

**DETERMINANTS OF LOAN REPAYMENTS AMONG CLIENTS OF DEPOSIT  
TAKING MICROFINANCES: CASE STUDY OF FAULU MICROFINANCE BANK IN  
NAIROBI COUNTY.**

**ROSEMARY MUTHONI**

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## DECLARATION

This research paper is my own original work and has not been presented for the award of degree or diploma in any other university

Signed\_\_\_\_\_

Date\_\_\_\_\_

Rosemary Muthoni Kibe

X50/67961/2013

I confirm that this research project was written and presented for examination by the candidate under my supervision.

Signed\_\_\_\_\_

Date\_\_\_\_\_

Dr. Joy Kiiru

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## **DEDICATION**

To my children Nicole and Levitte for your love, encouragement, prayers and sacrifice carried me through. You gave me reason to persevere.

## ABSTRACT

Loan default occurs when an individual fails to repay a loan which may be voluntary or involuntary. This has the effect of adding to the lender's costs (recovery costs and external borrowing costs for refinancing) signaling serious problems in the environment that the lenders and borrowers interact. Repayment rates among the MFIs in Kenya have been dropping drastically since most of their loans are small in nature and unsecured. The study sought to examine factors that determine loan repayments among clients of deposit taking micro finances with a key focus on Nairobi County. The study adopted a survey research design with Faulu microfinance Bank as the case study. The study used primary data for a sample of 151 respondents. It was obtained using an interviewer administered questionnaire. The data was analyzed using the probit model and STATA software.

The study findings indicated that loan repayment is determined by level of education of an individual, location of business, sector of business, business age and collateral use. These were found to be significant at 5% and 10% significant levels.

Borrowers with more years of formal schooling and operated businesses in the trade sector as well as located within or near the CBD realized better repayment rates. Borrowers whose businesses had existed for a longer period and had used tangible collaterals to secure their loans also recorded high repayment rates.

The study recommends that MFIs should offer appropriate training on financial literacy taking into consideration clients level of education and design clients' loans given the age, sector and location of the business as well as collateral to be used.

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## **LIST OF ABBREVIATIONS**

AMFI-	Association of Micro Finances in Kenya
CBD-	Central Business District
CBK-	Central Bank of Kenya
DTM-	Deposit Taking Micro finances
KWFT-	Kenya Women Finance Trust
MFI-	Micro Finance Institutions
NGOs-	Non-Governmental Organizations
UN-	United Nations

## CHAPTER ONE

### 1.0 Introduction

Micro Finance Institutions (MFIs) are considered a major source of finance for the poor in the fight against poverty in many countries. Microfinance refers to the process of providing loans, insurance, savings, money transfers among other banking services to the poor living in rural and urban areas. Many times they face restrictions in accessing these services from the formal financial providers. This may be because many are unemployed, they have no collateral, lack of income and credible credit rating. The institutions accept deposits on a day –to-day basis, give small amounts of money which are on short-term basis to low income households and often use collateral substitutes. Micro Credit on the other hand involves providing small loans to the poor usually with no collaterals which has become increasingly a major source of credit for this category of people in many countries. Microcredit is therefore a component of microfinance. Microfinance institutions are a key instrument in spurring development as they are able to reach the unreached rural poor who are their only options due to ease of their operations.

In Kenya, the microfinance movement has been growing rapidly. According to an examination of micro-finance programmes in the country through the support of Dutch Co-financing Programme, 2002, the Government of Kenya, many NGO's and international donor agencies consider micro finance as a key driver for development and poverty reduction and eventual alleviation. For example, over the period 2004-2009 the sector increased its portfolio by 107% while commercial bank lending during the period between 2008-09 recorded a mere 4% increase. During this period, given the total number of people in the financial sector, the MFI's were serving 17.9% in comparison to 7.5% two years earlier (Gatimu & Kalui 2014). The success of these institutions is in the innovative group lending mechanism where members co-guarantee each other to access credit without the use of collateral. The group contracts makes each other liable for their neighbors loans since they are co-signers to the loans. They therefore monitor and pressure each other to honor their contracts and make prompt repayments even in the absence of collateral while those they consider risky, they do not admit to the group. As a result, these eliminates problems arising from informational asymmetry between the lender and borrowers ( Murdoch, 2005).

Given the rapid growth in the Micro-finance sector, a key challenge facing the industry is the high percentage of loans that are in default. Default refers to the failure to pay back a loan. When an individual is not willing or able to repay the loan, it is considered to be in default. A loan is considered to be in default if it has not been fully paid for over 90 days. It can be voluntary where the borrower has the ability to repay the loan but does not pay or involuntary due to unexpected circumstances. Delinquency on the other hand refers to late payment of loan given leading to default if unchecked. Due to the nature of group methodology dynamics, delinquency many times spreads from a few of loans to a big portion of the loan portfolio. Any late repayment consequently adds to the lender's costs who are unable not only to recover the loan interests but also the principal amounts. A high level of default leads to an erosion of capital or deposits leading to liquidity risk (Hennie 2003). This further makes the institutions vulnerable to the borrowers.

Ultimately, default leads to bad debts or non-performing loans. Loan delinquency has negative effects on the levels of an institutions investment as it constrains the scope of its operations in offering credit to borrowers. An institutions capital is drastically reduced through the provision of bad debts and accumulation of losses to compensate for loan losses. On the other hand, loan delinquencies leave the borrower in a worse status than before through the seizure of loan collateral, legal fees, penalty charges, loss of social status and personal integrity. Loan delinquency thus hinders the flow of financial services provision to the microfinance client.

## **1.1 Background of microfinance institutions**

The genesis of the microfinance movement dates back in the early 1970's by an Economics Professor Muhammed Yunus from Bangladesh. He observed high levels of poverty among the people in the nearby villages which was accelerated by a nation-wide famine. To break this vicious cycle of poverty, he decided to give the people small amounts of money in form of loans to help in their small businesses. To his amazement, Yunus received timely payments from the recipients of his small loans as well as an improved quality of life. This project expanded rapidly to an extent that he could no longer finance it himself and it is then that he sought the help of the government which resulted to the birth of the Grameen Bank in Bangladesh. However in the

1950's to the next twenty years, donors and governments provided financial services through subsidized rural credit programmes. These programmes failed as they were characterized by high loan default, high losses and many were unable to reach the very poor. The Grameen bank focused only on the very poor in the society. It recorded very high repayment rates to the loans they were advancing which resulted to its extending operations to other regions of the country. In less than a decade, the bank was ready to operate independently without help from the government. With this success, other institutions across the globe started replicating the Grameen banks model for example FINCA International developed in Washington DC in 1986 as an MFI. In the 1980's it was evident that microfinance could provide large-scale outreach profitably. However it was in the 1990's that microfinance developed into an industry.

As microcredit institutions grew, it became clear that other financial services (insurance, savings, pensions) needed to be offered apart from credit as the poor demanded them ( Ledgerwood 2000). Microfinance as a significant player in the development of a nation was further enhanced by launching the Micro credit Summit in 1997 which targeted women by providing credit and other financial services in a bid to reach 175 million families considered the world's poorest. They were further strengthened by the UN who declared the year 2005 as the International Year of Micro credit. The Consultative Group to Assist the Poorest (CGAP) assisted by its donors came up with principles through which microfinance institutions would operate as they provide long term financial services.

## **1.2 Development of microfinance institutions in Kenya**

In Kenya, the microfinance industry dates back to a decade ago. The industry is considered the oldest and most established in Africa. Before becoming an industry, credit was provided mainly by Christian organizations and small church based NGOs (Gatimu & Kalui 2014). Their programmes which were substantially subsidized focused on uplifting the welfare of the poor. Formal institutions began operations in the 1980s with K-REP taking the lead in 1984 followed by Kenya Women Finance Trust. K-REP Bank started in 1984 with an aim of increasing the incomes of the poor through provision of employment as well as the much needed financial services. Their main target were the poor and in particular those operating very small businesses by giving them small amounts of credit without tangible collaterals like was the norm among

commercial banks. K-REP is considered the pioneer of Kenya microfinance. By the 1990's, there was increased awareness and knowledge about the microfinance industry requiring it to be formal, focused and sustainable. In 1999, K-REP obtained a banking license making it the first micro-finance to transform into a bank. By the year 2000, there were many MFIs with a number of them converting to commercial banks and Deposit Taking Microfinance institutions (DTM). There was an increasing demand for these institutions to be financially sustainable which led them to shift focus from the most poor to the enterprise poor. In 2004 there was a push for financial sector reforms aimed at improving microfinance activities to access savings, credit and other financial services to majority low income Kenyans. They were developed through the Micro Finance act of 2006 which became operational in May 2008 which empowered CBK to license, regulate and supervise MFIs (Bokea 2007). The Act classified microfinance institutions into three categories under which they registered them: MFIs that receive deposit for example commercial banks, MFIs that do not receive deposits but offer credit only and informal organizations for example ROSCAs (Kodongo et al 2013). By end of the year 2010, the CBK had licensed Faulu Kenya, Kenya Women Finance Trust (KWFT), SMEP, UWEZO and REMU as Deposit Taking Microfinance (DTMs) to carry out deposit taking microfinance business across the nation. Some of Kenya's major commercial banks can be traced back to microfinance, two as building societies (Family Bank and Equity Bank) , (KREP) has its origin as an NGO and Cooperative Bank as a cooperative society. Thus Kenya's microfinance industry constitutes of these commercial banks, a number of registered microfinance institutions, savings and credit cooperatives, and NGOs .As at June 2015, 12 Deposit Taking Microfinance Institutions (DTMs) had been licensed by the CBK.

Faulu microfinance bank also known as Faulu Kenya is one of the pioneer microfinance banks in Kenya regulated by the central bank of Kenya. It was founded by a Christian organization (Food for the Hungry International) as an NGO in 1991 with an aim of providing credit to low income households in Nairobi. Its main financiers during this period were Department for International Development (DFID) and the United States Agency for International Development (USAID). Over the years it grew to a level of sustaining itself financially no longer requiring the help of donors that led to its conversion into a private company in 1999. In 2008, it obtained a deposit taking license from the central bank and began operations as a microfinance bank.

Over the last 20 years, Faulu has grown its assets and loan book tremendously. To date the bank has 90 marketing offices 27 of which are banking branches across the country. 9 of these branches are within Nairobi with the rest spread over the remaining 7 counties with a clientele base of 62,019 of whom 35% are female borrowers.

### **1.3 Statement of the problem**

Microfinance institutions offer small amounts of loans mostly to poor people who cannot afford collaterals to get loans from formal banks. Loan portfolios are the largest assets of Micro Finance Institutions (MFIs) as well as their major source of income (Aballey 2009). Despite the recent growth in the Micro-finance sector, one of the key issues facing the industry is the high percentage of loans that are in arrears. Previous studies reveal that borrowers seek funding from multiple institutions with 25% of them taking up from six or more different financial institutions leading to repayment crisis in the end .In Kenya, the level of non-performing loan has continued to increase over the years from 9.55% in 1997 to 38.4% in 2001 (Angaine & Waari 2014). .According to the CBK sector report 2013 bank loans (i.e. commercial banks and microfinance banks) amounting to 80.6B had been defaulted (past due for over 90 days) as at Dec 2013 up from 61.6B in 2012 i.e. 30.9% increase which is the highest in over six years. This was highly attributed to change of laws governing the recovery process. Existence of nonperforming loans reduces the profitability of an institution and its sustainability or survival (Sichei 2000). The inability of the MFIs to not only recover the interests of loans given but also the principal greatly affects their capital; liquidity and profitability (Hennie 2003). The borrower on the other hand loses loan securities, social status, and personal integrity as well as incurs legal fees and penalty charges.

Previous studies have focused on determinants of loan defaults among commercial banks and credit only MFIs (for example Equity Bank, Cooperative Bank and Kenya Post Office Savings Bank). While many of these credit-only MFIs are converting to banks, there's need to focus attention on them to ensure their sustainability. Among various studies, there is no consensus on certain factors that influence loan repayment for example gender, repayment frequency and loan amount. In order for Micro Finance Institutions (MFIs) to reach scale and move towards operational and financial sustainability, arrears rate must be reduced. Thus, whether default is

random or influenced by certain factors given a particular situation needs to be evaluated keenly to help microfinance institutions manipulate their credit programs to improve repayment rates.

#### **1.4 Purpose of the study**

The purpose of this study is to establish factors that contribute to loan repayments at Faulu Micro Finance Bank borrowers in Kenya.

#### **1.5 Research question**

Which factors affect loan repayments in Deposit Taking Micro finances or Microfinance banks?

#### **1.6 Objectives of the study**

The main objective of this study is to examine the determinants of loan repayment among borrowers of Microfinance Banks in Kenya, Nairobi County with Faulu microfinance Bank as a case study. The specific objective of the study is:

To establish factors that influence loan repayments among borrowers of Microfinance Banks.

#### **1.7 Significance of the study**

The study seeks to investigate factors that affect loan repayment among deposit taking microfinance institutions clients in Kenya. This is important on the management of the deposit taking microfinance banks e.g. Faulu Bank as it directly affects their liquidity and profitability. This will inform them in coming up with credit policies that address the problem of default. The study will inform policy makers and authorities' factors attributed to low loan repayments among MFIs clients, as they develop policies that support the development of Micro Finance institutions. To scholars the study will add on to existing knowledge on determinants of loan repayment among Microfinance Banks' borrowers as well as providing a basis for further studies. The clients will benefit from the study by using the results in making better decision as far as loan taking and repaying is considered.

#### **1.8 Scope of the study**

This is a case study of Faulu microfinance Bank in Nairobi County on determinants of loan repayments among its borrowers. The study will address loan, firm and individual borrower characteristics that influence loan repayment and examine gender differences in loan repayment.



### **1.9 Organization of the study**

The rest of the research paper is organized as follows: chapter two is a review of existing empirical and theoretical literature on the topic. Chapter three constitutes of the methodology employed in the study in order to achieve the research objectives. Chapter four will involve data presentation and analysis. Chapter five summarizes issues under study, conclusions and recommendations.

## CHAPTER TWO

### 2.0 Introduction

This chapter presents empirical and theoretical literature reviews on determinants of loan repayments. Theories evaluating loan repayments and previous studies on the same will be evaluated.

### 2.1 Theoretical literature review

#### 2.1.1 Rational choice theory

The theory by Adam Smith holds that individual consumers and/or firm form the basic decision making units who represent a larger group of consumers or firms. They rank their preferences over all goods and make choices based on the ones that achieve their objectives considering all relevant factors beyond their control (Green 2002). They choose goods that they derive the highest satisfaction from as they aim to maximize their utility. The theory further assumes that the individuals consider all available information, potential costs and benefits of a particular choice as they rationally pursue their self-interests subject to all economic constraints such as capital, time, income, price etc. They make consistent choices that seek to maximize their utility subject to economic constraints facing them. Borrowers thus seek to maximize their utility by choosing the highest loan amounts they can obtain from lenders given their assets, incomes, capital, price of the loan among other constraints. The lenders on the other hand seek to maximize their profits subject to availability of capital to lend and the risk of loss involved.

#### 2.1.2 Life-cycle theory

This is an extension of the rational choice model. Franco Modigliani and Brumberg (1954) hold that the income of an individual varies within different periods of their life. Individuals make consumption choices based on their future income besides their current income. They borrow given the present value of their future expected lifetime incomes as they seek to smoothen their consumption in different income periods. Individuals borrow when young, save during prime age and dissave during retirement. They use the loans to finance consumption or investment which they were either unable or unwilling to finance using their current incomes or savings (Castro & Santos 2010). They maximize utility subject to available resources not only in the present but also resources expected in the future (Chen & Finke 1996).

Friedman (1957) in his permanent income hypothesis (PIH) postulates that aggregate consumption of individuals depends on their desire to maximize their lifetime utility function subject to their lifetime budget constraint, meaning consumption depends on one's permanent income given by the value of lifetime resources (Holmes 2010).

The life cycle model operates under a perfect financial market environment. In practice the markets are not perfect and often suffer from information asymmetry that leads to moral hazard and adverse selection. This results in consumption being constrained by an individual's current income and accessibility to collateral as lenders seek to discourage defaulters (Lawrance 1995). Lawrance introduced a default option into the model of life-cycle and held that the level of consumption can be influenced by the possibility of default. Under perfect capital markets, banks are assumed to lend at a riskless rate as there is no risk of default. Lawrance asserts that in cases of a default the banks charge a competitive borrowing rate which depends on collateral/security provided, probability of default and prevailing market conditions. The rate is normally higher than the riskless rate. Lawrance further assumes that other than for consumption purposes, people also borrow to invest in financial or real assets. She further holds that the probability of default is associated with a chance of falling into arrears which depends on the amount of loan advanced, current income, bank lending rate, level of investment, (uncertain) future income and wealth.

Current income and collaterals are key determinants for loan repayments. Borrowers are limited to using current resources in accessing loans as well as making payments for the same.

### **2.1.3 Principal-agent theory**

The study is also anchored on this theory. It reveals relationships between economic agents who have differing objectives where one party, the *principal (lender)*, delegates to another, the *agent (borrower)* some actions. The principal and the agent have different priorities and incentives usually in conflict as each makes decisions based on own self interests in a bid to maximize their individual utilities (Klein & Mei 2009). The principal's utility relates negatively to the agent's utility and he chooses an incentive contract for paying the agent that depends on his own utility. With the given incentives, agent considers the cost of delivering the action and determines optimal action to take. He then decides whether to accept the principal's offer or to reject it. The

agent may decide to realign his interests according to the incentives provided causing him to take actions that are in line with the principals interests.

However, apart from conflicting interests, Information asymmetry exists between the principal and agent as parties possess private information. The agent may currently or in future possess more information than the principal or he can hide his actions .When the borrower has private information that the lender cannot monitor or observe, adverse selection and moral hazard problems arise. Under the group methodology, the principal (lender) interacts with multiple agents (group members) who also interact one with another.

This model may be divided into two classes ( moral hazard and adverse selection models) given the nature of information asymmetry .under moral hazard model , the agent possesses private information after the signing of the contract between principal and himself while in adverse selection model the agent has private information already before the signing of the contract) (Janda 2006).

In a debt market, information asymmetry can occur when a borrower has better information concerning future possible risks and the profits associated with the projects that they plan to undertake once they access the funds. The lender on the other hand does not have enough information concerning the borrower .Information asymmetry thus results in two problems for the financial institutions; moral hazard which involves monitoring entrepreneur behavior as they target to achieve high loan repayment rates, and adverse selection which involves making errors during lending. This is due to the high costs associated with appraisal and monitoring especially for small loan amounts. In the loan appraisal stage, borrowers may conceal information that is likely to work in their disfavor making it difficult to assess ones experience and commitment as well as the returns for the business. Obtaining such information outside from the borrower may be unavailable, uneconomic to get or difficult to interpret. This means that the lender can lend to a business which eventually fails or fail to lend to businesses which go on to become successful.

Adverse selection problem arises when the borrower has information before signing the contract which the lender is not aware of (Janda 2006). This hidden information he/she uses to optimize his utility gained from entering into the contract (Klein & Mei 2009). Due to this the lender is unable to distinguish between borrowers or groups of different degrees of risk, the safe and risky borrowers (Guttman 2007). Borrowers with a likelihood of succeeding in their projects funded by loans and are willing to repay their loans are considered to be “safe” borrowers while those who lack these characteristics are considered “risky” borrowers.

Risky borrowers may pretend to be safe while they are not. The principal therefore offers loans at a uniform rate of interest for both safe and risky borrowers which in most cases is high to compensate the possibility of having risky borrowers (Woradithee 2011). The high interest rates affect the profitability of both borrowers (safe and risky). The safe borrowers find it wise to leave the market with only the risky ones with a high probability of defaulting remaining. This leads to the lemons model by Akerlof where the market will constitute of risky borrowers with high interest rates (Janda 2006).

Moral hazard problem arises when the borrower has information after signing the contract (Janda 2006). The principal has no ability to discern the actions that the agent will perform after signing the contract. The agent uses this hidden information to his own advantage to maximize his own profit. While this occurs, the principal bears the (opportunity) costs of this behavior (Klein & Mei 2009). The agent, who has no wealth of his own, borrows money from the principal to invest in a particular project. The only person who can observe the outcome of the project is the agent. A rational agent would announce that the project failed since the principal has no mechanism of punishing or rewarding him and eventually default the loan given (Janda 2006). After granting the loan, a lender cannot control the agent to utilize the funds given for the purpose they were disbursed for and as a result ensuring repayment of the same. Sometimes the borrower may use the loan for other purposes other than what the funds were released for which in some cases may be non income- generating activities (Woradithee 2011). Thus a borrower can decide to invest the money in a risky project, misuse the funds or may not apply enough effort to manage the investment, which may lead to low returns. On the other hand, a borrower may invest the loan in a project that yield good returns but may prefer to divert funds for repayment of the loan to others purposes (Klein & Mei 2009).

Loan diversion has been recorded as a major contributor towards loan defaulting reflected by the moral hazard problem. To minimize these asymmetries various studies have recommended that lending institutions should establish a strong relationship with firms and clients to curb default levels.

#### **2.1.4 Game theory**

Game theory reveals relationships between participants in a particular model and predicts their optimal decisions. The Repayment game theory by Besley and Coate (1995) indicates that individuals borrow some amount of loan and must pay back the loan plus interest at the end of the period. They encourage each other to repay by instituting hefty sanctions against one another in case one does not pay, the bank on the other hand can charge penalties on loans not paid on time. Given their returns from the businesses, individuals can decide to either pay or not to pay the loan. In case an individual decides not to pay while the rest pay, they can decide whether or not to pay for the one who didn't pay in order to access future loans as they are guarantors one to another. The paying members can also decide not to pay their own loans since others are not paying resulting to total default.

#### **2.2.0 Empirical literature**

Various studies have been advanced to examine factors that influence loan repayments among commercial banks and microfinance institutions. However, there is growing interest on the increasing number of deposit taking microfinance banks in the country.

According to Ledgerwood (2000) the ability to put the loan into productive use will depend upon the borrowers' characteristic which may take various social economic dimensions including gender, income level, the family size, educational level and age.

#### **2.2.1 Gender of borrower**

Many MFI's focus on empowering women by improving their economic position in society. According to the World Bank report survey, it reveals that women generally have a high sense of responsibility and are affected by social pressure. Previous studies have shown that women have a higher repayment and savings rates than their male counterparts (Gomez & Santor, 2008, Ledgerwood, 2000, Wongnaa & Awunyo 2013, Kamau 2012, Munguti 2013, Angaine & Waari

2014). However this is in conflict with Kamanza 2014 together with Nawai & Shariff 2010 who holds that married women have low repayment rates due to their multiple and conflicting gender roles that robs them of time to concentrate fully in the business. They hold that women tend to invest less to the growth of their businesses since their profits are used in their families rather than in expanding the business. This makes their businesses to remain small although they exist for a longer time than their male counterparts.

### **2.2.2 Borrowers / individual factors**

There is general consensus that the expenditure of a household affects borrowers' ability to repay loans on time. Studies reveal that high expenditure levels translate to lower repayment rates (Castro & Santos 2010, Gomez & Santor 2008, Nawai & Shariff 2010, Angaine & Waari 2014). This is because money is channeled to other uses leaving little or no money for loan repayment.

Studies carried out hold that more dependants negatively affect business performance since they depend on the business to meet all their daily needs causing a strain on the business. Small businesses which form the target group of most MFIs are usually owned by Members of the same family. These owners have extended families that depend on their businesses for financial support due to their cultural and traditional responsibilities. The monies gotten out from the business sales reduce on their working capital and as a result reduced profits and low business growth. Thus due to the businesses importance to their owners (in raising the living standards of their families), they continually seek for credit especially from the MFIs to boost their businesses. However, the loan is not entirely used on the business as it is used to sort other family needs. The business is expected to support the family which in effect constrains the performance of the business thus reducing the effectiveness of the loan. The larger the family size the more constrained the business is to perform as the expenses are high and as a result affecting subsequent loan repayments (Wongnaa & Awunyo 2013, Kamau 2012, Pasha & Negese 2014, Angaine & Waari 2014)

Education on the other hand affects loan repayment positively. The more one is educated, the more they understand their financial obligations and the consequences of their failure (Wongnaa

& Awunyo 2013, Gomez & Santor 2008, Kamau 2012, Pasha & Negese 2014, Angaine & Waari 2014).

Studies show that young borrowers tend to have low loan repayments in comparison to older borrowers. Older borrowers are considered to be more responsible and disciplined in repaying their loans than younger borrowers. Young borrowers also lack experience in business that translates to improved profits and as a result high loan repayments (Bichanga et al 2013, Kodongo & Kendi 2013, Kamau 2012, Pasha & Negese 2014, and Angaine & Waari 2014)

### **2.2.3 The business characteristics**

Various studies emphasize on the importance of locating businesses in strategic areas. The right location depends on the type of the business and the target customers. Prime locations lead to increased sales volumes and as a result increased revenues. Businesses located in the prime areas of their target market tend to have high loan repayments than those not strategically located. Businesses located in close proximity to town centers tended to have high loan repayments than otherwise (Zikmud 2000, Nguta et al 2013, Angaine & Waari 2014).

The age of business relates to how long the business has been in existence as well as the experience in terms of years in the business for the entrepreneur. Previous studies reveal that businesses that have been in operation for less than one year are susceptible to low loan repayments than businesses that existed in more than one year. Firms that have operated for more than 10 years tend to have very high loan repayment rates than those that have operated for a lesser period ( Nawai & Shariff 2010, Nguta et al 2013, Angaine & Waari 2014)..Business that have operated for long have weathered the storms of recession and growth in economies thus make financial commitments given this information.

Firms can be categorized as small, medium or large given the number of employees in the firm. Firms that employ between 1-5 employees are considered small, employing 5-10 medium and those employing above 10 employees considered large. Large firms have better repayment performance, followed by the medium firms according to various studies. Small firms have the lowest repayment rates as they tend to have low sales volume and thus difficulty in repayments (Nannyonga, 2000, Nguta et al, 2013 and Angaine & Waari, 2014).



Sector of business greatly affects loan repayments. Businesses in the trade sector have high loan repayments followed by businesses in the agricultural sector, service industry with manufacturing sector recording highest loan defaults (Nguta et al 2013).

#### **2.2.4 Loan characteristics**

The length of time (credit period) for which credit is extended greatly affects loan repayment. Loans are structured in a way that enables them to be repaid in regular installments over the loan term or at the end as a lump sum given the borrowers cash flows. (Ledgerwood 2013). Credit period is the length of time for which credit is extended which ranges from three months to five years for many MFIs. Group loans have shorter maturities than individual loans. Balancing between organizational need for sustainability and the clients need for capitalization is important as far as credit period is concerned. If the loan term is too short, the borrower may be unable to generate revenue quick enough to make repayments while longer periods may make one be extravagant since the installments are far less than the business can generate and may eventually fail to pay back. Thus loan terms should match clients' cash patterns to ensure loans are paid on time and in full. Studies have shown that Loans with shorter repayment periods tend to have low repayment rates as compared to loans taking a longer period (Ledgerwood et al, 2013, Kodongo & Kendi, 2013, Munguti 2013, Pasha & Negese, 2014).

Various authors argue that lower loan amounts have higher chances of default in comparison to greater amounts. MFI loans sizes vary and will greatly depend on the number of loan cycles made by the client. The starting loan size for most of the MFIs ranges between KSHS. 10,000 - 500,000/=. When small amounts that do not match the business's needs are given, the borrower tends to divert the funds to other things thus affecting repayment in the long run (Kamanza R.M 2014).small loan amounts are believed to be advanced mostly to novices in business that lack experience on strategies of running a profitable venture and also to more risky borrowers. (Kodongo & Kendi, 2013, Kamanza 2014, Kamau, 2012, Pasha & Negese, 2014). However this is in contrast with Munguti (2013) findings that larger loan amounts have low repayment rates.

Studies have shown that presence of collateral improve repayment rates (Mensah, 2013, Kodongo & Kendi, 2013). Low-income clients have minimal or no assets to pledge for loans. Collateral substitutes and alternative collaterals are used to reduce the risk to the lender. The

group guarantees and peer pressure in-group loans act as the collateral for group borrowers. The collaterals are listed in a book and in case of default group members can impound the securities and recover the loan in question. With individual loans, security is a must ranging from land titles, vehicle logbooks to machinery which are kept in safe custody. Thus presence of collaterals improve repayment rates as the value attached to collateral ceded for loan by the borrower is normally higher than it's real worth making them stay committed to repaying loans as they fear losing the asset.

### **2.2.5 Lending methodology**

Borrowers under the group methodology have been recorded to have high loan repayment rates in comparison to borrowers under individual lending (Van Tassel 1999, Ghatak 1999, Kodongo & Kendi, 2013). Group borrowers monitor each other and institute social sanctions in cases of default thus members tend to honor their financial obligations.

### **2.3 Conclusion**

Various studies as indicated above were conducted to examine factors that determine loan repayments. A number of studies conducted their research on factors that affect loan repayments with a special focus on the rural areas whose major economic activity is agriculture. Similar studies need to be carried out in the urban areas as well. Other studies done in Kenya focused on determinants of loan repayments among commercial banks and microfinance Institutions. However, microfinance institutions have been evolving with time to become like banks although founded upon microfinance institutions principle. They are known as deposit taking micro finances' or microfinance banks currently standing at 12 in Kenya. They have been given little attention by previous studies and thus the study aims to address this gap.

## CHAPTER THREE

### 3.0 Introduction

The purpose of this research is to identify the determinants of loan repayment among clients of Faulu Microfinance Bank in Kenya.

This section presents the procedures that will be used to collect data and thereafter perform an analysis and then present the data in a way that meets the research objectives and answer the research questions.

### 3.1 Analytical framework

From the rational choice model, an individual is faced with various alternatives of which he chooses the alternative that maximizes his/her utility. Individual has to make a choice between two alternatives i.e. to repay (R) or not to repay (D) based on the expected utility derived from each decision given ones individual, loan and business characteristics .ie

$$E U_i R = f(X_i) + e_i \quad \text{----- (1)}$$

$$E U_i D = f(X_i) + e_i \quad \text{----- (2)}$$

Where  $E U_i R$  is the expected utility of an individual derived from repaying a loan and  $E U_i D$  is the expected utility of an individual derived from not repaying a loan  $X_i$ 's represents individual, loan and business characteristics while  $e_i$  is the error term.

### 3.2 Model specification and estimation

Loan repayment as represented by  $Y_i$  is not directly observable but can be inferred by way of the probit model through other observable variables represented by  $X_i$ 's (independent variables).  $X_i$  in the study represents individual characteristics of the client (family size, expenditure levels, gender, education level, age), firm characteristics (nature, sector, size, location, age), and loan characteristics (credit period, amount, collateral).

The MFI borrowers are faced with two choices given their expected utilities of either honoring their financial obligations or dishonoring and thus defaulting.

Given

$$E U_i R = f(X_i) + e_i$$

$$E U_i D = f(X_i) + e_i$$

When an individual's expected utility to repay is higher than for not repaying i.e

$E U_i R > E U_i D$  he chooses to repay represented by  $Y_i$ . Thus;

$Y_i = 1$ ..... If loan is paid

$Y_i = 0$ .....if otherwise.

To pay or not to pay by the MFI clients is represented by a binary dependent variable  $Y_i$  which takes the value of one (when MFI clients pay their loans) and the value of zero (when MFI clients do not pay their loans).

$Y^*$  is a latent variable as it is not directly observed but is inferred from other variables that are observed.  $Y^*$  is given by the structural model:

$$Y^* = X_i' \beta_i + \epsilon_i, \quad \epsilon_i \sim N(0, \delta^2) \text{ ----- (3)}$$

Given the condition that:

$$Y_i = 1, Y^* > 0$$

$$Y_i = 0, Y^* \leq 0 \quad \text{which is the threshold within which the outcome is expected.}$$

The probability that  $Y_i = 1$  is represented by P

The probability that  $Y_i = 0$  is given by 1-P

And the probability of observing a value of one (representing repayment) is given by:

$$\Pr(Y_i = 1/X) = \Pr(Y^* > 0/X)$$

$$= \Pr(X_i' \beta_i + \epsilon_i > 0/X)$$

$$= \Pr(\epsilon_i > -X_i' \beta_i/X)$$

$$\text{And } E(\epsilon_i) = 0$$

$$=1-\Phi (- X_i' \beta_i) \text{-----} (4)$$

Where  $\Phi$  is a cumulative distribution function of the standard normal distribution. It is a continuous and non-decreasing (increasing) function that determines the probability of non-repayment between zero and one.

$\epsilon_i$  - Is a random variable representing others factors that cannot be observed, quantified or may be relatively insignificant but may influence a decision- makers choice of alternatives (i.e. whether to pay or not)

$Y_i^*$  is linearly related to  $Y_i$  by equation:

$$Y_i = \beta_i X_i + u_i \text{-----} (5)$$

Where  $u_i$  is a random disturbance term. Thus the observed dependent variable depends on whether  $Y_i$  exceeds the threshold value or not.  $Y_i^*$  is the threshold value for  $Y_i$ .

The probit model of estimation thus is:

$$P_i = p(Y^* < Y_i)$$

$$P_i = p(Y^* < \beta_0 + \beta_i X_i) = \Phi (Y_i)$$

Where  $P_i$  - represents the probability of a borrower in making a certain choice i .e whether to repay loan or not.

$S_i$  is a random variable normally distributed with mean zero and unit variance.

$Y_i$  is the dependent variable representing loan repayment or otherwise.

$Y_i^*$  represents the threshold value of the dependent variable.

Parameters  $\beta_i$ 's of the probit model do not provide information directly on the effect of the changes in the explanatory variables on the probability of MFI clients repaying or not repaying their loans. The  $\beta_i$ 's will reveal the probabilities of borrowers to repay their loans given various characteristics and they will be estimated by use of Maximum Likelihood. This method reveals which values of maximizes the probability of observing a repayment or non-repayment given various characteristics. However it is more convenient to estimate the log likelihood function

than the likelihood function where the dependent variable estimated is no longer a dichotomous variable but a continuous one.

The empirical model is specified as:

$$LR = \beta_0 + \beta_1SEX + \beta_2EDU + \beta_3DEP + \beta_4EXP + \beta_5IAGE + \beta_6SOB + \beta_7BSZ + \beta_8BLN + \beta_9BAGE + \beta_{10}CDTP + \beta_{11}LAMT + \beta_{12}CTL + \beta_{13}MTD + u \text{-----} (6)$$

Where:

LR- loan repayment .whether or not client pays their loan. This is the dependent variable.

SEX - gender which is either male or female.

EDU - education level of the borrowers.

DEP - number of dependants

EXP - expenditure per month.

IAGE -age of individual borrowers

SOB - sector of business

BSZ - size of the business

BLN- business location

BAGE-age of the business

CDTP -credit period/tenure of the loan

LAMT- loan amount

CTL - collateral used as security of the loan

MTD- lending methodology i.e. individual or group.

$u$  - Error term which is assumed to have a mean of zero and constant variance.

**Table 1: Variable description**

<b>Variable symbol</b>	<b>Variable definition</b>	<b>Definition measurement</b>	<b>Expected sign</b>	<b>Explanation</b>
SEX	Sex of borrower	Dummy 1 = male 0=female	positive	Women record high repayment rates than men.
EDU	Education level Of borrower	Number of completed years in formal schooling.	positive	Borrowers with more years of formal education record higher loan repayment rates.
DEP	dependants	number of dependants a client has	negative	Borrowers with many dependants have lower repayment rates due to many responsibilities resulting from meeting their demands.
EXP	expenditure	Amount of expenses incurred by an individual per month	negative	Individuals with high monthly expenses experience low loan repayments than the people above this level.
IAGE	Age	Number of years of the individual	positive	Older borrowers are argued to be wiser, responsible and more experienced in business thus having a high tendency to loan repayments than younger ones.
SOB	Sector of business	dummy 1= retail sector 0= otherwise	Positive/negative	Businesses in retail sector record highest repayment rates compared to those in agricultural and manufacturing sectors.

BSZ	Size of business	Revealed by the number of employees in a firm	Positive	Small firms employing 1-5 employees have a low tendency to loan repayment than bigger firms with more than 5 employees.
BLN	Location of business	Approximate distance to Nairobi's CBD(=1 if located in CBD otherwise 0)	Positive	Businesses located in town centres result to higher profits and thus improved loan repayment rates
BAGE	Age of business	How long (in years) the business has been in existence.	Positive	Businesses in existence for more than 1 year have high loan repayments than those in existence for less than a year. Businesses with more than 10 years have high loan repayments.
CDTP	Credit period	length of time for which credit is given	positive	Loans with longer repayment periods have high repayment rates as the installments are low compared to loans taking a shorter period.
LAMT	Loan amount	amount of loan received	Positive	Small loan amounts are considered insufficient to generate revenue that sustains the business and keep up with loan repayments.



CTL	collateral	Dummy variable for type of asset ceded in case of default. (=1 if asset is tangible, otherwise 0)	Positive	Loans guaranteed using tangible assets have high repayment rates than those without collateral.
MTD	methodology	Dummy variable for methodology used(=1 if group methodology, otherwise 0)	positive	Borrowers under group methodology experience high repayment rates than those under individual methodology.

**Source: Author 2016**

### 3.3. Research design

The study will adopt survey research design focusing on Nairobi. Given the Microfinance loan book, Nairobi has the largest share at 25.8 % (AMFI 2014)

### 3.4. Target population and sample size

Among the deposit taking micro finances, KWFT commands the highest market share at 37.2% followed by Faulu at 22.1 % (AMFI 2014). The study focused on Faulu microfinance borrowers in Nairobi as the institution lends to both genders as opposed to KWFT which lends exclusively to women. Nairobi has the highest clientele served by Faulu in comparison to other counties. A random sample was used to select respondents from the institution. A representative sample was drawn by use of the formula below:

$$n = \frac{P(1-P) Z^2}{ME^2}$$

Where n = sample size, P = proportion of population of interest, Z=confidence level (95%)

M.E = desired margin of error. Since p is unknown, the convention is to assume  $p=0.5$ ,  $Z = 1.96$  and  $M. E = 0.08$ . This results to 151 respondents.

### **3.5. Data collection and analysis**

Data was collected using questionnaires. The respondents were briefly introduced to the purpose of the study before questionnaires were administered. Confidentiality of respondents was assured through transmittal letters that accompanied the questionnaires. Questionnaires were administered by the researcher and several interviews conducted in probing for more information. Secondary data was collected from the MFIs to supplement the questionnaires in report writing.

Data was analyzed using qualitative techniques by use of STATA software.

### **3. 6 Data validity and reliability**

Validity of the instrument reveals the extent to which it gives the same results after administering it on repeated times. The opinion of research experts (supervisor and lecturers) was incorporated to enhance validity of the instrument. The questionnaires were tested for reliability by choosing a small group of respondents, gave them same questionnaire twice within a period of one week. The two sets of questionnaires were then compared using the Pearson's correlation co-efficient to determine their reliability. The results from the two sets tended to yield consistent findings.

## CHAPTER FOUR: EMPIRICAL RESULTS

### 4.0 Descriptive statistics

The chapter presents research findings on the study of determinants of loan repayments for deposit taking microfinance a case study of Faulu Microfinance Bank in Nairobi County. Data is presented by use of descriptive and econometric statistics. A sample size of 151 respondents was obtained from which 130 filled the questionnaires successfully. This gave a response rate of 86.09% which was considered satisfactory to make conclusions for the study.

**Table 2: Descriptive Statistics**

Variable	Description	frequency	percentage
PAY	Loan paid	87	66.92
	Loan not paid	43	33.08
		130	100
SEX	Male	50	38.46
	Female	80	61.54
	total	130	100
EDU	Less than 8 years	45	13.85
	9-12years	11	29.23
	13-16 years	60	46.15
	17-20 years	14	10.77
	Over 20years	0	0
	total	130	100
DEP	Less than 5	106	81.54
	5-10 dependants	24	18.46
	Over 10 dependants	0	0
	total	130	100

IAGE	35 years and below	44	33.85
	35 years and above	86	66.15
	total	130	100
EXP	25,000 and below	40	30.77
	26,000-50,000	51	39.23
	51,000-100,000	37	28.46
	Over 100,000	2	1.54
	total	130	100
SOB	Retail	108	83.08
	Manufacturing	0	0
	Transport	22	16.92
	Agriculture	0	0
	total	130	100
BSZ	1-5 employees	105	80.77
	6-10 employees	25	19.23
	Above 10 employees	0	0
	total	130	100
BLN	Within CBD	49	37.69
	More than 1KM from CBD	81	62.31
	total	130	100
BAGE	1-5 years	87	66.92
	6-10 years	27	20.77
	Over 10 years	16	12.31
	total	130	100
CDTP	12 months and below	110	84.62
	13 months-24 months	13	10.00

	Over 24 months	7	5.38
	total	130	100
LAMT	Kshs.100,000 and below	62	47.69
	Kshs.100,001-Kshs.500,000	48	36.92
	Above Kshs.501,000	20	15.39
	total	130	100
CTL	Tangible	29	22.31
	Non-tangible	101	77.69
	total	130	100
MTD	Individual programme	43	33.08
	Group programme	87	66.92
	total	100	100

**Source: Author 2016**

Table 2 reveals that 66.92% of the respondents paid their loans on time while 33.08% never paid their loans as per the agreed contract.

Findings in table 2 establish that 61.54% of the respondents were female and 38.46% male. This further indicates that women run most of the small scale enterprises within the area of study. With regard to age, 33.85% of the respondents were 35 years and below while 66.15% were above 35 years. This implies that most loans are taken up by people aged 35 years and above since they are most productive then thus need financial support more. 81.54% of the respondents had less than 5 dependants with 18.46% having more than 5. Many respondents complained of the high cost of living in the urban areas thus choosing to maintain a small family size. Respondents with less than 8 years of formal schooling were 13.85% compared to 29.23% who had between 8 to 12 years, and 46.15% between 13 to 16 years .10.77% had between 17 to 20 years. Majority of the respondents had between 13 to 16 years of formal schooling with certificates, diplomas and degree certifications. Many came to the city in a bid to get formal

employment and when it was not forthcoming, they resulted to small businesses to sustain themselves. 70% of the respondents had their expenses below kshs.50, 000 per month with the rest having a budget of more than kshs.50, 000.

The high expenses were due to high cost of living in the urban areas. Majority of the respondents operated retail businesses at 83.08% as compared to 16.92% involved in non-retail businesses due to the fast cash obtained from retail businesses. 80.77% of respondents had small business with between 1 to 5 employees and 19.23% having 6 to 10 employees. Majority were involved in small businesses due to the nature of their operations. 37.69% of the respondents had their businesses located within the central business district with 62.31% located more than 1KM from the central business district. Businesses that had existed between 1 to 5 years were 66.92% of the entire population. 20.77% of businesses had been in operation between 6 to 10 years with 12.31% having operated for more than 10 years. Majority of business were below 5 years of age as the respondents kept changing businesses depending on margins earned. 110 respondents paid their loans with 12 months and below translating to 84.62% of total respondents. 13 of them repaid within a period of 13 to 24 months while only 7 repaid with above 24 months at 10% and 5.38% respectively. Majority of the loans were given with only 12 months as their amounts were considered small for longer periods. 47.69% of the respondents had loans of Kshs.100,000 and below, 36.92% had between Kshs.100,000 and Kshs.500,000 with 15.39% having above Kshs.500,000. 101 respondents did not use tangible collateral to secure their loans with only 29 using hard securities for example motor vehicles, land, plant and machinery. Most respondents used social collateral by using each other as guarantors combined with household securities. 66.92% of respondents were funded through groups while the remaining 33.08% received their loans individually.

#### 4.1 Probit regression results

**Table 3: Probit Regression Estimates**

VARIABLE NAME	coefficients	p-values	Marginal effects
SEX	0.451	0.263	0.093
IAGE	0.185	0.479	0.040
AGE <sup>2</sup>	-0.013	0.659	-0.003
EDU	0.179	0.007**	0.039
DEP	-0.207	0.147	-0.045
EXP	-2.34e-05	0.145	-5.10e-06
SOB	1.261	0.088*	0.386
BSZZ	0.151	0.125	0.033
BLN	1.378	0.003**	0.256
BAGE	0.183	0.017**	0.040
CDTP	0.061	0.244	0.013
LAMT	1.29e-06	0.143	2.81e-07
CTL	1.432	0.016**	0.197
MTD	0.638	0.210	0.156
Cons	-9.452		
<b>MODEL SUMMARY</b>			
Log likelihood	LR chi <sup>2</sup>	Prob>chi2	R <sup>2</sup>
-30.01654	102.55	0.0000	0.6308

**Source: Author 2016**

NB: \*\* indicates significance at 5% level, \* indicates significance at 10% level.

The model is well fitted with 63.08% correctly predicted at 95% confidence interval.

This further reveals that loan repayment among DTMs clients in Nairobi county and in specific those in Faulu is 63.08% predicted to be influenced broadly by personal, business and loan characteristics.

From the results in table 3 the coefficient for education is positive and significant at 5% level of significance. This means that an extra year of formal schooling by a borrower increases the probability of loan repayment by 3.9%. This follows Wongnaa & Awunyo 2013, Gomez & Santor 2008, Kamau 2012, Pasha & Negese 2014 and Angaine & Waari 2014 findings on education and loan repayment.

Business location relates to loan repayment positively and is significant at 5% level of significance. Thus a business located within the CBD is more likely to repay a loan by 25.6 % point than one located outside the CBD. This is in consensus with Zikmud 2000, Nguta et al 2013 and Angaine & Waari 2014 in their studies on strategic business location in relation to loan repayments.

The age of business is positively related to loan repayment and is significant at 5% significant level. An extra year that a business exists improves the probability of loan repayment by 4%. This finding is in line with Nawai & Shariff, 2010 and Nguta et al 2013 studies in regard to business age and loan repayment.

Collateral affects loan repayment positively and is significant at 5% significant level. Use of tangible security in securing a loan improves the probability of loan repayment by 19.7 % than those secured by household items only. This is in consensus with Mensah 2013 and Kodongo & Kendi 2013 studies regarding collateral and its effect on loan repayments.

Sector of business influences loan repayment positively and is significant at 10% significant level. A business opened in the trade sector is more likely to repay loan by 38.6% than those opened in manufacturing, transport or agricultural sectors. This finding is in line with Nguta et al 2013 study on factors influencing loan repayment default in micro-finance institutions: the



experience of Imenti North District, Kenya. The magnitude of the effect is large indicating that sector of business variable greatly influences loan repayment

## 4.2 Diagnostic tests

### 4.2.1 Normality test

The Shapiro-Wilk test was used to determine normality of variables. The p-value in the test is used to make inference of normality whereby if the calculated p-value is greater than the critical value (in this case 0.05), then the variable is considered normal.

**Table 4: Shapiro-Wilk normality test**

Variable	observation	W	V	Z	Prob>z	status
PAY	130	0.99169	0.856	-0.351	0.63718	Normal
SEX	130	0.99326	0.694	-0.821	0.79423	Normal
IAGE	130	0.95853	4.270	3.266	0.00054	Non-normal
EDU	130	0.93416	6.780	4.307	0.00001	Non-Normal
DEP	130	0.94476	5.689	3.912	0.00005	Non-normal
EXP	130	0.94782	5.374	3.783	0.00008	Non-Normal
SOB	130	0.94814	5.341	3.770	0.00008	Non-normal
BSZZ	130	0.83617	16.872	6.358	0.00000	Non-normal
BLN	130	0.99250	0.772	-0.582	0.71978	Normal
BAGE	130	0.85221	15.220	6.126	0.00000	Non-Normal
CDTP	130	0.78745	21.889	6.943	0.00000	Non-Normal
LAMT	130	0.43379	58.309	9.148	0.00000	Non-normal
CTL	130	0.96310	3.800	3.004	0.00133	Non-normal
MTD	130	0.99169	0.856	-0.351	0.63718	Normal

**Source: Author 2016**

The table above reveals that pay, sex, business location, and methodology are normal at 5% level of significant while the rest of the variables are not normal.

#### 4.2.2 Multicollinearity test

Multicollinearity exists where two variables are related. By employing the correlation matrix, a correlation coefficient of 0.8 and above represents presence of Multicollinearity. The results obtained as shown in the table below shows absence of Multicollinearity between variables.

**Table 5: Correlation Matrix**

	SEX	IAGE	EDU	DEP	EXP	SOB	BSZZ	BLN	BAGE	CDTP	LAMT	CTL	MTD
SEX	1												
IAGE	-0.032	1											
EDU	-0.047	0.192	1										
DEP	0.143	0.606	-0.026	1									
EXP	0.117	0.022	0.193	0.063	1								
SOB	-0.107	0.025	0.056	-0.224	0.204	1							
BSZZ	0.016	0.256	0.010	0.100	0.082	0.038	1						
BLN	-0.223	0.084	0.176	-0.072	0.023	0.097	-0.051	1					
BAGE	0.018	0.535	0.284	0.153	0.048	0.173	0.174	0.093	1				
CDTP	0.058	-0.013	0.111	-0.007	0.255	0.060	0.189	0.040	0.010	1			
LAMT	0.019	0.031	0.289	-0.110	0.336	0.043	0.127	0.018	0.090	0.506	1		
CTL	0.184	0.080	0.270	-0.032	0.513	0.094	0.223	0.041	0.139	0.273	0.563	1	
MTD	-0.217	-0.018	-0.167	0.091	-0.226	-0.143	-0.010	-0.061	-0.103	-0.151	-0.213	-0.330	1

**Source: Author 2016**

#### 4.2.3 Heteroscedasticity test

In order to determine whether the error terms were correlated, a heteroscedasticity test was run using the White's Test. The *f*-statistic and its associated *p*-value were obtained. (*f*-Statistic was 114.39 and *p*-value of 0.0309). The null hypothesis under test was that the error terms have a constant variance meaning they are homoskedastic. Since the *p*-value calculated was less than the critical value of 0.05, the null hypothesis was rejected indicating presence of heteroscedasticity. To correct this error, a robust regression on the standard errors was carried out as represented by table below:

**Table 6: Robust Regression Errors**

<b>Coef</b>	<b>Std. Err.</b>	<b>Robust std. Err.</b>
SEX	0.066867	0.0741323
IAGE	0.0052678	0.0048676
EDU	0.0075892	0.00927
DEP	0.0189641	0.0190206
EXP	1.68e-06	1.48e-06
SOB	0.0864144	0.0872661
BSZZ	0.0130359	0.0122352
BLN	0.0641943	0.0670484
BAGE	0.0085294	0.0073445
CDTP	0.0059378	0.0041782
LAMT	6.18e-08	6.13e-08
CTL	0.100167	0.1218146
MTD	0.0690259	0.069226
_cons	0.2169029	0.1904695

**Source: Author 2016**

#### **4.2.4 Omitted variables test.**

The Ramsey Reset test evaluates whether a model has omitted any important variable in its specification. The null hypothesis states that there are no omitted variables in the model. The F-statistic obtained from the data is 12.41 and a p-value of 0.0000. Since the p value is significantly small we reject the null that there are omitted variables in the model. This means that the model is correctly specified.

## **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.0 Introduction**

Results presented in chapter four are discussed conclusively and appropriate recommendations made. The conclusions and recommendations focus on addressing the objective of the study which aims at determining factors that influence loan repayments among clients of DTMs with a special emphasis on FAULU.

### **5.1 Summary of main findings**

The study found the default rate to be 33.08 % which is a cause for concern in the financial industry. From the data collected, there exists a positive relationship between loan repayment, level of education of borrowers, business age, sector of business, location of business and collateral.

The findings reveal that 43% of the respondents had less than 12 years of formal education with a 68.89% probability of not repaying loan compared with 10% probability for those with more than 16 years. Many of the respondents had some considerable level of formal education with many indicating they had migrated to the capital city in search of formal employment. When this was not forthcoming, they decided to venture into small businesses in order to survive. However, those with more years of formal learning fully understood their financial obligations well that resulted to better loan repayments than those with fewer years.

The study reveals that majority of the borrowers' businesses were in the trade sector (83.08%) with a 72.22% repayment rate. This is because of the fast high returns recorded in this sector as well as minimal risks associated with businesses in this sector in comparison to manufacturing and agricultural sector. 62% of these businesses were located outside the CBD with low repayment rate of 54% compared to those located within the CBD with a repayment rate of 88%. CBD is considered a prime location for many trade businesses due to high sales volumes and as a result improved loan repayment rates.

Businesses that had existed for long experienced high loan repayment rates (92%) than those that had been in existence for less than five years (53%). Majority of the businesses were five years and below. This was because due to their mode of operation where they are operated by sole proprietors with the help of family members and occasionally change from one business to another in the hope of realizing higher and faster profits. They therefore lack experience in a particular business that in the end affecting loan repayment negatively.

Presence of collaterals improved loan repayments since the value attached to the security by borrowers was higher than its face value. Thus they were careful to meet obligations on time lest their securities would be impounded to recover loan.

## **5.2 Conclusion**

From the findings, loan repayment is determined by the level of education of borrowers, business age, sector of business, location of business and collateral. The probability of loan repayment is higher when ones business is located within the CBD than while away by 0.256 as well as when one uses tangible securities as opposed to not providing the securities by 0.197. If borrowers increased their years of formal schooling by one year, loan repayment would improve by 0.039. If a business increases by one in terms of years of existence, it raises the probability of loan repayment by 0.04. If borrowers were to change the sector of their business, a change in business from other sectors to trade would improve repayment rates by 0.386.

## **5.3 Recommendations**

The following recommendations followed from the results:

1. MFIs should analyze the education levels of borrowers and design appropriate training programmes to address various needs given the different levels of education among its clients.
2. Loan terms should be designed in accordance to the sector, age and location of business to ensure maximum benefit of loan.
3. MFIs to offer training to staff on proper collateral evaluations as a way of improving portfolio quality.

#### **5.4 Limitations of the study**

Due to time and resource constraint, the study was focused on one of the 12 licensed deposit taking micro finances. From a total clientele of approximately 450,000, a sample of 151 respondents was drawn. The researcher encountered challenges with the organization under study (FAULU) officially refusing to grant permission for its clients to be interviewed. However this was tackled by intercepting their clients outside their branches and requesting them to fill the questionnaires. Some of the respondents were reluctant to give their information but confidentiality was assured and others demanding payment before filling the questionnaires despite the letter from the university indicating that the research was for academic purposes. Some respondents did not give full information that resulted to 20 questionnaires being spoilt.

#### **5.5 Areas of further research.**

The study was based on clients, business and loan characteristics from the borrowers' perspective due to limited time and resources. Lender and macroeconomic characteristics that affect loan repayment should also be evaluated in order to develop a better loan delivery mechanism. It is recommended that further research be extended to all the licensed microfinance banks in the country.

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## **APPENDICES**

### **APPENDIX 1: LIST OF LICENCED DEPOSIT TAKING MICROFINANCE AS AT 31<sup>ST</sup> DECEMBER 2015**

1. KENYA WOMEN MICROFINANCE BANK LIMITED.
1. FAULU MICROFINANCE BANK LIMITED.
2. REMU MICROFINANCE BANK LIMITED.
3. CENTURY MICROFINANCE BANK LIMITED.
4. RAFIKI MICROFINANCE BANK LIMITED.
5. SMEP MICROFINANCE BANK LIMITED.
6. SUMAC MICROFINANCE BANK LIMITED.
7. CHOICE MICROFINANCE BANK LIMITED.
8. UWEZO MICROFINANCE BANK LIMITED.
9. U & I MICROFINANCE BANK LIMITED.
10. DARAJA MICROFINANCE BANK LIMITED.
11. CARITAS MICROFINANCE BANK LIMITED.

## **APPENDIX 11: QUESTIONNAIRE FOR CLIENTS**

The following questionnaire is meant to collect data for academic purposes only. All responses shall be treated strictly confidential. Your response to this questionnaire would be highly appreciated.

### **Part 1: Personal information**

1. Kindly provide your age in years.....

2. What is your gender?

Male [ ]

Female [ ]

3. Are you under individual lending programme or group lending programme.....

4. What is your educational level given formal years of schooling? .....

5. How many dependants do you have? .....

6. What is your total monthly expenditure? .....

### **Part 2: Business Characteristics**

7. The location of my business affects it negatively:

Strongly agree [ ]

Agree [ ]

Not sure [ ]

Strongly disagree [ ]

Disagree [ ]

8. Approximately how far is your business from the city center?

Urban [ ]

Peri-urban [ ]

9. What type of business are you engaged in?

Trading [ ]

Agriculture [ ]

Transportation [ ]

Manufacturing [ ]

Others, Specify.....

10. How long has your business been in existence?.....

11. How many employees do you have?.....

**Part 3: Loan Characteristics**

1. The outstanding balance of the loan was to be cleared after how long?

Below 3 months [ ]

Between 3 months-12 months [ ]

Between 12 months-24 months [ ]

Between 24 months -36 months [ ]

Between 36 months-60 months [ ]

Above 60 months [ ]

13. In your opinion, what do you think the Bank should do to reduce loan defaults?

.....  
.....  
.....

14. What was the size of your last loan?

15. Were you given the amount of loan you applied for? Yes [ ] No [ ]

16. If no, why were you denied?

.....  
.....

.....  
17. What was the repayment schedule for the loan obtained?

Weekly [ ]

Monthly [ ]

Quarterly [ ]

Annually [ ]

18. Did you always pay on the day your installments are due as per the bank contract?

Yes [ ]

No [ ]

19. A) If no, what is the longest period you have ever gotten late in your repayments

1-5 days [ ]

5-30 days [ ]

30-90 days [ ]

over 90 days [ ]

B) Kindly explain what accounted for the late repayment/non-repayment (State as many causes

as you can) .....

.....  
20. Were any securities required before acquiring the loan? Yes [ ] No [ ]

21. What security was used to acquire loan?

Commercial building

Residential house

Land field

Livestock

Motor vehicle

Plant and machinery

Household effects

Savings

Cash cover