

IMPACT OF CREDIT REFERENCE BUREAU ON LOAN PERFORMANCE IN  
MICRO FINANCE INSTITUTIONS IN KENYA.

BY

MOSES ODHIAMBO OCHIENG

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE  
IN FINANCE, SCHOOL OF BUSINESS, UNIVERSITY OF NAIROBI.

NOVEMBER, 2018

## DECLARATION

This research project is my original work and has not been submitted for a degree at any other university for examination.

Signature..... Date.....

Moses Odhiambo Ochieng

D63/77501/2015

This research project has been submitted for examination with my approval as the University supervisor.

Signature ..... Date .....

Mr. Jay Murray Gichana

Lecturer, Department of Finance and Accounting

School of Business

University of Nairobi

## **ACKNOWLEDGEMENT**

I would like to express my earnest gratefulness to my Supervisor, Mr. Jay Murray Gichana, for his full support, guidance, understanding and encouragement. Without his implausible patience and timely wisdom and counsel, my project could have been an overwhelming pursuit. I would like to thank my brother-in law, Dr. Fredrick Ndede, for his insight on how to handle the project. I would not have successfully completed this project without his continuous encouragement to complete the project. Furthermore, much appreciation of my friend Gabriel Njoroge for his invaluable advice as I was progressing with the project. Distinct, appreciation to my former master's classmate and managing director of Metropol CRB, Mr.Samwel Omukoko, and his data management staff for aiding me in obtaining the data within the shortest time possible that enabled me to complete the project on time. Special appreciation to my Friends, Charles Mutiso, Irene Maloba, Ruth Nyambuti, Lawrence Oriko, Fanuel Masoro, Priscah Kalume, Paul Maher and Alphonse Athing, who never stopped challenging me on matters of education and played distinct roles while helping me develop my ideas. Finally, special appreciation to my former teachers from Rae Mixed Primary and St Alloys Gem Secondary for providing me with strong academic base and support to further my studies.



## **DEDICATION**

I dedicate this research project to my Loving wife, Irene Anyango, daughter Brightney Gift and son Brieden Leone.

# TABLE OF CONTENTS

<b>DECLARATION.....</b>	<b>ii</b>
<b>ACKNOWLEDGEMENT.....</b>	<b>iii</b>
<b>DEDICATION.....</b>	<b>v</b>
<b>TABLE OF CONTENTS .....</b>	<b>vi</b>
<b>LIST OF TABLES .....</b>	<b>viii</b>
<b>LIST OF FIGURES .....</b>	<b>ix</b>
<b>LIST OF ABBREVIATIONS AND ACRONYMNS .....</b>	<b>x</b>
<b>ABSTRACT.....</b>	<b>xi</b>
<b>CHAPTER ONE .....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>1</b>
1.1 Back ground of the study .....	1
1.1.1 Credit Reference Bureau .....	2
1.1.2 Loan Performance .....	4
1.1.3 Microfinance Institutions in Kenya.....	5
1.1.4 Credit Reference Bureau and Loan Performance .....	7
1.2 Research problem .....	7
1.3 Research Objectives.....	8
1.4 Value of the Study .....	8
<b>CHAPTER TWO .....</b>	<b>10</b>
<b>LITERATURE REVIEW .....</b>	<b>10</b>
2.1 Introduction.....	10
2.2 Theoretical literature.....	10
2.2.1 Adverse Selection Theory.....	10
2.2.2 Moral Hazard Theory.....	12
2.3 Determinants of Loan Performance .....	13
2.3.1 Interest Rates.....	13
2.3.2 Inflation rate.....	14
2.4 Empirical evidence .....	15
2.5 Conceptual Framework.....	17

2.6 Chapter summary .....	18
<b>CHAPTER THREE .....</b>	<b>19</b>
<b>RESEARCH METHODOLOGY .....</b>	<b>19</b>
3.1 Introduction.....	19
3.2 Research design .....	19
3.3 Population and sample .....	19
3.4 Data collection .....	19
3.5 Data analysis .....	20
3.5.1 The analytical model.....	21
3.5.2 Diagnostic tests .....	21
<b>CHAPTER FOUR.....</b>	<b>22</b>
<b>DATA ANALYSIS AND PRESENTATION OF FINDINGS.....</b>	<b>22</b>
4.1 Introduction.....	22
4.2 Descriptive statistics .....	22
4.3 Event analysis .....	23
4.4 Regression analysis.....	27
4.5 Diagnostic Tests.....	29
4.6 Discussion of findings .....	30
<b>CHAPTER FIVE .....</b>	<b>32</b>
<b>SUMMARY, CONCLUSION AND RECOMMENDATIONS .....</b>	<b>32</b>
5.1 Introduction.....	32
5.2 Summary .....	32
5.3 Conclusions.....	33
5.4 Recommendations of the Study .....	34
5.5 Limitations of the Study .....	34
5.6 Area For Further Research.....	35
<b>REFERENCES.....</b>	<b>36</b>
<b>Appendices.....</b>	<b>38</b>
Appendix I: List of Microfinance Institutions in Kenya.....	38
Appendix II: Data Collection Sheet.....	39

## LIST OF TABLES

Table 4.1: Descriptive statistics .....	22
Table 4.2: Model Summary <sup>a</sup> .....	28
Table 4.3: ANOVA <sup>a</sup> .....	28
Table 4.4: Coefficients <sup>a</sup> .....	28
Table 4.5: Tests Of Normality .....	29
Table 4.6: Heteroskedasticity Test.....	29
Table 4.7: Multicollinearity Test .....	30



## LIST OF FIGURES

Figure 2.1: Conceptual framework .....	18
Figure 3.2: Event study diagram.....	20
Figure 4.3: Movement of Non-performing loans in Faulu Kenya .....	23
Figure 4.4: Movement of Non-performing loans in KWFT .....	24
Figure 4.5: Movement of Non-performing loans in Rafiki microfinance .....	24
Figure 4.6: Movement of Non-performing loans in REMU microfinance .....	25
Figure 4.7: Movement of Non-performing loans in SMEP microfinance .....	25
Figure 4.8: Movement of Non-performing loans in Uwezo Microfinance.....	26
Figure 4.9: Movement of interest rate between 2011 and 2017 .....	26
Figure 4.10: Movement of inflation rate between 2011 and 2017.....	27

## **LIST OF ABBREVIATIONS AND ACRONYMNS**

CBK	Central Bank of Kenya
CIS	Credit Information Sharing
CRB	Credit Reference Bureau
DTMs	Deposit Taking Microfinance Institutions
FSD	Financial Sector Deepening
HELB	Higher Education Loans Board of Kenya
KWFT	Kenya Women Finance Trust
MFI	Micro Financial Institution
NPL	Non Performing Loan
SACCOs	Savings and Credit Cooperative Society
SPSS	Statistical Package for Social Science

## **ABSTRACT**

A descriptive research was done on the effect of credit reference bureaus on the performance of loan of micro finance organizations in Kenya. A descriptive design was used. The study targeted 13 licensed micro finance banks in Kenya. A census survey was done on 12 MFIs that existed between 2011 and 2017. Secondary data was used in the study. Data on loan was obtained from the respective bank's annual financial statements for the 7 years from 2011 to 2017. Other relevant data was obtained from respective websites of MFIs, other official documents and relevant publications such as the bank supervision report. The study was based on the average annual data. The credit referencing and checks data was collected from Metropol Credit Reference Bureau Limited. The regression coefficient show that credit referencing bureau has a significant negative relationship with loan performance. The trend line of loan performance show that when the credit referencing bureau was introduced in 2013, the rate at which the non-performing loans rose reduced with other firms experiencing falling level of non-performing loans. The findings show that interest rate had a negative effect on loan performance. The results found that inflation rate had an insignificant negative effect on loan performance. The study concludes that CRB has a negative effect on loan performance in microfinance institutions in kenya. The study recommends that leadership of microfinance institutions should enhance the sharing of credit information to ensure that they reduce the levels of nonperforming loans in their institutions. The government of Kenya should institute policy measures to ensure that interest rates on loans and inflation rates are controlled in order to improve loan performance in microfinance institutions in Kenya. The study recommends that future researchers interested in this field of research might consider undertaking a similar study and increasing the period or grouping the data quarterly.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Back ground of the study

According to the study by Gitahi (2013) there's been banking challenges in Kenya since 1986 resulting to some conspicuous failures of the bank (37 failed by 1998) In line with difficulties of 1986 - 1989, 1993/1994 and 1998, the difficulties gave credits to NPLs. The financial medium involves money lending to either institutions or individuals which is considered a key factor to foster the growth of the economy. Hence, it requires financial moderators to look at the credit side of the economy o s to cut down the barriers of growth.

With regard to the CBK report in 2001, the level of nonperforming loans is at 33% lesser than that of African markets in 2000. Countries such as Zimbabwe it had (24%), Nigeria had (11%) and SA had (3%). Banks were put under receivership following their failure to meet the least threshold requirement of capitalization together with bad management of the credit portfolios, according to Mullei (2003). As a result of the failures in the sector of banking of Kenya and lack of ways on preventing failures that would occur later in future the Credit Information Sharing mechanism got launched in Kenya in line with Legislation and gazette of the Credit Bureau Regulations dated 11th July 2007.

The CRBs were put into place in line with the changes to the Banking Act that was became law in 2006 and hence it became a must for DPF and licensed organizations following the Banking Act to give out details of the loans which are nonperforming by CRBs authorized by CBK. The financial institutions are facing a serious risk of loan

default. There are many risks associated with huge loans (Schreiner (2001)). Therefore, if lenders are not careful, many defaults would result. In order to beat the problem of NPLs, monitoring of credit repayment pattern by an institution is necessary. Hence we find that CRB was established so as to ensure that banks are able to measure the credibility of borrowers hence cutting down vulnerabilities to risks. For that matter, CRBs helps in creating awareness to the banks on default; secondly, cutting off borrowers who are corrupt – those with the a goal of borrowing from various financing institutions and default to pay; thirdly, to provide foreigners with information which they can use to know the stability of the economy; finally, to know the honest borrowers who actually qualify to be given loans based on their known history and character.

### **1.1.1 Credit Reference Bureau**

According to CBK (2010), CRB refers to an institution mandated to consolidate data regarding credit from a variety of sources and avail the information on request by a supplier of credit in form of the credit report. The lenders can just ask for information regarding the borrower wishing to be credited by them.

At present, the Credit Reference Bureau Regulations of 2013 confine approved clients of reports on credit given by authorized departments of credit reference to organizations authorized under the Banking Act as well as MicrofinanceAct.

As of today, all mortgage finance companies, commercial banks and microfinance banks are supposed to submit information on positive and negative to CRBs. Convincing information on someone's commitment to paying credits in the past lies on Positive information. An adverse information about customer shows makes up negative

information which is a result of defaulting in credits, nonperforming loans, delayed payments on any type of credit engagement, accounts obligatory and dishonoring of cheques under no special basis apart from cases of management reasons like evident cases of false representation, receiverships, liquidations, frauds and forgeries, cheque kiting and offer of false securities.

Nonetheless, it's important to note that, banks may intentionally share their clients' information with assent from their clients. Banks hand in their data with reference to credit on their clients to authorized CRBs occasionally on an aggregate plan. At present, banks in Kenya are required to share the data on a month to month premise. Banks do commit themselves to the authorized CRBs in order to make it to request for information regarding their clients when the duly apply for the loans.

Absence of data on borrower's causes two issues: Borrowers knowing more on themselves as compared to the money lenders and this makes money lenders to loan to anyone they think of. This refers to unfriendly determination and more so lenders make limits on giving credits by increasing their cost on financing (risk premium) to take care of costs associated with such of information and to take care of imaginable default. The high loan fees draw in just the individuals who got no left alternative. Credit data sharing is relied upon to explain data asymmetry, empowering the ones with commendable credit history by imposing a lower premium on the amount they borrow, making credit to such borrowers more affordable. Data got from CRB by authorized establishments is utilized to survey the reasonable execution of capable borrowers on committing to pay their credits.

A CRB only registers the borrower's financial assessment based on the rating of how the client paid their credits and convey it on a credit answer to approved clients upon request. Inadmissible past credit execution will in this manner be reflected in unsuitable credit scores which banks will consider in evaluating newly applied loans. Banks do execute credit execution of potential borrowers while assessing new or renewing credit applications. There are three authorized credit reference agencies in Kenya, they include: Credit info Credit Reference Bureau Limited, Transunion and Metropol Credit Reference Bureau Limited and Credit Reference Bureau Africa Limited (Transunion). They are altogether situated in Nairobi.

### **1.1.2 Loan Performance**

Performance of loans in the micro finance banks is evaluated by the rate of default by borrowers. According to CBK (2005) non-performing loans are loans where neither the principal nor the interest payments have been made for 3 months and beyond. Before the introduction of the information sharing platform and the CRB regulation, banks had no mechanisms of finding out about the financial relations of their new clients with other financial institutions.

The uncertainty about borrowers' repayment probabilities is referred to as credit risk and the poor management of such risks leads to non-performing loans in the long run (Kimani, 2015). This therefore had negative repercussions on the good borrowers as the strict rules and conditions enforced would affect all borrowers. Similarly, those that attempted to repay their loans on time could not be rewarded or recognized as their repayment history was not available to the banks (Alloyo, 2013). According to Central Bank of Kenya (2015) the gross NPLs of micro finance banks based in Kenya increased

by 81.6% from KSh 2.348 billion in December 2014 to KSh 4.264 billion in December 2015. Additionally, net loan portfolio elevated by 17 % from Ksh. 39 billion in 2014 to Ksh. 45.7 billion in 2015. The ratio of gross NPLs to net loans elevated from 6% in December 2014 to 9.3% in December 2015. The increased insecurity in the country, challenging business environment and unfavorable weather conditions experienced earlier in the year contributed to the rise in NPLs. Waweru and Kalani(2009) reiterated that loan non-performance is the main reason behind the demise of wound up banks in Kenya. This is on the basis that when nonperforming credits is high in a specific bank, the other resource arrangements made can't be satisfactory to ensure it against the danger of defaulting on its installments (Kwambai& Wandera, 2013).

### **1.1.3 Microfinance Institutions in Kenya**

The World Bank characterizes microfinance organizations as institutions that take part in generally small financial transactions utilizing different approaches to serve low wage family unit, microenterprises, little scale agriculturists and others who lack traditional banking services. They participate in micro credit or micro finance. Micro finance is managing an account with the least sums, bringing credit investment funds and other fundamental budgetary administrations inside the range of the a great many individuals who are excessively poor, making it impossible to be served by customary banks; much of the time they can't offer adequate security. Microfinance depends on the premises that the poor have aptitudes which remain unutilized or underutilized (Yunus, 2003).

Microfinance institutions in Kenya are registered under different Acts of parliament like: the Non-Governmental Organizations Coordination Act; the Building Societies Act; The Trustee Act; The Societies Act; The Companies Act; The Banking Act; The Kenya



Post Office Savings Bank Act and Microfinance Act ([www.treasury.go.ke](http://www.treasury.go.ke)). The MFIs operation, business establishment, licensing and supervision are regulated by Microfinance Act, 2006 which became operational 2008 ([www.centralbank.go.ke](http://www.centralbank.go.ke)).

In spite of the fact that, the Kenyan microfinance division is a standout amongst the most dynamic in Sub-Saharan Africa with a decent variety of institutional structures and a decent foundation to serve poor people, microfinance activities were not managed until 2006. The absence of regulation to some degree restricted their performance. Institutions were set up effortlessly with no minimum capital requirement. In this condition, the microfinance business has created and figured out how to achieve sensibly high outreach.

The Microfinance Act of 2006 and the supportive Deposit Taking Microfinance Regulations of 2008 want to change how Kenyan institutions operate. With assistance from Financial Sector Deepening (FSD) Kenya, Faulu Kenya and KWFT occupied with the procedure that prompted their authorizing as the pioneer store steering microfinance establishments (DTMs) in Kenya. The two changes were for the most part effective and have helped the two organizations to keep up better performance in the market. Schreiner (2001) shows that monetary establishments are confronting a colossal test as far as rivalry from other similar institutions are concerned. In addition, the changes rose more noteworthy than foreseen hierarchical difficulties. By beginning of 2009 when KWFT made changes to a deposit-taking association, it became the biggest non-bank microfinance establishments in Kenya.

### **1.1.4 Credit Reference Bureau and Loan Performance**

The credit reference bureaus in Kenya play a complementary role to the commercial banks in that CRB's enable the micro finance banks to lend more to better risk clients. According to a progress report commissioned by the Financial Sector Deepening (FSD) on the state of the sharing of information with regard to credits initiative in Kenya Davel, et al. (2012) confirm that micro finance banks impose stringent collateral terms and increase interest rates of borrowing loans as a mechanism to cushion themselves against the risk of non-performing loans.

### **1.2 Research problem**

The issue of loans which are non-performing is dragging the economy behind because it results to cut down of profits, stagnation of the economy and loss of confidence by consumers and corporations within the financial system. Non-performing loans has been a persistent problem in the financial sector: case example is on commercial banks leading to collapse of 37 banks as at 1998. Borrowers with bad intention and knows that banks are isolated in their functions have taken advantage of information differences to build debts in the banking sector, interfering with the business of lending hence affecting the performance of banks and their stability and covering the growth of credit to private sectors as a result of high rates of interest charged to compensate on the credit risk.

Various local studies have been carried out on CRB. Ngaragari (2016) did a study on the effects of credit reference bureaus on the cost of credit among commercial banks in Kenya; Kago (2014) investigated how financial performance is influenced by the services of CRB; Gikonyo (2014) examined the impact of CRB firms on loans accessibility in

Kenya while Oogo (2014) did an assessment of the impact of the CRB on NPLs in commercial banks in Kenya. Despite these studies focusing on CRB only Oogo (2014) focused on loan performance. However, Oogo (2014) did his study on commercial banks other than MFIs. This creates a research gap that this study sought to fill by assessing the effects of CRB on performance of loans of Micro finance institutions in Kenya.

### **1.3 Research Objectives**

The objective of the study was to establish the effect of credit reference bureaus on the performance of loan of micro finance institutions in Kenya.

### **1.4 Value of the Study**

The study gives an opportunity to banking industry in Kenya to confirm whether they can continue using CRB as an appraisal tool for separating good from bad borrowers.

The study will be helpful to the policy makers on deciding whether to continue allocating resources to CRB or not based on the findings. It will also be useful to the policy making regarding credit access and other regulatory requirements in commercial banks.

This also aims at expounding knowledge on CRBs for banks in Kenya most especially. This study also contributes to the literature by widening the understanding of the concept of credit referencing on credit default risk management, it contributes to the general understanding of credit referencing on credit default risk management.

The research will be useful to the other sectors that gives services on credit such as higher Education Loans Board(HELB), Kenya power, water companies, Savings and credit on cooperatives(SACCO's) on deciding whether to include CRB as a tool for appraising who qualifies for their credit facilities. The research will be very useful to the borrowers

as they will be able to put their case a cross to ask for better loan interest rate based on their repayment history which is available to both the lenders and borrowers as this is one of the positive uses of the credit reference bureau information.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This objective of the chapter is to look at a variety of theories, publications and studies concerning the problem of conducting this research and what other authors and scholars discuss on the effects of CRB on nonperforming loans. This chapter reviews theoretical models explaining information sharing: adverse selection theory and moral hazard theory. Likewise, critical review of empirical studies embraced and a push to assess commitments is made and pertinent learning gaps identified.

#### **2.2 Theoretical literature**

##### **2.2.1 Adverse Selection Theory**

According to Weiss in 1981, this theory is based on two assumptions. One of them is that that the lenders are not capable of knowing borrowers who have a higher level of hazardous risk: secondly, they do not understand that there should be restriction of contracts advance investigation is limited to automatic default, i.e., it expects that borrowers reimburse advances when they have the way to do as such. In a world with straightforward obligation contracts between hazard impartial borrowers and loan specialists, the nearness of constrained borrower's obligation an inclination for chance among borrowers, and a comparing repugnance for chance among banks. This is on the grounds that constrained obligation of borrowers infers that loan specialists bear all the drawback hazard.

Then again, all profits over the credit reimbursement commitment gather to borrowers. Raising loan costs at that point influences the productivity of generally safe borrowers excessively, making them drop out of the application pool. This prompts an unfavorable compositional impact, higher financing costs increment the danger the normal hazard of the candidate pool at a high Interest rates, the main candidate are borrowers who could conceivably create exceptional yield (however apparently with little likelihood). Since moneylenders' inclination over venture hazard run counter to those of borrowers, they may hold loan costs at levels underneath advertise clearing and apportion borrowers with a specific end goal to accomplish a superior organization and lower chance in their portfolio. Overabundance request in the credit market may hold on even despite rivalry and adaptable loan fees. In the unfriendly determination hypothesis, the financing cost may not raise enough to ensure that all advance candidates secure credit, in times when loanable assets are constrained (Aloyo, 2013).

When all is said and done, the volume of credit and level of exertion is not as much as the principal best. Borrowers who have more noteworthy riches to put as insurance get less expensive credit, have motivating forces to work harder, and procure more wage therefore. Existing resource disparities inside the obtaining class are anticipated and perhaps a big picture of the future through the credit market functioning, a factor that would result to absolute poverty. By trade of data about their clients' banks can enhance their insight into candidates' qualities and conduct. In Principles, the decrease in information differences will cut down the unfavorable climate in the market; the financing cost may not gather enough to ensure that overall advance candidates secure credit, in times when loanable funds are constrained. All in all, the volume of credit and

level of exertion is not as much as the main best. Borrowers who have more noteworthy riches to put as insurance get less expensive credit, have motivations to work harder, and win more salary thus. Existing resource disparities inside the acquiring class are anticipated and conceivably amplified into the future by task of the credit advertise, a wonder that may cause the tirelessness of neediness. By trade data about their clients' banks can enhance their insight into candidates' attributes and conduct. In Principles, this decrease of educational asymmetries can diminish unfriendly determination issues in the loaning, and additionally change borrowers' motivations to reimburse, both straightforwardly and by changing the aggressiveness of the credit showcase (Aloyo, 2013)

Data asymmetries are the fundamental hindrance for MFIs to give credits to customers. This at long last outcome credit hazard which is the one that adversely influence the performance of MFIs (Nawai 2010). In this way proficient credit hazard administration is required. As per Silwal (2003) to limit these issues, financial institutions more often than not require business proposal, borrower past credit data and guarantee before affirming the advance. MFIs additionally offer credit through group based loaning technique to alleviate unfavorable choice and to replace the security requirement.

### **2.2.2 Moral Hazard Theory**

Moral hazard is defined as the risk that any kind of agreement reached by through, lack of good faith, misleading data on assets and liabilities, liabilities limit, or owns a motivator to go for unusual risks to acquire a benefit before the agreement settles.

Business analysts contend that this wastefulness results from data asymmetry. In the event that MFIs could excellently watch the activities of their customers, they could deny inclusion to customers picking dangerous activities, enabling them to give exhaustive insurance against borrowings without empowering hazardous conduct. In any case, since MFIs can't superbly watch their customers' activities, they are demoralized from giving the measure of insurance that would be furnished in a world with perfect data (Hansen, 2004).

The moral threat issue derives that a borrower has the stimuli to unless if there are implications for his default with the exception of if there exist ramifications for applying for credit later in future. This result from the troublesome banks have in assessing the level of wealth borrowers will have assembled by the date on which the commitment must be repaid, furthermore, not at the period of utilization. If the advance pros can't study the borrower's wealth, the borrower will be allured to default on the procuring. Keeping this, banks will expand rates, driving over the long haul to the breakdown of the market. (Alary, 2001).

## **2.3 Determinants of Loan Performance**

### **2.3.1 Interest Rates**

Interest rates are the rent that the borrowers pay on money that they borrow from the bank or a financial institution (Collins & Wanjau, 2011). While standard practiced in a liberalized economy is to let the market forces dictate the interest rates, banks have intervened to set the interest rates citing several reasons (Onsarigo, et al., 2013). According to Messai and Jouini (2013), interest rates influence the level of NPLs 18



especially in the case floating interest rates. A high interest rate means that the customer will pay more on top of the money they borrow as the banks gain more from the money they loan to clients. As Collins and Wanjua (2011), observe, high interest rates makes it hard for the borrowers to services their loans, which means that an increase in the levels of NPLs is the result. For instance, the increase of high interest rates in Kenya before the 2007 and 2013 elections have been suggested to having been the cause of the rise in bad loans at this period as the borrowers became hard-pressed to service the loans (Onsarigo, et al., 2013). Data from the Central Bank of Kenya are indicative of the rise of the value of NPLs in March to Ksh 70 billion as the government and private sector spending subsided due to the electioneering period a 14.1% increase from the Ksh 61.6 billion NPLs realized in 2012 (Onsarigo, et al., 2013). Research has shown that there exists an association between the occurrence of NPLs and the level of rates that banks charge on loans (Sinkey 2007). Banks placing higher interest rates on the loans that they issues have been found to experience a high level of NPLs as compared to those that charge relatively lower rates.

### **2.3.2 Inflation rate**

Inflation is a continuous increase in the price level, sustained over a period of time. Mishkin (2010) explained that with inflation lenders or depositors who pay a fixed rate of interest on loans or deposits will lose purchasing power from their interest earnings while their borrowers benefit.

Khemraj and Pasha (2009) stated that there is a positive relationship between the inflation in the economy and non-performing loans. Nkusu, (2011) explained that this relationship can be positive or negative. According to the author inflation affects loan payment

capacity of borrowers positively or negatively, higher inflation can enhance the loan payment capacity of borrower by reducing the real value of outstanding debt. Moreover increased inflation can also weaken the loan payment capacity of the borrowers by reducing the real income when salaries/wages are sticky.

## **2.4 Empirical evidence**

The empirical evidence describes the studies that have been done both internationally and locally in the same area of study. It also shows the researcher, when it was done, the place it was done, method used and also the findings of the study. James (2014) conducted an empirical study in 43 banking institutions that are regulated under the Banking Act and both secondary and primary information were obtained. The research findings show that the presence of credit reference bureaus reduces default rates among borrowers. The study also revealed that credit information shared increased credit availability. The result obtained from the study recommends credit information sharing in other sectors other than the banking sector.

Another study was conducted by Kwambai and Wandera (2013) on impacts of sharing information of the nonperforming loans: A case study of Kenya commercial bank of Kenya. The findings revealed that credit information sharing, increased transparency among lenders and 16% of the respondents from Kenya Commercial banks reported that CRBs act as a form of discipline against defaulting.

Kago (2014) investigated how financial performance in terms of deposits is influenced by the services of CRB. This study employed descriptive design. Secondary data was used. The study used event analysis to show return on assets on pre and post CRB implementation in 2009, it inferred that monetary execution is appraised with

acknowledge data sharing for the last causing the former. The study advised that for a system that is open, it is key to enhance its operations in order for institutions of financing to know what client to give loans or not.

In addition, a research was done by Alloyo (2013) it ought to measure how relevant is CRB and how they impact on financial performance. Descriptive design and secondary data were deployed for purposes of analyzing data. The population of target had 44 banks. The results were, before the establishment of CRB the banks performed fairly at a constant. Nevertheless, the Performance of banks started to elevate slightly after establishment of CRB. The results also demonstrated that consumers as well as lenders found the bureau important in the financial sector which would result to an increased market of credit in Kenya, fewer rates of interests, increase in profits for institutions of finance, disciplined citizens as well as an elevated price competitiveness of facilities of credit and expanding of the lenders business to assist them gain access to credit facilities in Kenya.

Furthermore, Dankwah (2012) studied the essence of CRB and how it influences the institutions of finance in Ghana. Quantitative research was deployed on giving answers and also deployed primary data in analyzing data. It was evident from the research that consumers from Ghana are not aware that CRBs exists. This results also demonstrated that in Ghana, lenders and consumers regarded CRBs as useful in the financing sector and this resulted to large number of credits, lesser risks and rate of interests, increased profits, rise growth of credit competitiveness, disciplines lenders, elevate pool of borrowers, expansion of lending and help improve access to credit in Ghana. One of his recommendations was that there should be consistent association of information sharing

between CRB and financial institutions to help elevate the reports accorded by CRB to other institutions of funding.

Ngaragari (2016) did a study on the effects of credit reference bureaus on the cost of credit among commercial banks in Kenya. This study adopted longitudinal design which is one in which multiple observations are made over time to establish a trend. The population consisted of all the 44 lending institutions operating in Kenya. Secondary data was used from banks' annual reports. Statistically significant association exists between annual inflation and the cost of borrowing among financial institutions in Kenya. Interest charged on deposits affect cost borrowing among lending institutions in Kenya. Statistical association was established between annual CBR and cost of borrowing among lending institutions in Kenya.

## **2.5 Conceptual Framework**

Conceptual framework introduces the factors utilized in an examination through diagrammatical portrayal. It additionally demonstrates the covariance between the dependent variables and independent variable. According to Guba and Lincoln (1989), when clearly defined, Conceptual framework is a helpful apparatus that helps the analyst in making significant inevitable findings. Its piece of the plan for the transaction to be cross examined, tried, audited and transformed from the aftereffects of examination. The researcher intends to consider the impact of CRB on performance of loans. Hence, the dependent variable is loan performance since its affected by the predictors and independent variable is credit reference bureau. The relationship will be controlled by interest rate and inflation rate.

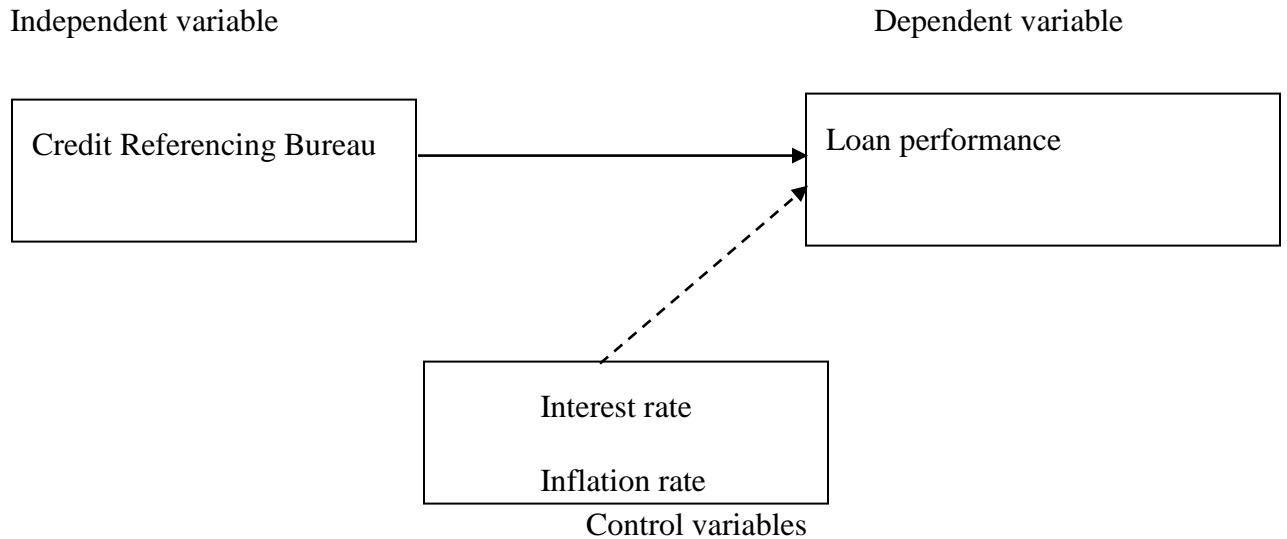


Figure 2.1: Conceptual framework

## 2.6 Chapter summary

Credit reference services from the studies reviewed remains an fundamental instrument of reducing default risks to institution of financing and has also been considered suitable for management of default risk in financing organizations. From the review of literature most of studies have focused their research on commercial banks as major lending institutions but none has focused on the impact of how a loan performs by the microfinance banks.

This research tries to build up the impact of credit reference bureaus on loan performance of Deposit taking microfinance institutions in Kenya to fill the gap and this sub-segment extraordinarily adds to the development of the Kenyan economy. The learning of this data will be utilized in information accumulation to meet the objective of the research..

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

The chapter gives a discussion on methodology and research design that will be used. The chapter will contain sub-headings; target population, research design, data analysis and collection of data.

#### **3.2 Research design**

A descriptive design was deployed. The design is said to be appropriate in that the study is based on the credit referencing bureau and its effect on the loan performance in Microfinance institutions.

#### **3.3 Population and sample**

A population refers to set of groups like services, events, people among others that are meant to be investigated. The study population consisted of 13 licensed micro finance banks (CBK Supervision Report ,2017). The study used 12 MFIs that have existed between 2011 and 2017. A census survey was done where all the 12 MFIs were involved in the study.

#### **3.4 Data collection**

Secondary data was used to analyze the effect of CRB on loan performance. Data on loan was obtained from the respective bank's annual financial statements for the 7 years from 2011 to 2017. Other relevant data was obtained from respective websites of MFIs, other official documents and relevant publications such as the bank supervision report. The

study was based on the average annual data. The credit referencing and checks data was collected from Metropol Credit Reference Bureau Limited.

### 3.5 Data analysis

SPSS was used in the analysis of the data. Since the study employed an event study approach. Two years before CRB and four years after CRB data analysis was conducted. The figures of the MFIs were consolidated and evaluated two years before the CRB was introduced and compared four years after the introduction of CRB as illustrated in figure 3.2 below. The average values were used in the descriptive and inferential analysis.

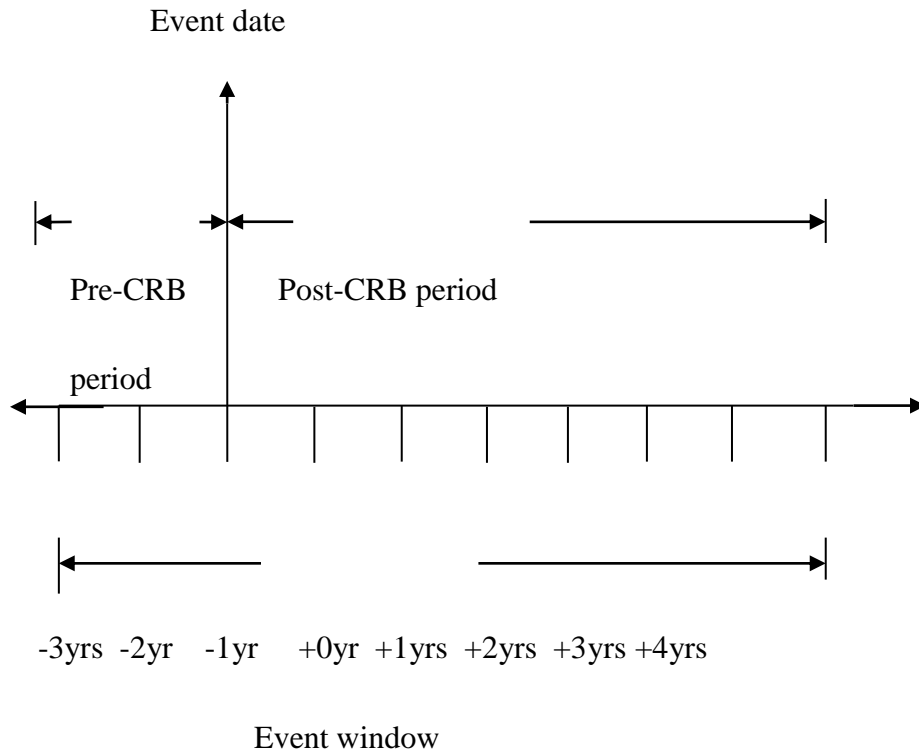


Figure 3.2: Event study diagram

The event date represents the introduction of the CRB while the event window represents the period within which the study was analyzed the data relating to credit reference bureau and performance of loans in Micro finance institutions based in Kenya. The event

in this project was the year when microfinance institutions in Kenya started using CRB to share information and the impact of non-performing loans in micro finance banks. Microfinance institutions in Kenya started using CRB in 2013.

### 3.5.1 The analytical model

To explain the association amongst variables, regression analysis will be deployed. The regression equation will be:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Where,

Y = Loan performance (Non-performing loans/total loans)

$\beta_0$  = Constant

$\beta_1, \beta_2$  and  $\beta_3$  = Regression coefficients

$X_1$  = CRB as measured by annual CRB checks

$X_2$  = Annual interest rate on loan

$X_3$  = Annual inflation rate

e = Error term

### 3.5.2 Diagnostic tests

All the relevant diagnostic tests were performed for the coefficients and overall model. These included normality testing which was done by Shapiro-Wilk test. Heteroscedasticity test was done using Breusch-Pagan. Multicollinearity was checked using variance inflation factor. The significance of the model was checked using F-test.



## CHAPTER FOUR

### DATA ANALYSIS AND PRESENTATION OF FINDINGS

#### 4.1 Introduction

Data analysis and presentation was done in this chapter. Discussions on the findings are also included in the chapter. The study targeted a total of 12 MFIs whereby only 6 had data since most of the were licensed after 2013 as MFIs. These included Faulu kenya, Kenya Women Finance Trust, Rafiki Microfinance, REMU Microfinance, SMEP Microfinance and Uwezo Microfinance. Data from Century DTM, U&I microfinance, Choice Microfinance, Musoni Microfinance, Momentum Credit, and Sumac Microfinance.

#### 4.2 Descriptive statistics

Table 4.1: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Loan performance	42	3.654	70.543	18.79679	14.718244
Credit Referencing bureau	42	.000	11.136	4.59302	4.676351
Interest rate	42	13.658	19.725	16.39057	1.779456
Inflation rate	42	5.72	14.35	8.2123	2.81298
Valid N (listwise)	42				

From the descriptive statistics in table 4.1, the mean ratio of non-performing loans to total loans was 18.79% with a minimum of 3.654 and maximum of 70.543. The mean credit checks as measured by the log of the credit checks were 4.59with minimum of 0.000 and maximum values of 11.136, which indicates that somemicrofinance institutions had not

registered with any Credit referencing bureau. The findings show a mean interest rate of 16.391 with a low of 13.658 and maximum of 19.725. The mean inflation rate over the period was 8.212 with a minimum of 5.72 and a maximum of 14.35. Loan performance display a standard deviation of 14.718 showing that there was a high rate of fluctuation in the ratio of NPL between 2011 and 2017. The credit checks also display a high standard deviation which shows that the checks were fluctuating within the period. Inflation rate and interest rate were stable within the period.

### 4.3 Event analysis

The study sought to establish the movement of the non-performing loans across the period between 2011 and 2017. The findings are shown in form of line graphs for every microfinance institution whose data was accessible.

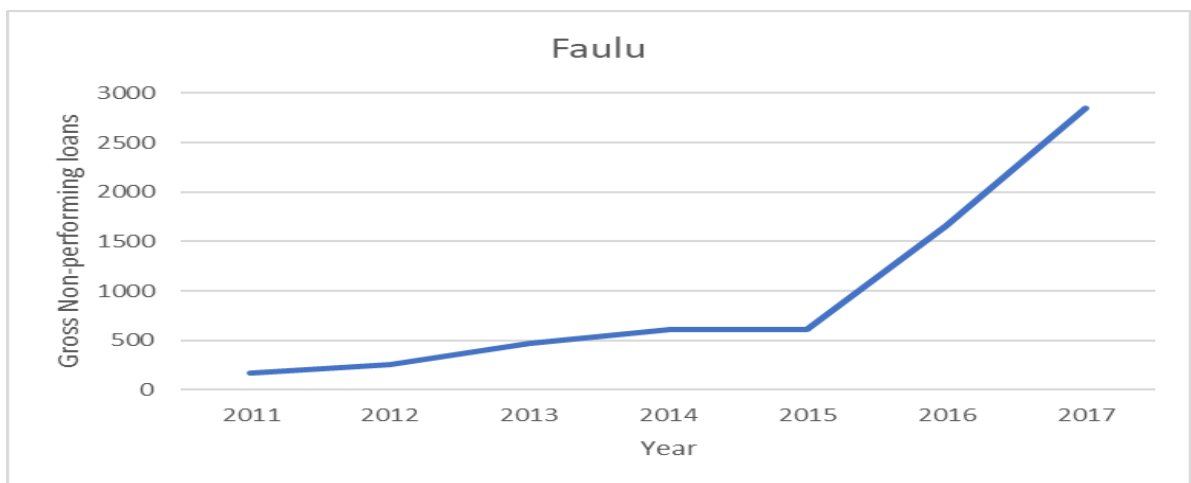


Figure 4.3: Movement of Non-performing loans in Faulu Kenya

From figure 4.3, the gross non-performing loans in Faulu Kenya rose slowly through to 2013 before stabilizing in 2014 through to 2015. However the non-performing loans increased rapidly from 2015 to 2017.

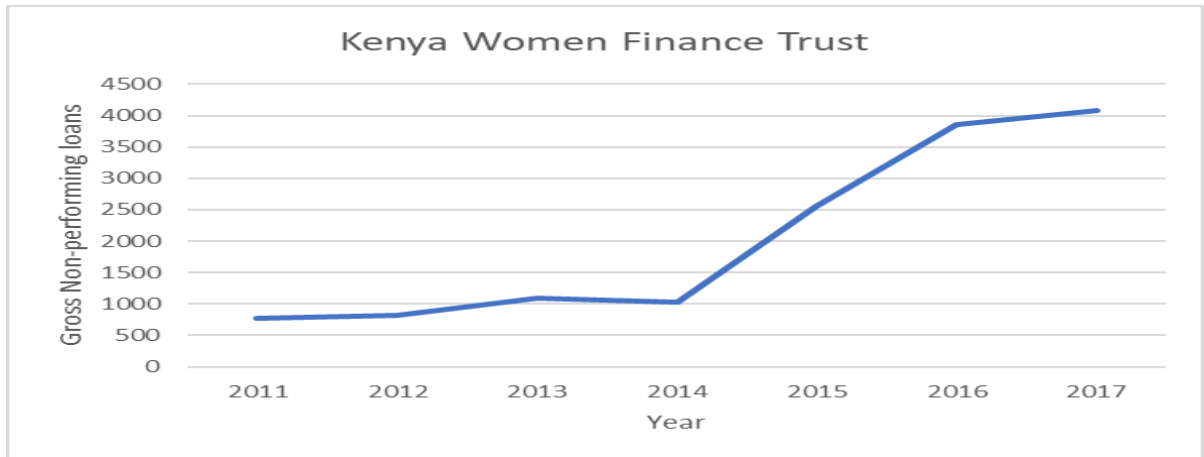


Figure 4.4: Movement of Non-performing loans in KWFT

From figure 4.4, the gross non-performing loans in KWFT increased gradually from 2011 to 2013. However they fell from 2013 to 2014 before rising rapidly through to 2016 before stabilizing in 2017.

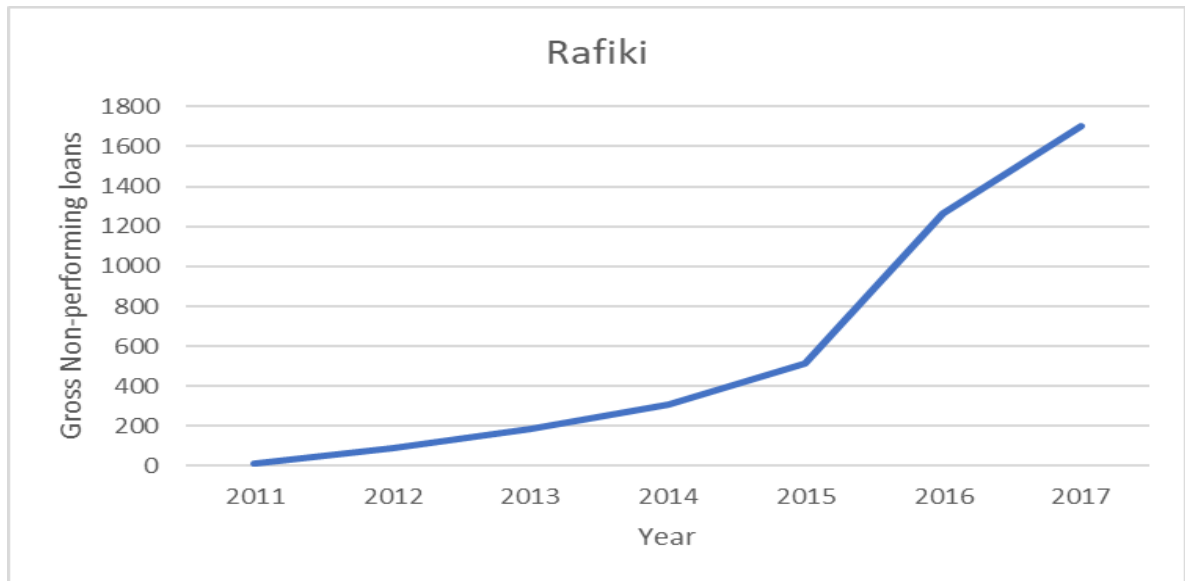


Figure 4.5: Movement of Non-performing loans in Rafiki microfinance

From figure 4.5, the gross non-performing loans in Rafiki microfinance rose gradually from 2011 to 2015. The loans rose rapidly between 2015 and 2017.

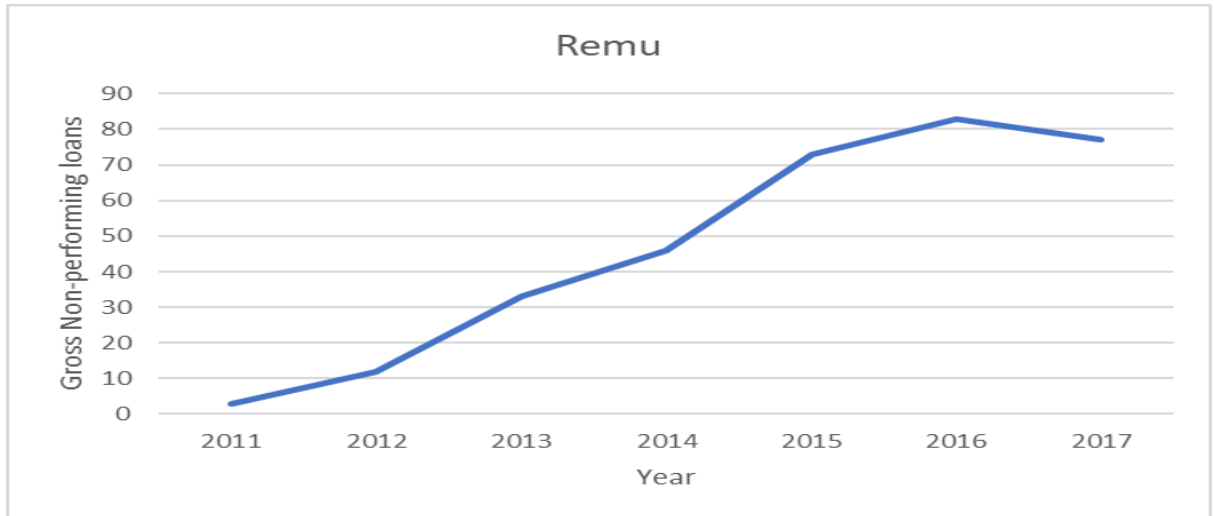


Figure 4.6: Movement of Non-performing loans in REMU microfinance

From figure 4.6, the gross non-performing loans in REMU rose gradually from 2011 to 2016. However, the loans dropped gradually between 2016 and 2017.

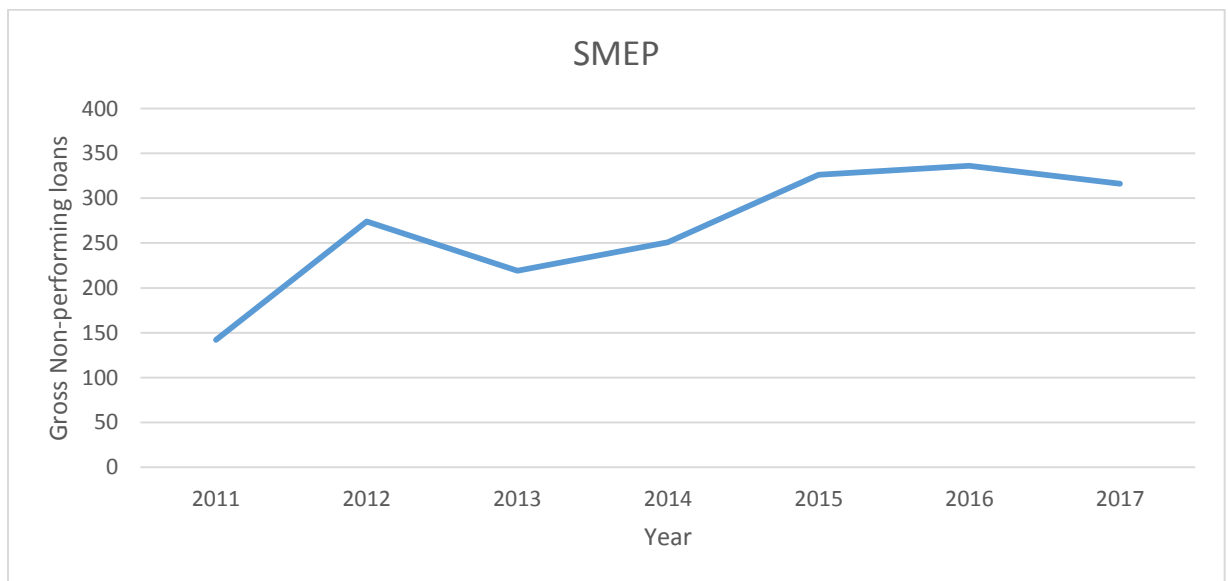


Figure 4.7: Movement of Non-performing loans in SMEP microfinance

From figure 4.7, the gross non-performing loans in SMEP rose rapidly between 2011 and 2012. However the loans fell gradually between 2012 and 2013 before rising gradually through to 2015. However, the loans stabilized between 2015 and 2016 after which there was a gradual decrease in the loans.

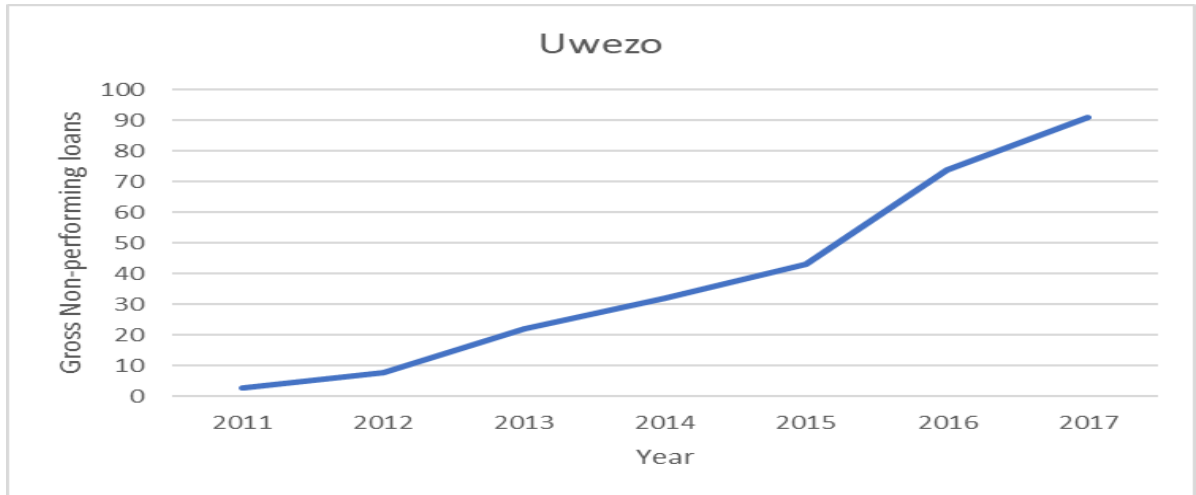


Figure 4.8: Movement of Non-performing loans in Uwezo Microfinance

From figure 4.8, the gross non-performing loans in UWEZO rose gradually from 2011 to 2015. However there was a gradual increase in the loans between 2015 and 2017.

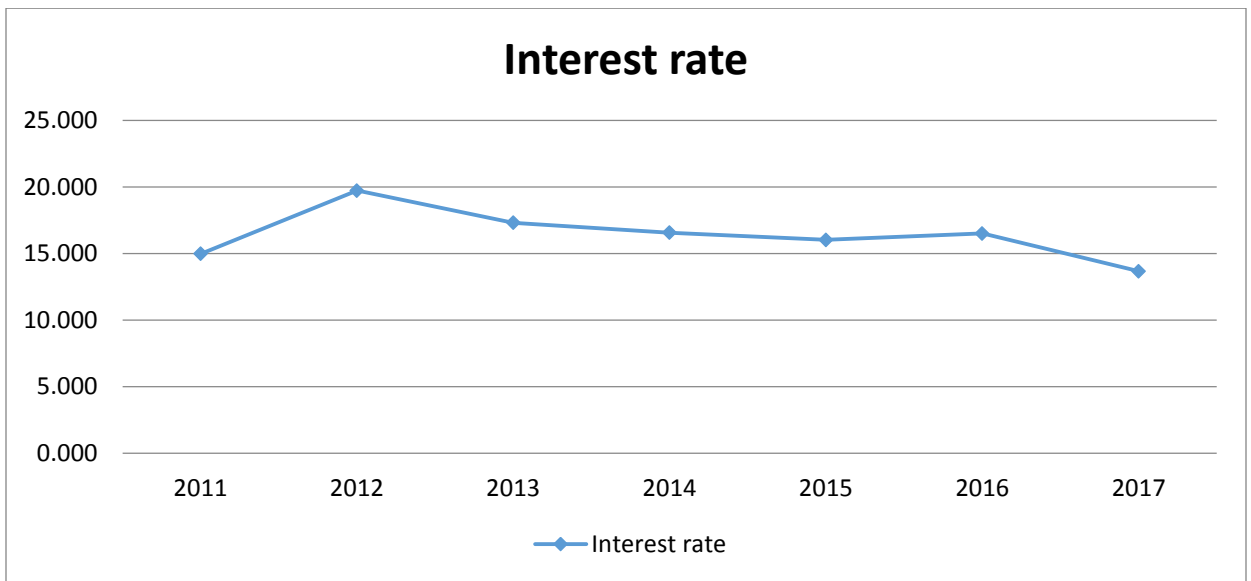


Figure 4.9: Movement of interest rate between 2011 and 2017

From figure 4.9, the interest rate on loans rose gradually from 2011 to 2012. The interest rate dropped gradually between 2012 and 2015. There was a gradual increase between 2015 and 2016 before falling gradually in 2017.

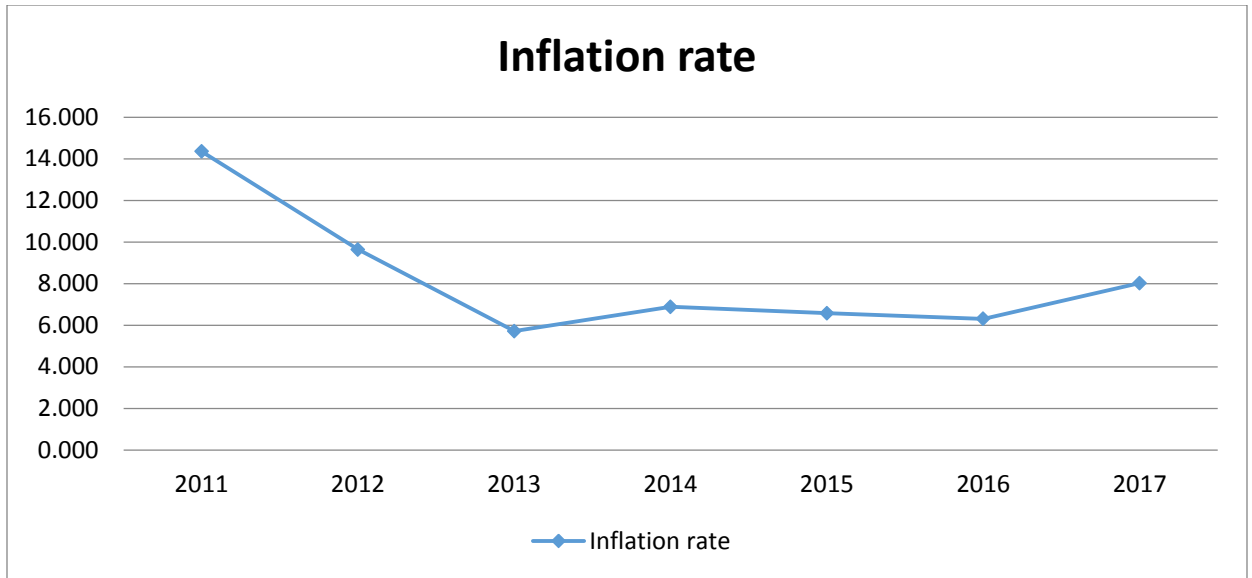


Figure 4.10: Movement of inflation rate between 2011 and 2017

From figure 4.10, the inflation rate dropped from 2011 to 2013 after which there was a gradual increase to 2014. there was a gradual drop in the inflation rate from 2014 to 2016 then rose gradually to 2017.

#### 4.4 Regression analysis

The study conducted a linear regression analysis to establish the impact of credit reference bureau on loan performance of microfinance institutions in Kenya. The regression was of the form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Where  $X_1$  is CRB checks,  $X_2$  and  $X_3$  are control variables of interest rate on loan and inflation rate respectively.  $\beta_0$  is the regression constant while  $\beta_1, \beta_2$  and  $\beta_3$  are the regression coefficients and  $e$  is the overall error of the independent variables.

Table 4.2: Model Summary<sup>a</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.785 <sup>a</sup>	.616	.557	13.690566

a. Predictors: (Constant), Inflation rate, Interest rate, Credit referencing

From table 4.2,  $R^2$  shows a variation of 61.6% on non-performing loans dues to changes in the independent variable (credit referencing bureau) and the control variables (interest rate and inflation rate). 38.4% of the changes in loan performance can be accrued to other factors other than CRB, interest rate and inflation rate.

Table 4.3: ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1759.294	3	586.431	3.129	.037 <sup>b</sup>
	Residual	7122.401	38	187.432		
	Total	8881.695	41			

a. Dependent Variable: Loan performance

b. Predictors: (Constant), Inflation rate, Interest rate, Credit referencing checks

Calculated F value (3.129) was higher than F critical (2.79) indicating a significant model. The p-value (0.037) was also less than 0.05.

Table 4.4: Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	87.499	31.107		2.81284	.008
	Credit referencing checks	-.261	.103	-.051	-2.53398	.021
	Interest rate	-3.239	1.504	-.392	-2.15359	.038
	Inflation rate	-1.811	.954	-.346	-1.89832	.065

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$  was fitted into;

$$Y = 87.499 - 0.261X_1 - 3.239X_2 - 1.811X_3$$

From regression equation established from table 4.4, holding credit referencing checks, interest rate and inflation rate to a constant zero, loan performance of 87.499 would be displayed. A unit increase in Credit reference checks would decrease loan performance by 0.261. Increase in interest rate by a unit decreases loan performance by 3.239 and with unit increase in inflation rate decreases loan performance by 1.811. All the factors are significant except inflation rate hence showing that credit referencing bureau and interest rate have a significant effect on loan performance of microfinance institutions.

#### 4.5 Diagnostic Tests

Table 4.5: Tests of Normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Loan Performance	.790	41	.007
Credit referencing checks	.806	41	.010
Interest rate	.324	41	.064
Inflation rate	.406	41	.055

The study sought to test for normality of the data used in the research. This was done using Shapiro-Wilk test. From the findings on table 4.5, loan performance and credit referencing checks display a p-value of less than 0.05 showing that the data was normally distributed. However, interest rate and inflation rate display a p-value of more than 0.05. Hence, we presume that the data values for the variables was not normally distributed.

Table 4.6: Heteroskedasticity Test

	LM	Sig
BP	0.920	.369



From the findings on table 4.6, the Breusch–Pagan p-value was more than 0.05. The LM value was also close to 0.95 meaning that the regression has not violated the assumption of homoscedasticity. Hence, we presume that heteroskedasticity is not present in our data.

Table 4.7: Multicollinearity Test

Variable	Tolerance	VIF
Credit referencing checks	.879	1.313
Interest rate	.904	1.261
Inflation rate	.935	1.157

Multicollinearity was tested for the data used in the research. This was done using the variance inflation factor (VIF) which quantifies how much the variance is inflated. The findings in table 4.7 indicate that the VIF values were close to 1 indicating that the variance of the variables was inflated at a very low level. Hence there are no multicollinearity issues in the model data.

#### **4.6 Discussion of findings**

The trend line of loan performance show that when the credit referencing bureau was introduced in 2013, the rate at which the non-performing loans rose reduced with other firms experiencing falling level of non-performing loans. The findings concur with those of Alloyo (2013) who found that performance elevated slightly after establishment of CRB. The regression coefficient show that credit referencing bureau has a significant negative relationship with loan performance. The findings concur with those of Kwambai and Wandera (2013) who found that CRB lend to reduced loan defaulting. James (2014) found that the presence of credit reference bureaus reduced default rates among borrowers.

The findings show that interest rate has a negative relationship with loan performance. High interest rates would increase the cost of borrowing which may be a burden to the borrowers who find themselves unable to pay. The findings differ with those of Collins and Wanjau (2011) who found that high interest rates makes it hard for the borrowers to services their loans, which means that an increase in the levels of NPLs is the result. The results also found that inflation rate has an insignificant negative relationship with loan performance. The findings differ with those of Khemraj and Pasha (2009) who found a positive relationship between the inflation in the economy and non-performing loans.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

The chapter was based on the objective of the study. The conclusions and recommendation together with a summary of the findings were given.

#### 5.2 Summary

From the descriptive statistics, the mean ratio of gross non-performing loans to gross total loans was 18.79%. Loan performance display a standard deviation of 14.718 showing that there was a high rate of fluctuation in the ratio of NPL between 2011 and 2017. The mean credit checks as measured by the log of the credit checks were 4.59. The credit checks display a high standard deviation which shows that the checks were fluctuating within the period. The findings show a mean interest rate of 16.391. The mean inflation rate over the period was 8.212.

The gross non-performing loans in Faulu Kenya rose gardually through to 2013 before stabilizing in 2014 through to 2015. However the non-performing loans increased rapidly from 2015 to 2017. The gross non-performing loans in KWFT increased gradually from 2011 to 2013. However, they fell from 2013 to 2014 before rising rapidly through to 2016 before stabilizing in 2017. The level of gross non-performing loans in Rafiki microfinance rose gradually from 2011 to 2015. The loans rose rapidly between 2015 and 2017. The gross non-performing loans in REMU rose gradually from 2011 to 2016. However the loans dropped gradually between 2016 and 2017. The gross non-performing loans in SMEP rose rapidly between 2011 and 2012. However, the loans fell rapidly

between 2012 and 2013 before rising gradually through to 2015. The loans stabilized between 2015 and 2016 after which there was a gradual decrease in the loans. The gross non-performing loans in UWEZO rose gradually from 2011 to 2015. However there was a gradual increase in the loans between 2015 and 2017.

$R^2$  shows a variation of 61.6% on non-performing loans due to changes in the independent variable (credit referencing bureau) and the control variables (interest rate and inflation rate). 38.4% of the changes in loan performance can be accrued to other factors other than CRB, interest rate and inflation rate. The calculated F value was higher than F critical indicating a significant model. From regression, holding credit referencing checks, interest rate and inflation rate to a constant zero, loan performance of 87.499 would be displayed. Increase in credit reference checks would decrease loan performance. Further, an increase in interest rate and inflation rate decreases loan performance. All the factors are significant except inflation rate displayed a significant effect on loan performance of microfinance institutions.

### **5.3 Conclusions**

The study concludes that credit referencing bureau has a negative effect on loan performance of microfinance institutions in Kenya. This implies that increased credit referencing checks reduces the loan performance and hence increases the level of non-performing loans in the MFIs. The credit referencing bureau which adds the cost on borrowing to the borrower may lead to inability to which may lead to more people defaulting as they may not afford the money to pay the credit referencing bureau.

The study concludes that interest rate charged on loans by MFIs has a negative effect on loan performance in MFIs in Kenya. This is an indication that high interest rates in MFIs

increases the level of non-performing loan in the MFIs. The study conclude that inflation rate has negative but an insignificant effect on the level of nonperforming loan in microfinance institutrutions in Kenya. This leads to the conclusion that there is an inverse relationship between inflation and loan performance of microfinance banks in Kenya.

#### **5.4 Recommendations of the Study**

The study found an inverse relationship between credit reference checks and loan performance in microfinance institutions in Kenya. The study recommends that leadership of microfinance institutions should enhance the sharing of credit information to ensure that they reduce the levels of nonperforming loans in their institutions.

The study found that interest rates and inflation affect loan performance in microfinance institutions in Kenya. The study thus recommends that the government of Kenya should institute policy measures to ensure that interest rates on loans and inflation rates are controlled in order to improve loan performance in microfinance institutions in Kenya.

#### **5.5 Limitations of the Study**

The study was limited to the effect of credit reference bureaus on the performance of loan of micro finance organizations in Kenya. The study was based on 7-year study period of 2011 to 2017. This means that the findings may differ with others done over a different period. A longer period may have produced better results as the data would be more hence giving more credible results. In attaining its objective the study was limited to 6 MFIs which had been licensed by Central Bank for more than three years from whose data was available. The data was collected from Central Bank of Kenya, Kenya National Bureau of statistic,metropol credit reference bureau and financial statements of selected

firms. All the data to be used was readily available in secondary form except for the data on credit reference checks specifically for MFIs that had to be obtained from Metropol Credit reference bureau since the data shared by CBK were cumulative for the whole banking industry. When accessing the data there was a high level of bureaucracy which increased time in data collection. This was overcome by having an introduction letter from the college and getting an appointment with the heads of concerned institution.

## **5.6 Area For Further Research**

The study recommends that future researchers interested in this field of research might consider undertaking a similar study and increasing the period or grouping the data quarterly. In addition, a study should be performed on the other factors that has an impact on loan performance in MFI's apart from CRB, Interest and inflation.

## REFERENCES

- Alloyo, P.T. (2013). *The effect of credit reference bureaus on the financial performance of commercial banks in Kenya*, MBA project. University of Nairobi, Nairobi.
- Brown, M. & Zehnder, C. (2006). *Impact of credit reporting on the repayment behaviour of borrowers*. Swiss National Bank Working Papers.
- Central Bank of Kenya (2013). *Central Bank of Kenya Bank Supervisory Annual Report 2012*. Nairobi: CBK
- Central Bank of Kenya (2014). *Central Bank of Kenya. Bank Supervisory Annual Report 2013*. Nairobi: CBK
- Central Bank of Kenya (2015). *Central Bank of Kenya Bank Supervisory Annual Report 2014*. Nairobi: CBK
- Credit Reference Bureau (2008). *The Banking Regulations 2008 of the Banking Act CAP 488*. Retrieved from <http://www.centralbank.go.ke/financialsystem/creditreference/>
- Gitahi, R.W. (2013). *The effect of credit reference bureaus on the level of non-performing loans in the Commercial Banks in Kenya* (MBA project). University of Nairobi, Nairobi.
- Japelli, T & Pangano, M. (2005). *Role of Credit Information sharing*. Centre for studies in Economics and Finance, WP 136
- Japelli, T & Pangano, M. (2002). Information sharing, lending and defaults; Cross Country evidence. *Journal of Banking Finance*, 33(3), 20-31.
- Kago, E. W. (2014). *The Effect of Credit Reference Bureau Service on Financial Performance of Deposit Taking Microfinance Institutions in Kenya*. Kenya Credit Reference Bureau Regulations, act 2013
- Kimani, M.W. (2015). *Credit reference bureau strategy and loan performance at the Commercial Bank of Africa in Kenya*, MBA project. University of Nairobi, Nairobi.
- Kimasar, F., & Kwasira, J. (2013). Use of Credit Reference Bureaus on Loan Recovery among Selected Commercial Banks in Kenya: A Survey of Nakuru Sub County. *Journal of Science and Research*, 3(358), 2196-2201.

- Kwambai, K. D., & Wandera, M. (2013). Effects of Credit Information Sharing on Non-Performing Loans: The Case of KCB, Kenya. *European Scientific Journal*, 9(13), 234-246.
- Ngaragari, P.K. (2016). *The Effects Of Credit Reference Bureaus On The Cost Of Credit Among Commercial Banks In Kenya*, MSC Thesis. University of Nairobi, Nairobi, Kenya.
- Omari, M. (2012). Credit Reputation as Collateral: A Case for Improvement of the Legal Regime on Credit Referencing in Kenya. *Journal of Modern African Studies*, 2(1), 45-49.
- Otwori, C. (2013). The Relationship between Credit Referencing and the Level of Non-Performing Loans of Commercial Banks in Kenya. *International Journal of Business, Humanities and Technology*, 2(4), 39–43.
- Padilla, A. & Marco P. (1997). Endogenous Communication among Lenders and Entrepreneurial Incentives. *The Review of Financial Studies*, 10(1), 205-236.



## **Appendices**

### **Appendix I: List of Microfinance Institutions in Kenya**

1. Caritas Microfinance Bank Ltd
2. Century Deposit Taking Microfinance Limited
3. Choice Microfinance Bank Limited
4. Faulu Kenya DTM Limited
5. Kenya Women finance trust
6. Musoni Microfinance Ltd
7. Rafiki Deposit Taking Microfinance
8. Remu DTM Limited
9. SMEP Deposit Taking Microfinance Limited
10. Sumac DTM Limited
11. U&I Microfinance Bank Ltd
12. Uwezo Deposit Taking Microfinance Limited

Appendix II: Data Collection Sheet

<b>Firm</b>	<b>Year</b>	<b>Gross loan (Kshs. millions)</b>	<b>Gross NPL (Kshs. millions)</b>	<b>Total annual checks</b>	<b>Interest Rate (%)</b>	<b>Inflation rate (%)</b>
FAULU	2011	3,267.000	171.000	0	14.967	14.350
	2012	4,987.000	262.000	0	19.725	9.640
	2013	8,795.000	467.000	0	17.308	5.715
	2014	14,620.000	606.000	10,699	16.560	6.884
	2015	16,749.000	612.000	68,575	16.013	6.576
	2016	18,143.000	1657.000	63,132	16.503	6.303
	2017	17,190.000	2849.000	62,903	13.658	8.018
KENYA WOMEN	2011	10,976.000	775.000	0	14.967	14.350
	2012	12,911.000	818.000	0	19.725	9.640
	2013	14,636.000	1089.000	0	17.308	5.715
	2014	19,085.000	1032.000	7,064	16.560	6.884
	2015	22,357.000	2558.000	65,994	16.013	6.576
	2016	22,334.000	3862.000	43,399	16.503	6.303
	2017	19,475.000	4073.000	52,076	13.658	8.018
RAFIKI	2011	104.000	12.000	0	14.967	14.350
	2012	520.000	91.000	0	19.725	9.640
	2013	1,866.000	187.000	0	17.308	5.715
	2014	3,456.000	307.000	0	16.560	6.884
	2015	4,353.000	514.000	0	16.013	6.576
	2016	3,899.000	1268.000	7,366	16.503	6.303
	2017	2,947.000	1705.000	2,258	13.658	8.018
REMU	2011	43.000	3.000	0	14.967	14.350
	2012	88.000	12.000	0	19.725	9.640
	2013	162.000	33.000	0	17.308	5.715
	2014	186.000	46.000	191	16.560	6.884
	2015	264.000	73.000	2,754	16.013	6.576

	<b>2016</b>	251.000	83.000	2,143	16.503	6.303
	<b>2017</b>	223.000	77.000	1,181	13.658	8.018
SMEP	<b>2011</b>	1,498.000	142.000	0	14.967	14.350
	<b>2012</b>	1,486.000	274.000	0	19.725	9.640
	<b>2013</b>	1,835.000	219.000	0	17.308	5.715
	<b>2014</b>	1,737.000	251.000	9,658	16.560	6.884
	<b>2015</b>	1,732.000	326.000	44,947	16.013	6.576
	<b>2016</b>	1,723.000	336.000	31,670	16.503	6.303
	<b>2017</b>	1,703.000	316.000	25,989	13.658	8.018
UWEZO	<b>2011</b>	34.000	3.000	0	14.967	14.350
	<b>2012</b>	43.000	8.000	0	19.725	9.640
	<b>2013</b>	73.000	22.000	0	17.308	5.715
	<b>2014</b>	125.000	32.000	80	16.560	6.884
	<b>2015</b>	103.000	43.000	463	16.013	6.576
	<b>2016</b>	159.000	74.000	811	16.503	6.303
	<b>2017</b>	129.000	91.000	824	13.658	8.018