after logistic regression showed that direction of the relationship between the variable and default was either positive or negative and statistically significant overall.

Hence, from the results obtained through the logistic regression it can be concluded that among others demographic characters and experiences of borrowers along with loan types are determinants of repayment performance.

The researcher also tried to test the validity of the assumptions of logistic regression after running the analysis. Accordingly, multicollinearty which refers to strong correlation among the independent variables was checked and found to be less than 0.9. The absence of the effect of outliers on the result was also approved by looking at result in the table headed Hosmer and Lemeshow which conformed the goodness of fit of the model with p value 0.454 which is greater than 0.05 (Pallant, J., 2005).

With regard to the third assumption, which is sample size, it was conformed that sample size is adequate for the test as there are 29 cases per each predictor variables. According toHosmer and Lemeshow (2000), 10 cases per a predictor are adequate. So, in every case the model was found to be valid.

5.2 Recommendations

Based on the results of the descriptive analysis and the logistic regression, the researcher recommended the following:

- The respective commercial banks at Adama needs to look for ways to clearly assess the financial and non-financial data of their borrowing customers before loan disbursement;
- The result also showed that currently accessing borrowers' credit history is somewhat tough for the respective banks. To alleviate the same rather than depending on information provided by the central bank only, both privately owned and government owned banks need to establish alliance so that they would not make wrong selection of borrowers that eventually leads to repayment difficulty;
- Currently, the loan processing and approvals in every bank is done through more of the managers and loan officers alone. Especial managers are very much occupied with other operational activities. So, it is recommended to have a group assigned for analyzing every situation of potential borrowers so that important thing "know your customer" principle of banks fulfilled adequately in order to at least minimize adverse selection.
- As borrowers, who do not have awareness for that matter, could allocate the loan to unintended purpose and may default by the end of the day, the banks are advised to assign individuals who follow the borrowers' activities and coach the borrowers on the consequences of non-repayment and loan management periodically on continuous basis;
- The result also showed that some types of loans by their nature or due to higher cost of capital or due to some other reasons are susceptible for default. So, the banks have to identify the reason(s) and rectify the same. For instance, in addition to overall significance, the result indicated that compared to other loans type agricultural loans are exposed to default, so here banks need to revise the loan contract either in terms of reducing loan rate or extending the loan term or making the borrower to buy insurance for the loan based on the prevailing situations;
- The banks also need to be conscious and strengthen their follow up and advice on loan management more on young borrowers than old experienced borrowers as both age and experiences in borrowing revealed to have negative and statistically significant bearing on default.

5.3 Direction for future Research

The researcher believes that the future is bright and the bank industry along with the society matures in the time ahead in Ethiopia. Hence it is recommended that the following areas should be researched provided that the researcher could access borrowers to get pertinent information on those variables to see their impact on repayment performance of borrowers.

- Modes of Repayment;
- Rate of loans;
- Family size;
- Access to market;
- Fraud-both by bank staff and borrower; and
- Loan size.

REFERENCES

Abadi, S., Achsani,N.A., & Rachmina,D. (2014). The Dynamics of Non-performing Loan in Indonesian Banking Industry: A sensitivity Using VECM Approach. *International Journal of Education and Research, 2*(8), pp. 125.

Admassu, B. & Asayehgn, D.(2014). Banking sector in Ethiopia. *International Journal of Business and commerce, vol.3*(8), 25-38.

Ahmad,F., & Bashir, T.(2013). Explanatory Power of Bank Specific Variables as Determinants of Non-Performing Loans: Evidence from Pakistan Banking Sector. *World Applied Sciences Journal 22* (9): 1220-1231.

Aremu, A., Ekpo, I., & Mustapha A.(2013). Determinants of Banks' Profitability in a Developing Economy: Evidence from Nigerian Banking Industry. *Interdisciplinary Journal of Contemporary Research in Business,Vol 4*(9),33-85.

Atrill, P.,& McLaney,E.(1997). *Accounting and finance for Non- specialists.* (2nd ed). London: Printice – Hall.

Auronen, L.(2003). *Asymmetric Information: Theory and Applications.* Unpublished Master's thesis, Helsinki University of Technology, Helsinki, Finland.

Barth, J.R., Caprio, G.J., & Levine, R.(2004). "Bank Regulation and Supervision: What Works Best?".*Journal of Financial Intermediation, 13*, 205-248.

Basel.(1999). Principles for the management of credit risk. Consultative paper issued by Basel Committee on banking supervision, Basel.

Bekalu,A.(2013). *Determinants of profitability analysis of commercial banks.* Unpublished master's Thesis, Adama Science and Technology University, Adama,Ethiopia.

Bloem, A., M., & Freeman,R.(2005). *The Treatment of non-performing loans* (Rep.No.18). Washington,D.C.: International Monetary Fund.

Collins,N.J., & Wanjau,K.(2011). The effects of interest rate spread on the level of non-performing assets: A case of commercial banks in Kenya. *International Journal of Business and Public Management, 1*(1),58-65.

Cortavarria,L.,Dziobek,C.,Kanaya,A., & Song,I.(2000). *Loan Review, Provisioning, and Macroeconomic Linkages* (Rep.No.195). Washington,D.C.: International Monetary Fund.

Ebisa,D.(2012). The effects of the post 1991 era financial sector deregulations in Ethiopia: An inspirational guide for agribusiness. *Basic Research journal of agriculture Science and review, vol. 1*(4), 81-87.

Elegbe, A.(2013). Bank failure and Economic development in Nigeria: An empirical approach. *British journal of economics, finance and management sciences,8*(1),46-63.

Farhan,M.,Sattar,A.,Chaudhry,A.,H.,Khalil,F.(2012). Economic Determinants of Non-performing Loans: Perception of Pakistani Bankers. *European Journal of Business Management, 4*(19),87-99.

Gadise,G.(2014). *Determinants of Non-performing Loans: A case of Commercial Banks in Ethiopia.* Unpublished master's thesis, Jimma University, Jimma, Ethiopia.

Greuning, H., and Bratanovic, S.B. (2003). *Analyzing and Managing Banking Risk: A Framework for Assessing Corporate Governance and Financial Risk.* (2nd ed.). Washington DC: World Bank.

Horne, J.C., & Wachowicz, J.M. (2001). *Fundamentals of Financial Management*. (11th ed). United States: Prentice Hall.

Hosmer, W.D and Lemeshow, S.(2000). *Applied Logistic Regression*.(2nd ed.).Canda:John Wiley & Sons,inc.

Jabareen, Y.(2009). Building a conceptual framework: Philosophy, Definitions, and Procedure. *International journal of Qualitative Methods, 8*(4), 49-62.

Joseph, M.T., Edson,G., Manuere,F.,Clifford,M., & Michael, K.(2012). Non Performing Loans in Commercial Banks: A case of CBZ Bank Limited in Zimbabwe. *Interdisciplinary Journal of Contemporary Research in Business,4*(7),467-488.

Khemraj,T., & Pasha,S.(2009). *The determinants of nonperforming loans: an econometric case study of Guyana.* Unpublished master's thesis, University of Guyana, Guyana.

Kofi,A.,S.(2012). *Determining the causes and Impact of Non-performing loans on the Operations of Microfinance institutions: A case of Sinapi Aba Trust.*Unpublished master's thesis, Kwame Nkrumah University, , Kwame Nkrumah,Ghana.

Kwambai, D.K.,& Wandera,M.(2013). Effects of Credit Information Sharing on Non-performing Loans: The case of Kenya Commercial *Bank. European Scientific Journal, Vol.9(*13),168-193.

Messai,A.S., & Jouini,F.(2013). Micro and Macro determinants of non-performing loans. *International Journal of Economics and Financial Issues,Vol. 3*(4),852-860.

Million.G.,Mathewos, K.,& Sujata,S.(2015). The impact of credit risk on profitability performance of commercial banks in Ethiopia. *African Journal of business management, 9* (2), 59-66.

Mokhtar,S.,H.,Nartea,G.,& Gan,C.(2012).Determinants of microcredit loans repayment problem among microfinance borrowers in Malaysia. *International journal of social research, vol.2*(7), 33-45

Moti,H.O., Masinde,J.S.,Mugenda,N.G.,& Sindani,M.N.(2012). Effectiveness of Credit Management System on Loan Performance: Emprical Evidence from Micro Finance Sector in Kenya. *International Journal of Business, Humanities and Technology,2*(6),*99-108*.

Motwani,D.,Shirmal,D., & Agarwal,K.(2014). Customers' attitude towards Social Media Marketing. *Journal of Business Management and Social Sciences,3*(4),12-16.

Mwiya,B. (2005). *Credit Default in the Financial Sector: Need for Credit Reference and Rating Agencies.*Unpublished master's thesis, Copperbelt University, Kitwe.

National Bank of Ethiopia.(2008). *Asset classification and Provisioning* Directive No. *SBB/43/2008*. Addis Ababa, Ethiopia: Author.

National Bank of Ethiopia.(2014).*Overall Economic performance2012/13Annual Report.*Addis Ababa,Ethiopia: Author.

Nketani,C.H.(2007). *Factors Affecting credit Default: the case of Stanbic Bank*. Unpublished Master's thesis, Copperbelt University, Copperbelt, Zambia.

Ogeisia, S.K., Alala,O.,Musiega,D., & Manase,G.W.(2014). Impact of borrower character on loan repayment in commercial banks within Kakamega town. *International journal of arts and humanity science,1*(2),13-19.

Omara,M.(2007). *Credit Assessment and Repayment of bank loans in Barclays Bank Uganda LTD.* Unpublished master's thesis, Makerere University, Makerere, Uganda.

Pallant, J.F.(2005). *SPSS survival manual: a step by step guide to data analysis using SPSS*.(2nd ed.).Australia: National Library of Australia.

Peng,C.J.,Lee,K.L, & Ingersoll,G.M.(2002). An Introduction to Logistic Regression Analysis and Reporting. The *Journal of Educational Research, 96*(1),3-14

Prakash, P.,& Poudel, S.(2012). The Impact of credit risk management on financial performance of commercial banks in Nepal. *International Journal Arts and Commerce,1*(5),1-7.

Rajaraman, I., & Vasishtha, G. (2002). Non Performing Loans of PSU Banks: Some Panel Results. *Economic and Political Weekly Journal*, *4*(4), 429 – 435.

Richard, E., Chijoriga, M., Kaijage, E., Peterson, C.,& Bohman, H. (2008). Credit Risk Management System of a Commercial Bank in Tanzania. *International Journal of Emerging Markets,* 3 (3), 323-332.

Richard,E.(2011). Factors that cause Non-performing loans in commercial banks in Tanzania and strategies to resolve them. *Journal of management Policy and Practice.Vol. 12*(7),50-56.

Ross, P. S. (1997). *Money and Capital Markets: Financial Institutions and Instruments in a Global Marketplace.(*6th ed). New York: McGraw-Hill.

Rose,P.S., and Hudgins,S.C.(2008). *Bank Management and Financial Services.* (7th ed). New York: McGraw-Hill.

Ross,S.A.,Westerfield,R.W.,&Jordan,B.D.(2001). *Essentials of Corporate Finance.* (3rd ed). New York: McGraw-Hill.

Saunders, A. (1999). *Credit Risk Measurement: New Approaches to the Value at Risk and other Paradigms.*(3rd ed). London:Pitman Publishing.

Solomon,A.,&Addisu,B.(2013). Determinants of Rular Households Loan Repayment Performance, in Oromia Regional State: The case of Dodota Woreda. *International Journal of Research in Computer Application and Management*, 3(11),112-118.

Teshome, D.(2010). *Non-performing loan and its management in commercial banks in Ethiopia: A case of Dashen bank, Mekele area branch.* Unpublished master's thesis, Mekelle University, Mekelle,Ethiopia.

Tseganesh,T.(2012).*Determinants of Banks Liquidity their Impact on Financial Performance.* Unpublished master's thesis, Addis Ababa University, Addis Ababa,Ethiopia.

Wondimagegn,G.(2012). *Determinants of Nonperforming Loans: The case of Ethiopian Banks.* Unpublished master's thesis, University of South Africa, Addis Ababa, Ethiopia.

Zewdu,S.(2010).*Impact of reducing loan by Ethiopian banks on their own performance.* Unpublished Master's thesis, University of South Africa,Addis Ababa, Ethiopia.

Appendix-A

Bank Staff Questionnaires

Customers' Credit Default Survey

I am student at Adama Science and Technology University attending Masters of Business Administration (MBA) program. I am currently conducting research on the borrowers' repayment performance determinants in selected state owned and private commercial banks, specifically located at Adama for partial fulfillment of the program.

The result obtained from the study, on top of partially fulfilling the program requirements, it presumably provides very vital information on the possible determinants of repayment performance of borrowers for the banks included in the study in particular and to every surrounding banks in general. In lieu of that I kindly request you to scarify some minutes of your time in providing genuine responses for every question as much as possible by choosing the most appropriate answers that you feel.

Finally, I positively confirm you that the results obtained and the information provided by you will be used only for academic purpose and kept confidential. Furthermore, I highly appreciate and grateful to your support in advance.

With Best regards,

Wendwesen Tedla

I. BACKGROUND INFORMATION

Dear respondents, please put tick mark **(□)** on the space provided for your opinion or choice.

1. Gender

☐ Male ☐ Female

2. Age group

☐ 20-29 ☐ 30-39 ☐ 40-49 ☐ 50 and above

3. Marital Status

☐ Single ☐ Married ☐ Widowed

4. Level of Education

☐ Diploma ☐ Degree ☐ Masters

If any other, specify---------

5. Bank you work in

☐ Government ☐ Private

6. Your Current Position

☐ Manager ☐ Accountant ☐ Auditor ☐ Loan Officer

Others please specify…….

7. No. of years working in credit related position

☐ 1-2 years ☐ 3-4 years ☐ 5 years and above

II. The questions which follow below are asked to get information on factors that affect or determine repayment performance of borrowers in your esteemed bank at Adama. Accordingly, you are kindly requested to indicate your degree of agreement for the corresponding question by choosing either SA- Strongly Agree (5), A-Agree (4), NC-Not Certain (3) or D-Disagree (2)or SD- Strongly Disagree.

- **1** = represents **Strongly Disagree**
- 2= represents **Disagree**
- 3= represents **Not Certain (**neither agree nor disagree**)**
- 4= represents **Agree**
- 5= represents **Strongly Agree**

Item I: Questions related to credit Analysis process by the concerned bank

Questions	Five level Likert Scale				
	SD	D	NC	A	SA
The bank offers sufficient training on credit analysis often	1	2	3	4	5
Borrowers requested to submit their financial statements as soon as they appear for loan application	1	2	3	4	5
There is in depth assessment of credit application	1	2	3	4	5
The loans requested are approved as fast as possible	1	2	3	4	5
The bank has a sufficient way of accessing all applicants' previous borrowings in other financial institutions	1	2	3	4	5

Item II: Questions related to business slow down or bankruptcy

Questions	Five level Likert Scale				
	SD	D	NC	A	SA
Crisis on business return was reported by borrowers	1	2	3	4	5
The financial performance of some borrowers as seen by the credit staff of the bank deteriorates from time to time	1	2	3	4	5
Some of the loans in the loan portfolio are restructured more than two times	1	2	3	4	5
Borrowers show willingness to make repayments according to the arrangements made, but cannot repay due to liquidity problem	1	2	3	4	5

Item III: Questions related to credit monitoring or borrowers follow up activity

Questions	Five level Likert Scale				
	SD	D	NC	A	SA
There is customer advice service on loan management after loan disbursement	1	2	3	4	5
The bank staff often visit the business places of borrowers	1	2	3	4	5
The concerned bank staff often check the financial health of the borrowers by going through their financial statements	1	2	3	4	5
The bank has adequate procedures to employ on borrowers who are under stress	1	2	3	4	5
The bank gives training on how to manage the fund to borrowers often	1	2	3	4	5
There is awareness creation program for borrowers by the bank	1	2	3	4	5
Clients with difficulty in loan payments are usually given an extension period	1	2	3	4	5

Item III: Questions related to fund diversification by borrowers

Questions	Five level Likert Scale				
	SD	D	NC	A	SA
Some borrowers do additional businesses with the fund disbursed to them	1	2	3	4	5
Some borrowers seen returning portion of the fund given to them	1	2	3	4	5
There is a time that defaulted customers seen employing the loan given to them for some other purposes	1	2	3	4	5
Borrowers are interested to get more funds to buy some luxurious things like automobile for personal use	1	2	3	4	5
The loan taken was injected for the intended purpose by most customers	1	2	3	4	5

Item IV: Questions related to family liquidation or death of client

Questions	Five level Likert Scale				
	SD	D	NC	A	SA
There were cases when repayment was ceased due to death of client	1	2	3	4	5
Family liquidation was one of the causes for default	1	2	3	4	5

Item V: Questions related to lending interest rate of the bank

Questions	Five level Likert Scale				
	SD	D	NC	A	SA
The lending interest rate of the bank is fair	1	2	3	4	5
Borrowers often time ask for reduction of lending interest rate	1	2	3	4	5
Lending interest rate was one of the possible cause for non-repayment	1	2	3	4	5

Item VI: Question related to credit default

Questions	Five level Likert Scale				
	SD	D	NC	A	SA
There are so many occasions that loans for some customers in arrears	1	2	3	4	5
There are many irregular repayments	1	2	3	4	5
There are doubtful loan outstanding for some borrowers in which case the portfolio is at risk	1	2	3	4	5
There are customers who divert the loans disbursed to them	1	2	3	4	5

Thank you very much for your Cooperation!

(The researcher)

Appendix-B

Table 4.14 Correlations among variables

Correlations

			overallCA	overallBSLD	overallCM	overallFD	overallLIR	overallFL	overallCD
Spearman's rho	overallCA	Correlation Coefficient	1.000	.381*	.113	.000	.396	.005	-0.716
		Sig. (2-tailed)		.020	.608	1.000	.062	.651	.982
		N	23	23	23	23	23	23	23
	overallBSLD	Correlation Coefficient	.381*	1.000	.270	.199	-.013	.073	0.773
		Sig. (2-tailed)	.020	.	.212	.362	.954	.079	.742
		N	23	23	23	23	23	23	23
	overallCM	Correlation Coefficient	.113	.270	1.000	.174	.195	.085	-0.979
		Sig. (2-tailed)	.608	.212	.	.427	.372	.479	.700
		N	23	23	23	23	23	23	23
	overallFD	Correlation Coefficient	.000	.199	.174	1.000	.166	.156	0.916
		Sig. (2-tailed)	1.000	.362	.427	.	.449	.214	.479
		N	23	23	23	23	23	23	23
	overallLIR	Correlation Coefficient	.396	-.013	.195	.166	1.000	.068	0.302
		Sig. (2-tailed)	.062	.954	.372	.449	.	.161	.759
		N	23	23	23	23	23	23	23
	overallFL	Correlation Coefficient	.005	.073	.085	.156	.068	1.000	0.723
		Sig. (2-tailed)	.651	.079	.479	.214	.161	.	.508
		N	23	23	23	23	23	23	23
	overallCD	Correlation Coefficient	-.716	.773	-.979	.916	.302	.561	1.000
		Sig. (2-tailed)	.982	.742	.700	.479	.759	.508	.
		N	23	23	23	23	23	23	23

*. Correlation is significant at the 0.05 level (2-tailed).

Appendix-C

Logistic Regression Output

```
LOGISTIC REGRESSION VARIABLES Repayment
  /METHOD=ENTER sex age MaritalS Edulevel Experience BusinessT BankT
  /CONTRAST (BusinessT)=Indicator
  /SAVE=ZRESID
  /CLASSPLOT
  /CASEWISE OUTLIER(2)
  /PRINT=GOODFIT ITER(1) CI(95)
  /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).
```

Logistic Regression

Notes

Output Created		11-MAY-2015 14:43:40
Comments		
Input	Data	C:\Users\elsa\Desktop\better\better6.d.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	200
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing
Syntax		LOGISTIC REGRESSION VARIABLES Repayment /METHOD=ENTER sex age MaritalS Edulevel Experience BusinessT BankT /CONTRAST (BusinessT)=Indicator /SAVE=ZRESID /CLASSPLOT /CASEWISE OUTLIER(2) /PRINT=GOODFIT ITER(1) CI(95) /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).
Resources	Processor Time	00:00:00.06
	Elapsed Time	00:00:00.16
Variables Created or Modified	ZRE_1	Normalized residual

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	200	100.0
	Missing Cases	0	.0
	Total	200	100.0
Unselected Cases		0	.0
Total		200	100.0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
non-defaulter	0
defaulter	1

Categorical Variables Codings

		Frequency	Parameter coding				
			(1)	(2)	(3)	(4)	(5)
Business or loan type	Working capital	38	1.000	.000	.000	.000	.000
	Export	32	.000	1.000	.000	.000	.000
	agriculture	66	.000	.000	1.000	.000	.000
	hotel & tourism	31	.000	.000	.000	1.000	.000
	machinery rental & construction	11	.000	.000	.000	.000	1.000
	Other	22	.000	.000	.000	.000	.000

Block 0: Beginning Block

Iteration History[a,b,c]

Iteration		-2 Log likelihood	Coefficients
			Constant
Step 0	1	277.259	.000

a. Constant is included in the model.

b. Initial -2 Log Likelihood: 277.259

c. Estimation terminated at iteration number 1 because parameter estimates changed by less than .001.

Classification Table[a,b]

	Observed		Predicted		
			Repayment status		Percentage Correct
			non-defaulter	Defaulter	
Step 0	Repayment status	non-defaulter	0	100	.0
		defaulter	0	100	100.0
	Overall Percentage				50.0

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	Df	Sig.	Exp(B)
Step 0	Constant	.000	.141	.000	1	1.000	1.000

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Sex	1.554	1	.213
		Age	102.568	1	.000
		MaritalS	29.436	1	.000
		Edulevel	40.376	1	.000
		Experience	97.826	1	.000
		BusinessT	93.302	5	.000
		BusinessT(1)	25.471	1	.000
		BusinessT(2)	21.429	1	.000
		BusinessT(3)	36.183	1	.000
		BusinessT(4)	20.195	1	.000
		BusinessT(5)	4.714	1	.030
		BankT	16.893	1	.000
	Overall Statistics		140.458	11	.000

Block 1: Method = Enter

Iteration History[a,b,c,d]

Iteration		-2 Log likelihood	Coefficients										
			Constant	sex	Age	MaritalS	Edulevel	Experience	BusinessT(1)	BusinessT(2)	BusinesT(3)	BusinesT(4)	BusinesT(5)	BankT
	1	117.232	2.745	.096	-.047	-.335	-.558	-.275	1.311	.042	1.286	-.015	-.099	.043
	2	91.079	4.898	.040	-.078	-.488	-.879	-.515	1.641	-.080	1.701	-.147	.035	.006
	3	83.593	6.920	-.102	-.104	-.524	-1.073	-.761	1.682	-.225	1.919	-.391	.238	-.141
Step 1	4	82.188	8.264	-.221	-.122	-.489	-1.160	-.927	1.631	-.316	2.013	-.623	.373	-.274
	5	82.111	8.665	-.253	-.129	-.472	-1.183	-.973	1.618	-.331	2.041	-.701	.419	-.311
	6	82.110	8.692	-.254	-.129	-.471	-1.184	-.976	1.618	-.332	2.043	-.706	.423	-.313
	7	82.110	8.693	-.254	-.129	-.471	-1.184	-.976	1.618	-.332	2.043	-.706	.423	-.313

a. Method: Enter

b. Constant is included in the model.

c. Initial -2 Log Likelihood: 277.259

d. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	195.148	11	.000
	Block	195.148	11	.000
	Model	195.148	11	.000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	82.110[a]	.623	.831

a. Estimation terminated at iteration number 7 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	7.794	8	.454

Contingency Table for Hosmer and Lemeshow Test

		Repayment status = non-defaulter		Repayment status = defaulter		Total
		Observed	Expected	Observed	Expected	
Step 1	1	20	19.991	0	.009	20
	2	20	19.931	0	.069	20
	3	20	19.710	0	.290	20
	4	18	18.912	2	1.088	20
	5	16	13.698	4	6.302	20
	6	3	4.417	17	15.583	20
	7	0	1.528	20	18.472	20
	8	1	1.044	20	19.956	21
	9	1	.549	19	19.451	20
	10	1	.222	18	18.778	19

Classification Table[a]

Observed			Predicted		
			Repayment status		Percentage Correct
			non-defaulter	defaulter	
Step 1	Repayment status	non-defaulter	93	7	93.0
		Defaulter	6	94	94.0
	Overall Percentage				93.5

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	sex	-.254	.752	.114	1	.735	.775	.178	3.383
	Age	-.129	.055	5.526	1	.019	.879	.789	.979
	MaritalS	-.471	.764	.379	1	.538	.625	.140	2.793
	Edulevel	-1.184	.658	3.236	1	.072	.306	.084	1.112
	Experience	-.976	.336	8.421	1	.004	.377	.195	.728
	BusinessT			12.753	5	.026			
	BusinessT(1)	1.618	1.063	2.314	1	.128	5.042	.627	40.531
	BusinessT(2)	-.332	1.177	.079	1	.778	.718	.072	7.204
	BusinessT(3)	2.043	.927	4.862	1	.027	7.714	1.255	47.418
	BusinessT(4)	-.706	1.143	.382	1	.537	.494	.053	4.634
	BusinessT(5)	.423	1.484	.081	1	.776	1.526	.083	27.985
	BankT	-.313	.688	.207	1	.649	.731	.190	2.818
	Constant	8.693	2.286	14.464	1	.000	5958.727		

a. Variable(s) entered on step 1: sex, age, MaritalS, Edulevel, Experience, BusinessT, BankT.