

**AGRICULTURAL LENDING AND NON-PERFORMING LOANS AMONG  
COMMERCIAL BANKS IN KENYA**

**BY**

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## DECLARATION

This project is my original work and has not been presented in any other university or college for examination/academic purposes.

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Finally, may I state that I am solely accountable for any flaws in this contribution to academic endeavour.

## **DEDICATION**

This is a special dedication to my beloved wife Ascar Juma, and my daughters Jayda and Jolie. You guys are truly my inspiration and are ultimately a contributor to all my successes in life and I trust that God being our guide we shall live to see more of His goodness in our lives. Thank you for your thoughtfulness, well wishes and continuous prayers. Thank you for your unconditional love.

## **ABSTRACT**

The Agricultural sector has been a key driver of economic growth in Kenya for the past four decades and is the main source of livelihood for almost 80 per cent of Kenyans. The sector has continued to play an important role in the economy of this country as its contribution to the Gross Domestic Product (GDP) has increased from 26% in 2012 to about 29.3% in 2013. Agricultural lending plays a very important role in the society as small-scale farmers are able to access affordable credit and hence improve productivity, enhance their food security and expand their income. It is on this premise that the researcher sought to establish the relationship between agricultural lending and Non-performing loans in commercial banks in Kenya.

The study examined past literature related to agricultural lending against the set objectives. It utilized a theoretical framework in explaining the determinants of Non-performing loans. A descriptive study design was used with 43 commercial banks as the target population. Secondary data was obtained from CBK supervisory reports and financial statements were analyzed further. The data covered a period of 5 years from 2009 to 2013. Descriptive approach was used to determine the weights of the variables. Interpretation of data was done using SPSS and MS Excel. Inferential statistics involving use of ANOVA and regression analysis was done. Results from this study was presented using charts, tables and graphs.

The study concluded that growth in loans to Agricultural sector do not necessarily affect the non-performing loans. It was observed that high interest rates were not a major concern for Agricultural loans as there was a positive relationship between growth in

Agricultural loans and interest rates. In this study, gross loans to Agricultural sector still had a high demand even at annual interest rate of 20.41 % in the year 2011 and even a higher demand for credit at an annual interest rate of 18.15% in 2012. The researcher therefore concluded that lending to Agriculture is not as risky as perceived by most lenders as the finding depicted a positive relationship between growth in loans to Agriculture sector and Non-performing loans. The researcher recommends that further research be done to investigate why the gross loans to agricultural sector are high despite high Non-performing loans figures recorded during the period under study and how lending to agricultural sector has contributed to high non-performing loans.

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## **LIST OF ABBREVIATIONS**

AFK	Amiran Farmers Kit
AGRA	Alliance for a Green Revolution in Africa
AKIB	Associate of Kenya Institute of Bankers
ANOVA	Analysis of Variances
CBK	Central Bank of Kenya
CIC	Co-operative Insurance Company
CPI	corruption perception index
DTM	Deposit Taking Microfinance
EU	European Union
GDP	Gross Domestic Product
GOK	Government of Kenya
IDI	in-depths interviews
KCB	Kenya Commercial bank
KEPHIS	Kenya Plant Health Inspectorate Services
KEPSA	Kenya Private Sector Alliance
KES	Kenya Shillings
KIPPRA	Kenya Institute for Public Policy Research and Analysis
MFIs	Microfinance Institutions
N	Naira (Nigerian Currency)
NAIC	National Agricultural Insurance Company
NPL	Nonperforming Loan
PCPB	Pest Control Products Board
SBP	State Bank of Pakistan

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# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the Study

Over the first half a century, there has been remarkable economic and agricultural growth in the world especially developing nations (Staaaz & Eicher, 1998). This has been necessitated by a significant increase in farm credit from commercial banks. A link between commercial banking and agricultural lending has long been recognized but disparities remain a concern to many people. In developed economies, receiving loans from commercial banks or any financial institution is usually the easiest and cheapest way to do business on a medium to long-term time horizons (Silici & Locke, 2013). On the other hand, farmers in developing nations such as Kenya face numerous challenges which affect their accessibility to loans from banks and hence lower agricultural productivity. Agriculture stimulates growth in many sectors of the economy, boost food security, and ultimately reduce poverty. In Kenya, the field is dominated by small scale farmers who play an important role in the economy (Adam, et al., 2010), yet they receive little attention from lending institutions. Central Bank of Kenya report shows that Agriculture is the most underfunded sector in Kenya, receiving only an average of 3.3% of the total credit extended to the economy (Ministry of Devolution and Planning, 2013); and this is below Maputo Declaration which required governments to allocate at least 10 per cent national budgetary resources to agriculture and rural development policy implementation.

### **1.1.1 Agricultural Lending**

Agricultural lending may be defined as the situation where farmers have greater engagement with the markets either for input or output or both. A key premise of agricultural lending is that it provides farmers with income and who in turn maximize returns from land. Therefore, agricultural investments are considered land-based because many of the land transactions envisage crop production (Silici & Locke 2013). Yet a large parcel of land in Kenya is under-utilized pointing to the challenges of farmers accessing loan due to risks. Over 50% of the activities in the agricultural sector are agribusiness related and these activities include farming, transportation of agricultural produce, storage and provision of agriculture related services among others. Majority of these traders are constantly faced with financial constraints. Lack of credit has motivated them to look for credit in banks (Matofari & Namusonge, 2013).

Taking a close look on farm activities in many countries, agricultural credit lenders in today's environment face many challenges when evaluating credit worthiness of a farmer (Stiglitz & Weiss, 1981). In such a scenario, financial institutions become reluctant to provide loans to small scale farmers who might not have the capacity to offer collateral eligible in the eyes of such institutions' policies and procedures. The financial services offered by the banks over the years have been essential to many farmers but the various forms of lending agricultural credit presents the banks with numerous set of risks (Stiglitz & Weiss, 1981).

Financing of Agriculture has continued to get prominence worldwide. Brewer *et al.* (2013) of Kansas State University while gauging the short term and long term future assessment of the credit situation for production. Agriculture avers that the results provide a measure of the health of the sector in a forward looking manner. It showed that nonperforming loans grew stronger between the two periods under study while the total loan volume increased.

### **1.1.2 Non-performing Loans**

A loan is nonperforming when payments of interest and principal are past due for over 90 days (CBK, 2008; IMF, 2009). The balance outstanding as at the time when the account is identified as nonperforming is used in calculating the aggregate amount of nonperforming loan (IMF, 2004). Ahmad (2013) states that an increase in NPLs is an alarming sign for any country's banking sector but growth in profitability can help in putting them out of sight. Same is the case with Pakistani banking sector, latest banking data collected by State Bank of Pakistan (SBP) shows that default rates has increased with rapid rate over the last few years. This upward trend started at the beginning of 2005 and lasted till the end of 2010. Existing literature has shown that rapid growth in NPLs leads to the banking crisis (González, 1999). The recession in economy results in the growth of household and firms default rates, thus the quality of loan can be used to control and prevent the occurrence of banking crisis. Regulatory authorities can monitor the quality of loan and use it as early warning indicator to prevent the banking crisis.

It was noted that gross non-performing loans increased by 32.3 percent from KES 61.0 billion in December 2012 to KES 81.9 billion in March 2013. Similarly, the ratio of gross

NPLs to gross loans increased from 4.7 percent to 5.2 percent in December 2013(Central Bank of Kenya, Bank Supervision Annual Report, 2013). In the same report, banks expect to intensify their credit recovery efforts in manufacturing, building and construction, trade, transport and communication, real estate and personal/household sectors in the quarter ended June 2013. However, the credit recovery efforts towards agriculture, mining and quarrying, energy and water and financial service sectors are expected to generally remain constant. Some banks indicated that they intend to intensify credit recovery efforts so as to move towards less provisions and higher profitability. Others observed that their credit recovery efforts will remain unchanged as they continuously use credit reference bureaus when originating credit facilities, they also continuously monitor their loans books to identify early warning signs and others have also been using debt collection agents to fast track credit recovery (Central Bank of Kenya, Credit Officer Survey, 2013).

### **1.1.3 Relationship between Agricultural Lending and Non-performing Loans**

There has been a general feeling that credit exposure to agricultural sector contribute to a bank's failure or its success. This study argues that depending on banks' lending strategies, there has to be some level of understanding between the lender and borrower. Research has proved that credit exposure to farmers does not contribute to failures in the banking industry, because loans are negotiated in a competitive environment and thus banks have learned to employ credit risks model in order to edge against defaults (Deo& Irvine, 2006).

The relationship between agricultural sector and commercial banking can be said to be intertwined: farmers require credit to increase agricultural production while increasing their income on the other hand commercial banks primary source of revenue is from lending activities. More studies have pointed out that enhancing access to farm credit accelerate technological change, stimulate national agricultural production because of increased farm input and improved farm income (Ombaba, 2013). Moreover, agricultural markets are sensitive to highly variable supply and demand conditions in world markets that may directly or indirectly affect both the borrower's repayment capacity and the value of the bank's collateral. However any limitation when added to irregular availability of loan affects the performance of bank loans. Examining non-performance loans, Klein et al. (1999) explains that performance of banks are measured in terms of loans disbursements rather than in number of small-farmer borrower. Research has shown that Agriculture is a risk sector and this can be demonstrated by the factors associated with agricultural lending:- lower loan repayment, longer distance to serve farmers, poor infrastructure, little knowledge about heterogeneous farm household (Klein et al., 1999).

Commercial banks should adopt non-performing loans management practices. Such practices include; ensuring sufficient collaterals, limiting lending to various kinds of businesses, loan securitization, ensuring clear assessment framework of lending facilities and use of procedures in solving problematic loans among others. On the other hand there is a positive relationship between non-performing loans management practices and the financial performance of commercial banks in Kenya which implies that adoption of non-

performing loans management practices leads to improved financial performance of commercial banks in Kenya (Titus, 2010).

World Bank (2013) report states that percentage of non-performing loans in Kenya reflects the health of the banking system. A higher percent of such loans shows that banks have difficulty collecting interest and principal on their credits. That may lead to less profit for the banks in Kenya and, possibly, bank closures.

#### **1.1.4 Commercial Banks in Kenya**

Commercial banks in Kenya are licensed and regulated pursuant to the provisions of the Banking Act (Cap 488) and the regulations and prudential guidelines issued by the Central Bank of Kenya (Central Bank of Kenya, 2013). A number of banks in Kenya have initiated several agricultural loaning programmes. Dominating this market is Equity Bank which has regional branches in Kenya, Uganda, South Sudan, Rwanda, and Tanzania. Recognizing that agricultural sector is the backbone of the Kenyan economy, the bank focuses on smallholders' farmers and other agricultural value chain actors as a segment of its target market. Other commercial banks which are active in agri-lending are Kenya Commercial Bank (KCB), Co-operative Bank, CFC Stanbic Bank, Chase Bank amongst others.

For example, Chase Bank, Rafiki Deposit Taking and Microfinance Institution (DTM) and Amiran Kenya have announced a cooperative arrangement to extend new credit opportunities to farmers and youth, that will enable them to purchase Amiran's modern

agricultural technologies, to boost their farm produce as well as empower the youth economically. Under the programme, Chase Bank and its subsidiary, Rafiki DTM have allocated the agribusiness finance project 3.5 billion to help finance Amiran's modern agricultural technologies to interested youth and farmers. Amiran Kenya will play the part of installing equipment, training the farmers both practically and theoretically on Amiran products, offer advice and carry out farm visits through Amiran's professional and experienced agronomists to ensure that farmers attain the best possible harvest, allowing them to clear off their loans calmly and at the expected time frame (Amiran Kenya, 2014). However, the existence of high levels of Non-performing loans (NPLs) in the banking industry in Kenya negatively affects the level of private investment, impair a bank's ability to settle its liabilities when they fall due and constrain the scope of bank credit to borrowers (Central Bank of Kenya, 2013).

## **1.2. Research Problem**

The most recent estimate is that the number of chronically hungry people in developing countries has only fallen by 19 million since the target of reducing hunger by half by 2015, was set out at the World Food Summit (WFS) in 1996 of estimated 350 million undernourished people worldwide (Food and Agricultural Organisation, 2004). This implies that the WFS goals can only be met if the pace of hunger reduction is dramatically increased. The importance of agriculture cannot be challenged; it stimulates growth in many sectors of the economy, boost food security, and ultimately reduce poverty. Estimates shows that gross domestic product (GDP) growth originating in agriculture is at least twice as effective in reducing poverty as GDP growth originating outside agriculture

(African Development Bank Group, 2010). Financial support in form of loans, aid and public expenditure in agriculture have fallen significantly over the past two decades. This decline can be explained in part by changes in the scope and role of the banking institutions on lending to agricultural sector (Cabral, 2007).

In Tajikistan, many smallholder farmers are unable to hire or own farm machinery that can help increase their productivity and improve both food security and incomes. According to a 2010 International Finance Corporation study, tractor usage declined steeply and by 2008, the number of tractors in Tajikistan had fallen to 43 percent of 1991 levels, and most of the remaining tractors are out dated and in disrepair. Smallholder farmers without access to credit, have no choice but to continue farming without the benefit of modern equipment. Loans tend to be too expensive with rigid collateral requirements or short-term payback lending periods which makes many to default (Feed the Future, 2014). In Bangladesh, the ratio of NPLs in the category of Agriculture is 47.09 percent of all nationalised commercial banks (NCBs) NPL, thus it was concluded that non-performing loans in the sector of micro and agricultural loans, as well as term loans of NCBs and development financial institutions (DFIs), are aggravating the NPL situation of Bangladesh. (Adhikary, Nonperforming Loans in the Banking Sector of Bangladesh: Realities and Challenges, 2006).

While the majority of Africa continent's population is heavily reliant on agriculture, the continent has lagged behind other developing regions in the progression of this essential sector. For most banks, financing agriculture is a high risk activity because of low

profitability in the sector, high nominal inflation, problems with collateral because of uncertain property rights and ineffective land markets, and the lack of well established relationships between them and new producers. Low farm profitability is a key factor in agricultural and rural finance problems, restricting the demand for, and supply of, credit in transitional economies.

The average annual expenditure figures in the agricultural sector in Kenya between 2007/08 and 2009/10 shows that the total expenditure in the sector increased in 2010/11 to 27.2 billion from 23.9 billion in the previous year (KIPPRA, 2013). According to KIPPRA (2013) report, the amount of budgetary resources allocation to the sector has averaged about 4 per cent per annum of the national budget during the last four years which is inadequate and calls for further strategic funding from commercial banks in Kenya and other development partners in order to meet the Maputo Declaration of 10 per cent to agricultural development so as to increase agricultural productivity by at least 6 per cent, hence reducing poverty, unemployment and food insecurity in the country. Nyikal (2007) points out that household food production had dominated the agenda of many smallholder farmers in Kenya, at the expense of efficiency, brought about by food market failures. Thus smallholder agriculture, characterized by subsistence production, does not exhibit effective demand for credit, and funding it therefore requires means other than the competitive market. Based on professional citations above, this study therefore strives to establish the relationship between agricultural lending and gross non-performing loans in commercial banks in Kenya.

### **1.3. Research Objective**

To establish the relationship between agricultural lending and non-performing loans in commercial banks in Kenya.

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

The main goal of this study is to examine the link between agricultural lending and non-performing loans among commercial banks in Kenya. It is important to acknowledge that due to risks in agricultural loan, banks might increase security requirements or decrease the term of the loan. Also banks might increase the supervision of loans to increase performance. Therefore the completion of this study will benefit a number of individuals/organization including the government. Apart from contributing to the literature, the paper may also have important practical implications for commercial bankers and bank regulators/supervisors in Kenya's banking system. For instance, the findings may be used to develop a framework for measuring and assessing credit risk – an important element of study for the financial stability unit of a central bank.

Agricultural sector contributes about 24 per cent to the GDP and it accounts for 65 per cent of the country's export earnings (GOK, 2008). Therefore findings from the study helps stakeholders understand the challenges of partnership especially on important financial initiatives. The government will be able to develop policies and regulations aimed at improving the sector. Agricultural loan saw four banks receiving the money for disbursement to farmers but the government suspended the initiative four years later.

The relationship between agricultural production and banks can be viewed as intertwined because banks need farmers to increase their profit while farmers need financial support to increase their farm output. Therefore results from this study will help each group understand the market especially from loan commitment point of view. Moreover the findings from the study provide research institutions with the opportunity of analysing situations regarding farm production. It will define relationships which contribute to the sector growth.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

Having realized the importance and potential of rural credit in development of Kenya, in the following section, the proposal reviews past literature on agricultural lending and non-performance. First, it will describe the theoretical framework to be used to analyse the selected topic followed by empirical review. Conceptual framework is then developed based on the theoretical literature supported by the empirical information. The section then ends with a summary of the chapter.

#### **2.2 Theoretical Review**

Several theories have been put forward which have implications on credit risk management. Financial theories recognize that interest rates have an effect on credit risk because the higher the interest rate the higher the risk that the loan might not be repaid and thus the higher the credit risk.

##### **2.2.1 Theory of Information Production**

Diamond (1984) suggested that economic agents may find it worthwhile to produce information about possible investment opportunities if this information is not free; for instance surplus units could incur substantial search costs if they were to seek out borrowers directly. There would be duplication of information production costs if there were no banks as surplus units would incur considerable expenses in seeking out the

relevant information before they commit funds to a borrower. Banks enjoy economies of scale and have expertise in processing information related to deficit units (borrowers). They may obtain information upon first contact with borrowers but in real sense it's more likely to be learned over time through repeated dealings with the borrower. As they develop this information they develop a credit rating and become experts in processing information. As a result they have an information advantage and depositors are willing to place funds with a bank knowing that this will be directed to the appropriate borrowers without the former having to incur information costs.

### **2.2.2 Contemporary Banking Theory**

Bhattacharya and Thakor (1993) on contemporary banking theory aver that commercial banks together with other financial intermediaries are essential in the allocation of capital in the economy. This theory is centred on information asymmetry, an assumption that “different economic agents possess different pieces of information on relevant economic variables, in that agents will use this information for their own profit”. An important element to be considered is the collateral and (Cowling & Wethead, 1996) posits that rationale for collateral is derived from the information asymmetry between them and the bank. Healy & Palepu (2001) indicate that those banks can access information about farmers through information intermediaries, financial analysts, industry experts and the media. In this view, banks should use the information provided to analyse the farmer before giving the loan and the assumption is that the lending institution becomes aware of the agricultural risks.

### **2.2.3 Information Asymmetry**

Information asymmetry (Akerlof, 1970) deals with the study of decisions in transactions where one party has more or better information than the other. The primary reason why people give their money to financial intermediaries instead of lending or investing the money directly is because of the risk that is present from the information asymmetry between the provider of funds and the receiver of those funds. A seller knows more about the sale item than the buyer. So the buyer would be taking a risk buying the item. The buyer asks, why is the seller selling? Likewise, a borrower knows more about his financial condition and his future prospects than the lender. How can the lender be sure that the borrower will not simply disappear with the funds? Or that the borrower will take enormous risks (Spaulding, 2014). A company that sells stock may not put the money to its best use. It might be used extravagantly to make hefty payments and benefits for its CEO or to pay huge bonuses to bankers who practically destroy their company. These examples illustrate the 2 types of risks that are present when there is information asymmetry: adverse selection, which is a risk exposure that exists before the money is lent or invested and moral hazard, which is a risk after the financial transaction.

## **2.3 Determinants of NPLs in Commercial Banks**

### **2.3.1 Moral Hazard**

Moral hazard in the banking sector context refers to the adverse incentives created by the prospects of implicit coverage of banks losses by Governments. It can be particularly when banks' capitalization is low; in such cases, it often leads to adoption of imprudent lending strategies with direct implication for banks' loan portfolios which tend to be

heavily skewed towards high risk projects. When these projects are owned by investors and entrepreneurs directly or indirectly connected with the lenders, the financial transaction is termed as insider lending. In moral hazard the ignorant party lacks information about performance of the agreed-upon transaction or lacks the ability to retaliate for a breach of the agreement. An example of moral hazard is when people are more likely to behave recklessly after becoming insured, either because the insurer cannot observe this behaviour or cannot effectively retaliate against it, for example by failing to renew the insurance. The “moral hazard” hypothesis, which was discussed by (Keeton & Morris., 1987) argues that banks with relatively low capital respond to moral hazard incentives by increasing the riskiness of their loan portfolio, which in turn results in higher non-performing loans on average in the future. Keeton and Morris (1987) indeed showed that excess loss rates were prominent among banks that had relatively low equity-to-assets ratio.

The optimal design of a loan contract is one of the topics most intensively analysed in institutional economics. Particularly, the importance of collateral in mitigating problems of asymmetric information due to credit risk is pointed out in a large theoretical and empirical literature. Ever since the mid-70s, information asymmetries have been highly emphasized in economic theory. On the one hand, moral hazard provides risk incentive arising when a borrower protected by limited liability has the choice between different levels of risk (Jensen & Mecling, 1976). On the other hand, within an adverse selection setting, less risky projects may be crowded out. As (Stiglitz & Weiss, 1981) have pointed out, the lender cannot be compensated for increased risk by an additional risk premium

because under both regimes, moral hazard and adverse selection, higher contractual interest rates imply even worse incentives. Therefore, a rising interest rate may lead to a decline in the lender's expected return. This, in turn, implies the possibility of equilibrium credit rationing. Within the literature relying on the Stiglitz and Weiss-model, higher risk is typically associated with a lower expected return since otherwise risk incentive caused by moral hazard or crowding out caused by adverse selection are irrelevant from a social point of view. Apart from a higher interest rate, the introduction of collateral to loan contracts increases the lender's expected return, and improves the borrower's incentives (Bester,1985). Under moral hazard, the use of costly collateral only pays off if the borrower cannot commit himself to a less risky project otherwise. If he cannot commit himself to that less risky project even using costly collateral, he will certainly refrain from doing so. Therefore, both types of debt models imply that collateral should be associated with low-risk projects.

### **2.3.2 Adverse Selection**

Selecting whom to give more money is a very important part of controlling risk. Give it to a crook, and you lose your money. Spaulding (2014) indicate that if you give money to someone who is not good at handling money, you could also lose it. In fact, without information about those seeking funds, theory goes that you would have to charge an average price for your money or sale item. But an average price would cause those who are better risks or have better products to shun your offer, while those with higher risks will seek your offer, resulting in adverse selection. He concludes thus that if you offer an

average interest rate for your loans, the people who are better risks will go elsewhere for their money, while the risky people will gladly take your money.

Munene (2012) asserts that adverse selection occurs when bad credit risks (firms which have poor investment channels and high inherent risks) become more probable to acquire loans than good credit risks (firms with better investment opportunities and less inherent risks). Because of information asymmetry, lenders tend to have a hard time differentiating between good credit risks and bad credit risks, and demand a blanket premium over and above the existing rates as compensation for the risk arising out of the inability to determine who indeed should be lent to. This causes the good firms to stop borrowing from such a lender because the high rates have devalued their strong credit history while the bad firms become very eager to borrow from such a lender because they know for sure that judging by the strength of their cash-flows, they should be charged an even higher interest rate. As a result, lenders end up with a loan portfolio comprising almost entirely of bad credit risks.

### **2.3.3 Terms of Credit**

A study on non-performing loans carried out in Italy by Sergio in 1996; found that an increase in the riskiness of loan asset is rooted in the bank's lending policy attributed to unselective and inadequate assessment of sectoral prospects (Sergio, 1996). McGoven (1993) conducted a study on US banks and he found that character has historically been a paramount factor of credit and lending money. Therefore banks have suffered loan losses through relaxed lending standards, unguaranteed credits, the influence of the 1980s culture and the borrower's perception. Indeed studies have shown that more or less predictable

levels of non-performing loans are caused by an inevitable number of wrong economic decisions by commercial banks (Bloem and Gorter, 2001).

Precisely, as defined by Atieno (2001) lending terms is understood to “mean collateral, repayment periods and lending interest rates. In fact the borrower gives the lender collateral as loans repayment pledge. However for farmers who tend not to have collateral, banks face a challenge of default from farmers and hence non-performing loans. As mentioned earlier agricultural production takes long and it could be noted that loan repayment period is critical to the success of loan servicing, it is not an exaggeration to say that commercial banks are likely to run into losses due to non-performing loans. According to Nkundabanyanga, Omagor, & Nalukenge (2014) there is an association between duration of loan repayment and interest paid. For example the longer a borrower pays loan, the higher the interest rate it will attract. An increase in interest rates weakens borrowers’ debt servicing capacity, more so if loan rates are variable. Therefore, NPL is expected to be positively related to interest rates. Interest rate hikes affect the ability to service the debt, particularly in case of floating rate loans (Louzis, Vouldis and Metaxas, 2010).

#### **2.3.4 Macroeconomics Factors**

Agricultural lenders establish relationship with potential borrowers assessing their credit-worthiness’ and serve as a conduit of funds from capital sources to borrowers and back. As a result lenders incur costs for screening potential borrowers and by mentioning repayment process. Using a pseudo panel-based model for several Sub-Saharan African countries, Fofack (2005) finds evidence that economic growth, real exchange rate

appreciation, the real interest rate, net interest margins, and inter-bank loans are significant determinants of NPLs.

The existing literature provides evidence that suggests a strong association between NPLs and several macroeconomic factors. Several macroeconomic factors which the literature proposes as important determinants are: annual growth in GDP, credit growth, real interest rates, the annual inflation rate, real effective exchange rate, annual unemployment rate, broad money supply and GDP per capital etcetera. Inflation should reduce the real value of debt and hence make debt servicing easier. However, high inflation may pass through to nominal interest rates, reducing borrowers' loan-servicing capacity or it can negatively affect borrowers' real income when wages are sticky. Higher inflation can also lead to higher rates resulting from the monetary policy actions to combat inflation (Nkusu, 2011). This study only considers the growth in real GDP.

Apart from macroeconomic variables, there is abundant empirical evidence that suggests that several bank specific factors (such as, size of the institution, profit margins, efficiency, the terms of credit (size, maturity and interest rate), risk profile of banks (measured by several proxies including total capital to asset ratio and loans to asset ratio) are important determinants of NPLs. This study only considers two variables owing to data availability. These are: real interest rate and annual growth in agricultural loans.

## **2.4 Empirical Review**

A non-performing loan is an advance by a financial institution that is not earning income and full payment of principal which limits interest anticipation (Chikoko, et al., 2012). During the 1990s, there were three different methods of defining non-performing loans: the 1993 method based on banking laws; the “Bank’s Self-Valuation” in March 1996; and the “Financial Revival Laws-Based Debt Disclosure” in 1999. These measurements have gradually broadened the scope and scale of the risk management method in the banking industry. Non-performing loans were influenced by gross domestic product growth, high real interest rates, lenient credit terms and excessive lending by commercial banks (Howells & Bain, 2007).

Rajput et al. (2012) in their study highlighted on management of non-performing assets in the perspective/viewpoint of the Indian public sector banks under stringent asset classification norms, use of latest technological platform based on Core Banking Solution (CBS), recovery procedures and other bank specific indicators in the perspective of stringent regulatory framework of the Reserve Bank of India. The decline of non-performing asset is essential to improve profitability of banks and fulfil with the capital adequacy norms as per the Basel Accord. For the recovery of NPAs a broad framework has evolved for the management of NPAs under which several options are provided for debt recovery and restructuring. This study traces the movement of the nonperforming assets present in Indian public sector banks by analysing the financial performance.

Ahmad (2013) conducted a study done in Pakistan with an aim to investigate the impact of corruption at economy level and institution level on the non-performing loans. This study also examines the association of information sharing between depositors, lenders and financial institutions. The study used time series data over the period of 2001 to 2010 and employed ordinary least squares (OLS) method. The results provide no significant association of corruption and information sharing with non-performing loans. The results suggest no significant impact of corruption on non-performing loans because of the nature of the data used, but as literature provides significant impact of corruption on non-performing loans, therefore State Bank of Pakistan and commercial banks can reduce the level of non-performing loans by reducing the chance of corrupt practices by following the rules and regulation of credit allocation, supervision and loan monitoring.

Christopher et al. (2010) in a study with the aim of examining the agricultural financing policies of the government of Nigeria found that though the government has made serious efforts at making good agricultural policies through schemes, programmes and institutions, it has not been able to back them up with adequate budgetary allocation and financing coupled with corruption in the execution of the policies. It recommended that Nigeria will need an adequate level of strategically targeted investment in agriculture, upgrade rural infrastructure, boost productivity, and increase competitiveness of the farm output, in addition to fighting corruption.

Chikoko, *et al.* (2012) carried out a study in Zimbabwe with the objective of understanding the fundamental causes of the impaired assets that are bedevilling the

Zimbabwean banking sector so that some of the mistakes are not repeated and correctional measures are put in place. The methodology adopted a survey research design with use of questionnaires and interviews with commercial banks head credit risk, head retail and head corporate banking division from 15 registered commercial banks in Zimbabwe. Research findings show that some banks were sitting on nonperforming loans due to poor credit analysis processes; wrong products offered to the clients; lending based on balance sheet strength instead of cash flow based lending; banks taking too much comfort in security; information asymmetry leading to moral hazard; economic environment and political influence.

Beck *et al.* (2013) used a novel panel data to study the macroeconomic determinants of non-performing loans (NPLs) across 75 countries during the past decade. According to their dynamic panel estimates, the following variables are found to significantly affect NPL ratios: real GDP growth, share prices, the exchange rate, and the lending interest rate. In the case of exchange rates, the direction of the effect depends on the extent of foreign exchange lending to unhedged borrowers which is particularly high in countries with pegged or managed exchange rates. In the case of share prices, the impact is found to be larger in countries which have a large stock market relative to GDP. These results are robust to alternative econometric specifications.

Kiplangat (2011) conducted a study aimed to evaluate the relationship between profits and Non-performing Loans (NPLs), interest on loans and GDP in Kenyan banking sector. The study used a case study of KCB for the period between 2000 and 2010. The study used

time series data from quarterly reports of Kenya Commercial Bank and Central Bank of Kenya for the period between 2000 and 2010. The main findings of the study were as follows; there is a negative relationship between profits of commercial banks and non-performing loans, a significant negative relationship exists between GDP and non-performing loans. There also exists a positive relationship between profits and GDP. He concluded that when the economy is doing well, that is, when GDP is high, NPLs tend to be low as people have enough income.

Bester, (1994) has shown that under adverse selection or moral hazard, collateral reduces agency costs associated with debt financing. In both cases, collateral should be used in financing less risky projects while debt contracts specified for riskier projects should not include collateral. Under adverse selection, borrowers endowed with a less risky project provide collateral in order to send a signal which is too costly for borrowers with a riskier project to imitate.

Joseph, et al. (2012) with the theory of asymmetric information tells us that it may be difficult to distinguish good from bad borrowers, (Auronen, 2003) in Richard (2011), which may result into adverse selection and moral hazards problems. The theory explains that in the market, the party that possesses more information on a specific item to be transacted (in this case the borrower) is in a position to negotiate optimal terms for the transaction than the other party (in this case, the lender) (Auronen, 2003) in Richard (2011). The party that knows less about the same specific item to be transacted is therefore in a position of making either right or wrong decision concerning the transaction. Adverse

selection and moral hazards have led to significant accumulation of non-performing loans in banks (Bester, 1994).

Credit terms are an understanding between a business and its customer as to the payment period, discounts (if any) and returns policy, which apply to an invoice. By offering credit terms to customers, banks are essentially offering them a loan, that is, They are providing a good or a service, but accepting payment at a later date (Davidson Institute, 2011). The customer's adherence to credit or trading terms – or lack of – can have a significant impact on your cash flow. The sooner the customer pays, the more access they have to the banks cash. By the same token, the longer it takes the customer to pay you, the less access the bank has to cash and there is the possibility that the bank will be unable to pay its suppliers as it has no cash. While providing attractive or generous credit terms may be popular with customers, these terms extend the period the customer has to pay its invoice, which can place significant pressure on the banks cash flow.

But for many small business owners, establishing credit terms can be cumbersome (Business Owners's Toolkit, 2012). When customers purchase your merchandise or services, you expect them to pay within a specific period of time (generally, 30 days). As a result of this promise, you agree to give up an immediate cash inflow until a later date. The credit terms of most businesses are 30, 60, or 90 days. However, some businesses may have credit terms as short as 7 or 10 days. Often a business' credit terms are dictated by an industry standard, or by its competition.

## **2.5 Summary of the Literature Review**

The study analysed literature first from existing theories that support banking. The theory of information production where banks enjoy economies of scale and have expertise in processing information related to deficit units (borrowers). The other theories support information asymmetry, an assumption that “different economic agents possess different pieces of information on relevant economic variables, in that agents will use this information for their own profit” (Suditpto & Thakor, 1993). The literatures confirms that the accumulation of non-performing loans is generally attributed to a number of factors, including economic downturns and macroeconomic volatility, terms of trade deterioration, high interest rates, excessive reliance on overly high priced interbank borrowings, insider lending and moral hazards. The study identifies the determinants of non-performing loans as moral hazards, adverse selection and government policy and credit risks, stressing that moral hazards in the banking sector context refers to the adverse incentives created by the prospects of implicit coverage of banks losses by Governments. It often leads to adoption of imprudent lending strategies with direct implication for banks’ loan portfolios which tend to be heavily skewed towards high risk projects. The literature differentiates the moral hazard and adverse selection where it shows that adverse selection is a risk exposure that exists before the money is lent or invested and moral hazard, which is a risk after the financial transaction. The literature also shows how Governments develop policies to support agricultural lending showing how it happened in Nigeria and Kenya. The Empirical review focuses on studies done on non-performing loans, highlighting what it is and its causes to the countries under study and even to the banks.

The literature analysed show that most of the studies were geared towards finding out the determinants of non-performing loans. There exists very limited literature on the effect of non-performing loans on agricultural lending, and specifically to studies done in Kenya.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter discussed the methodology that was used in examining relationship between Agricultural lending and Non-performing Loans in Kenyan Commercial banks. It also looked at the population, the research design adopted for the study, data collection instruments, and data analysis approaches best suited in revealing hidden trends in the topic.

#### **3.2 Research design**

Research design provides the glue that holds the research project together since it shows how all of the major parts of the research project - the samples or groups, measures, treatments or programs, and methods of assignment - work together to try to address the central research questions (Walliman, 2011). The researcher adopted a descriptive research approach to carry out the study since it utilizes elements of quantitative research methodologies. A descriptive research design attempts to describe or define a system, often by creating a profile of a group of problems, people or events, through the collection of data and tabulation of the frequencies on research variables or their interaction (association and disassociation of variables) within the research period of interest to the researcher, 2009-2013 (Cooper and Schindler 2006; Howitt & Cramer, 2011).

Thus the study focused on ‘what is’ the relationship between the agribusiness loans and loan repayment by farmers in Kenya. Descriptive approach was used since it is efficient in collecting large amounts of information within a short time. Also, this research design does not permit manipulation of the variables as Bichanga and Aseyo, (2013) observed.

### **3.3 Population**

The target population of this study comprised all the 43 (Central Bank of Kenya, 2013) commercial banks in Kenya (see Appendix 2). However, only funding in the agricultural sector was of interest to the researcher.

### **3.4 Sample**

Since not all commercial banks in Kenya have farmers’ loan packages, the researcher purposively selected all the commercial banks that actively support agriculture credits in Kenya. The purpose of this sampling was to help the researcher narrow down on most relevant data that shed a better picture on the findings of the research.

### **3.5 Data collection**

This study collected quantitative data. Quantitative research is used to quantify the problem by way of generating numerical data or data that can be transformed into useable statistics. Quantitative research uses measurable data to formulate facts and uncover patterns in research. The study used agricultural funding information available at the commercial banks for the last five years (2013, 2012, 2011, 2010 and 2009). This

information was extracted from respective bank statements and financial reports from the Central Bank of Kenya.

### **3.5 Data Analysis**

The analyses of data always depend on the research questions and objectives (Saunders, Lewis, & Thornhill, 2009). In this study, the nature of data analysed was numerical which calls for quantitative analyses techniques. Since the data was financial statements from commercial banks under study, corroborated with surveys collected by the Central Bank of Kenya and Kenya National Bureau of Statistics, a descriptive approach was used to determine the weights of the variables under the study while regressive statistics showed the relationship between agricultural loans versus non-performing loans.

Descriptive statistical analyses were incorporated to describe and compare variables numerically such as mode, mean and median. It further used measures of variability to see how scores of each variable are spread out, and other measures of variability such as the range and standard deviation (Mugenda & Mugenda, 2003). The study employed panel data analysis - fixed effect using STATA version 10 for data collected from the commercial banks covering the last five years, to determine the correlation which answered the questions how strongly is the relationship between the independent variables or dependent variables and in what direction (i.e., +, -) are the independent variables or dependent variables related. It further used regression analysis which attempted to describe the dependence of the variable on one or more explanatory variables. It assumes that there is one way causal effect from the explanatory variable (Torres-Reyna, 2007).

The regression equation was as follows;

$$Y_1 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where:

$Y_1$  = Gross loans to Agriculture Sector

$\beta_0$  = Constant

$\beta_1, \beta_{11}$  = Co-efficient indicator for the independent variables

$X_1$  = Gross Non-performing Loans

$X_2$  = Average Interest Rate

$X_3$  = Real Gross Domestic Product (GDP)

$\varepsilon$  = Random error term

Gross loans to agriculture sector are the total amount advanced by commercial banks thus the percentage of loans to agriculture sector over total loans advanced (Ng'etich & Wanjau, 2011).

$$\text{Gross loans to Agriculture Sector} = \frac{(\text{Gross loans to agri-sector})}{(\text{Total Loans Advanced})} \times 100$$

Non-performing Loans (NPL) was measured as accounts whose principal or interest remains unpaid 90 days or more after due date. NPL level measurement (IMF, 2004; banking Act, 2008) formula is as under:

$$\text{NPL} = \frac{(\text{NPL})}{(\text{Total Loans Advanced})} \times 100$$

Interest rate is the price a borrower pays for the use of money they borrow from a lender/financial institutions or fee paid on borrowed assets (Ng'etich & Wanjau, 2011).

Real gross domestic product (GDP): Measure of the size of an economy adjusted for price changes and inflation. It measures in constant prices the output of final goods and services and incomes within an economy. It is calculated as prices in the "base year" multiply by quantities in the current year, Base year 1976=100(Waweru & Kalani, 2009).

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND DISCUSSION

#### 4.1 Introduction

In this chapter data pertaining to the effects of agricultural lending on non-performing loans among commercial banks in Kenya is analyzed and interpreted. Non-performing loans and gross loans to agriculture sector were analyzed. Data from all the 43 banks for the period between years 2009 and 2013 were combined and analyzed. The researcher also analysed data for average lending interest rates and real GDP between years 2009 and 2013.

#### 4.2 Data Analysis

##### 4.2.1 Trend of Non-performing loans in Agriculture Sector

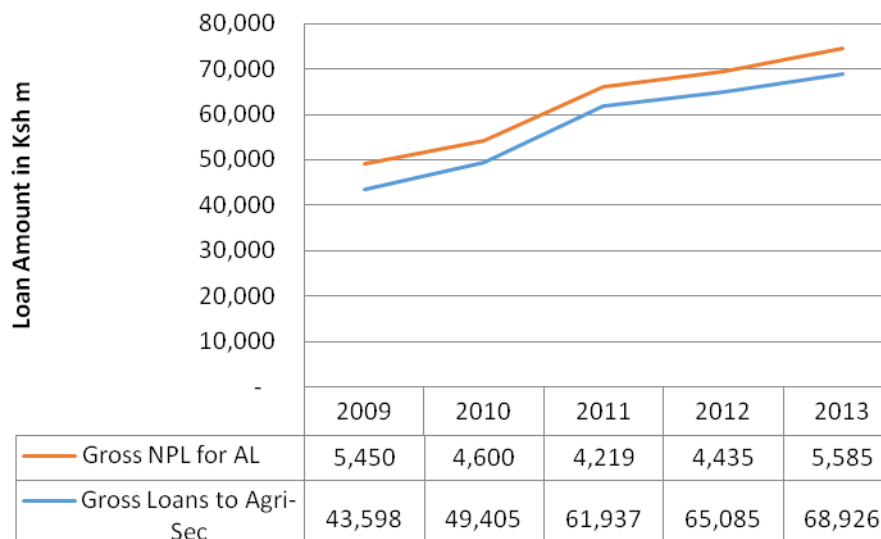
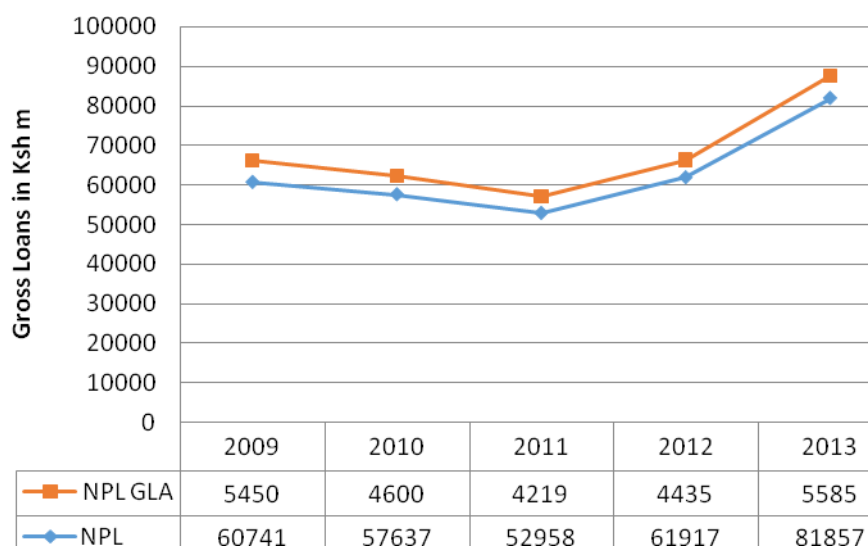


Figure 4.1: Relationship between Gross Loans to Agriculture Sector and Gross NPL

As shown in Figure 4.1 above, gross loans to Agriculture sector has been on the increase from 2009 through to 2013 for the five years period under review it increased by 58%. Gross NPL in agriculture sector in 2010 declined by 17.43% and 2011 declined by 8.28% and 2012 increased by 5.12% and further increased by 25.93% in 2013.

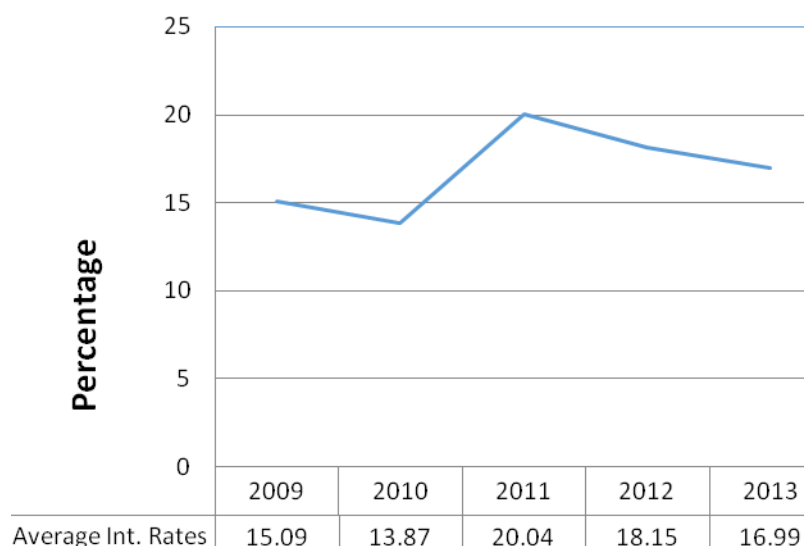


**Figure 4.2: Gross NPLs**

The graph in Figure 4.2 above show the relationship between Gross NPL among the commercial banks and gross NPL advanced in the agriculture sector. From 2009 to 2011 there was decline in NPL loan both for agriculture sector and all commercial banks loans and from 2011 to 2013 there was an increase in the NPL. Gross Non-performing Loans (NPLs) declined by 5.1 percent from KES. 60.7 billion in December 2009 to KES. 57.6 billion in December 2010, resulting to an improvement in the ratio of gross non-performing loans to gross loans from 8.0 per cent in December 2009 to 6.3 percent as at December 2010. The decline in gross NPLs was partly attributable to recoveries and the improved credit appraisal monitoring standards and robust domestic economic growth. Asset quality registered a decline with the non-performing loans (NPLs) ratio increasing

from 4.7 percent in 2012 to 5.2 percent in 2013. The increase in NPLs was partly attributed to high interest rates and reduced economic activities as a result of the March 2013 general elections.

#### 4.2.2 Average Interest rates by Commercial Banks in Kenya

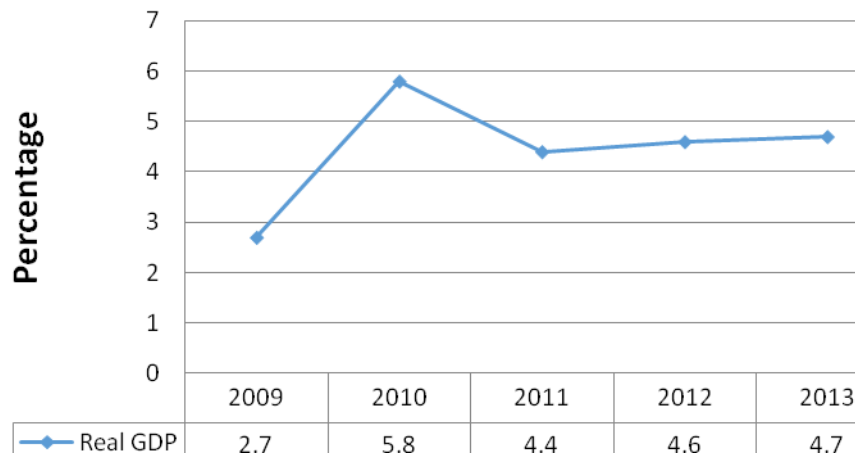


**Figure 4.3: Average Interest Rates**

This is depicted in Figure 4.3 above. The year 2009 had an average interest rate of 15.09%, 2010 had 13.87%, 2011 had 20.04% 2012 had 18.1% and 2013 had 16.99%. The prevailing lending interest rates charged by the commercial banks were highest in the year 2011. This was occasioned by the prevailing economic conditions such as high inflation rates and high currency exchange rates. The Central Bank Rate (CBR) was first reduced to 5.75 percent in January 2011 from 6.0 percent in December 2010. In subsequent reviews of domestic economic developments conditions by the Monetary Policy Committee (MPC), the CBK opted to tighten monetary policy stance by raising the CBR from 5.75 percent in January 2011 to 6 percent in March 2011. In the follow up meetings of July and

September, the CBR was raised to 6.25 percent and 7 percent, respectively. Inflation continued to increase albeit at a decelerating rate while the Kenya Shilling exchange rate remained volatile and depreciating. Further action on the stance of monetary policy resulted in raising the CBR by an unprecedented 400 basis points to 11.0 percent in October 2011 and by 550 basis points and 150 basis points to 16.5 percent and 18.0 percent respectively in November 2011 and December 2011. These measures were taken to also slow down private sector credit demand which had partly contributed to the deterioration of the current account balance. The average commercial bank lending rates and deposit rates remained high between January and June 2012 with the lending rate averaging 20.1 percent. Following the easing of monetary policy in the second half of 2012, the commercial banks' average lending interest rate declined gradually. The average lending rate eased from 20.2 percent in July 2012 to 18.1 percent in December 2012 on the other end The Central Bank Rate (CBR), which was at 18.0 percent from January to June, 16.5 percent from July to August, 13.0 percent from September to October and 11.0 percent from November 2012. The easing of the CBR during the second half of 2012 aimed to enhance monetary policy stance and its outcomes, increase the uptake of private sector credit and re-align interest rates in the economy. The commercial banks' average lending rate declined from 18.13 percent in January 2013 to 16.99 percent in December 2013. The Central Bank Rate (CBR) which signals the stance of monetary policy was lowered twice in the year 2013, from 11.0 percent in December 2012 to 9.5 percent in January 2013 and to 8.5 percent in May 2013 which they maintained through to December 2013.

### 4.2.3 Real Gross Domestic Product



**Figure 4.4: Real GDP**

The economy posted a real GDP growth of 2.6 percent in 2009 compared to a revised growth of 1.6 percent in 2008. The growth was mainly supported by resurgence of activities in the tourism sector and resilience in the building and construction industry and the Government's intervention through an economic stimulus package. However, a mixture of unfavourable weather and sluggish internal and external demands conspired to restrain growth from attaining its potential during the period under review. The global economic recession was felt mainly through depressed demand for horticultural produce abroad and inadequate recovery in tourism. Whereas most sectors maintained positive growths, Agriculture and Forestry contracted by 2.6 percent in 2009. Towards the end of 2009, Kenya's economy started to recover more strongly and this positive momentum was sustained into the year 2010. The resilience of the Kenyan economy was evident in 2010 when real GDP expanded by 5.6 percent after suppressed growths of 1.5 and 2.6 percent in 2008 and 2009 respectively. These developments were attributable to favourable weather conditions, increased credit to the private sector, low inflationary pressure,

improved weather conditions and relatively stable domestic environment. The pro-active government policies also led to encouraging developments in the economy. These factors encouraged a steady growth leading to a turnaround in the agriculture, electricity and water sectors and a rebound in most of the other sectors. The Kenyan economy grew by 4.7 percent in 2013 compared with 4.6 percent in 2012 and 4.4 percent in 2011. Real GDP growth in 2013 reflects good performance of the wholesale and retail trade, mining and quarrying, financial intermediation and transport and communication sectors. Of the total volume produced in 2013, Agriculture and Forestry contributed 20.6 percent.

#### **4.2.4 Gross Lending to Agriculture Sector (GLA) among the commercial banks**

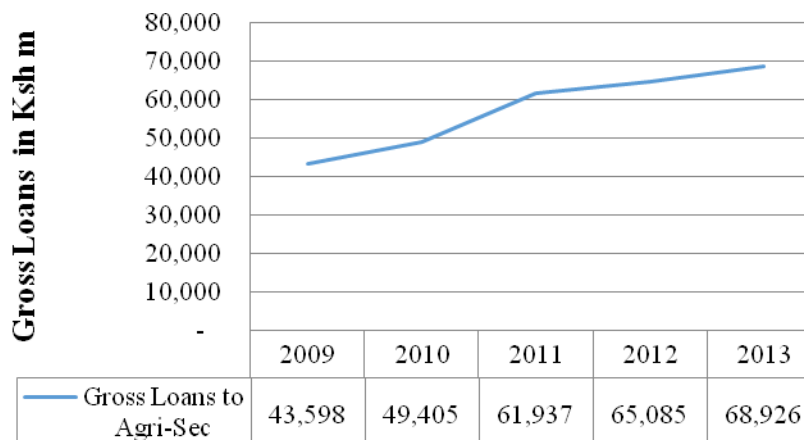
	Period				
	<b>2013</b>	<b>2012</b>	<b>2011</b>	<b>2010</b>	<b>2009</b>
Average Commercial Bank Lending Rate	16.99%	18.15%	20.04%	13.87%	15.09%
Gross Loan to Agriculture Sector	68,926	65,085	61,937	49,405	43,598
Growth Rate	5.9%	5.1%	25.4%	13.3%	60.9%

**Table 4.1: Gross Lending to Agriculture Sector (GLA) among the commercial banks**

**Source: Author (2014)**

The rate of growth of gross loans between the years 2009 and 2010 was 13.3% yet the rate of interest was more or less constant. Thereafter in the year 2010, the growth rate was

21.5% yet the interest rate fell slightly. In 2011, the interest rate increased by 44.48% to 20.04% from 13.87% yet the growth rate of gross loans recorded 25.4% change. The growth rate was still seen in the year 2012 by 5.1% despite the interest rate reducing slightly to 18.15%, in 2013 loans to Agriculture sector increased by 5.9% whereas average bank interest lending rates dropped by 6.4% to 16.99% . In summary gross loans to Agriculture sector increased by 58% between 2009 and 2013 while the average interest rate increased by 12.6% during the review period.



**Figure 4.5: Gross Loans to Agricultural Sector**

Graph show how gross loans to agriculture sector have been on an upward trend since 2009 as they have increased from 13.32% in 2010 to 5.90 % in 2013.

### 4.3 Correlation Analysis

**Table 4.2: Correlation of GLAsect and NPL, Rates and GDP**

Correlations					
GLAsect	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	10			
NPL	Pearson Correlation	.193	1		
	Sig. (2-tailed)	.571			
	N	10	10		
Rates	Pearson Correlation	.667	-.105	1	
	Sig. (2-tailed)	.035	.774		
	N	10	10	10	
GDP	Pearson Correlation	.432	.170	.063	1
	Sig. (2-tailed)	.213	.638	.862	
	N	10	10	10	10

The researcher sought to determine the relationship between the independent variable and the dependent variable. Table 4.3 shows NPL is positively correlated to GLAsect at 19.3%, Interest rates are positively correlated to GLAsect to the extent of 66.7% and GDP is positively correlated to GLAsect at 43.2%.

#### 4.4 Regression Analysis

**Table 4.3: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.834 <sup>a</sup>	.696	.544	6.55549

a. Predictors: (Constant), GDP, Rates, NPL

**Table 4.4: Analysis of relationship of GLA and GDP, Interest Rates and NPL using ANOVA**

Model		ANOVA <sup>a</sup>				Sig.
		Sum of Squares	df	Mean Square	F	
1	Regression	590.355	3	196.785	4.579	0.054 <sup>a</sup>
	Residual	257.846	6	42.974		
	Total	848.201	9			

a. Dependent Variable: GLA sect

b. Predictors: (Constant), GDP, Rates, NPL

Table 4.4 above shows 0.054 as the significant level of 0.05, this can therefore be interpreted as there is statistically significant difference between conditions of the predictor variable and as such there is a linear relationship between the loans to Agricultural sector and the non-performing loans, Real Gross Domestic Product and  $R = 0.834$ , then  $R^2 = 0.696$ , which means that 83.4% of the total variation in Gross Loans to Agriculture (Y) can be explained by the linear relationship between X and Y as described by the regression equation, this can be confirmed by Adjusted R Square which is 54.4%.

**Table 4.5: Regression analysis for GLA sector, GDP, Interest Rates and NPL**

Model	Coefficients <sup>a</sup>				
	Standardized Coefficients Beta	Std. Error	t	Sig.	
1	(Constant)	-34,509	24.855	-1.388	.214
	NPL	.344	.246	1.398	.212
	Rates	2.663	.897	2.968	.025
	GDP	3.871	1.995	1.940	.100

a. Dependent Variable: GLAsect

The coefficients in the above table depicts that there is a positive relationship between Gross Loans to Agriculture sector and our independent variables Non-performing Loans ( $\beta_1 = .344$ ), Average interest rates ( $\beta_2 = 2.663$ ) and Real Gross Domestic Product ( $\beta_3 = 3.871$ ) however, the relationship between gross loans to Agriculture sector has a weak relationship with non-performing loans. GLA has a positive correlation with GNPL with a strength of up to 19.3% at 0.05 significant level is 0.571 hence insignificant, GLA is strongly positively correlated to Average Interest rate at 66.7% at significance level of 0.05 is 0.035 hence it is significant, and to RGDP at 43.2% at a significance level of 0.05 is at 0.213 thus it is insignificant.

#### **4.5 Results and Discussion**

The study evaluated the various variables that the researcher picked out to check their relationship with regard to changes in interest rates on gross loans to Agriculture sector and also Real Gross Domestic Product and Non-performing Loans. From the findings above the Gross loans to Agriculture sector has been on the increase from 2009 through to 2013 for the five years period under review it increased by 58% this is supported by the

study by (KIPPRA 2013). Generally there has been a lot of drive towards promoting agriculture as a business which started in the year 2009, this justify the increase as most banks has partnered with various stakeholder among them we have government, international organisation and private companies through loss sharing mechanism. The study also determined that from 2009 to 2010 there was decline in NPL loan both for agriculture sector and all commercial banks loans and from 2011 to 2013 there was an increase in the NPL. This can be confirmed by common finding of all the studies in that when there is a slowdown in the economy, the level of the NPLs is likely to increase, as unemployment rises and borrowers face greater difficulties to repay their debt.

The average Interest rate fluctuated during the said period from 15.09%, 2010, 13.87%, 2011, 20.04% 2012, 18.1% and 2013 had 16.99%. The rate of growth of gross loans between the years 2009 and 2010 was 13.3% yet the rate of interest was more or less constant. Thereafter in the year 2010, the growth rate was 21.5% yet the interest rate fell slightly.

On levels of analysis, variables like Interest Rates, Real GDP and non-performing loans were assessed. The study determined that there is a linear relationship between the loans to agriculture sector and the non-performing loans, Real Gross Domestic Product and changes in interest rates during the period under study. The study determined that NPL is positively correlated to GLAsect at 19.3%, Interest rates are strongly positively correlated to GLAsect to the extent of 66.7% and RGDP is positively correlated to GLAsect at 43.2%.

The result of the study shows that the value of R square is 0.544. This means that independent variables investigated in the study namely non-performing loans, real GDP and average interest rates charged by commercial banks has a strong significance. Warue, (2013) in her studies among the commercial banks in Kenya result showed there was a negative development of real GDP increases NPLs performance and there was a positive and significantly related to NPLs. The study suggests that banks plough back the profits earned to improve the lending policies and procedure, strategies for debt collections with an aim to improve NPL levels in Kenyan commercial banks. In this study there was a positive relationship between real GDP and gross loans to agricultural sector hence the need for further studies to determine the factors that lead to the positive relationship.

The regression equation appears useful for making predictions in gross loans since R square of 69.6% is considered significant. Regression analysis show that NPL contributed positively up to 19.3% towards lending in the GLA sector, interest rates affected the levels positively to an extent of 66.7% and RGDP affected GLA sector positively by 43.2%.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter depicts the summary of the study, the conclusion and recommendations for further research. The overall goal of the study was to establish the relationship between agricultural lending and non-performing loans in commercial banks in Kenya. The results of the study are presented and discussed in the proceeding sections.

#### **5.2 Summary of findings and Discussion**

The study was geared towards finding out the relationship between agricultural lending and non-performing loans in commercial banks in Kenya. The study involved analyzing data from secondary sources. Most of the data was obtained from CBK involving all the 43 banks in Kenya and Kenya National Bureau of Statistics. The study looked at the agricultural loan sectors.

One objective was to find out whether there is a relationship between loans to agricultural sector and the non-performing loans among the commercial banks in Kenya. The researcher analyzed the changes in loans to agricultural sector for a period of 5 years between years 2009 to year 2013. The result showed that gross loans to agriculture sector were increasing in absolute figures but at a decreasing rate. The increment was attributed to different initiative among them the Kilimo Biashara initiative which was through a guarantee fund and creative agriculture loan products from the different commercial banks. The same period was analysed for gross non-performing loans among the

commercial banks in Kenya and the results showed an erratic trend as in 2009 it recorded a growth rate of 8.3% and reduced to 4.4% in 2011 and increased in the year 2012 and 2013 mostly due to increase in interest rate by commercial banks. The increase in 2009 was attributed to post election violence which led to displacement of the families.

The second objective was to determine the effect of changes in interest rate and changes in real GDP on the loans to agricultural sector. The same period was analyzed for changes in interest rate and the year 2011 saw the highest interest rates and still the demand for gross loans to agriculture sector was higher than the previous years. This shows that borrowers consider other factors besides interest rates charged by the commercial banks. In practice when interest rates increase the demand for loans is expected to decrease while at the same time non-performing loans rate is supposed to increase as the loan becomes expensive to service.

Prevailing lending interest rates charged by commercial banks differs from bank to bank as they apply different mechanism to price their loans which mostly include the credit scores, so that at the point where sectors receive the loans, they are usually ready to pay the scheduled loan instalments. However if this changes negatively, the repayment is directly affected. Banks at any one point take stocks of their assets i.e. the loan positions. They are able to categorize the different loans with regard to possibilities of being recovered or not.

It is also clear that gross loan to agriculture are not directly affected by changes in real GDP.

### **5.3 Conclusion**

The debate whether lending to agriculture is risky leading to high rates of non-performing loans is inconclusive and may go on indefinitely. Different commercial banks have different level of risk appetite and allocation of loan funds is driven by the return they expect. From the findings there is no direct relationship between growth rates in agricultural loans and also the growth rate in non-performing loans as loan performance is affected by other factors which are either bank related or external. An analysis on the relationship between loans to agriculture and average interest rates and real GDP was also done. When analysing the effect of interest rate on agricultural loans there was no direct relationship found since in 2011 the average interest was at 20.04% and loans to agriculture recorded a positive growth rate of 5.2%. There are two main schools of thought. The first school advocates that high interest rates negatively affect the demand for credit because only limited borrowers with high risk projects may have their demand satisfied. It was argued that high interest rates encourage adverse selection of loan seekers. Those who take high risk and have their loans approved are those with high default rates.

The second school of thought assertion is that high interest rates do not affect the demand for credit. Those who are willing to pay high interest rates may, on average, be less risky; they are willing to borrow at high interest rates because they perceive their probability of repaying the loan to be high. As the interest rates rises, the average “riskiness” of those who borrow increases possibly lowering the bank’s profits. There are however, many other factors that affect the demand for credit other than interest rates. These are: internal

financing, loans from other banks, loans from non-banks, issuance of debt securities, issuance of equity, available investment opportunities, drop in CBR and political risk. Borrowers however, often fail to access the financial resources in the required amounts because banks evaluate them on the basis of a checklist, including; audited financial statements for the last three years including management accounts, business plan highlighting the strengths, weaknesses, opportunities and threats, financial projections, monitoring costs, credit or default risk because of the problem of information. Ngugi (2001) analyzed the interest rates spread in Kenya from 1970 to 1999 and found that interest rate spread increased because of yet-to-be gained efficiency and high intermediation costs. Increase in spread in the post-liberalization period was attributed to the failure to meet the prerequisites for successful financial reforms, the lag in adopting indirect monetary policy tools and reforming the legal system and banks' efforts to maintain threatened profit margins from increasing credit risk as the proportion of non-performing assets. She attributed the high non-performing assets to poor business environment and distress borrowing, owing to the lack of alternative sourcing for credit when banks increased the lending rate, and the weak legal system in enforcement of financial contracts. Thus it confirms the finding of our study as there is a positive correlation between gross non-performing loans and interest rate. Gross loans to Agricultural sector have been on an upward trend since 2009 given that they have increased from 13.32% in 2010 to 5.90 % in 2013.

Kiplangat (2011) conducted a study aimed to evaluate the relationship between profits and Non-performing Loans (NPLs), interest on loans and GDP in Kenyan banking sector. The

main findings of the study were as follows; there is a negative relationship between profits of commercial banks and non-performing loans, a significant negative relationship exists between GDP and non-performing loans. In our study we have there is a weak relationship between gross non-performing loans and real GDP and there was a positive relationship between gross loans to agricultural sector and non-performing loans meaning as we increase loan to agricultural sector, gross non-performing loans increases hence the need to conduct further research.

Ombaba M. K. ( 2013) noted the importance of Credit Reference Bureaus (CRB) the amount of NPLs in Kenya are in declining but more needs to be done especially on macro-economic factors as they greatly affect NPLs based on the positive relationship. However, I concur with his recommendation that banks should slow down on issuing loans to companies in the agricultural and manufacturing sectors as they are currently not performing well as from our study growth in agricultural sector has been on a positive trend which shows that banks have been actively involved in agri-lending. He also stated the need for banks to grant loans to borrowers who have a high capacity of paying back loans advanced to them.

#### **5.4 Limitations of the Study**

One of the major limitations experienced was use of secondary data entirely. The researcher was not able to clearly determine what other quantitative and qualitative problems affect lending to agricultural sector other than the changes in interest rates, non-performing loans and real GDP. There are so many qualitative aspects that would have

come out better had the researcher used primary data and captured the sentiments directly from the source.

The models applied to analyze the data were so complex and it took a long time to actually work out and interpret the results. The researcher would have projected the model better had he combined the use of primary data as well. This is because some variables in the model required more input other than what was extracted.

Time was a major constraint in this study. The researcher would have wanted to analyze more relationships but this was not possible since time to complete the study was highly limited. There was need to review more studies by other researchers to actually investigate various dimensions on effect of interest rates on demand for credit and loan repayment.

There are limited local previous studies on the same research problem. Most studies that were close had an outlook at the general determinants of non-performing loans. The researcher therefore did not review much of the local studies as desired. There were also a number of interest rates affecting demand for loans other than the bank lending rates. These include CBR, deposit rate and T-Bill rate.

The population and sample used was highly summarized. However, it is a fact that various sectors have different problems and business environment also has different effect on the borrowers. The researcher could have done more with primary data on the dynamics and complexities affecting different sectors as individuals.

## **5.5 Recommendations**

### **5.5.1 Policy Recommendations**

The central banks should apply stringent regulations on interest rates charged by banks so as to regulate their lending interest rate. Commercial banks should also apply rigorous policies on loan advancement in order to ensure that loans are awarded to those with ability to repay and mitigate moral hazards such as insider lending and information asymmetry.

Regulations on interest rates have far reaching effects on loan non-performance for such regulations determine the interest rate spread in banks and also help mitigate moral hazards incidental to NPLs. When regulations are lax or ineffective, non-performing loan levels increase. In Kenya, bank specific policies and regulations are the responsibility of board of directors, managing directors and credit risk management committees.

Credit risk management technique remotely affects the value of a bank's loan portfolio as interest rates are benchmarked against the associated non-performing assets. Credit risk assessment and management ensures that loans are channelled to intended purposes, loans are allocated to only those who qualify/can repay, loan security/collateral is enough to cover loan, assessment of the character of the loan candidate and there is sufficient margin to cover loan. Credit risk management, therefore, directly influences the level of asset non-performance in commercial banks.

### **5.5.2 Suggestions for Further Research**

There are so many qualitative aspects that would have come out better had the researcher used primary data and captured the sentiments directly from the source. Therefore further research should be done to investigate what other variables affect lending to agricultural sector other than interest rates and why commercial bank loans to agriculture has been increasing but at a decreasing rate despite high rates of interest.

There is need for further research that would inform both the government and financial institutions on what else the banks can do to manage credit risks associated with adverse selection and moral hazard in loans to agricultural sector. This is informed by various initiatives that the government has come up with to encourage lending to Agriculture sector such as risk sharing. A proper model should be advanced to actually inform understanding of these clientele and how best to lend to them and have the problem of loan repayment at minimal levels.

In order to conduct an in depth study for effective management of NPLs, it is critical for commercial banks to understand and focus more on the management of bank specific factors which they have more control over thus more study needs to be done so as to save on time and get a list of bank specific factors to redress NPLs problems.

More research needs to be done on agriculture lending to identify other factors that determine lending to agriculture sector which include first loss guaranty, profit sharing,

private partnership relationships and the role of government initiatives in agriculture sector this will expand the knowledge in the field of agriculture lending.

There is a need to conduct additional research on sector lending and the overall contribution to gross non-performing loans among the commercial banks in Kenya. This will demystify the belief that lending to agricultural sector is risky.

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## **APPENDICES**

### **Appendix 1: Introduction Letter**

Dear Sir/Madam,

#### **RE: MBA RESEARCH PROJECT**

I am a post graduate student at the School of Business, University of Nairobi. As a requirement in fulfilment of the degree of Master of Business Administration, am carrying out a study to establish the relationship between agricultural lending and Non-performing loans in commercial banks in Kenya.

Your organization has been chosen since you are well positioned to provide relevant information that will enable the study to achieve its objectives. I intend to research on the above mentioned study by reviewing data from secondary sources.

The information availed will be used only for academic purposes and will be treated with strict confidence. Where possible, a copy of the research report will be availed to you upon request.

Your assistance and cooperation will be highly appreciated.

Yours faithfully,

Peter Onguka

## **Appendix 2: Commercial Banks in Kenya**

1. African Banking Corporation Ltd.
2. Bank of Africa Kenya Ltd.
3. Bank of Baroda (K) Ltd.
4. Bank of India
5. Barclays Bank of Kenya Ltd.
6. CFC Stanbic Bank Ltd.
7. Charterhouse Bank Ltd
8. Chase Bank (K) Ltd.
9. Citibank N.A Kenya
10. Commercial Bank of Africa Ltd.
11. Consolidated Bank of Kenya Ltd
12. Co-operative Bank of Kenya Ltd.
13. Credit Bank Ltd.
14. Development Bank of Kenya Ltd.
15. Diamond Trust Bank Kenya Ltd.
16. Dubai Bank Kenya Ltd.
17. Ecobank Kenya Ltd
18. Equatorial Commercial Bank Ltd.
19. Equity Bank Ltd.
20. Family Bank Limited
21. Fidelity Commercial Bank Ltd
22. Fina Bank Ltd
23. First community Bank Limited
24. Giro Commercial Bank Ltd.
25. Guardian Bank Ltd
26. Gulf African Bank Limited
27. Habib Bank A.G Zurich
28. Habib Bank Ltd.
29. Imperial Bank Ltd
30. I & M Bank Ltd
31. Jami Bora Bank Limited.
32. Kenya Commercial Bank Ltd
33. K-Rep Bank Ltd
34. Middle East Bank (K) Ltd
35. National Bank of Kenya Ltd
36. NIC Bank Ltd
37. Oriental Commercial Bank Ltd
38. Paramount Universal Bank Ltd
39. Prime Bank Ltd
40. Standard Chartered Bank Kenya Ltd
41. Trans-National Bank Ltd
42. UBA Kenya Bank Limited
43. Victoria Commercial Bank Ltd

### Appendix 3: Secondary Sources of Data

Gross Loan Amount in Millions

Sectors	Period				
	2013	2012	2011	2010	2009
Agriculture	68,926	65,085	61,937	49,400	43,598
Manufacturing	204,131	179,608	156,714	125,100	105,951
Building & Construction	72,406	68,622	41,210	25,300	15,711
Mining & Quarrying	16,322	14,242	16,179	12,000	8,837
Energy & Water	66,190	52,177	36,483	27,000	26,807
Trade	316,707	263,743	232,729	169,100	135,802
Tourism/Hotel/Restaurant	37,956	32,297	27,685	19,800	15,318
Transport & Communication	108,831	98,849	98,252	71,300	63,138
Real Estate	222,735	176,920	146,435	106,700	76,787
Financial Services	56,397	51,379	54,511	45,700	44,090
Personal/Household	408,168	327,444	318,849	263,603	221,721
Total	1,578,768	1,330,365	1,190,985	914,910	757,760

Source: CBK Supervision Reports 2013, 2012, 2011, 2010 and 2009

### Gross Non-performing Loans in Millions

Sectors	Period				
	2013	2012	2011	2010	2009
Agriculture	5,588	4,435	4,219	4,600	5,450
Manufacturing	5,580	4,016	5,313	7,000	8,422
Building & Construction	6,185	2,553	1,749	1,400	1,189
Mining & Quarrying	482	307	95	100	99
Energy & Water	1,118	1,002	203	200	297
Trade	20,236	13,852	9,661	12,500	13,377
Tourism/Hotel/Restaurant	2,610	1,846	1,989	2,100	1,784
Transport & Communication	6,435	4,751	3,239	3,500	2,973
Real Estate	10,998	7,101	6,177	6,500	7,233
Financial Services	1,361	1,435	1,281	1,700	2,874
Personal/Household	21,266	20,540	19,031	18,212	17,043
Total	81,857	61,917	52,958	57,637	60,741

Source: CBK Supervision Reports 2013, 2012, 2011, 2010 and 2009

### Average Commercial Banks Lending Interest Rates

Interest Rates	Period				
	2013	2012	2011	2010	2009
Average Commercial Bank Lending Rate	16.99%	18.15%	20.04%	13.87%	15.09%

Source: CBK Supervision Reports 2013, 2012, 2011, 2010 and 2009

#### Appendix 4: Correlation between the Different Variables

Correlations						
Gross Loans to Agric Sector	Pearson Correlation	.955**	1			
	Sig. (2-tailed)	.000				
	N	11	11			
Gross Non_performing loans	Pearson Correlation	.413	.193	1		
	Sig. (2-tailed)	.207	.571			
	N	11	11	11		
Average Interest rate	Pearson Correlation	.563	.667*	-.105	1	
	Sig. (2-tailed)	.090	.035	.774		
	N	10	10	10	10	
Registered Gross Domestic Product	Pearson Correlation	.415	.432	-.170	.063	1
	Sig. (2-tailed)	.233	.213	.638	.862	
	N	10	10	10	10	10

\*\* . Correlation is significant at the 0.01 level (2-tailed).

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

**Appendix5: Annual GDP**

	Real GDP, 2001 Prices (KES Billion)	Nominal GDP (KES Billion)	% Real GDP Growth
2000	983	968	
2001	1,020	1,020	3.8
2002	1,026	1,035	0.5
2003	1,056	1,132	2.9
2004	1,109	1,274	5.1
2005	1,173	1,416	5.7
2006	1,249	1,623	6.5
2007	1,337	1,834	7
2008	1,357	2,108	1.5
2009	1,394	2,376	2.7
2010	1,475	2,570	5.8
2011	1,541	3,047	4.4
2012	1,611	3,404	4.6
2013	1,686	3,798	4.7

Source: Kenya National Bureau of Statistics