DETERMINANTS OF LOAN REPAYMENT PERFORMANCE IN PROJECT FINANCING: A CASE STUDY IN DEVELOPMENT BANK OF ETHIOPIA

By Kassu Kefeni

MAY, 2018

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ST. MERY`S UNIVERSITY
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ABSTRACT

This study was conducted on the Determinants of loan repayment performance in project financing; in the Case of Development Bank of Ethiopia, Head office. Being the data was collected from both secondary and primary sources, for secondary data purpose, 105 individual borrowers' files were reviewed and Nine (9) top level employees of the bank were selected through purposive sampling technique and were interviewed for primary data collection purpose. Of 105 individual borrowers' files used for secondary data purpose, 70 were successful financed projects, whereas the rest 35 were defaulters. The study used both Explanatory and descriptive research design with quantitative and qualitative data. The variables used in the study were , amount of loan, credit experience, educational status of borrower/manager, equity contribution ratio, project profitability, managerial experience of project manager, number of project follow-up, project implementation period delay, appraisal, due diligence and Grace period. In the study, logit model was used to identify variables which determine loan repayment performance. The paper revealed that managerial experience of project manager, equity contribution ratio, delay in project implementation period, credit experience, educational status of borrower/manager and due diligence are statistically significant determinants of loan repayment performance of DBE's financed projects. Analysis of econometrics result suggested that equity contribution ratio of borrowers of Development Bank of Ethiopia should be increased to make the borrowers more ethically responsible; give due attention to minimize the bureaucracy that delays project implementation period, and improve its efficacy of customer recruitment system/due diligence/ by giving special considerations to educational status of borrower/manager, managerial experience of Project managers and credit experience of borrowers among the others.

Key words*: Development Bank of Ethiopia, Loan Repayment Performance, due diligence, Project implementation delay and Logit*

CHAPTER ONE

1. Introduction

This chapter presents the background of the study, statement of the problem, research questions, study objectives (both general and specific objectives), significance of the study, scope, limitation of the study and organization of the study.

1.1.   Background of the study

Loan means any financial facts of a Bank arising from a direct or indirect advance or Commitment to advance funds by a Bank to person that are conditional on the obligation of the person to repay the funds either on specified date or on demands usually with interest (Adrian & Ciornelis 1990).

Financial institutions play a critical role for the growth and development of a country by channeling the saving of individuals, businesses, and governments into loans or investments. The most important financial institutions are commercial banks, mutual funds, security firms, insurance companies, and pension funds.

One of the financial institutions that play an intermediation function by mobilizing money from those who have an excess and lend it to others who need it for their investment are Banks. As a result, providing credit to borrowers is one means of which Banks contribute to the growth of economy, thereby ensuring that the money available in economy is used for productive and fertile project purpose which can stimulate the economy as well. Hence, proper management of credit not only has positive effect on the Banks performance but also on the borrower firms and a country as a whole.

For that reason, Bank lending is guided by credit policies which are guidelines and procedures that put in place to ensure smooth operations. Bank lending, if not properly assessed, involves the risk that the borrowers will not be able to pay or willing to honor

their obligation (Martin, 2007). In order to lend, Banks accept deposit from public against which they provide loans and other forms of advances and bear a cost for carrying this deposit. Banks undertake lending activities in order to generate revenue. The major source of revenue comprises margin, interest, fees and commission (Martin, 2007).and usually form part of the national money supply (Peter and Keith, 2007).

Beyond the urge, to extend credit and generate revenue, Banks have to recover the principal amount in order to ensure safety of depositors` fund and avoid capital erosion. Bank lending therefore, has to consider interest income, cost of funds, statutory requirement, and depositor needs and risk associated with loan proposals. For these reasons Banks have overtime developed credit policies and procedures which stipulate the lending process. This process includes among others the credit appraisal, documentation, disbursement, and monitoring and recovery process of lending. However, on average, throughout the world, Banks have continued to face an average of between 20-40% bad debt written off yearly (Martin, 2007).

Development banks are state-backed financial institutions that are concerned with the provision of long-term loans to not only profitable projects but also to socially beneficial ones (Hussein, et al., 2010).Development banks fill a gap left by undeveloped capital markets and the reluctance of commercial banks to offer long-term, medium term and working capital for the normal long term and medium term loan (DBE, 2015).

Since very often lending begins at the stage of the formulation of project itself, development banks are also involved in decisions such as choice of technology, scale, and location. This require more than just financial expertise, so that development banking institutions build a team of technical, financial and managerial experts, who are involved in the decisions related to lending and therefore to the nature of the investment. They undertake entrepreneurial functions, such as determining the scale of investment, the markets to be targeted by industry, and extension functions, such as offering technical support (Chandrasekhar, 2011).

Development Bank of Ethiopia is one of the financial institutions that play a critical role for the growth and development of a country. It is a specialized Bank established to spur the national development agenda. The Bank's focal point is the provision of customer focused lending to viable projects in line with government priority areas by mobilizing fund from domestic and foreign sources while ensuring its organizational sustainability.

From its inception up to now (for over hundred years), DBE has remained dedicated in viable project financing in different sectors like commercial agriculture, Agro processing, Manufacturing, extractive industry and currently lease financing by utilizing the four independent loan processing units namely (credit, project appraisal, loan approval and PRLR) process and team at corporate and regional level respectively to handle loan-processing activities at various stages and responsibility (DBE, 2015).

The main challenge confronting the DBE is the growing size and ratio of NPLs, which is a double sword as it is a reason for provision and other administrative charges and on the other hand drastically reduces the banks income and profitability due to suspension of interest on NPLs. This undesirable fact tarnishes the image of the bank and negatively contributes to play its part in the countries development endeavourers. Besides, ties the bank's capital, affects its liquidity position, and reduces its competitive stance locally or in the global market and hence not compatible with a development bank that is expected to play an active and indispensable role by maintaining its sustainability (DBE, 2009EC).

Therefore, this paper analyzed determinants of loan repayment performance in project financing in DBE and suggested sound strategy for decision makers on how to increase the loan collection and finally decrease the growing size and ratio of NPL's of the bank.

1.2. Statement of the Problem

Development Bank of Ethiopia is a specialized financial institution established to promote the national development agenda through development finance and close technical support to viable projects from the priority areas of the government by mobilizing fund from domestic and foreign sources while ensuring its sustainability.

DBE's main area of focus is provision of working capital, medium and long-term loans for investment projects in the government's priority areas. In line with the Agriculture Development Led Industrialization (ADLI) strategy of the country, the Bank provides finance to encourage investment in agriculture, manufacturing and industries preferably export focused.

The Bank's vision is "100% success for all financed projects by 2020." However, projects financed by the Bank with huge loan portfolio faced different challenges, which have a direct impact on the operational performance as well as in attaining the vision of the Bank (DBE, 2015). These different challenges of the projects hinder the bank not to collect the amount of loan from its customers /borrowers as per the schedule and create a hesitation for the achievement of its vision by 2020. Thus, these challenges contribute a lot to fail in collection, un-attainment of its vision, and corrective measures are mandatory to be taken.

As per data obtained from the central database of DBE, the yearly loan collection of the Bank for the past few years could not cover the total amount of demand/due which finally lead the NPL's ratio of medium and long term loans of the Bank for the last few years to be significantly higher than the sated standard that is 5% as per NBE's directives No .SBB/43/2008. To diminish such a huge gap, slim study in scope and used data have been made on loan repayment performance by, Kibrom (2010), Mulugeta (2010), Muluken (2014) Tesfaye (2015) and Ayele (2015), under the Development Bank of Ethiopia. Except Ayele's research which included all sectors that are financed by DBE at head office, the rest of them conducted their research specific to one sector at Branch level. However, the reality is that it not only one sector loan default that increased DBE's

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NPL's rather it is a cumulative of the all financed sectors loan though Agriculture sector takes the largest share. So it would be better to look for common factors for all sectors by applying both primary and secondary data as long as the aim is to identify the determinant factors of loan repayment and recommend to DBE to apply accordingly to minimize the highly increasing NPL's .

In addition, there were few other studies that have been conducted on the determinant of loan Repayment performance under micro finance institutions in Ethiopia by Abraham, (2002), Jemal, (2003), Mengistu, (1997) and Bekele Hundie, 2001 even though they are largely focused on repayment performance of smallholder farmers so that it is not advisable to assume determinants of loan Repayment performance of smallholder farmers are alike with determinants of loan Repayment performance of projects.

Considering this as a gap; this research work is different from that of the above mentioned researches: It has included all sectors of the financed projects at head office as a result it represents the big picture of the Bank. Because the total loan portfolio concentration at head office takes a share of 85% which is the Bank`s representative (DBE, 2015) and takes the largest percentage share of DBE's NPL's.

Secondly, even though this study applied mainly secondary data, in addition to secondary data, primary data were collected and included to have adequate, accurate and reliable information .whereas the above researchers including Ayele used either of the two which create information scarcity that finally leads to wrong conclusion.

Thirdly, source of data to identify determinants of loan repayment was settled projects in which a maturity period was up to Dec 31, 2017 for secondary data and top level staffs of DBE for primary data. Whereas those researchers have used only the status of the project on the period in which they have conducted to measure the success factors of their research works. Hence, the researches output could not fill up the gap on loan repayment performance of the Bank.

It is the aforementioned evidences that initiated the researcher to identify the major determinants of Loan repayment performance in the project financing in the case of DBE.

Therefore, the main purpose of this study is to analyze and explore determinants of loan repayment performance in project financing by taking those projects which were financed by DBE. The outcome of the research could enable the Bank to know the key determinants of loan repayment in project financing and apply accordingly.

1.3. Objectives of the Study

1.3.1. General Objective

The main objective of this study is to examine the major determinants of loan repayment in project financing in the case of Development Bank of Ethiopia.

1.3.2. Specific Objectives

The specific objectives of this study are:

➢ To investigate the effect of lender's (DBE) attributes (appraisal, due diligence and follow up) on loan repayment performance in project financing,

➢ To examine the impact of borrower related factors (educational status of borrowers/managers, credit experience of borrowers and management experience of project manager) on loan repayment performance in project financing,

➢ To determine the effect of loan and project related factors (loan amount, project implementation delay, equity contribution ratio, grace period and project profitability) on loan repayment performance in project financing

1.4. Hypothesis of the study

Hypotheses are predictions about the outcome of the results to be estimated (more or less high, lower of something). Therefore, the study has been tested based on following hypotheses

- **Hypotheses H_0:1** there is no significant relationship between borrower's related factors (education status of the borrower/manager, credit experience of the borrower, managerial experience of project manager) and loan repayment of the clients.

- **Hypotheses H_1:** there is significant and positive relationship between borrowers' related factors (education status of the borrower/manager, credit experience of the borrower, managerial experience of project manager) and loan repayment of the clients.

- **Hypotheses H_o 2**: loan repayment of the clients have not significant relationship with Banks/ Lenders Related factors(Project appraisal, due diligence and project follow–up)

- **Hypotheses H_1 2**: loan repayment of the clients have significant and positive relationship with Banks/ Lenders Related factors(due diligence)

- **Hypothesis H_o 3**: Loan related factors (equity contribution ratio and Loan amount) have no significant effect on loan repayment.

- **Hypothesis H_1 3**: Loan related factor (equity contribution ratio) have positive and significant effect on loan repayment.

- **Hypothesis H_o 4:** loan repayment of the clients have no significant relationship with project related factors(Project implementation delay profitability of the financed projects and Grace period of project)

- **Hypothesis H_1 4:** loan repayment of the clients have negative and significant relationship with project related factors(Project implementation delay)

1.5.　Significance of the Study

One of the key factors for profitability and sustainability of banks' is the presence of good loan repayment rates. The ability of borrowers to repay amount of loans is crucial for the long-term provisions of the credit institutions. However, there are factors that affect the loan repayment performance. Analyzing such factors and formulating proper solutions are essential to expand the activities of banks in a sustainable manner. As a result, from this study

➢ management of the Bank can understand determinants of loan repayment and corrective action will be taken

➢ Policy makers can use to formulate successful credit policies and programs that would help in allocating financial resources effectively and efficiently

➢ Helps other researchers to identify the factors behind loan repayment and to make research on related issues

➢ Finally, the research findings will be used by the bank for its best achievement in relation loan repayment.

1.6.　Scope of the Study

The scope of the study has been restricted only to Head office borrowers' of Development Bank of Ethiopia, due to the portfolio of the Head office loan takes a lion share which is 85% of the total loan portfolio of DBE. (DBE, 2015) and it is easily accessible to the researcher.

The researcher has used data of the financed projects at Head office level in between 1/1 2005 – 31/12/2009 in which the projects were expected to settle their debt up to Dec 31, 2017. This is because the credit terms of the financed projects were either medium or long term; as a result, to determine either the success or the default factors of the projects, it is compulsory to go back the loan rendered period to review the current status.

1.7. Limitation of the Study

The study is limited to specific borrowers, lenders , project and loan related factors even though; macroeconomics like climate condition, natural disaster, price of inputs and out puts and etc have a huge impact on loan repayment performance. But they are beyond the control of both the lenders and borrowers. Thus, the study has explored only the borrowers, lenders, project and loan related specific factors determining loan repayment in project financing.

1.8. Organization of the Thesis

The remaining parts of the thesis are organized as follows. The second chapter deals with theoretical and empirical literature review related to the topic. The third chapter of the paper describes the materials and methodology part of the paper. In the fourth chapter deals with empirical results and discussion is presented. Finally, in the last chapter constitute the summary, conclusion and recommendation.

CHAPTER TWO

REVIEW OF LITERATURE

This chapter begins with presenting the theoretical review of project, project management, and qualification for credit, loan, successful loans, and defaulting loans. Next, the empirical review of studies presented. This, empirical studies include studies on other countries and studies in Ethiopia are reviewed by focusing on determinants of loan repayment. At last, the conceptual model presents.

2.1. Theoretical Review

2.1.1 Project theory

(PMBOK 1996, p.4) defines a project as: ".... a temporary endeavor undertaken to create a unique product or service.

2.1.2 Theory of project management

The role of management is to integrate resources and tasks to achieve organizational goals. Although the specific responsibilities of managers vary greatly, all managers whether they are corporate presidents, agency directors, line managers, school administrators, movie producers, or project managers—have this same role

Project Management - the integration and application of knowledge, skills, tools, and techniques to the management of project activities to meet or, if possible, exceed stakeholders' needs and expectations (Larson and Gray, 2011).

Project Management – is a series of related and interlinked five major process groups executed during a project's life (initiating, planning, execution, monitoring and controlling, and closing) and applied in the management of projects (Baca, 2005).

2.1.3 What qualifies for credit?

Credit grantors gather information, primarily from credit application and a credit bureau report, to determine whether the borrower will be able and willing to repay his debt. In the final analysis, every credit grantor attempts to answer the question: how risky is it to lend or extend credit to this applicant? This decision is relatively easy for most because the applicants will fall at one end of the continuum or the other of the six "C's" of credit.

Capacity: - is a factor in determining creditworthiness. It is assessed by weighing a borrower is earning ability and the likelihood of continuing income against the amount of debt the borrower carries at the time the application for credit is made.

Capital:-Factor in determining creditworthiness consisting of a borrower's tangible assets and resources. The presence of sufficient capital in a borrower's profile is an assurance that a debt could be paid from the borrower's assets if the need arose.

Character: - Character is determined by analyzing how a borrower has handled past obligations.

Collateral:-is a real or personal property that a borrower pledges for the term of loan. When the borrower fails to repay, the creditor may take ownership of the property by following legally mandated procedures.

Conditions:-A factor often considered with the factors of capacity, capital, and character when creditors are analyzing an applicant's creditworthiness. This factor consists of economic conditions that could affect a borrower's ability to repay, such as unemployment, seasonal work.

Common Sense: - A credit grantor might determine that a borrower has good common sense based on how questions are answered from the credit application (William, n.d).

2.1.4 Loans

Proclamation No 592/2008 and Directive No SBB/43/2008 of NBE; loans and advances means any financial assets of a bank arising from a direct or indirect advance (i.e. participation in a loan syndication, the purchase of loan from another lender etc.) or commitment to advance funds by a bank to a person that are conditioned on the

obligation of the person to repay the funds, either on a specified date or on demand, usually with interest. The term includes a contractual obligation of a bank to advance funds to or on behalf of a person, claim evidenced by a lease of financing transaction in which the bank is a lessor, and an over draft facility to be funded by the bank on behalf of a person. The term does not include accrued but uncollected interest or discounted interest.

2.1.5 Performing Loans

Legally, a loan or credit facility refers to a contractual promise between two parties where one party, the creditor agrees to provide a sum of money to a debtor, who promises to return the said amount to the creditor either in one lump sum or in installments over a specified period. The agreement may include provision of additional payments of rental charges on the funds advanced to the borrower for the time the funds are in the hands of the debtor.

The additional payments that are in the form of interest charges, processing fees, commissions, monitoring fees among others, are usually paid in addition to the principal amount lent. A loan may therefore be considered as performing if payments of both principal and interest charges are up to date as agreed between the creditor and debtor. The foregoing reveals that loans that are up to date in terms of principal and interest payments are described as performing facilities. Repayments of loans are an important factor that shows the efficiency of management in terms of risk analysis and monitoring (Yasir, et al., 2012).

2.1.6 Defaulted Loans

There is no global standard to define non-performing loans at the practical level. Variations exist in terms of the classification system, the scope, and contents. Loan default can be defined as the inability of a borrowers to repay the loan as agreed when

due. The underlying assumption is that every borrower has the intention and willingness to repay the loan, but there are certain factors that frustrate their intentions (DBE, 2008).

The fast increase in NPLs not only increased banks' vulnerability to further shocks but also limited their lending operations with broader repercussions for economic activity. And the growth rate of bank's loans) was found to contribute to higher NPLs in the subsequent periods Nir Klein (2013).

Loans that are outstanding in both principal and interest for a long time contrary to the terms and conditions contained in the loan contract are considered as non-performing loans. Available literature gives different descriptions of bad loans. Some researchers noted that certain countries use quantitative criteria for example number of days overdue scheduled payments while other countries rely on qualitative norms like information about the customer's financial status and management judgment about future payments (Teshome, 2010).

Default occurs when a debtor has not met his or her legal obligations according to the debt contract. For example, a debtor has not made a scheduled payment, or has violated a loan covenant of the debt contract Ameyaw-Amankwah,I.(2011). Loan default can be defined as the inability of a borrower to fulfill his or her loan obligation as at when due (Balogun and Alimi, 1990).

2.2. Empirical Review

A number of socio-economic and institutional factors affect loan repayment positively and negatively. Regarding to the loan repayment performance of borrowers, several studies have been conducted in many countries by different authors. However, almost all have done in microfinance. Some of the studies summarized as below.

2.2.1. Empirical Evidence in the World

Norhaziah and Mohd (2013) on the study of loan repayment problems in micro- finance programs that use individual lending approach, applied qualitative analysis through in-depth interviews with microfinance institution staffs and clients in Peninsular Malaysia. The researchers did face-to-face interviews where 30 respondents were selected equally from good borrowers, delinquent borrowers, and default borrowers .In addition, six microfinance institution state managers in Peninsular Malaysia were chosen to get in depth information about borrower's behavior towards their loan repayment performance. Based on the interview with micro-finance institution state managers, the result found that business characteristics are the main factor to be good borrowers where if the borrowers have a good business and can make a profit, they can payback the loans on time but if their business loss or failed, it can ruin their loans repayment. Besides, borrower's attitude towards their debt was also the main reason in determining loan repayment performance. Borrowers who set their mind that every debt must be repaid have higher chances to repay on time. The result also stated that borrowers who have regular savings tend to become good borrowers. These borrowers usually manage their income well and are not lavish with the profit received. Generally, the result stated that the factors affecting the ability of the borrowers to repay their loans were business factors, borrower's attitude towards their loans, other debt burden, amount of loan received, business experience, and family background.

Yasir, et al. (2012) analyzed different factors affecting the repayments of agricultural credit in district Kasur of Punjab province. Purposive sampling was adopted and 60 respondents were selected after booting a list of defaulters from respective branches of UBL. The researchers used well-structured questionnaires for data collection from the respondents. The data were summarized using descriptive statistics and found that sloppy supervision by the bank employees, miss-utilization of loans, high interest rate and change in business/residential place of the borrowers etc caused delay in repayments of agricultural credit in a case study of District Kasur of Punjab Province.

Koopahi and Bakhshi (2002) identified defaulter farmers from non-defaulters of agricultural bank recipients in Iran by using a descriptive analysis. They found use of machinery, length of repayment period, bank supervision on the use of loan had significant and positive effect on the agricultural credit repayment performance. In the other hand incidence of natural disasters, higher level of education of the loan recipient and length of waiting time for loan reception had a significant and negative effect on dependent variable.

Matin (1997) has conducted a research on the impact of loan repayment performance and the output of the research shows that borrowers having relatively small loan size have a very strong demonstration compared to loans which large in size. The education statuses of the households were strong positive effect on non-defaulter status irrespective of the household's income position. Other variable which is land-holding of the households were negatively affected with the loan repayment

Mohammad & Hooman (2008) investigated the factors influencing on repayment behavior of farmers that received loan from agricultural bank by using a logit model and a cross sectional data of 175 farmers of Khorasan-Razavi province. Results showed that farmer's experience, income, received loan size and collateral value have positive effect while loan interest rate, total application costs and number of installment implies a negative effect on repayment performance of recipients. Farming experience and total application costs are the most important factors for the model respectively

2.2.2. Empirical Evidence in Africa

There are few studies that have been conducted on credit repayment in Africa among these, Research made in Kenya, Nigeria, Tanzania, Ghana and Eritrea are some of them.

Awoke (2004) described that large rate of default has been a recurrent problem in most agricultural credit schemes organized or supported by governments. Most of the defaults arose from poor management procedures, loan diversion, and unwillingness to repay

loans. For this reason, lenders devise various institutional mechanisms aimed at reducing the risk of loan default (pledging of collateral, third-party credit guarantee, use of credit rating and collection agencies, etc.). In the context of providing credit to the rural asset-poor, what is required is institutional innovation that combines prudent and sustainable banking principles with effective screening and monitoring strategies that are not based on physical collateral (such as land).

Ibeleme, et al. (2013) investigated that loan size and repayment performance of smallholder oil palm producers and processors in Nigeria, Abia State as a case study. Ninety respondents, comprising 54 producers and 36 processors, selected randomly and interviewed. Ordinary Least Square technique was used in analyzing the data and drawing conclusions. The analysis of data revealed that loan size by oil palm processors was significantly determined by processing experience, gross annual income, and interest rate. For the farmer-borrowers, the major determinants of loan size were educational level and interest rate all of which fell in line with a prior expectation as indicated by the signs of the coefficients of relevant variables. On loan repayment rate and credit worthiness rating, results of data analysis showed that loan-asset ratio and distance between home and source of loan were significant determinants of loan repayment rate.

Munene, et al.(2013) studied the Microfinance institutions in Kenya to establish the causes of repayment defaults in Imenti North District, Kenya using a descriptive survey design by incorporating 400 respondents of individual microfinance loan beneficiaries and microfinance institution officials using census and cluster sampling procedures for micro finance institutions officers and loan beneficiaries respectively . The data collected using both structured and unstructured questionnaires and analyzed using descriptive and inferential statistics. The result of the study revealed that there was significant relationship between the type of business, age of the business, number of employees, business profits and loan repayment default. The study further indicates a strong link between technical training for loan beneficiaries and the performance of entrepreneurial businesses among the remote communities.

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Tundui and Tundui (2013) examined the sources and determinants of loan repayment among women microcredit clients in Tanzania by taking 286 business owners in random sample. The results have demonstrated that business skills and management practices play a very significant role, household size, the number of household members with fixed salaries and decision making regarding loan use to have a significant influence on loan repayment.

Theresa, et al. (2014) examined the determinants of loan repayment among cooperative farmers in Awka North L.G.A of Anambra state, Nigeria. This study examined the determinants of loan repayment using SPSS version 17. The study provides empirical evidence on the farmers' socio-economic characteristics as well as determine which of the characteristics that influence loan repayment, the range of amount of loan applied for, amount received and amount repaid by the cooperative farmers and organizational factors affecting the farmers' credit repayment ability. Two coefficients (educational qualification and farm size) are significant at 5%; and (loan application cost and collateral value) are significant at 1% respectively. Age, membership duration, and income of the farmers were not significant but it shows a positive relationship with loan repayment. There was a significant difference between the amount of loan received and amount repaid by the cooperative farmers. All the organizational factors affecting the farmers' credit repayment ability were significant at 0.000 significant levels.

Osakwe and Ojo (1986) found that large rate of default has been a perpetual problem in most agricultural credit schemes organized or supported by Nigerian government. Most of the defaults arose from poor management procedures, loan diversion, and unwillingness to repay loans.

Oladeebo and Oladeebo (2008) confirmed that income, sex, farm size, age of farmers, years of farming experience with credit, size of loan, household size, timeliness of loan disbursement, level of education of farmers, sales of crops, degree of diversification, income transfer and the quality of information were positive and significant determinants of agricultural credit repayment.

Afolabi (2010) examined loan repayment among small-scale farmers in Oyo State, Nigeria. A multi stage sampling technique was used to select 286 respondents in the study area and structured questionnaire administered on them to collect data. Descriptive statistics was used to analyze the socio-economic characteristics of the respondents while multiple regressions using ordinary least square (OLS) to quantitatively determine the socio-economic characteristics that influence the level of loan repayment .The descriptive result showed that 60.23% of the respondents were more than 50 years old and 92.35% of them were males. Analysis also revealed that 83.92% of these farmers operated 4.9 hectares or less as farmland. About 82.17% of the respondents obtained their loans from informal sources while 17.83% patronized formal sources. The estimated coefficients had positive signs, which indicate that an increase in the quantity of these variables would leads to an increase in the level of loan repayment among the respondents keep other things constant. The coefficients of family size and non-farm expenses that had negative sign implied that an increase in these variables would lead to a decrease in level of loan repayment.

Yacob (2014) analyzed the socio-economic factors that affect the institution's loan repayment performance Eritrean Saving and Micro Credit Program of Dekemhare Sub-Zone using the stratified sampling technique. The data collected from a sample of 134 respondents, which were 67 defaulters and 67 non-defaulters. A structured questionnaire was used to collect the primary data and descriptive statistics and the probit model were employed to analyze the data. The socio-economic characteristics of the respondents were described using averages, percentages while the factors influencing loan repayment performance of the saving, and Micro Credit Program loans were analyzed using the binary probit regression model. Results of the regression analysis revealed that the level of education, loan amount and loan category have insignificant effect on the probability of the loan repayment. On the other hand, age, gender, type of business and credit experience are significant determinants where age and type of business have negative relationship and gender and credit experience have positive relationship with the loan repayment probability.

Awunyo-Vitor (2012) searched the determinants of loan repayment default among farmers in Brong Ahafo region of Ghana. The study employed Probit model to investigate factors that influence farmer's loan repayment default. Data used in this study was gathered through a survey of 374 farmers in five districts within Brong Ahafo region of Ghana. The results showed that farm size, and engagement in off farm income generating activities reduces the likelihood of loan repayment default significantly. In addition, larger loan amount and longer repayment period as well as access to training are more likely to reduce loan repayment default.

Alex Addae-Korankye(2014) analyzed the causes and control of loan delinquency/default in microfinance institutions in Ghana. Random sampling technique was used to select twenty-five microfinance institutions and two hundred and fifty clients for the study. Questionnaire and interview guide were used to collect data for the study. The study used survey design involving both quantitative and qualitative approaches. The study found the causes of loan default include; high interest rate, inadequate loan sizes, poor appraisal, lack of monitoring, and improper client selection.

2.2.3. Studies in Ethiopia

There are few studies that have been undertaken on determinant of loan repayment Performance in Ethiopia. The existing literatures focused on smallholder farmers in case of different microfinance and NGOs in different region of the country.

Abebe Mijena (2011) studied the determinants of credit repayment and fertilizer use by cooperative members in Ada District, East Shoa Zone, Oromia Region. Data for this study were collected both from secondary and primary sources. A two-stage random sampling procedure was adapted to select five agricultural cooperatives and a total of 130 sample respondents from the district. Moreover, differences between defaulters and non-defaulters with respect to the selected variables were tested using t-test and χ 2- test. The demographic, socio-economic, and institutional characteristics of the respondents and other variables related to timely credit repayment (defaulters and non-defaulters) and input use were analyzed using descriptive statistics. Two-limit Tobit model result showed

that family size, livestock ownership, on-farm income, non-farm income and saving habit were the statistically significant factors influencing timely loan repayment performance positively. On the other hand, multiple linear regression models were used to identify the variables that contributed to the amount of fertilizer use among respondents. While age of the household head influences it significantly and negatively.

Abreham (2002) conducted a research with the aim of identifying the major factors behind the loan default problem of small-scale enterprises with particular reference to Development Bank of Ethiopia (DBE), by employing tobit model. Sample selection was based on stratified sampling and 102 borrowers were selected. The result of econometric model revealed that having other source of income, education, work experience in related economic activity before the loan and engaging on economic activities other than agriculture are enhancing while loan diversion, being male borrower, and giving extended loan repayment period are undermining factors of the loan recovery performance of projects. About the loan, rationing mechanism a conclusion that the bank's rationing mechanism didn't much with the repayment behavior of borrower.

Fikirte K.Reta (2011) studied determinants of loan repayment performance: A case study in the Addis Credit and Saving Institution, Addis Ababa, Ethiopia. This study was conducted with the objective of analyzing and identifying the factors that influence the loan repayment performance of the beneficiaries of Addis Credit and Saving Institution. She used primary data from 200 randomly selected clients (100 defaulters and 100 non-defaulters) by using structured questionnaire. Moreover, secondary data were obtained from the record of Addis Credit and Saving Institution. For the data analysis, descriptive statistics including mean, frequency, and percentages were used to describe the socio-economic characteristics of the borrowers. In addition, t-test and chi-square analyses were employed to compare the defaulters and non-defaulters group. A binary logit model was used to analyze the socio-economic factors that influence loan repayment. Age and five business types (balitina, handicraft etc,) were important in influencing loan repayment performance of the borrower. In addition, sex and business experience of the respondents were found to be significant determinants of loan repayment rate.

Million, et al. (2012) examined the determinants of loan repayment performance among smallholder farmers in East Hararghe Zone, Ethiopia specifically Kombolcha and Babile districts. Structured questionnaire was used to gather information from 140 smallholder farmers. Quantitative data was analyzed using descriptive statistics such as mean, standard deviation, and percentage used. Moreover, a two-limit tobit model was used to select variables which most significantly distinguish between non-defaulters and defaulters of agricultural loan, from a set of personal and socio-economic variables hypothesized to influence repayment behavior. The Two limit tobit regression model results indicate that agro ecological zone, off-farm activity and technical assistance from 52 extension agents positively influenced the loan repayment performance of smallholder farmers, while production loss, informal credit, social festival and loan-to-income ratio negatively influenced the loan repayment of smallholder farmers.

Kibrom (2010) identified that borrower's characteristics, project characteristics and loan characteristics were the determine factors for successful loan repayment performance of the private borrowers in Development Bank of Ethiopia, North Region. The types of data were mainly primary and secondary. The data collected from 100 respondents and analyzed through probit model. Based on this model, educational level of the borrowers, repayment period, availability of other source of income, sector, purpose of the loan and type of labor determine successful loan repayment performance of the borrowers positively and significantly. Whereas, gender and household size have positive sign, but are not statistically significant. Moreover, variables such as age, loan diversion, other source of credit show negative sign but not statistically significant. The variable experience is statistically significant but show negative sign.

Shaik and Tolosa (2014) studied performance of loan repayment determinants in Ethiopian Micro Finance - an analysis to major socio- economic and loan related
Factors that determine loan repayment performance of borrowers in Sidama Micro Finance Institution. The study employed explanatory research design with quantitative and qualitative methods. The quantitative aspect of the data focused on description of

socioeconomic variables, loan and related variables, and business related variables and analysis of relationship among the dependent and explanatory variables for the study. Multi-stage probability sampling technique was used. The result of binary logistic model show that age, education, time laps between loan application and disbursement, loan size, loan diversion, repayment period, number of dependants, training, and supervision were significant. The coefficients of these all-significant variables were negative except education level and time laps between loan application and disbursement. On the other hand, family size of respondents, repeatedly borrowing, business experience, agricultural type business, and non-agricultural type business were found insignificant. Overall, the binary logistic model successfully predicted factors contributing to 89.9% of micro credit loan repayment problem among Sidama Micro Finance Institution.

According to Addisu (2006), even though studies on the factors determining loan repayment finance institutions borrowers give mixed and overlapping results, the general consensus is that is determined by willingness, ability and other characteristics of the borrowers; businesses characteristics and characteristics of the lending institutions including product designs and suitability of their products to borrowers. Other external factors such as the economic, political, and business environment in which the borrower operates are also important determinants of loan repayment.

The study of Brehanu & Fufa (2008) said that regarding the characteristics of borrowers, repayment of loans depend on the willingness and ability of the borrowers to repay. Therefore, individual borrowers can either repay their loans or choose to default. Defaults may be intentional or unintentional in contrast, intentional or strategic default can happen due to moral hazard behavior by the borrowers. This happens when borrowers have enough money or have the ability but refuse to repay their loans

2.2.4. Conceptual Framework

To identify and analyze the determinants of loan repayment in DBE, the conceptual model is drawn based on the literatures reviewed. The determinants of loan repayment categorized as borrowers' related factors, factors in the side of the lender and project & loan related factors.

Figure; 2.1 Conceptual frameworks
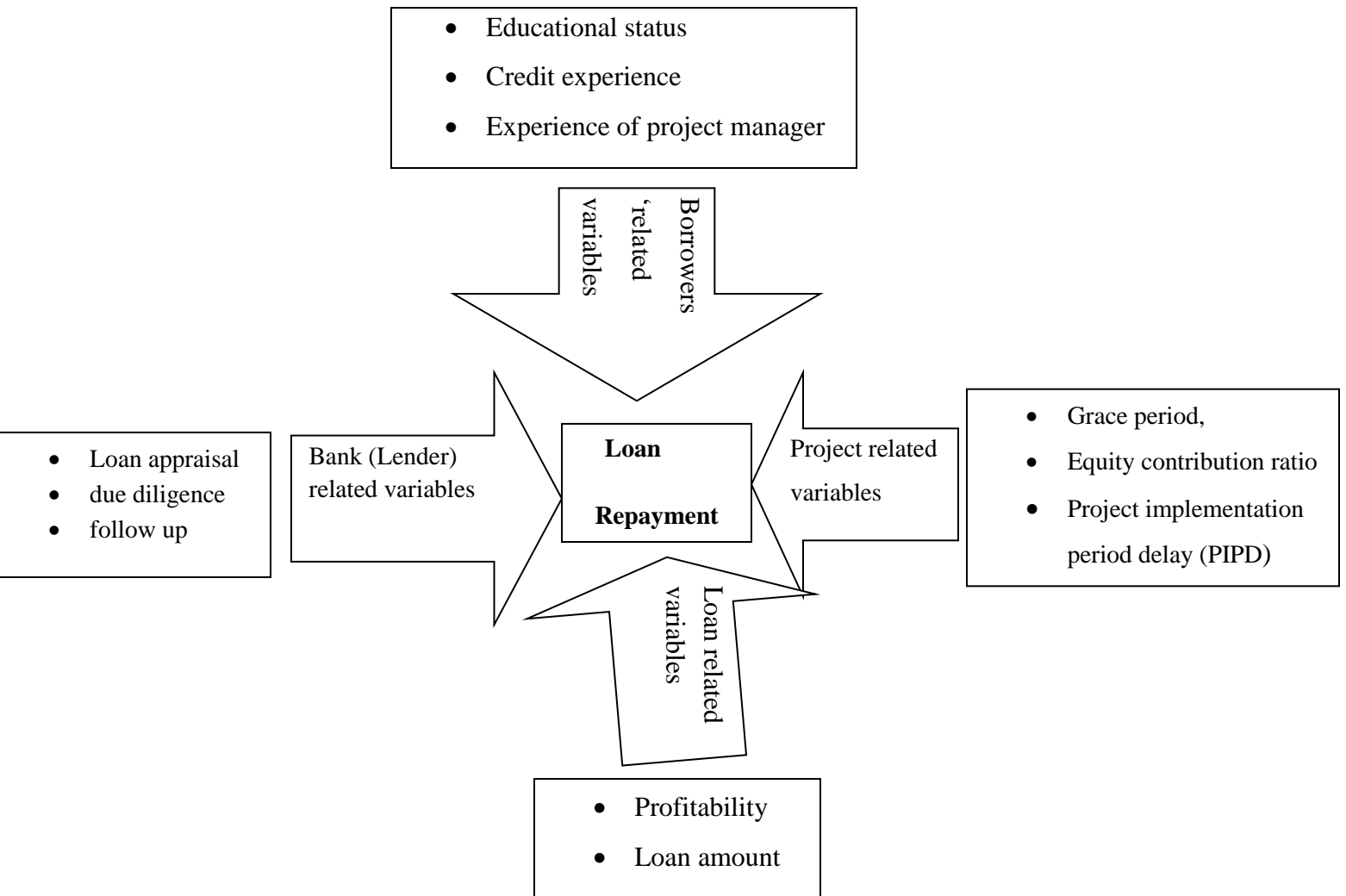
Source: extracted by the researcher (2018)

CHAPTER THREE

METHODOLOGY

This Chapter discusses the methodology of researches that the researcher employed in carrying out the research. This chapter explains the research design, Population and sampling technique, types and instrument of data collection, and methods of data analysis, model specification and definition of variable and measurement

3.1. Research Design

The research design employed was descriptive research design and explanatory research design with quantitative and qualitative data. The methodology to carry out the research is based on the objectives of the paper and the availability of relevant data. To comply with the objective of this research, the paper is primarily based on quantitative research, which constructed an econometric model to identify and measure the determinants of loan repayment in project financing. To measure the effect of determinant on loan repayment performance of the financed project, logit regression analysis model is adopted. The model is selected because loan repayment, which is the dependent variable, is binary, taking the value 0 and 1 for defaulter and non-defaulter loan repayment respectively. The use of logit regressions considers the simultaneous relationships among the multiple numbers of independent and dependant variables found across the regression model, at the same time the significance of the impact of the independent variables on dependent variables highlighted in using the regressions. Logit regression was further utilized to examine the associative relationships between variables in terms of the relative importance of the independent variables and predicted values of the dependent variables.

3.2 Study population and sampling technique

The target population is described universal set of study of all members of people, events or objects to which an investigator generalized the result. The target populations of this study were those projects which were financed by Development Bank of Ethiopia at Head office level. According to the central data base of the Bank, totally 105 projects have been financed at Head office level in between 1/1 2005 – 31/12/2009 in which the projects were expected to settle their debt up to Dec 31, 2017. From the total financed projects, 70 of them were non-defaulters; whereas the remaining 35 projects were listed in the loan position of the bank as defaulters'. Being the sizes of the population of the study were small, the researcher incorporated all of the identified projects under the study. Thus, the total populations of the study were 105 financed projects in Development Bank of Ethiopia at head office level. However, for primary data collection purpose; from the appraisal directorate, credit risk management directorate (CRMGT) and follow up directorate of the bank; three senior employees, three principals (Team leaders), 3 directors one senior, one principal and one director from each directorate together Nine employees were purposively selected and interviewed based on the experience and knowledge they have.

3.3 Types and method of data collection

In order to carry out any research activity, information should be gathered from proper sources. To comply with the research objectives, the researcher of this study applied mainly secondary data which was collected from DBE data base and individual borrowers' files, like individual project financed appraisal study documents, due diligence documents, follow-up reports, and project audited financial statements. The data was collected by using the format prepared for this purpose to head office loaning units and accounts management process.

The more adequate and accurate the data included in the study; the more reliable will be the output. Due to this, in addition to secondary data, primary data were collected through

an interview by preparing open-ended questionnaire for 9 employees of DBE of whom 3 senior, 3 principal and 3 top management (directorate) of the bank. The open-ended questions dealt with the perception (feeling) of the workers towards the determinants of the loan repayment.

3.4   Data Analysis Techniques

After the data have been collected, the researcher turns to the task of analyzing the data. The analysis of data requires a number of closely related operations such as establishment of categories, the application of these categories to raw data through coding, tabulation, and then drawing statistical inferences (Kothari, 2004).

Thus, the researcher after carried out the above task analyzed the collected data by using descriptive statistics, and econometrics analysis to identify the determinants of loan repayment performance using software called STATA version 12. In order to support the findings of the questionnaires, the respondents' opinions and views collected from the open ended questions (interview) were also qualitatively analyzed.

3.5   Model Specification

Logit model: Here, the dependent variable, loan repayment is a dummy variable (successful and defaulter) so that the researcher can have an option to use either logit or probit model. However, According to Vasisht (n.d), logit analysis produces statically sound results, which can be easily interpreted, and the method is simple to analyses. Accordingly, the researcher preferred to use Logit model rather than using probit model.

$$\frac{P\ (Successful=1)}{P\ (Defaulter=0)} = \begin{aligned}&\beta_1 + \beta_2(ES) + \beta_3(C\exp) + \beta4(PM\exp) + \beta5(LA) + \\ &\beta6(ECR) + \beta7(GP) + \beta8(PP) + \beta9(Papp) + \beta10(DueD) + B11(PID) + B12(PF)\end{aligned}$$

Where; ES, Cexp, TM, PM exp, LA, ECR, GP, PP, Papp, DueD , PID and PF denoted for Educational status, credit experience, types of management, project management experience, loan amount, equity debt ratio, grace period, project profitability, project appraisal, due diligence, Project implementation delay and project follow up respectively.

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$\beta_1 =$ an intercept

β_2, β_3, β_4, β_5, β_6, β_7, β_8, β_9, β_{10}, β_{11}, β_{12}, represent estimated coefficient.

Note: Proxy for each variable used in this study is DBE's appraisal manual.

3.6   Descriptions of Study Variables

Selection of variables was based on empirical literature on the factors determining loan repayment. While guided by the literature review, the researcher also considered other factors likely to influence loan repayment. To establish the factors determining loan repayment, the researcher summarized in to borrowers related factors, factors in the side of the lending institution and project and loan related factors.

3.6.1. Dependent Variable

Loan Repayment; This dependent variable can be explained through the independent variables which are specified from the empirical literature. This mean, while execution of these variables appropriately makes loan repayment to be flourishing, either missing or inappropriate ways of applying will make the loan to be defaulter.

3.6.2. Independent Variables

3.6.2.1 Borrowers related factors
H₁a : Education status; The literate borrowers/managers are expected to have a positive impact in loan repayment, because higher level of education enhances borrowers to accept new technology easily, keep business records, conduct basic cash flow analysis, and make the right business decision. Further various researcher like that of Matin (1997), Oladeebo (2008) and Amare (2002), Michael (2006), Mulugeta (2010), Eze and Ibekwe (2007) has made empirical studies and noted that education has a positive impact on the repayment performance through increasing awareness of the customer to utilize the loan efficiently.

H$_{1b}$: Credit Experience; it is a continuous variable but rearranged as a categorical variable for binary analysis purpose. if the borrowers have more credit experience, it is assumed that the probability to be defaulter is less since it is assumed that the borrower has developed a knowledge from past experience how to properly manage and utilize the financed project fund and inputs based on past experience and this could have a positive effect on the magnitude of project profitability. Thus, those who have no or less experience will have high default rates.

H$_{1c}$: Project management experience: it is a continuous variable but categorized for binary analysis purpose. It is assumed as project managed by highly experienced manager; it could overcome different challenges and this makes the project to be profitable and successfully paid its debt. Managers who have been in business longer are expected to be more successful with their enterprise. They have more sales and cash flows than those who have just started. Thus, those who are more experienced would have high repayment rates. This in turn has appositive impact on repayment performance. Hence, the variable is expected to have positive impact on the dependent variable. The hypothesis is supported by the findings of Oladeebo (2008), Wongnaa and Awunyo (2013)

3.6.2.2 Lender Related Variables

H$_{2a}$: Project Appraisal; A loan appraisal is an assessment of loan a request/application by financial institution on its merits. Among others aspects, the purpose of loan, genuineness of its need, its amount, risk level, market availability etc are assessed on some parameters before loan is actually granted. Based on this argument proper project appraisal can have positive sign for loan repayment and vice versa.

H$_{2b}$: Due diligence; It is an entry point assessment. In this stage the borrower all round aspects are assessed in relation to its personal characteristics from past to present, fulfillment of legal documents to be a creditor, project management, capital adequacy , credit relation and experience , availability of inputs and identification of risk . Therefore, for adequate due diligence, the expected sign for being non default is positive.

H₂c :Projects follow up; It is a continuous variable and been measured in number of supervision made on project Bank's credit officers per annum .It is done at different stage of the project. Project follow up can be done at the stage of project under implementation, during implementation and commencing to commission. If there is a continuous follow up and supervision made by loan officers, the client could efficiently utilize the loan for the intended purpose. There is a possibility to remind the obligation and motivate the borrowers for repaying the loan. Norell (2001) stated that quick follow-up and visit are helping to prevent default rate. Therefore, the researcher expects a positive relationship with dependent variable.

3.6.2.3 Loan related factors

H₃a: Loan Amount: - this variable is a continuous variable. Its relation with loan diversion is ambiguous because it all depends on the amount of loan requirement to run a particular project and managerial capacity of the borrower. Increasing the loan size will increase the production capacity leading to better repayment. Thus, the sign of the variable for non default is positive.

H₃b: Equity contribution it categorical variable that is defined as the ratio of equity/ Initial capital contributed by the borrower to the total loan approved by the Bank. It is assumed that as the ratio of equity contribution increases, the borrower becomes more dedicated to the implementation of the project. This in turn has a positive impact on the sustainability of the project. Hence it is predictable that it has a positive impact on loan repayment performance. It is supported by Mulugeta (2010)

3.6.2.4 Project related variables

H₄a: Grace Period; it is a continuous variable. It is assumed, if large grace period is given, the project will have sufficient time for implementation so that borrowers could properly utilize the loan for the intended purpose and generate adequate income after it starts its operation. herefore, it will not face repayment problem when the loan due later. This is supported by Abreham (2002).

H₄b: Project Profitability; It is a dummy variable, which takes 0 for net profit and 1 for loss. Balogun and Alimi (1990) also identified the major causes of loan default as non-profitability enterprises. Some authors link the repayment performance with firm characteristics such as Oke et al. (2007) mention that firm's profitability can significantly influence loan repayment. The more profitable projects, the less the probability of being default.

H₄c: Project implementation period delay; It is the period from the laying the foundation to the commencement of operation. It is a categorical variable taking a value of 1 for the financed project implemented lately up to six months, 2 for projects implemented lately more than six Months but less than one year and 3 for project implemented lately above one year. It is assumed that projects which are implemented lately have lower repayment rate than implemented based on the expected period under the appraised document. The hypothesis is supported by the findings of Tesfaye (2015)

Table 3.1 Expected Sign (+/-) of Explanatory Variables in this Study

Explanatory Variables	Definition	Variable is	Expected Sign
Education status	Being literate borrowers well informed and contributes for successful positively	Categorical	+
Credit Experience	Borrowers who have no or less experience, will contribute for default	Categorical	+
Project management experience	Those who are more experienced would have high repayment rates. This in turn has appositive impact on repayment performance	Categorical	+
Project Appraisal	Appraising a loan Properly less probability being default	Categorical	+
Due diligence	Performing due diligence thoroughly less probability being default or high probability of successful	Categorical	+

Projects follow up	Performing fledged follow up as per the schedule, the probability of defaulting is less or high probability of successful	Continuous	+
Equity contribution	The more equity contribution the company is made, the more willing to repay the debt because of the higher portion of the company asset is its own financial sources.	Categorical	+
Grace Period	large grace period is given for projects, less probability being default or vise verse	Continuous	+
Project implementation delay	Being too late to implement the project on the time, the probability of being non-default/successful will decrease	Categorical	-
Project Profitability	The more profitability of projects, the less the probability of being default or high rate of successfulness.	Binary (1=0 Net profit /loss)	+
Loan Amount	Increasing loan amount ,increasing capital , generates revenue, less probability being default or vise verse	Continuous	+

3.7 Literature Gap

In the area of determinants of loan repayment performance, research has been conducted in different European and African countries. However, the economical performance, political, social and cultural factors are various from country to country. As a result the identified determinant factors might not use for Ethiopia in general and in particular DBE. Additionally, most of the undertaken studies were conducted at micro finance institution, this in turn that the type of the loans were short term and working capital loan. While DBE in nature has financed medium and long term project and have higher risk than short term financer.

Moreover, the researcher has used data of the financed project at Head office level in between 1/1 2005 – 31/12/2009 in which the projects were expected to settle their debt up to Dec 31, 2017 because, the bank's NPL's that showed a dramatically change currently is the result of those projects that were financed in that specific period and no satisfactory study has conducted to identify the determinant factors of loan repayment performance in DBE

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CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter talks about analysis of the result and discussion to achieve research objectives and lay down a base for conclusion. The first section of this chapter discusses the result of descriptive statistics of explanatory variables. Besides, the second section discusses the econometrics result of binary logistic & the analysis of significant variables, multi colliniarity test and measures of goodness of fit.

Through descriptive statistics, the researcher used mean, percentage, standard deviation, and frequency distribution. In addition, Chi-square test statistics was employed to compare defaulter and successful group in terms of each explanatory variable.

Econometric analysis was carried out to identify the most important factors that affect loan repayment performance and measure the relative importance of statistical significant explanatory variables on loan repayment.

4.1 Descriptive statics results

4.1.1 Due diligence Vs Loan Repayment

Due diligence is one of the independent variables that is classified under Banks' related factors that determined loan repayment performance of the borrowers. Hence from the total observed population, the due diligence report of 30% loans were done in good manner by investigating the key components of due diligence were as the due diligence report of 39% & 31% of loans were Somehow lacks deep investigation and comprehensiveness and were not done in a well manner at all. From the total loans whose due diligence report were done in good manner, 94% were non-defaulters and 6% were defaulters. On the other hand, loans whose due diligence report lacks deep investigation to some extent and was not done in a well manner at all, the amount of non-defaulters and defaulters were 63% and 37% and 45% and 55% respectively.

Table 4.1 Relation of due diligence vs loan repayment

Variables	Category	Non-defaulters		Defaulters		Total	
		N	%	N	%	N	%
Due diligence	Well done in good manner by investigating the key components of due diligence	29	94%	2	6%	31	30%
	Somehow carefully analyzed, however, lacks deep investigation and comprehensiveness	26	63%	15	37%	41	39%
	Was not done in a well manner since it lacks both deeply investigation and comprehensiveness	15	45%	18	55%	33	31%
Total		70		35		105	100%

Source; computed based on own survey, 2015. N= number of respondents

Pearson chi2 (2) = 16.9576   Pr = 0.000

Thus defaulters increased when their projects due diligence were not done properly. The result supported by Alex Addae-Korankye(2014) in that the causes of loan default is improper client selection. Due diligence has associated with loan repayment significantly at 1% significance level.

4.1.2 Appraisal Vs Loan Repayment

From the total observed population, Appraisal reports of 41% loans were done deeply and comprehensively by analyzing the key components of appraisal. However the appraisal reports of 32% & 27% loans were moderately investigated and analyzed and of weak & shallow that overlooked most of appraisal components appraisal was made respectively.

Table 4.2 Relation of appraisal vs loan repayment

Variables	Category	Non-defaulters		Defaulters		Total	
		N	%	N	%	N	%
Appraisal	Deeply and comprehensively by analyzing the key components of appraisal	35	81%	8	19%	43	41%
	Of moderately investigated and analyzed the key components of appraisal	23	68%	11	32%	34	32%
	Of weak & shallow that overlooked most of appraisal components	12	43%	16	57%	28	27%
Total		70		35		105	100%

Source; computed based on own survey, 2015. N= number of respondents

Pearson chi2 (2) = 11.3552   Pr = 0.003

Table 4.2 revealed that among the projects which were appraised deeply and comprehensively by analyzing the key components of appraisal properly account 19% and 81% defaulters and non-defaulters. On the other hand, projects appraised moderately by investigating and analyzing only some key components of appraisal were accounts 43% for defaulters and 57% for non-defaulters. The percentage share of defaulters and Non-defaulters for projects which were appraised weakly & shallow in depth that overlooked most of appraisal components was 57% and 43% respectively. This implies that when projects are not appraised properly, number of defaulters will increase. The result supported by Alex Addae-Korankye (2014) in that the causes of loan default is poor appraisal. Proper project loan appraisal associated with loan repayment strongly and significantly at 1% significance level.

During the time of interview, the respondents told to the researcher that projects proper loan appraisal has a positive and significant effect on loan repayment. However, due to lack of the required capability and negligence in most staffs, in this stage the projects financial, managerial, and technical and market situation has not been analyzed in detail. To produce standardize appraisal report, The officers have to access commodity study (a documented guideline for loan appraisal) with detail parameters, rates, coefficients and standards for each of the sectors. Thus, unless the appraisal officers unethically behaved, proper appraisal encompasses project background (both the personal and project), proper investment cost determination, project implementation schedule, financial projection, technical aspects, SWOT analysis and conclusion & recommendation.

4.1.3 Educational status of the Project Manager/Owner vs Loan Repayment

 From the total projects, 37%, 34% & 29% of them had BA/BSC & above, Diploma & Certificate and grade 10th and below respectively. Among project managers/owners who had BA/BSC & above, 40% were defaulters and 87% non-defaulters. In addition, among project managers/owners who had Diploma & Certificate, 36% and 64% were defaulters and Non-defaulters respectively. Moreover, those project managers/owners who had completed grade 10 and below took and share the 57% and 43% among defaulters and non-defaulters respectively. This implies that the financed project managers/owners, with higher education status have more probability of being successful to effect the loan repayment. In other word, most of the projects that were managed by managers/owners who have lower educational status were defaulters. This result contradicts the result of Yacob (2014) that the clients with lower education have fewer financial options and thus they would improve on their loan repayment performance in order not to lose their only formal source of credit.

Table 4.3; Educational Qualification of Managers /Borrowers vs Loan Repayment

Educational Status	Non-defaulters		Defaulters		Total	
	N	%	N	%	N	%
BA/BSC & above	34	87%	5	40%	39	37%
Diploma & Certificate	23	64%	13	36%	36	34%
Grade 10 & below	13	43%	17	57%	30	29%
Total	70		35		105	100.0%

Source; computed based on own survey, 2018. N= number of respondents

Pearson chi2 (2) = 14.8596   Pr = 0.001

 The P Value of the result is 0.001 which is less than the minimum standard for P Value=0.10. Thus the relationship between the status of the project and educational level of the project managers/Owners has strong.

4.1.4 Credit Experience of the Borrowers

From the total population, 30%, 30% & 40% of them had credit experience of less than or equal to 5 years , greater than 5 but less than or equal to 10 years and greater than 10 Years respectively.

Table 4.4 below depicts the relationship between the project statuses with borrowers' credit experience. The result indicated that from the observed population, less than or equal to 5years of credit experience, 61% and 39% of the projects were defaulter and Non-defaulters. In the contrary, those projects which have 5 to 10, and above 10 years of credit experience, the percentage of defaulter and Non-defaulters projects were 38% and 63%, 10% and 90% respectively.

Table 4.4; credit experience of Borrowers and Loan Repayment

Variables	Category	Non-defaulters		Defaulters		Total	
		N	%	N	%	N	%
Credit Experience	<=5 years	12	39%	19	61%	31	30%
	>5<=10 Years	20	63%	12	38%	32	30%
	>10Years	38	90%	4	10%	42	40%
	Total	70		35		105	100%

Source; computed based on own survey,

2018. N= number of respondents

Pearson chi2 (2) = 21.8675   Pr = 0.000

The P Value of the result is 0 .000 which is less than the maximum P value=0.10. Thus, the Relationship between the status of the projects and credit experience of the borrowers has strong relationship. The percentage years of borrowers experience who have less than or equal to 5 years, 5 to 10 & above 10 years for defaulters and Non-defaulters was 61%, 38%, 10%, and 39%, 63%, 90% respectively. From this we can understand that the probability of defaulters increases when number of years of experience decreases. In the contrary, increase numbers of experience years simultaneously increase the successfulness of project. This implies that the number of years of experience increases the probability of loan repayment performance of the financed projects.

Verheul et al. (2007) confirmed that experience in the business operations able to amplify borrowers' problem solving ability including seizing opportunities that are important to the growth of the business and their repayment abilities

4.1.5 Project implementation delay Vs Loan Repayment

Table 16 below shows the relationship between the project statuses with implementation period of the project. The result demonstrated that from the observed population, projects implemented lately up to six months (31%) from the expected period took 13% and 87 %

for defaulters and Non-defaulters. Projects implemented between 6 and 12 months (35%) and above 12 months (34%) the percentage of defaulters and Non-defaulters projects were 32% and 68%, 53% and 47%, respectively.

Table 4.5; Project implementation delay vs Loan Repayment

Variables	Category	Non-defaulters		Defaulters		Total	
		N	%	N	%	N	%
Project implementation delay	Projects implemented lately up to 6 months	28	87%	4	13%	32	31%
	Projects implemented lately from 6-12 months	25	68%	12	32%	37	35%
	Projects implemented lately above 12 months	17	47%	19	53%	36	34%
	Total	**70**		**35**		**105**	**100%**

Source; computed based on own survey, 2018. N=number of respondents

Pearson chi2 (2) = 12.3885   Pr = 0.002

The P Value of the result is .002 which is less than the maximum P value=0.10 thus the Relationship between the status of the project and delayed Project implementation period Has strong relationship. The output of the vertical analysis shows that those projects which were implemented lately from expected period of time up to 6 months, between six months up to 12 months and greater than 12 months took 13%, 32% and 53% for defaulters and 87%, 68% and 47% respectively for Non-defaulters projects. This implies that the percentage of projects to be successful would be more when implementation is up to six months rather than between six month and 12 months and above. In the contrary the probability of the project default increases when the project implemented period is more than six months. This authenticate that financed projects which were started their operation based on the appraisal document the probability of loan repayment performance have increased compared to lately implemented projects

4.1.6 Project profitability Vs Loan Repayment (Dummy)

Table 4.6 revealed that, 52% of the projects scored net profit where as 48% got net loss. Among of the projects that scored net profit, 13% were defaulter, and the remaining 87% were non-defaulters. Among Projects that scored net loss, 56% of them were defaulters and the remaining 44% were non-defaulter.

Table 4.6; project profitability vs. Loan Repayment

Variables	Category	Non-defaulters		Defaulters		Total	
		N	%	N	%	N	%
project	Net profit	48	87%	7	13%	55	52%
profitability	Net loss	22	44%	28	56%	50	48%

Source; computed based on own survey, 2018. N=Number of respondents

Pearson chi2 (1) = 22.0691   Pr = 0.000

The P Value of the result is 0.000 which is greater than the minimum standard for P value=0.10. Thus relationship between the status of the projects and project profitability do have strong relationship. The vertical analysis of the result shows that about 87 and 44 percent of successful projects were profitable and not profitable. Similarly about 13 and 56 percent of defaulter projects were profitable and not profitable. This implies that probability of loan repayment performance of the financed project increases when projects are profitable and vis versa. The result is the same as Stephen (2012); and Wongnaa and Awunyo (2013).

4.1.7 Loan amount Vs Loan Repayment (Continuous)

It is defined as the amount of the loan that the Bank has disburses to the respective projects. According to the study result shows, on average, the Bank has disbursed minimum and a maximum amount of Birr 15,000,000, and Birr 245,000,000 for the defaulter projects and Birr 10,000,000 and Birr 1,542, 450,000 for the successful project. The mean of loan amount disbursed by the Bank were Birr 83,658,420 and Birr 98,835,000 for the defaulter and Non-defaulter projects. When the amount of loan increases, the probability of being default is decreased. It can be the fact that an increase in amount, borrowers can do their project in a wide range with the inclusion of quality

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and quantity of products. Therefore, their project can generate huge revenue and can repay the due amount of loan on time. This is the same as Ali AL-Sharafat, et al. (2013) that the volume of loans borrowed the most important factor and had a positive effect on the repayment. This is also the same as (Ifeanyi and Blessing, 2012) and Muluken (2014)

Table 4.7 Mean of Loan Amount in ('000)

projectstatus	mean	p50	sd	range	min	max
default	83658.42	65000	60681.21	230000	15000	245000
successful	98835.39	54500	188001.7	1542450	10000	1552450
Total	93776.4	62245.79	157179.2	1542450	10000	1552450

4.1.8 Number of Project Follow-Up Vs Loan Repayment

Repeatedly making Project supervision/ follow-up is an important factor of loan repayment performance of the financed project. As shown in Table 4.8, the study result indicated that on average number of projects follow-up/supervision have conducted in the individual project by the Bank 2 times for defaulter projects and three times for the successful projects per annum. Continuous follow up of projects reminds borrowers to pay attention toward their business and enables to increase their perception of responsibility toward loan repayment. The result is the same as Yasir, et al. (2012) and Koopahi and Bakhshi (2002).

Table 4.8 Mean of Project Follow up

projectstatus	mean	p50	sd	range	min	max
default	2.228571	2	.910259	4	1	5
successful	2.971429	3	1.049105	5	1	6
Total	2.72381	3	1.060617	5	1	6

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At the time of interview, most of the interviewee agreed that good follow up has not gone as their plan due to officers' negligence in giving attention for follow up and most of the time they engaged in receiving new applications and doing due diligence rather than performing follow up according to their action plan. Failing in follow up, the consequence is directly failing in loan collection. They urged that to have good loan portfolios, doing follow up seriously and timely as per the schedule is has to be a remarkable task of the bank.

4.1.9 Grace period vs Loan Repayment

Grace period is an important factor that affects the successful loan repayment performance of projects. For that reason it has a significant impact on production and revenue schedule of the project. As shown in Table 4.9, the study result indicated that on average number of grace period given for an individual project by the Bank were 4.7 months for defaulter projects and 4.9 months for the successful projects during the time of financing.

Table 4.9 Mean of Grace period

projectstatus	mean	p50	sd	range	min	max
default	4.722857	5	.5688408	2	3	5
successful	4.955714	5	.4648939	3	3	6
Total	4.878095	5	.5112167	3	3	6

4.1.10 Equity Contribution VS Loan Repayment

The study result shows that about 42, 57, 74 and 92 percent of successful projects and 58, 43, 26 and 8 percent of defaulter projects were contributed equity of ≤0.25, 0.25 to 0.5, and 0.5 to 0.75 and above 0.75 respectively

Table 4.10 Equity contribution vs Loan repayment

Variables		Non-defaulters		Defaulters		Total	
		N	%	N	%	N	%
	=25%	10	42%	14	58%	24	22%
Equity	>25%<=50%	16	57%	12	43%	28	27%
contribution	>50%<=75%	20	74%	7	26%	27	26%
	>75%	24	92%	2	8%	26	25%
Total		70		35		105	100%

Source; computed based on own survey, 2018 N=Number of respondents

Pearson chi2 (3) = 16.2518   Pr = 0.001

The P Value of the result is 0.001 which is less than the maximum P value=0.10 thus, project status and equity contribution has significant relationship. Likewise the result shows that 42, 57, 74, and 94 percent of non-defaulter projects and 58, 43, 26 and 8 percent of defaulter projects were contributed an equity of ≤ 0.25, 0.25 to ≤ 0.5, and 0.5 to ≤ 0.75 and above 0.75 respectively. From this we can understand that the probability of defaulters increases when equity contribution is decreases. In the contrary, increase the amount of equity contribution simultaneously increases the successfulness of project.

It is supported by theory of william (2007), Mensah (1999).

4.1.11 Project management experience Vs Loan Repayment

Table 4.11 below depicts the relationship between the project statuses with managerial experience. The result indicates that from the observed population, less than or equal to 3 years of managerial experience who run the project 59% and 41% of the projects were defaulters and non-defaulters. In the contrary, those project managers who have 3 to ≤ 5, 5 to ≤ 8, and above 8 years of experience, the percentage of defaulters and non-defaulter projects were 46% and 54% , 25% and 75%, 13% and 87% respectively.

Table 4.11 Relationship with Project Management Experience

Variables		Non-defaulters		Defaulters		Total	
		N	%	N	%	N	%
Project management experience	<=3years	9	41%	13	59%	22	21%
	>3<=5years	13	54%	11	46%	24	23%
	>5years<=8years	21	75%	7	25%	28	27%
	>8years	27	87%	4	13%	31	29%
Total		70		35		105	100%

Source; computed based on own survey, 2018 N=Number of respondents

Pearson chi2 (3) = 14.9533   Pr = 0.002

The P Value of the result is .002 which is less than the minimum P value=0.10 thus the Relationship between the status of the project and project management experience is significant. The percentage years of managerial experience who have less than or equal to 3 years, 3 to < 5, 5 to <8 and above 8 years for defaulter and successful 59%, 46%, 25%, 13%, and 41%,54% 75%, 87% respectively. From this we can understand that the probability of defaulters increases when number of years of experience decreases. In the contrary, increase numbers of experience years simultaneously increases the successfulness of project. This implies that the number of years of experience increases the probability of loan repayment performance of the financed project. This also substantiate the results of Oladeebo (2008), Wongnaa and Awunyo (2013)

4.2 Econometrics Result

Table 4.12 Econometrics result

```
Logistic regression                          Number of obs   =        105
                                             LR chi2(20)     =     102.33
                                             Prob > chi2     =     0.0000
Log likelihood = -15.669835                  Pseudo R2       =     0.7655
```

projectstatus	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
appraisal						
2	-1.270594	2.061608	-0.62	0.538	-5.311272	2.770084
3	1.701091	2.301069	0.74	0.460	-2.808921	6.211102
duediligence						
2	3.298336	2.196522	1.50	0.133	-1.006767	7.603439
3	4.705338	2.363829	1.99	0.047	.0723175	9.338358
projectfollowup	1.303604	.9507987	1.37	0.170	-.5599272	3.167135
2.projectprofitability	-2.483485	1.744604	-1.42	0.155	-5.902847	.9358768
equitycontribution						
2	1.58308	1.727269	0.92	0.359	-1.802304	4.968464
3	4.33749	1.990232	2.18	0.029	.4367075	8.238273
4	8.684594	4.267986	2.03	0.042	.3194951	17.04969
graceperiod	-.3376826	1.376412	-0.25	0.806	-3.0354	2.360035
projectimplementationdelay						
2	-4.334049	2.293478	-1.89	0.059	-8.829184	.1610848
3	-3.198963	1.846415	-1.73	0.083	-6.81787	.419944
loanamount	-5.85e-06	4.71e-06	-1.24	0.214	-.0000151	3.38e-06
projectmanagementexperience						
2	4.766616	3.069431	1.55	0.120	-1.249358	10.78259
3	6.217009	3.1333	1.98	0.047	.0758531	12.35816
4	8.941541	4.28397	2.09	0.037	.5451137	17.33797
creditexperience						
2	2.575368	2.065809	1.25	0.213	-1.473543	6.624279
3	5.727264	2.794754	2.05	0.040	.2496463	11.20488
educationalstatus						
2	.8719239	1.909334	0.46	0.648	-2.870302	4.61415
3	4.398235	2.666431	1.65	0.099	-.8278733	9.624342
_cons	-10.93409	6.01113	-1.82	0.069	-22.71569	.8475072

From the results in Table 4.12 above, a likelihood ratio (LR) statistic of 102 with a chi squared ($\chi 2$) distribution at 20 degree of freedom is significant at 1% predictive probability level. This means that at least one of the independent variables in the model has a significant effect on loan repayment performance in the observed population. Moreover, the P=0.000 means that the model is significant and Pseudo R2 is 0.76 means that the explanatory variables explain the dependent variable about 76%. Moreover, all significant explanatory variables listed here below are accepted up to 10% level significance.

4.2.1 Analysis of Significant Explanatory Variables

Out of the eleven variables hypothesized as determinants of loan repayment performance of the project financing, six of them were found to be statistically significant. The maximum likelihood estimates of the logit regression model shows that Educational status, Credit Experience, project management experience, equity contribution ratio, due diligence and Project implementation delay for the financed projects were significant factors determining the loan repayment performance of DBE's financed projects. The coefficients of Educational status, Credit Experience, Types of management, project management experience, project implementation delay and equity contributions were statistically significant at different significant level. On the other hand, the coefficients of five independent variables, namely amount of loan, Grace period, number of follow up, appraisal, and project profitability were less influential in explaining loan repayment performance of DBE's financed projects.

Educational status:-The result of the logit model shows that education level of borrowers/ project manager has significant and positive effect on loan repayment performance of the project. It might be because of the fact that project owners/managers, who have higher education level, could see things in different angle, find better market for their products, they could be cost conscious that is cost-effective usage of resources and they may have future investment plan working with the Bank. These and other reasons make the project owner/manager who has a higher education status to have a

good repayment performance. Having BA/BSs or above education level versus completing only grade 10th or below increases the log odd of non-default verses default by a factor of 4.4 that is significant at 10% significant levels keeping other things constant. This implies that a borrower will likely have greater loan repayment ability when he/she has a higher educational level keeping other thing constant. This also confirms the results of Wongnaa and Awunyo (2013), Mulugeta(2010), Eze and Ibekwe (2007) and Abrham(2002).

Equity contribution ratio:-Equity contribution ratio is an important factor, which is positively related to borrowers' ability to repay their loans. Keeping other things constant, Contributing above 50% but less than 75% equity contribution ratio verses 25% equity contribution ratio increases the log odds of non default verses default by a factor of 4.3 that is significant at 5% significant levels. In the same way contributing above 75% equity contribution ratio vs 25% equity contribution ratio increases the log odds of non default verses default more by a factor of 8.6 that is significant at 5% level. this means that the more equity contribution the company is made, the more willing to repay the debt because of the higher portion of the company asset is its own financial sources than being financed by creditors. In other expressions, the financed project borrowers will take more responsibility and it brings less predictive probability of diversions of the fund of the project and precaution activities will be undertaken at each operation of the project. This is due to the borrower has to have some "skin" in this business "game" to insure his or her best efforts toward success and timely repayment of the borrowed funds. It is supported by theory of william (2007), Mensah (1999).

Project implementation delay: Projects are considered delayed when their stipulated implementation period have not been achieved. According to the result of the logit model, delayed Project implementation period of the financed projects has a negative impact on loan repayment performance of DBE's financed projects. Implementing projects lately above 6 moths but less than 12 months vs lately up to 6 months decreases the log odd of being non-default verses default by a factor of 4.3 at 5% significant levels, ceteris paribus. Likewise, implementing projects lately above 12 moths' verses lately up

to 6 months decreases the log odd of being non-default verses default by a factor of 3.2 at 1% significant levels. This means that decrease the project implementation period for the financed projects, the better ability to pay the debt and vis-à-vis. This is due to various costs are incurred like cost of fund/interest expense; labors expense and administrative expense without the projects are implemented. This in turn implies that the borrowers are discouraged to refund the loan repayment due to the project can not generate cash inflow. It is supported by (Particip Gmbh, 2002).

Project management experience: Moreover, project management experience has a positive coefficient. having management experience of more than 5 but less 8 years vs less than or equal to 3 years increases the log odd of none default/successful/ verses default by a factor of 6.2. Like that of the above, possessing management experience of more than 8 years vs less than or equal to 3 years increases the log odd of none default verses default by a factor of 8.9 that significant at 5 significant level keeping other things constant. This means that the likelihood of the financed projects able to pay the loan will increase when the number of years of managerial experience of project manger increase and vis-à-vis. The implication is that managerial experience of project manger could probably lead to proper utilization of the financed project fund and inputs and this could have a positive effect on the magnitude of project profitability. Similarly as project manager gets more experience, the quality of decision making has to be enhancing and also has a positive impact on the sustainability of the project. This also substantiate the results of Oladeebo (2008), Wongnaa and Awunyo (2013) and Mulugeta (2010),Muluken(2014).

Due diligence: due diligence is one of the factors which significantly and positively determine the loan repayment performance of financed projects of DBE at 5% predictive significant level. The econometric model result revealed that, other things being constant, well done due diligence in good manner by investigating the key components of due diligence verses due diligence not done in a well manner since it lacks both deeply investigation and comprehensiveness increases the log odd of none default verses default

by a factor of 4.7. The implication is that being it is an entry point assessment, the borrower all round aspects are assessed in relation to its personal characteristics from past to present, fulfillment of legal documents to be a creditor, project management capital adequacy , credit relation and experience , availability of inputs and identification of risk. Borrower who passed these assessments assumed to be punctual to repay his/her loan as per the schedule.

At the time of interview, the interviewee underlined that due diligence has been done thoroughly but sometimes due to much more flow of customers and employees negligence, the expected due diligence (about customers general back ground, source of equity, previous credit status, etc) will not assessed properly.

Credit experience: Credit experience has a positive coefficient and it is significant at 5% predictive significant level. Having an experience of more than or equal to 10 years vs less than or equal to 5 years increases the log odd of successful/ (vs default) by a factor of 5.7. When the number of years of credit experience of the borrower increase, the likelihood of the financed project able to pay the loan will increase. The implication is that credit experience of borrower could probably lead to quality decision making regarding to incurring cost and profit generation, proper management and utilization of the financed project fund and inputs based on past experience and . Experience in the business operations helps to amplify borrowers' problem solving ability including seizing opportunities that are important to the growth of the business and their repayment abilities. This could have a positive effect on the magnitude of project profitability and finally loan repayment performance.

4.2.2 Post Estimation

4.2.2.1 Multicollinearity Tests

In the construction of an econometric model, it may happen that two or more variables giving rise to the same piece of information are included, that is, we may have redundant information or unnecessarily included related variables. This is what we call a multicollinearity (MC) problem. Some of the methods of detecting MC are high R^2,

variance inflation factor (VIF) and contingency coefficients. However, for this specific paper, the researcher used Variance inflation factor (VIF). If the mean of VIF is less than 10, there is no exact linear relationship exists between any of the explanatory variables.

Table 4.13 Multicolinearity

```
. vif, uncentered

    Variable |      VIF      1/VIF
-------------+----------------------
   appraisal |
           2 |     2.45    0.407599
           3 |     3.43    0.291697
 duediligence|
           2 |     2.85    0.350318
           3 |     2.99    0.334000
  projectfol~p|    9.96    0.100434
  2.projectp~y|    2.85    0.350737
 equitycont~n |
           2 |     2.55    0.392104
           3 |     2.63    0.380785
           4 |     2.44    0.410613
  graceperiod |    26.26   0.038082
 projectimp~y |
           2 |     2.61    0.383803
           3 |     2.83    0.353611
   loanamount |    1.72    0.579776
 projectman~e |
           2 |     2.42    0.412716
           3 |     2.64    0.378936
           4 |     3.00    0.333587
 creditexpe~e |
           2 |     2.33    0.429433
           3 |     3.52    0.283810
 educationa~s |
           2 |     2.48    0.402852
           3 |     3.01    0.332190
-------------+----------------------
    Mean VIF |     4.25
```

The mean of VIF is lower than 10, so there is no multicolinearity problem

4.2.2.2 Model specification

If the p value of hatsq is higher than 10, we fail to reject the null hypothesis which says the model is well specified.

Table 4.14 model specification

```
Logistic regression                        Number of obs  =        105
                                           LR chi2(2)     =     103.26
                                           Prob > chi2    =     0.0000
Log likelihood = -15.205924                Pseudo R2      =     0.7725
```

projectstatus	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
_hat	1.077431	.3161157	3.41	0.001	.4578554	1.697006
_hatsq	.0540521	.0374168	1.44	0.149	-.0192835	.1273877
_cons	-.1405376	.4748721	-0.30	0.767	-1.07127	.7901947

The p value for hatsq is higher than 10 % so we fail to reject the null hypothesis which says the model is well specified.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In this chapter the major findings of the study are summarized, conclusions are drawn based on the finding, and recommendations are forwarded for Development Bank of Ethiopia, the regulatory body and policy decision makers at macro-economic level.

5.1 Summary

Development Bank of Ethiopia was established for the sole purpose of providing project financing to strategic projects as well as technical services and advice for those projects established by DBE. Provision of credit only could not support the economic development of the country unless an effective monitoring and evaluation system is put in place to ensure efficient and effective utilization of the fund/credit for the intended purpose. More importantly, the Bank must ensure in advance that the loan will be repaid timely in accordance with the terms and conditions stipulated in the contractual agreement

The main objective of this study is to investigate determinants of loan repayment performance in project financing in the context of Development Bank of Ethiopia. Specifically, the paper is intended to evaluate the effect of borrower, lender, and loan and project related factors. The research design employed were descriptive research design with qualitative and quantitative data that extracted from primary and mainly secondary data. To this end, descriptive and econometrics analysis method was used to analysis the result. In order to support the findings of the questionnaires, opinions and views collected from the open ended questions from the respondent were also qualitatively analyzed. logit model was adopted to determine as to whether the several explanatory variables, as hypothesized in the paper, have much to do with the loan repayment performance of DBE-financed projects.

Data for the study were collected from 105 files of individual borrowers at head office of the Bank, The study shows that 70 (67%) of the financed project were successful projects (non-defaulters), whereas the rest 35 (33%) were non-successful (defaulters). In addition primary data were collected through an interview by preparing open-ended questionnaire for 9 employees.

The analysis of the study demonstrated that out of the eleven independent/explanatory variables, which were hypothesized to determine the loan repayment performance of projects financed by DBE, six were statistically significant. These variables are educational status, Credit experience, managerial experience of project manager, equity contribution ratio, project implementation delay and due diligence. In contrast, the remaining six were less powerful.

Educational level of borrowers is one of the significant variables, which determines the successful loan repayment performance of project financing borrowers. As estimated, the variable was positively related to repayment performance and statistically significant at 10% probability level. This result shows that project financed borrowers who have better Educational level is more likely to be successful.

Projects will be delayed when they are not executed in accordance with the initially agreed project implementation plan. In this regard, the result reveals that project implementation delay (PID) of any financed project has a negative impact on loan repayment performance of DBE's financed project. It is statistically significant at 10% significant level. This means that efficient and effective project implementation leads to improved debt service and vis-vis. This could be manifested in the form of minimizing huge pre-production costs.

Equity contribution ratio is also a statistically significant factor in enhancing loan repayment performance of DBE financed projects. The main reason for this may be that if borrowers (owners) contribute a lot in financing projects as compared with that of

credit proportion, they will tend to become more responsible for servicing their debts timely. In other words, the more money borrowers invested in the form of equity versus credit, the higher appetite they develop in repaying their loans, and vis-à-vis.

Project Management experiences is found to be one of the significant positive determinant of successful loan repayment performance of DBE financed projects. This is due to the fact that a manager, who has long years of experience in managing a project will be able to run the project properly by devising a pragmatic strategy to effectively carry out the day-to-day operations of the project, overcome operational problems if encountered, and implement a back-up plan or plan 'B' if something wrong happens.

Credit experience has a positive coefficient and it is significant at 5% predictive significant level. When the business is operated by experienced person than those who have just started (beginners) relatively, the risk of failure is less because if borrowers had enough experience in the specific business, they already know the potential risks that they will face in the business and make themselves ready how to handle it .Therefore, the more the number of years in a business, the better would be the loan repayment performance (Berhanu & Fufa.

Due diligence is also one of the due diligence has been done thoroughly but sometimes due to much more flow of customers and employees negligence the expected due diligence (about customers general back ground, source of equity, previous credit status, etc) will not produced.

5.2. Conclusion

Based on the findings it can be concluded that managerial experience of project manager, education status, equity contribution ratio, Project implementation delay, credit experience and due diligence have significant impact on loan repayment performance; which means any increase (decrease) on the value of these variables leads to an increase (decrease) on repayment performance of DBE's financed projects. While educational status, managerial experience of project manager, credit experience, due diligence and equity contribution ratio have significant and positive relationship with loan repayment

performance of the Bank, Project implementation delay has negative relationship with loan repayment performance of the Bank.

5.3. Recommendation and Policy implication

This study has a potential to support the policy makers of Development Bank of Ethiopia to take corrective measures on the most important determinants of loan repayment performance of financed projects by DBE. The possible policy implications, emerged from the study, are forwarded below.

One of the vital policy implications has much to do with the strong relationship existing between the managerial experience of project managers and loan repayment performance of borrowers. This positive correlation suggests that the Bank should, at all times, require project owners to employ well-experienced and qualified managers throughout the project life. In this regard, the Bank should include specifically a minimum of equal to or greater than 5 years of experience for a project manager in its credit policy as a basic requirement for loan provision.

Equity contribution ratio is an important factor, which is positively related to borrowers' ability to repay their loans. Making the borrower to have some "skin" in the financed project (business) is insuring his or her best efforts toward success and timely repayment of the borrowed fund. If so, the policy maker has to include in the credit policy of the bank and the bank has to apply accordingly a minimum equity contribution of borrowers which is 50% of the total investment cost.

Another important policy implication is related to the strong association/relationship existing between education and loan repayment performance of project financing. This relationship sheds light on the importance of incorporating, as well as giving high emphasis on the requirement of educational of project managers or borrowers, in the Bank's credit policy before any loan is released. Hence, it is fair to require BA/BSc or above educational qualification for both non-owner-manager and owner-manager in

today's highly competitive world market. This requirement should be stipulated in the credit policy of the Bank as a basic requirement for loan provision.

Accelerating project implementation period has a positive impact on the loan repayment performance of financed projects. Hence, the Bank should, at all times, keep close eye on the timely implementation of projects in line with the implementation schedule stipulated in the project appraisal study. Simultaneously, there must be an effective monitoring and evaluation system to monitor each and every milestone achieved. Accordingly, the bank has to implement each and every financed or to be financed projects as much as possible below 6 months.

The other most important factors which is statistical significant and determine the loan repayment performance of project finance of DBE is credit experience of borrowers. Having credit Experience in the business operations, amplify borrowers' problem solving ability including seizing opportunities that are important to the growth of the business and their repayment abilities. Therefore, the bank policy maker has to put in credit policy of the bank and the bank has act accordingly a minimum credit experience of borrowers that is of equal to or more than 10 years.

The last significant factor that need the bank to give high consideration during project financing is due diligence. Hence, it is necessary for a bank to make detail investigation about the borrowers. That means all round aspects of the borrower has to be assessed in relation to its personal characteristics from past to present, fulfillment of legal documents to be a creditor, project management capital adequacy, credit relation and experience, availability of inputs and identification of risk before financing

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APPENDIX A

PART ONE: Questioner format prepared for data collection

This questioner format is prepared to collect data from the files of the individual borrowers at DBE to undertake a research on the title 'Determinants Loan Repayment Performance in Project Financing: The case of DBE head office.

I. **Borrowers related factors**

1. Educational level of borrower/Manager: _____

    1. Grade 10th & below 2. Diploma & certificate   3. BA/BSC & above

2. Managerial Experience of Project Manager/owner_____ years

    1) ≤3 years   2) >3≤5 years   3) >5<=8 years   4) >8 years

3. Credit experience of the borrower from any financial institutions before?

    1)   ≤5 years   2) >5≤ 10 years   3) > 10   years

II. **Loan related variables**

4. Total amount of Loan disbursed: Br. _____

5. Promoter Equity contribution: _____.

    1) =25%   2) >25 %≤ 50%   3) >50% ≤ 75%   4) >75%

III. **Project related variables**

6. How long was the grace period given? _____

7. How was project profitability? 1) Net profit 2) Net loss

8. Project implementation period delay (PIPD)

    1) For projects lately implemented up to six months 2) for projects implemented lately for more than six months but less than a year 3) For project implemented lately for more than a year

9. Status of the borrower/project:

    1) Successful/non-defaulter 0) defaulter

IV. **Factors related with the Leander**

10. Number of project follow-ups/inspections per annum under taken by the Bank after loan disbursed_____

11. The due diligence report of the project done by the bank_____

a. Well done in good manner by investigating the key components of due diligence such as risk area identification, credit status checking, pre-credit risk measurement, market strategy analysis, management ,technical and financial analysis.

b. Somehow carefully analyzed, however, lacks deep investigation and comprehensiveness in terms of including each key components of due diligence

c. Was not done in a well manner since it lacks both deeply investigation and comprehensiveness in terms of including each key components of due diligence.

   12. The Bank has done an appraisal report ----------------------

a. Deeply and comprehensively by analyzing the key components of appraisal report such as success & risk factors, marketing & marketing strategy, financial viability, technical feasibility, management & manpower and socio- economic of the project in detail

b. Of moderately investigated and analyzed the key components of appraisal

c. Of weak & shallow that overlooked most of appraisal components.

PART TWO: INTERVIEW QUESTIONS

First thanks for your time and voluntariness to be interviewed for the purpose of academic research on Determinants of loan repayment performance: a Case Study in Development Bank of Ethiopia, Head office. Since your responses are crucial effect on the research result to be reliable, I am sure that you will try to respond carefully as per the intention of each interview questions and be sure that your responses will be kept confidentially.

Interview Question to Bank staffs

1. What seems like the loan appraisal process to produce the proper, reliable, and adequate loan appraisal proposal?

2. Do you believe that the bank has done due diligence to get credit worthy customers for their loan application? What are the limitations seen during the due diligence assessment?

3. Do you believe that the bank has done fledged follow up for its customers /loan? What are the results after project follow up?

4. How do you explain the impact of due diligence, loan appraisal, and project follow up with loan repayment?