EFFECTS OF INFLATION ON COMMERCIAL BANKS’ LENDING: A CASE OF KENYA COMMERCIAL BANK LIMITED

BY

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STUDENT'S DECLARATION

I, the undersigned, declare that this is my original work and has not been submitted to any other college, institution or university other than the United States International University in Nairobi for academic credit.

Signed: ___________________________  Date: ___________________________

George Omondi Opuodho (ID 628637)

This project has been presented for examination with my approval as the appointed supervisor.

Signed: ___________________________  Date: ___________________________

Dr. Timothy Okech, PHD

Signed: ___________________________  Date: ___________________________

Dean, Chandaria School of Business
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ABSTRACT

The purpose of this study was to determine the relationship between annual inflation rate and Kenya Commercial Bank base lending rate, new lending volumes and loans defaulting. This study was guided by the following three research questions: (i) What is the relationship between annual rates of inflation rate and base lending interest rate in Kenya from the year 2004 to 2013?, (ii) What is the relationship between both inflation rate and base lending rate and KCB new annual lending volumes from the year 2004 to 2013? (iii) What is the relationship between inflation rate and KCB annual loan default rate?

The study adopted both descriptive research design with the target population comprising of 450 KCB employees from both management and non-management staff spread in all the 15 branches within Nairobi County and secondary data on inflation rates, new volumes of lending to creditors, loans default volumes and bank base lending rates. A sample size of 199 KCB staff was selected through multi-stage sampling procedure while purposive sampling was used to select secondary data on KCB new lending volumes, loan defaulting, KCB base lending rates and the annual inflation rates. Secondary data was obtained from banks administrative records and documentation while data on inflation rates was obtained from the Kenya National Bureau of Statistics, through email. Primary data was mainly obtained from KCB employees using self administered questionnaires.

Primary data was analyzed using descriptive statistics and secondary data was analyzed using inferential statistics with an aid Statistical Package for Social Sciences (SPSS) program. Results of regression analysis and primary data were presented using frequency tables, charts and models.

The first major findings was the positive relationship between inflation rate and the base lending rate charged by the bank, as inflation levels rises, so did the bank’s base lending rate both from the key informant figures and the regression analysis of the secondary data, showing that inflation has a significant effect on KCB base lending rate. The second major finding was that inflation has moderate effect on KCB new lending volumes; however an increase in base lending rate contributed most towards the reduction in the lending volumes. The third finding revealed that a rise in inflation led to high rate of loan defaulting activities in the bank.
Conclusion drawn from the findings indicated that a rise in the inflation figures contributes to an increase in the base lending rate, this may be attributed to the fact that a rise in inflation leads to a reduction in the purchasing power of money hence the bank demands a higher base lending rate to cover for assuming this credit risk. Secondly inflation by itself contributes marginally to the lending volumes, however as the base lending is increased the uptake of loans is significantly reduced which may be attributed to the fact that customers repayment ability is hampered with increase in the base lending rate. And finally a rise in inflation also affects loan default rate, since the banks are forced to increase their interest charged, serious affecting customers ability to service their loans, on the other hand arise in inflation may lead to an influx of less credit worthy borrowers who may easily default on their repayment obligations.

Based on the findings various recommendations were made. First the banks should have policy on minimum base lending rate to be charged on loans and in order to maintain this, the bank would need to diversify to other sources of incomes streams such as aggressively undertaking non interest related activities e.g. collection of commission and fees, to cushion it during high inflation period when the uptake of loans dwindle since the organization has no control of macroeconomic factors affecting the inflation of the country. Secondly the bank can encourage borrowers to take fixed interest loan repayment offers, rather than the flexible repayment models to reduce the rate at which loans are defaulted as a result of fluctuation of the repayments amounts.
ACKNOWLEDGEMENTS

I thank God who gave me the strength and ability to do his will. In Him I live and breathe and have my being.

I am very grateful to my family especially my parents Charles and Leonida Opuodho for their constant support and encouragement.

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DEDICATION

To my wife, thank you for your support and encouragement during this period.
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<td>CBK</td>
<td>Central Bank of Kenya</td>
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<tr>
<td>CDS</td>
<td>Credit Default Swap</td>
</tr>
<tr>
<td>ECB</td>
<td>European Central Bank</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>KBA</td>
<td>Kenya Bankers Association</td>
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<td>KBC</td>
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<td>SMEs</td>
<td>Small and Medium-sized Enterprises</td>
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<td>SPSS</td>
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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Inflation is generally the persistent increase of price level of goods and services in an economy over a period of time. When price level rises, each unit of currency buys fewer goods and services. Consequently, inflation results into a reduction in the purchasing power per unit of money, a loss of real value in the medium of exchange and unit of account within the economy (Boyd and Champ, 2004). They further observes that high inflation rates are caused by excessive growth of money supply in the economy compared to the rate of economic growth, a lower rate of inflation is thus favored since it reduces severity of economic recessions by enabling the labor market to adjust more quickly in a downturn. The chief measure of price inflation is the inflation rate, the annualized percentage change in a general price index (normally the consumer price index) over time. The consumer price index measures movements in prices of a fixed basket of goods and services purchased by a typical consumer, The inflation rate is the percentage rate of change of a price index over time.

Lending is the most important services that commercial banks do render their customers, in other word banks grant advances and loan to individuals, government and business organization (Cheboi, 2012). Commercial banks are the most important savings, mobilization and financial resource allocations institutions, consequently these roles make them an important phenomenon in economic growth and development. In performing this role, it must be realized that banks have the potential, scope and prospects for mobilizing financial resources and allocating them to productive investments. Therefore, no matter the sources of the generation of income or the economic policies of the country, commercial banks would be interested in giving out loans and advances to their numerous customers bearing in mind, the three principles guiding their operations which are, profitability, liquidity and solvency (Cheboi, 2012).

Chodechai (2004) while investigating factors that affect interest rates, degree of lending volume and collateral setting in the loan decision of banks, under notes that Banks have to be careful with their pricing decisions as regards to lending as banks cannot charge loan rates that are too low because the revenue from the interest income will not be enough to
cover the cost of deposits, general expenses and the loss of revenue from some borrowers that do not pay. Moreover, charging too high loan rates may also create an adverse selection situation and moral hazard problems for the borrowers. However, commercial banks decisions to lend out loans are influenced by a lot of factors such as the prevailing interest rate, the volume of deposits, the level of their domestic and foreign investment, banks liquidity ratio, prestige and public recognition to mention a few. Interest rate is the amount charged as percentage of principal by a lender to a borrower for the use of assets based on the risk level that is the compensation for the loss of asset’s use by the lender.

Inflation is a key determinant of commercial banks’ lending rates globally. According to Santoni (1986), inflation depreciates the value of money such that a percentage increase in inflation results into a similar percentage fall in value of the country’s currency. Broadly, inflation theorists attribute inflation to monetary causes and mal adjustments in economic system (Chand, 2008). The performance of commercial banks has been a considered issue in the developing countries. This phenomenon is attributed to the crucial role of the commercial banks in the economy. Further, the performance of banking is important to depositors, owners, potential investors and policy makers as banks are the effective executors of monetary policy of the government (Mian et al. 2013). This suggests that the volumes of bank lending may partly depend on the performance of commercial banks.

Taner (2000) study on the effects of inflation uncertainty on credit markets reveals that unpredictable inflation raises interest rates, decreases loan supply and affect loan demand. This therefore suggests that an increase in inflation may raise the bank lending rates and lead to low bank lending volumes. Emon (2012) confirms this assertion and states that lenders are very aware that inflation erodes the value of their money over the time period of a loan, so they increase the interest rates to compensate for the loss. The increased interest rates may therefore influence the borrowing patterns for any commercial bank. This also suggests that there is a positive relationship between the inflation rates and the lending rates even though the extent to which one affects the other for different time periods is not certain. This study will therefore strive to determine the pattern of Kenya Commercial Bank (KCB) lending volumes as a result of the country’s inflation rates over a period of time.
In Kenya, the average lending rates have been reducing from a figure of 19 percent in the year 2002 to an average of 13 Percent over the last five years. Commercial bank’s average lending rates declined from 13.74 percent in December 2006 to 12.56 per cent in October 2007. There are a number of factors that have influenced the lending rates including inflation, government policies, the macroeconomic variables and banks specific factors such as return on investment and covering cost of operation (Ndung’u and Ngugi, 2000).

The Central Bank of Kenya (CBK) has played an important role in formulating and implementing monetary policy directed at achieving and maintaining low inflation as one of its key principal objective (Ndung’u and Ngugi, 2000). Since its establishment in 1966, the CBK has used monetary targeting framework to pursue the inflation objective. The monetary policy strategy has been and continues to be based on the presumption that money matters, that the behavior of monetary aggregates has major bearing on the performance of the economy particularly inflation (Ndung’u and Ngugi, 2000). Although commercial banks lending rates are determined by numerous factors outside the CBK’s control, the Monetary policy committee which is the key policy organ of the central bank notes that structural changes in the deposit and credits markets, including introduction of development banking products, can play a significant role in influencing a downward trend in the commercial bank lending rates (Njuguna, 1999).

Kenya commercial bank limited (KCB LTD) is the largest commercial bank in Kenya in terms of assets values. KCB dates back to 1896 when its predecessor, the National Bank of India opened an outlet in Mombasa. Eight years later in 1904, the Bank extended its operations to Nairobi, which had become the Headquarters of the expanding railway line to Uganda. The next major change in the Bank’s history came in 1958. Grind lays Bank merged with the National Bank of India to form the National and Grind lays Bank. Upon independence the Government of Kenya acquired 60% shareholding in National & Grind lays Bank in an effort to bring banking closer to the majority of Kenyans (Kenya Commercial Bank [KCB], 2013).

In 1970, the Government acquired 100% of the shares to take full control of the largest commercial bank in Kenya. National and Grind lays Bank was renamed Kenya Commercial Bank. In 1972, Savings & Loan (K) Ltd was acquired to specialize in mortgage finance. In 1997, another subsidiary, Kenya Commercial Bank (Tanzania)
Limited was incorporated in Dar-es-Salaam, Tanzania to provide banking services and promote cross-border trading. Since then, the subsidiary has 11 branches. In pursuit of its Vision: To be the preferred financial solutions provider in Africa with a global reach, in May 2006 KCB extended its operations to Southern Sudan to provide conventional banking services. The subsidiary has 19 branches. The latest addition into the KCB Family came in November, 2007 with the opening of KCB Bank Uganda Limited which has 14 branches. In December 2008 KCB Rwanda began operations with one branch at Kigali. There are currently 9 branches spread out in the country (KCB, 2013).

The Government has over the years reduced its shareholding to 35% and more recently to 26.2% following the rights issue exercise in 2004, which raised Kenya shillings 2.45 billion in additional capital for the bank. In the second Rights Issue exercise held in the year 2008, the Government further reduced its shareholding to 23.1% after raising additional capital for Kenya shillings 5.5billion. The bank conducted the third Rights Issue exercise in 2010, in which the Government further reduced its shareholding to 17.74% after raising additional capital of Kenya shillings 12.5billion. In 2010 Savings and Loan (S&L) was merged with KCB providing access to mortgage finance through the bank’s wide branch network of 222 branches (KCB, 2013).

Ralf et al. (2000) undertaking a study on the determinants of bank lending performance in Germany showed that lending rate is a key factor in the commercial bank lending policy such that when commercial bank lending volume decreases, the commercial banks’ profitability on lending is depressed. He further observes that during economic boom in Spain over 1985-1997 period, the commercial banks increased their market share by increasing lending volumes even to borrowers of low credit quality thereby increasing the amount of bad loans. Brownbridge, (1998) asserts that poor quality loan faced by the local commercial banks in developing countries are compounded by variables that determine macroeconomic stability such as inflation rate and commercial bank lending rate which have consequences in loan quality from local commercial banks. The net effects of this action are the negative impact on the commercial banks’ balance sheets. Quoting from assessment of the usefulness of total lending volumes by commercial banks as an indicator of commercial bank distress by Pesola (2001), Ezema (ibid) observes that increase in interest rates above expected one and the growth of commercial bank lending volumes may have contributed to banking crisis in Finland and Sweden.
According to Mangani (2009), both inflation rate and lending rate in Malawi between the years 1970 and 2008 exhibited an upward trend. The nature of behavior of these macroeconomic indicators may results into varying responses by the commercial bank borrowing and investment by both public sector and private sector. Latif et al. (2009) study on the analysis of determinants of investment in Senegal for the period spanning 1994 and 2000 reveals that the desire to invest comes out of low and favorable lending rates that induce high lending volumes by the commercial banks. Felicia et al. (2011) asserts that in Nigeria, commercial bank deposits have the greatest impact on their lending behavior while Usman (1999) asserts that major regulation affect commercial banks’ lending in Nigeria is the restriction on the amount of interest they are allowed to pay on deposits.

In Kenya, there has been negative association between inflation and commercial banks lending volumes and base lending rates. This is because as inflation increases, the commercial bank lending volumes in Kenya declines. Conversely, there exists positive relationship between the base lending rates and inflation rates. As inflation increases, so does the base lending rates (Economic Survey, 2013). The study sought to establish if similar trend occurs in Kenya Commercial Bank Limited.

1.2 Statement of the Problem

Commercial banks in Kenya have been struggling with fluctuating borrowing by both retail and corporate customers (KBA, 2013) Kenya Commercial Bank is not exceptional to this phenomenon yet there is no known empirical study to show whether the fluctuations may be due to high lending rates, or are occasioned by inflationary forces. Economic Watch (2010) states that in most developed economies such as the United States of America, commercial banks’ keep the interest rates on lending equal to the inflation rate. However, when the inflation rate rises, the financial institutions issuing debt instruments would need to lure investors with a higher interest rate. The study did not find out what would happen to the new lending volumes when inflation increases. According to Ralf et al. (2000), in Germany, lending rate is a key factor in the commercial bank lending policy such that when commercial bank lending volume decreases shows some correlation between bank loans and interest rates, the commercial banks’ profitability on lending is depressed. This suggests that the number of new loan applicants is also suppressed. Barajas et al. (1999) study on the determinants of interest
rates identified the interest rates as a factor that determines loan volumes in Colombia while Ziramba (2008) study on “Bank lending, expenditure components and inflation in South Africa” confirms this assertion and states that there exist correlation between bank loans and lending rates.

Thulani (2012) study investigated the relationship between inflation and interest rate spread in Kenya and the extent to which the Fisher effect hypothesis holds. The study utilized annual time series data for the fifteen year period starting from the year 1997 to the year 2011. The study found that inflation had a long term relationship with interest rate. The previous studies such as Liu et al. (2000), Ubide (1997), Leheyda (2005) and Khan et al. (2006) have addressed the determinants of banking lending rates and performance and use of monetary policy by the central banks to control money markets. From these previous studies, it is evident that none of the studies investigated the effects of inflation on Kenya Commercial Bank new lending volumes. This study attempted to bridge the gap by determining the effects of inflation on Kenya Commercial Bank lending volumes and rates with specific focus on new loans annually for a period of ten years.

1.3 General Objective
The general objectives of this study were to determine the effects of inflation on commercial bank lending with specific focus on the Kenya Commercial Bank Limited.

1.4 Specific Objectives
1.4.1 Determine the relationship between annual inflation rate and KCB base lending rate from the year 2004 to 2013
1.4.2 Establish the relationship between annual KCB new lending volumes and both inflation rate and base lending rate from 2004 to 2013
1.4.3 Establish the relationship between KCB annual loan default volumes and inflation rate from 2004 to 2013

1.5 Significance of the Study
The outcome of the study will provide necessary information to the following key stakeholders:
1.5.1 Kenya Commercial Bank LTD

Lending is one of the key functions of KCB as a bank and contributes a reasonable amount of revenues for the business. The study would therefore help them understand how the inflation rate fluctuation pattern is affecting the banks overall lending volume and loan default rate thus prompt the senior management to look into ways of navigating it either through policy change in order to maximize their earnings.

1.5.2 Commercial banks in Kenya

The study will provide commercial banks with the basis for explaining some of the factors that contribute to the changing patterns in lending volumes by the commercial banks in Kenya. It may also trigger the commercial banks to innovate new policies on bank lending that are attractive to the borrower.

1.5.3 Researchers and Academicians

The study will contribute to the body of knowledge hence will be of interest to both researchers and academicians who seek to explore or investigate the contribution of inflation rate on Commercial Banks’ lending pattern in Kenya and thereby lay a foundation for carrying out further related studies.

1.6 Scope of the Study

The research was limited to Kenya Commercial Bank and mainly focused on the effects of inflation on commercial bank lending in Kenya. The study used and analyzed both Primary data and Secondary data. The primary data was obtained from sample key informant employees drawn 15 branches within Nairobi County and secondary data on inflation provided by The Kenya National Bureau of Statistics for the last Ten years 2004 to 2013, bank lending rates annual lending volumes and annual loan defaults rate from Kenya Commercial Bank for same period 2004 to 2013.

1.7 Definition of Terms

1.7.1 Inflation

Inflation is the persistent increase in a nation’s general prices levels (Caprio & Summer, 2003)
1.7.2 Interest rate/Lending rate

Interest rate is the rate at which interest is paid by the borrower for the use of money that they borrow from the lender. Interest rates are normally expressed as a percentage rate over the period of one year. (Marcus et al. 2012)

1.7.3 Lending volumes

Lending volumes refers to amount of financial resources that the borrower is able to obtain from the lender. (Greene and Villanueva, 1991)

1.7.4 Investment

Something that an individual or institution is willing to spend their financial resources on now because it will give them benefits in the future. (Marcus et al. 2012)

1.7.5 Bank

A company which carries on or proposes to carry on banking business in Kenya (The banking Act, 2010)

1.8 Chapter Summary

Chapter one provides the background information about the research by addressing both global and domestic perspective of the prevailing situation. It pinpoints the problem to be addressed and the purpose of the study. The significance of the study has been addressed in the chapter and the scope of the study where timeframe and limitation of the study was discussed as limited to Kenya Commercial Bank.

The next chapter, literatures review on effects of inflation on lending was discussed, followed by chapter on methodology used to carry out the study. Consequently discussion on findings from the research held in chapter four. Finally, chapter five dwelt with conclusions and recommendations related to this study.
CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of literature on the topic of effects of inflation on commercial banks’ lending behavior. Since there are many studies in respect of commercial banks’ lending behavior, it is imperative to highlight and consider some factors that have been proposed as virtually significant in explaining the effects of inflation on commercial banks’ lending behavior. The chapter is structured on the basis of the following specific objectives: Impact of inflation on banks’ lending rate, impact of inflation on bank’s lending volume and relationship between inflation rate and loan default rate.

2.2 Impact of Inflation on Bank Lending Rates

Evidence from the postwar period, from the United States and elsewhere, shows that the quantity theory on money continues to provide a reasonable description of the long run average relationships among interest rates, inflation rates, and money growth rates. In particular, the U.S.A inflation of the 1970s and 80s can be fully accounted for by money rates and the return to relatively low inflation rates in the 1990s can be explained by the correspondingly low average rate of money supply growth in that decade. The long run behavior of banks interest rates, in the U.S.A and elsewhere, can be understood in a similar way as the inflation rates (Fernando A. et al. 2001). Summers (2003), indicates that interest rate rises as inflation increases. Further, he states that with an increase in the interest rate equal to the increase in inflation, the real net interest cost to the firm falls substantially. This suggests that inflation may have an impact on the interest rates. According to Olga (2010) using CPI data from USA on a study entitled the relation between interest rates and inflation, inflation rises or falls occur slightly in advance compared to the interest rates rise or fall implying that interest rate can be partially predicted by inflation.

2.2.1 Inflation

Money supply is arguably one of the most direct determinants of inflation. As more money circulates in the economy, more goods can be purchased and aggregate demand increases which pushes prices upward (Lipsey, 2009). Ramady (2009), in the study of
external and internal determinants of inflation of Saudi Arabia found that in order to counter the rising inflationary effect of increased money supply, the Saudi Arabian Monetary Agency (SAMA) started to use changes in bank reserve requirements for the first time since 1982. The reserve requirements for commercial banks were raised four times during 2007 and 2008 that can be seen as an attempt by the SAMA to absorb the liquidity generated by lower interest rates. Increasing the reserve requirement raises the amount of money banks have to keep as statutory deposits at the central bank, which reduces the total amount available for lending and thereby forcing the banks to increase the base lending rate, as result of the expensive nature of obtaining money thus slowing down credit growth and ultimately inflation.

According to Gichuki et al. (2012), the Central Bank of Kenya (CBK) has over the years used monetary policy to stabilize both inflation and output using two instruments namely; interest rates and reserve money simultaneously. This suggests that interest rates and inflation are correlated and therefore is close association between the two. Gavin et al (2005) examined the effects of alternative monetary policy rules on inflation persistence, the information content of monetary data, and real variables. The study revealed that inflation persistence and the variability of inflation depended on money supply rule by the Central Bank. Oduor et al. (2012) from the study on “the choice of optimal monetary policy instrument for Kenya” found that, interest rates increased when the inflation rate was high, and reduced when inflation was low. In this case, inflation stabilization can be implemented through adjustment of interest rates in response to output and inflation.

Rise in production cost is one of the consequences of inflation, as firms’ increase the prices or their final products (Keeley, 2001). This happens when there is an increase in prices of the raw materials, and firms are forced to increase prices in order to meet or maintain their profit margins or in the event a rising labour cost. Inflation can also result from international lending and national debts, in this case countries that have borrowed money have to their interest rates in order to keep the debt obligation (Stiglitz, 2004).

Kamisky and Reinhart(2006), notes that there exists a positive relations between inflation and interest rate, an increase in inflation results into a consequent increase interest rate charged, which is explained by the fact that commercial banks want to have a beneficial return on the amount money they lend and if there is inflation this means that real value of the investor’s money is being reduced at the annual inflation rate.
2.2.2 Commercial Banks’ Base Lending Rate

Gupta, (2010) who carried out a study on the impact of inflation on homes loans, notes that inflation is a major causes of fluctuating interest rates and increase in homes loans interest rates. This means that a rising inflation rate tends to increase the rates on loans and therefore the cost to the bank go up which eventually results to an increase in home loan interest rates, among other loans rates.

According to the Head of Eco bank Stockbrokers Limited, Mr. Iddrisu Mahama, in a study by Cobbinah Nicholas (2011) looking at the Impact of the Bank of Ghana policy rate on commercial bank lending rate notes that there was expectation of a two hundred basis point reduction in the policy rate from 15 to 13%. He was of the view that economic fundamentals such as inflation and Government dated securities were all going down. That, these should signal policy direction to further reduce the policy rate, which is the rate at which the central bank lends to commercial banks.

Additionally, Nicholas (2011) noted that with the expected increase in utility prices as a result of the hikes in tariffs, it would be prudent for the Central Bank to further reduce its policy rate to make cost of funds easier for businesses. On the basis of the discussion and the prospects for the continuation of the disinflation process and improvements in economic activity and output growth, the Monetary Policy Committee reduced its policy rate by 350 basis points from 18% to 15%, commercial banks followed suit with the reduction in their respective base lending rates.

Nicholas (2011) further notes that inflation reduces the purchasing power of money, inflation and the expectation that it will continue causes lenders to demand higher interest rates on loans. This is because lenders want to be compensated, not only for sacrificing the use of their money and assuming a risk in lending, but also for the expected decline in the purchasing power of their money during the life of the loan. In addition, there is a tendency for borrowers, also expecting the value of the money to decline before they repay the loan, to be willing to pay higher rates to borrow money. The willingness to pay higher rates to borrow is reinforced if the borrower uses the money to buy something that
is apt to increase in value with the inflation (such as a house). Therefore, inflation and inflationary expectations can press base rates upward.

Plosser (2008) notes that the lower the inflation, the lower the nominal interest rates. The Author presents data suggesting that the average real short-term interest rate over an economic cycle positively correlate with the level of inflation for a variety of developed economies over the last decade or so. He further points out a number of factors that might account for this relationship, including a reduction in macro-economic volatility, reduced tax wedge between real and nominal interest rates at lower levels of inflation and finally a reduction in the risk premium.

The quantity theory of money suggests that as governments increase their spending, there is an increase in the stock of money, hence inflation rate would rise, in order to counteract this movement, the monetary policy would begin to respond to the inflationary trends. An attempt to reduce spending and decrease the money supply will be made by raising the nominal interest rate, this fiscal decisions and subsequent monetary responses causes interest rate and inflation to fluctuate and rise dramatically.

According to Boyd and Champ (2004), undertaking study on how inflation, affects banking and economic growth notes that one way inflation may affect the banking sector is by reducing the amount of credit that is available to business, inflation reduces the real rate of return on assets. Lower rates of return discourage savings but tend to encourage borrowings. The new borrowers entering the market are likely to be of lesser quality and more likely to default on their loans. Banks are then forced to react to these effects of lower real returns on their loans and an influx of less credit worthy borrowers by rationing credit that is restrict the quantity of loans made, simply by setting a higher lending rate. They further notes that inflation only affects rationing when it rises above some critical level.

Beck et al. (2013) carried a study on bank lending in an economy in relation to inflationary changes within an economy, noted that inflation affects banking lending rates even at low relatively low inflation rates. They further noted that even after controlling other variables constant in a multivariate statistical analysis, we still found significant negative relationship between inflation and banking lending size.
Alam et al. (2008), suggests that there doesn’t exist any correlation between the inflation and lending rates in Bangladesh and the relationship between the variables is also insignificant. William et al. (2007) recognize that the persistence in lending rates and inflation can be modeled under the unit root hypothesis. The study reveals a long run relationship between lending rates and inflation. However, it also finds that the short term lending rates may not be good predictors of future inflation. Chowdhury (2012) support this fact by providing that there is relationship between current rates of lending and past rates of inflation. If commercial lending rates are not adjusted for changes in inflation then the real rate of return decreases. Evans et al., (1995) observes correlation between lending rates and inflation in a sample of post war data and analyzed the long run response of commercial bank lending rates with respect to inflation. The study concludes that there is a strong correlation between the two macroeconomic variables. Liu and Adedeji (2000), Ubide (1997), Leheyda (2005), and Khan and Schimmelpfennig (2006) have recorded clear ideas about the determinants of inflation in developing countries. Martin et al. (1998) characterize the shift in inflation by a Markov switching model. The study examines the relationship between commercial bank lending rate and inflation and found that commercial lending rates reflect expected inflation one-on-one.

Kamisky and Reinhart (2006), notes that there is a positive relationship between interest rates and inflation. And this assertion is explained by the fact that that investors want to have a beneficial return on the amount of money they lend and if there is inflation this means that real value of the investor’s money is being reduced at the annual rate of inflation, this means that failure by the borrower to exclude inflation as he sets the expected return from the investments he will lose his money because the value of his money will have decreased in value with time. In this case the lender will require the borrower to cover for inflation loss and further require a profit for the risk of lending out the money. Noting that if these lending institutions were to invest their money on other projects would have profited him or her. This means that financial institutions that lends money during inflation must consider it and this leads to an increase in interest rate charged (Kamisky and Reinhart, 2006).

According to Makin (2003), inflation creates several channels of tax neutralities which affect the response of nominal interest rates to inflation expectations, and distort decisions regarding both savings and investment; he further notes that during inflation, disinflation
or deflation cause arbitrary income transfers between an economy’s borrowers and lenders. This redistribution results from distorted real interest rates that are too high when price level changes, or over-predicted. He further notes that a positive correlation between interest rates and inflation does not necessarily mean a rise in the interest rates or a high interest rates cause’s greater inflation. On the contrary, such a correlation would indicate that Central bank is responding to greater inflation by raising interest rate. When inflation starts to increase the cost of goods and services sky rockets, the central bank takes action to increase interest rate in order to reduced demand, consequently commercial bank also increase their lending rates intendment with central banks rates. By increasing or reducing interest rates, the central bank is able to increase or decrease the supply of money and thereby control inflation.

2.3 Relationship between inflation, Base Lending Rate and Commercial Bank Lending Volumes

2.3.1 Commercial Bank Lending Volumes versus Inflation

Inflation is a key determinant in the commercial bank lending volumes. It may affect the trends in lending volumes positively or negatively. Boyd et al. (2000) asserts that inflation has adverse impact on long term lending and the movements in open market interest rates are fully and quickly transmitted to commercial loan to customers. He further suggests that the amount of bank lending declines with inflation. Huybens et al. (1998, 1999) confirms the assertion and states that inflation adversely affects credit market activities with negative repercussions on the commercial banks performance. He further states that increases in inflation drives down the return on the commercial bank lending volumes as a result of high lending rates.

Bruce et al. (2000) in the study on “the Impact of Inflation on Financial Sector Performance” asserts that at low-to-moderate rates of inflation, there is a strong negative association between inflation and lending by the financial sector to the private sector.

Boyd, J et al. (2000) who carried out a study on The Impact of Inflation on Financial Market Performance, notes that even predictable increases in the rate of inflation interfere with the ability of the financial sector to allocate resources effectively. The evidence indicates that there is a significant, and economically important, negative relationship between inflation and both banking sector development and equity market activity.
Further, the relationship is nonlinear. As inflation rises, the marginal impact of inflation on banking lending activity and stock market development diminishes rapidly. For economies with inflation rates exceeding 15 percent, there is a discrete drop in financial sector performance. The results show that while the data indicate that more inflation is not matched by greater nominal equity returns in low-inflation countries, nominal stock returns move essentially one for-one with marginal increases in inflation in high-inflation economies (Boyd et al., 2000). Boyd (2000) also explains the determinants of the share of ‘The Effects of Adjustable Rate Mortgages on House Price Inflation’ in the primary mortgage market. Results of the study shows that lag of house price appreciation, which was interpreted to represent expected house price appreciation stimulates lending by raising the percentage of loans offered to borrowers seeking adjustable rate mortgages. The results support the findings of earlier similar studies and a suggestion that anticipated higher future prices stimulates lending activity.

Bank lending in the Euro Area contracted sharply following the Lehman shock and during the Euro debt crisis. Sluggish loan origination was both a symptom and catalyst for economic weakness. Typically, a loan squeeze is a consequence, not cause, of a downturn. During the Euro Debt crisis, however, banks’ balance sheet constraints and rising funding costs featured more prominently. Boom in corporate bond issuance was driven by substitution and favourable market conditions. The paper investigated the substitution between weak lending and lush bond markets. An empirical analysis of 66,000 individual deals shows that rising bank Credit Default Swap (CDS) spreads are consistently associated with positive growth in securities underwriting and negative growth in loan syndication. This suggests that banks and clients switch funding instruments in times of financial stress (Global financial markets, 2014). The contraction in bank lending may have been occasioned by the inflationary forces which in turn raised the lending rates.

2.3.2 Commercial Bank Lending Volumes versus Base Lending Rates

Melnik et al. (1986) stresses that loan volume is positively correlated with commercial bank lending rate whereas decline in deposit supply reduce loan supply. According to Economic Watch (2010), in most developed economies for instance the United States of America; banks try to keep the interest rates on commercial banks’ lending equal to the inflation rate. However, when the inflation rate rises, the financial institutions issuing
debt instruments would need to lure investors with a higher interest rate. This thus predicts the relationship between inflation and interest rate.

Frederick (2012) in the study on “Central Banking after the crisis in Chile” observes that low interest rates increase net interest margins which lead to increases the value of financial firms. Further quoting from (Bernanke et al. 1999) showed that low interest rates can boost collateral values, again enabling increased lending volumes. In the same view, Barajas et al. (1999) study on the determinants of interest rates identified the interest rates as a factor that determines loan volumes in Colombia. This is mainly attributed to the fact that the banking structure is primarily composed of foreign banks or foreign shareholding.

Ziramba (2008) in the study on “Bank lending, expenditure components and inflation in South Africa” argues that according to the lending view banks play two roles: they create money and make loans. In this way, using interest rate as a monetary policy increases or decreases the supply of bank loans. This increase or decrease in loans will cause investment and consumer spending to either rise or fall. The study thus shows some correlation between bank loans and interest rates.

2.3.3 Commercial Bank Lending Volumes versus both Inflation and Lending Rate

Bank lending is considered to be the main function of every bank which is dependent upon the rate of return it charges to borrowers. Commercial banking system, also known as conventional banking system, merely depends upon the interest rate and inflation. Asari et al. (2011) furthers this opinion on a study of commercial banks in Malaysia during 2006 till 2010 with the help of the vector error correlation model to unearth the relationship of inflation and lending rate with commercial bank lending volumes. They found a strong long run relationship between lending rate and commercial bank lending volume while inflation and lending rate have significant relationship in the long run. Whereas in the short run both inflation and lending rate couldn’t influence commercial bank lending volumes. Salas et al. (2002) analyze the relationship between problematic loans and economic cycles in Spain over 1985-1997. The study reveals that during economic booms, when both inflation and commercial bank lending rate was low, commercial banks tended to expand lending activities to increase their market share resulting into high lending volume.
According to Latif et al. (2009), study on the determinants of investment in Senegal suggests that high commercial bank lending rates increase the cost of capital which reduces the investments rate. Further studies by Green et al. (1991), Solimon (1992) and Lintner (1967) confirms this assertion that high commercial bank lending rates had a negative impact on the growth of investment.

The unchecked inflation affects the savings of people adversely; resulting in fluctuating lending rates and lower deposits in commercial banks. On the other hand, commercial banks use the tool of lending rate as a tool control the inflation, thus lending rate also affected the deposits in banks. So, all these variables are interrelated and this study incorporates the effect of these variables in order to find out their impact on the level of loan/advances in commercial banks. In the Kenya Commercial Bank case, little study has been done in this regard as lending was liberalized in the of recent past. Chodechay (2004) while investigating factors that affect interest rates, degree of lending volume and collateral setting in the loan decision of banks, realized that banks have to be careful with their lending decision as banks cannot charge loan rates that are too low because the revenue from the interest income will not be enough to cover the cost of deposits. Moreover, charging very high loan rates may also create an adverse selection situation and moral hazard problem which discourage borrowers.

In the Euro zone, the European Central Bank, in its meeting of December 6, 2007 decided to maintain its main reference interest rate at 4% to stave off inflation pressures from strong growth in currency and credit (National Bank of Rwanda, 2008). It further states that the Japanese Central Bank kept an accommodating monetary policy by maintaining its reference rate at 0.5% because of its fragile growth, strong sensitivity to financial crisis and lack of inflationary pressures. The changes in the interest rates may therefore have adverse effects on the lending volumes.

Gichuki et al. (2012) quoting from Darryl (1969),writes that a reduction in the official interest rate encourages the commercial banks to borrow money from the Central banks, thereby increasing the money supply in the economy. Njagi (2012) presenting on the relationship between interest rates and money supply confirms that increase in interest rates is used by CBK to limit lending and money supply hence curbs inflation. This suggests that lending volumes depends on both inflation and interest rates. This study will therefore determine the effects of inflation on the KCB lending volumes.
Dhakal *et al.* (1993) investigated the major determinants of the inflation rate in six developing Asian countries of Bangladesh, India, Malaysia, Pakistan, Singapore and South Korea. The results of the study showed that interest rates affect inflation in all of the countries. Tang (2001) confirms this view by estimating inflation models for Malaysia using unrestricted error-correction models. The results of “bounds” tests confirmed a long-run equilibrium relationship between inflation and bank credit.

In Kenya, the Economic Survey, 2013 shows that there has been negative association between inflation and commercial banks lending volumes and base lending rates. It indicates that as inflation increases, the commercial bank lending volumes in Kenya declines. Conversely, there exists positive relationship between the base lending rates and inflation rates. As inflation increases, so does the base lending rates. The study sought to establish if similar trend occurs in Kenya Commercial Bank Limited.

### 2.4 Relationship between Inflation and Loan Default Rate

#### 2.4.1 Non Performing Loans

According to Fofac (2005) loan is considered Non Performing when payment of interest or the principal amount is past due by ninety days or more or interest payments equal to ninety days or more have been capitalized and such a debtor show no indication of fulfilling his pledge of payment or has even filed for bankruptcy. This loans remained classified as such until written off instruction is issued or payments of interest and/or principal are received or subsequent loans that replace the original loan issued.

Fofac (2005) notes that Non Performing Loans leads to a reduction of liquidity in banks and thus its credits expansion and as results affecting the overall performance of the bank. There is also increased liquidity risk and credit risk, she further notes that the due to the nature of banking business commercial banks expose themselves to loan defaulters from borrowers, hence prudent risk assessment strategies and adequate provisions need to be put in place to cushion banks risks, and thus when the level of non-performing loans are high provision may not sufficiently offer cover for protection.

Fofac (2005) undertaking a study on the determinants of non-performing loans in Sub-Saharan Africa using correlation and causality analysis note from the analysis data from sixteen sub-Saharan countries. The sample selection was chosen based on the availability and the database of financial information on these countries. At the macroeconomic level,
the study investigated the correlation between non performing loans and a subset of economic variables: inflation, interest rates, and changes in the real exchange rate, interest rate spread, per capita Gross Domestic Product and broad money supply. At the microeconomic level, it focuses on the association between Non-performing loans (NPLs) and banking-sector variables. The key banking variables include return on asset And equity, net interest margins and net income, and inter-bank loans. These variables were chosen in the light of theoretical considerations and subject to data availability. Non-performing Loans (NPLs) were adjusted for specific provisions (non-performing loans as a proportion of loans loss provisions) to provide the basis for cross-country comparisons.

In the correlation analysis, the results showed a negative association between real GDP per capita and non-performing loans expressed as a percentage of loans loss provision. This implies that falling per capita income is associated with rising scope of Nonperforming Loans (NPLs) to the extent that changes in per capita income is proxy for changes in economic growth. The negative association with non-performing loans indicating the impact of cyclical output downturns on the banking sector Fofac (2005).

Hu, Li and Chiu (2004) undertaking a study on how ownership structure affects Non Performing Loans (NPLs) notes an increase in government’s shareholding in an organization encourages political lobbying whereas private shareholding induces more Non Performing Loans (NPLs) which are manipulated by corrupt private owners the finding showed that the rate of NPLs decreased as the ratio of government shareholding in a bank rose to a figure of 63.51%, while the rate thereafter increased. A joint ownership between government and private shareholding had the lowest rate of NPLs.

According to Khemraj and Pasha (2009), examining the factors causing Non-performing loans in Guyana Commercial bank for the period between 1994 to 2004, noted that real growth in Gross Domestic Product (GDP), real effective exchange rate, and real interest rate significantly impacted the non-performing loans. Dash and Kabra (2010) investigating the association between Non Performing loans and banks specific variables macroeconomic variables in India, noted that the real effective exchange rate, real interest rate, the bank size and real interest rate, the bank size and real GDP related with NPLs while inflation rate was found not be useful in their study.
Vogiazas and Nikolaidou (2011) doing a study on the factors leading to Non-Performing Loans in the Romanian Commercial Banks for the period 2001 and 2010, observed factors such as unemployment rate, the interest rate charged by commercial banks on loans and Gross fixed capital formation were among the key factors that influenced the level of NPLs.

2.4.2 Loan Default Rate

Mohammad Ziaul and Mohammad Zakir (2008) undertaking a study on flawed interest rate policy and loan default note that, persistent loan defaults have become an order of the day in developing countries and this has had a serious negative effect in the development of financial market and economies of these countries. They further notes that despite the application of a number of remedial measures, such as supplying fresh loans, loan rescheduling, imposition of penal interest rates, denial of additional credit to repeat defaulters, management takeover of problem projects, and legal actions, loan default problems continued to reign the credit markets in developing countries.

Hoque (2004) suggest that loan default occurs when borrowers are not able and/or are unwilling to repay loans. They further classify these borrowers into categories of those who are willing but not able to repay loans and those borrowers who are able but not willing to repay loans. Loan default occurs in either case.

A high interest rate is one of the most important factors that influences borrowers’ ability to repay loans. It is widely reported (that high interest rates have devastating effect on investment and growth of an economy though McKinnon (1973) and Shaw (1973) underscored the importance of applying higher real interest rates during periods of inflationary pressure to promote savings and investment in financially repressed economies. Rittenberg (1991) found very high interest rates was detrimental to investment and growth. He recommended that interest rates should be kept low in order to speed the growth of investment and economy at large. The virtues of low interest rates are: it will increase borrowing, reduce inflation, increase job opportunities and stimulate the national economy.

Tschach (2011), undertaking a study on inflation on long term housing loans, notes that the extension of long-term loans, for example to finance housing, is adversely affected by inflation. Banks charge higher nominal rates in response to inflation which means that
borrowers have to make (nominally) higher interest payments, which unnecessarily reduces their borrowing capacity. Long-term loans with variable interest rates increase the probability that borrowers will become unable to meet their payment obligations.

Hoque and Hossain (2008) observe that a high interest rates cause inflation which increases the cost of production or costs of goods sold. Such cost escalation can reduce Earnings Before Interest and Taxes (EBIT). Additionally the interest expense may not be covered by the EBIT which means that nothing is left for loan repayments. This means, high interest rates may end up with higher liabilities and if liabilities are greater than assets, borrowers will not be able to repay loans and hence, debt default occurs.

Hoque (2004) notes that banks do charge high interest rates in developing countries where the financial market is imperfect due to the prevailing information asymmetry between borrower and lender, doubtful credit-worthiness of borrowers, overstated value of collaterals and inefficiency is the common features at institutional level. Nobody knows the precise degree of such imperfection but all banks are addicted to the policy of high interest rates, a move he concludes to be counter-productive as high interest rates may contribute to loan default. He further suggests that banks should determine appropriate lending rates on the basis of proven, not hypothetical, degree of market imperfection.

Roe (1982) suggested that real rate of interest must be lower than real return on capital. It means that as the financial market becomes more and more efficient as development occurs, lending rates should be lowered than before which may contribute towards reduced level of loan defaults. Failure to do this may result in persistent loan defaults in developing countries. Rittenberg (1991) has identical findings that high interest rates can be detrimental to investment and growth. High interest rates do not contribute to banks’ growing profitability in the long run. Stiglitz and Weiss (2004) believe that high rates are responsible for higher defaults and declining bank profit. Again, lending rates should be lowered or adjusted very frequently with the level of real-world imperfection which decreases with pace of economic development and growth of an economy.

A World Bank (1995) report on non-performing loans in Bangladesh banks noted that a total of 40% loans were non performing. It required a spread of 20% between lending rates and bank's cost of funds just to break-even. Owing to the existence of a large number of non-performing firms as well as high default rates, banks in Bangladesh
resorted to high lending rates which, again, compounded the default rate. In this way, banks were caught in the vicious circle of high interest rate and high loan default rate. This reinforces the point that a higher interest rate is positively related to a higher incidence of loan default.

The study further observed that a high interest rate was one of the contributing factors to loan default in the industrial sector, particularly in the manufacturing sector in the country. This suggests that loan default could not solely be attributed to borrowers’ unwillingness to repay loans; it was also an inbuilt problem of the interest rate policy. In other words, the interest rate policy was both a cause and an effect of the high loan default rate in Bangladesh (Hoque 1998 and 1999c). As high interest rates increase costs of borrowing, debt burden grows which leads borrowers to default and, as loan default becomes persistent, the banks loses income and becomes undercapitalized. In order to recover its financial position, it resorts to high interest rates and the cycle is complete. The borrowers are to bear the brunt of this inconsistent interest rate policy. All these indicate that high interest policy pursued by the banks in Bangladesh worked as one of the contributing factors for industrial loan default.

2.5 Chapter Summary

This chapter reviewed the empirical and theoretical work brought out by different researchers in relation to inflation, commercial bank lending volumes, lending rate and default rate. Similar studies carried out in different economies revealed different response with most of the studies showing strong relationship between the macroeconomics variables understudy while others gave a contrary opinion.

The discussion was broken down into various specific objectives with a discussion on what other studies have found on the effects of inflation on other lending parameters such as base lending rate, lending volumes and rate of loan defaulting was done.

However, an in depth study on the effects of inflation in commercial banks lending in Kenya with a specific focus of Kenya commercial bank was not looked at in this literature review; hence the purpose of this study so as to close this gap. The following chapter dwelt on the research methodology which was used to determine the effects of inflation on commercial bank’s lending in Kenya.
CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter provides a discussion of the research methodology that was used in this study. It discussed the research design especially with respect to the choice of the design. It also discusses the population of study, sample and sampling techniques, data collection methods as well as data analysis and data presentation methods employed in the study.

3.2 Research Design

The study adopted descriptive research design. Descriptive studies attempts to describe a subject by creating a profile of a group of problems, people, or event while explanatory studies attempt to explain the reasons for the phenomenon that descriptive study only observed (Cooper & Schindler, 2000).

According to Cooper and Schindler (2000) descriptive statistics discover and measure cause and effect relationships among variables. The study was guided by three research questions the Impact of inflation on banks’ lending rate, impact of inflation on bank’s lending volume and relationship between inflation rate and loan default rate. Odhiambo (2005) stated that the correlation analysis is concerned with the relations between variables. The design allows for the analysis of the relationship between dependent variable new bank volumes and the independent variables namely bank lending rates and inflation rates.

The study used a descriptive design because it enables the researcher to collect in-depth information about the population being studied. The descriptive design gave proper and succinct recommendations to the management of KCB LTD and other banking institutions.

3.3 Population and Sampling Design

3.3.1 Population

According to Cooper and Schindler (2000), a population is the total collection of elements about which we wish to make inferences. The target population of the study comprised of 450 respondents from both management and non-management staff of the KCB Limited
spread in all the 15 KCB branches within Nairobi County but the study did not consider clerical staff. Secondary data on new volumes of lending to creditors, loans default volumes and bank base lending rates for a period of ten years were obtained from the administrative records of Kenya Commercial Bank Headquarters. Data on inflation rate for a period of ten years was obtained from the Kenya National Bureau of Statistics headquarters in Herufi House. Nairobi County was purposively selected for the respondent questionnaire because of its proximity to KCB headquarters where all the data on bank rate and lending volumes were obtained.

Table 3.1: Population Distribution of Respondents

<table>
<thead>
<tr>
<th>KCB Staff Level</th>
<th>Population (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Level</td>
<td>15</td>
</tr>
<tr>
<td>Middle Level</td>
<td>70</td>
</tr>
<tr>
<td>Low Tier Managers (Supervisors)</td>
<td>115</td>
</tr>
<tr>
<td>Clerical Staff</td>
<td>250</td>
</tr>
<tr>
<td>Total</td>
<td>450</td>
</tr>
</tbody>
</table>

3.3.2 Sampling Design

3.3.2.1 Sample Frame

Sampling frame is an objective list of the population from which the researcher can make a selection (Denscombe, 1998). Cooper and Schindler (2000) add that a sampling frame should be a complete and correct list of population members only. The sampling frame for this study was a sample list representative of various units of the bank employees of KCB LTD obtained from human resources department; the list constituted a total of 450 employees. The employees were categorized into 15 senior level management, 70 middle level management, 115 low tier managers or the supervisors and 250 clerical staff. Secondary data contained time series data for a period of ten years from KCB new lending volumes, loan defaulting, KCB base lending rates and the annual inflation rates.

3.3.2.2 Sampling Technique

The study adopted multi-stage sample procedure to select the KCB employees and purposively picked on the secondary data on KCB new lending volumes, loan defaulting, KCB base lending rates and the annual inflation rates. At stage one, the KCB employees were stratified by staff levels while in stage two, 190 employees were sampled using
probability of proportions and the sample is presented in Table 3.2. Stratified sampling technique allows the researcher to divide the sample into appropriate strata that are mutually exclusive. According to Coopers and Schindler (2000) stratified sampling gives statistical efficiency increase on a sample, provides adequate data for analyzing the various sub-population and enables different research methods and procedures to be used in different strata.

The choice of sampling period was based on the availability of time series data on new volumes of lending by corporates and retail creditors as well as the availability of data on interest rates and inflation. The study used time series data for ten years from 2004 to 2013. The ten year period data will be enough to provide the researcher with desired results. The period has also been purposively determined since it is the most recent period for the study.

### 3.3.2.3 Sample Size

Denscombe (1998) poised that, the sample must be carefully selected to be representative of the population and the researcher also needs to ensure that the subdivisions entailed in the analysis are accurately catered for. A sample size of 190 KCB staff was selected from a total population of 450 employees and a time series data for 10 years on lending volume, bank base lending rates and the inflation rates. Table 3.2 shows the distribution of the sample by each stratum. The sample was calculated from the entire population using probability of proportions.

**Table 3.2: Sample Distribution of Respondents**

<table>
<thead>
<tr>
<th>KCB Staff Level</th>
<th>Population (N)</th>
<th>Sample (n)</th>
<th>Sample (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Level</td>
<td>15</td>
<td>6</td>
<td>3.3</td>
</tr>
<tr>
<td>Middle Level</td>
<td>70</td>
<td>30</td>
<td>15.6</td>
</tr>
<tr>
<td>Low Tier Managers (Supervisors)</td>
<td>115</td>
<td>49</td>
<td>25.6</td>
</tr>
<tr>
<td>Clerical Staff</td>
<td>250</td>
<td>106</td>
<td>55.6</td>
</tr>
<tr>
<td>Total</td>
<td>450</td>
<td>190</td>
<td>100</td>
</tr>
</tbody>
</table>

### 3.4 Data Collection Methods

The study used both primary and secondary data. Secondary data on bank lending volumes, loan default rates and bank lending rates were obtained from banks
administrative records and documentation while data on inflation rates was obtained from the Kenya National Bureau of Statistics for a period of Ten years between 2004 to 2013. Primary data was obtained from KCB employees through questionnaire to the employees as key informants. The Questionnaires were given to the Key-Informant who were Kenya Commercial Bank employees in Nairobi County and were more knowledgeable on the banks’ operations. Through this method, the researcher was able to obtain information on employees’ perceptions on the effects of inflation on the Kenya Commercial Banks’ lending.

3.5 Research Procedures

The questionnaire designed by the researcher based on the research questions was pre-tested to ascertain the suitability of the tool before the actual administration. Pre-testing was done by administering the questionnaire to ten non sampled respondents who were selected randomly from the population of 450. This enabled the researcher to fine tune the questionnaire for objectivity and efficiency of the process. The questionnaire was dropped to each of the respondents by the Researcher Assistants and collected after completion. It was estimated to take 15 minutes to complete and Data collection took a period of 10 days.

The researcher also tested the reliability of the secondary data using standard error, According to Mugenda et al.(2003), reliability is the degree to which a measure is consistent in producing the same reading or results when measuring the same thing at different times. Reliability is influenced by random error, that is, as random error increases, reliability decreases. The random error is the deviation from the true measurement due to the factors that have not effectively been addressed by the researcher. The data will be subjected to reliability test using the SPSS package. The model of analysis will be Alpha (Cronbach) at 95% confidence level and a test value of 0.5. Alpha model was used because it analyses internal consistency based on the average inter-item correlation.

3.6 Data Analysis Methods

This study used the quantitative method of data analysis. To ensure easy analysis, the questionnaire was coded according to each variable of the study to ensure the margin of
error is minimized to assure accuracy during analysis. The quantitative analysis was applied using descriptive and inferential statistics. According to Denscombe (1998) descriptive statistics involves a process of transforming a mass of raw data into tables, charts, with frequency distribution and percentages which are a vital part of making sense of the data. Data was analyzed using Statistical Package for Social Sciences (SPSS) program and presented using tables and pie charts to give a clear picture of the research findings at a glance.

The secondary data was analyzed using simple Linear Regression analysis model on SPSS Package. Two variable can have a linear relation captured using the formula $Y = \alpha + \beta(X) + \mu$; where $\alpha$ is the constant $\beta$ intercept or slope and $\mu$ the error term. Regression and correlation analysis shows us how to come up with both the strength and the nature of the two variables. Hence the giving us the relationship between variables. The known variable is called the independent variables (s) which include the lending rates, lending volumes and the loan defaults rate.

The unknown variable that is estimated depending on the objective being sought from the research questions, that is the first one was commercial banks lending rate, the second being the lending volume and thirdly being the loan default rate, a scatter diagram is drawn for the case of regression analysis, the regression line is put in place by fitting the lines visually among data points, whereas the correlations analysis was also used to describe the degree at one variable is linearly related to the other.

Coefficient of determination was also used to give the extend, or the strength of the associations between two variables $X$ and $Y$.

A sample coefficient of determination was developed from the relationship between two kinds of variations that is a sum of group of squared variations. The variations of the $Y$-values in a data set around the fitted regression line and their own mean.

Regression can be bivariate (between 2 variables, $x$ and $y$) or multivariate between greater than two variables, both have been used in the study, with objective one and three using bivariate whereas objective two using multivariate approach.
3.6.1 Relationship between annual inflation rate and KCB base lending rate from the year 2004 to 2013

In order to establish the effect of inflation on the base lending rate, graphs were used to illustrate the trends. The Annual inflation rate for the period 2004 – 2013 were regressed against the banks’ base lending rate. The data obtained were fitted to the equation by Ordinary Least – Squares (OLS) regression method. The linear relationship between the dependent variable in this case, the commercial banks lending rate and the independent variable s being inflation were generated. A simple regression was used for regression analysis and inferences were drawn based on the regression analysis.

Thus given that

\[ BR = \alpha_3 + \beta_3(\text{IR}) + \mu_3 \]

The following linear equation is generated.

\[ BR = \alpha_3 + \beta_3(\text{IR}) + \mu_3 \]

3.6.2 Relationship between annual KCB New lending volumes and both inflation rate and base lending rate from 2004 to 2013

In accessing the effect of inflation rate and base lending rate on the annual KCB lending volume graphs were used to illustrate the trends. The annual inflation rate and base lending rate were first separately regressed against the annual new lending volumes figure for the period between 2004 – 2013. and linear relationship between the dependent variables in this case new lending volumes and independent variables in this case inflation and base lending rate generated. A simple regression was used for regression analysis and inferences were drawn based on the regression analysis.

The following equations generated.

\[ \text{KCB New lending volume (BV)} = \alpha_1 + \beta_1 \text{ Base lending Rate (BR)} + \mu_1 \]
KCB New lending volume (BV) = $\alpha_2 + \beta_2$ Inflation Rate (IR) + $\mu_2$

Where; $\alpha_1$ and $\alpha_2$ are constants; $\beta_1$ and $\beta_2$ are regression coefficients; $\mu_1$ and $\mu_2$ represents error term or contribution of variables not considered by the study.

Secondly the three variables were jointly considered; base lending rate, inflation rate and new lending volume for the period between 2004 - 2013, a multivariate regression analysis was done with the new lending volume being the depended variable while the annual inflation rate and the base lending rate being the independent variables.

The following equation was generated.

Bank lending volume (BV) = $\alpha_4 + \beta_4$ Bank lending Rate (BR) + $\beta_4$Inflation Rate (IR) + $\mu_4$

Where; $\alpha_4$ is the constants; $\beta_4$ is the regression coefficients; $\mu_4$ represents error term or contribution of variables not considered by the study.

### 3.6.3 Relationship between KCB annual loan default volumes and inflation rate from 2004 to 2013

In order to establish the effect of inflation on the annual loan default rate, graphs were used to illustrate the trend. The Annual inflation rates for the period 2004-2013 were regressed against the KCB annual loan default rate. The data obtained were fitted to the equation by ordinary least squares (OLS) regression method. The linear relationship between the dependent variable in this case, the commercial banks annual loan default rate and the independent variable s being inflation were generated. A simple regression was used for regression analysis and inferences were drawn based on the regression analysis.

The following equation was generated

Bank Loan Defaulting volume (LDV) = $\alpha_{dv} + \beta_{dv}$ Inflation Rate (IR) + $\mu_{dv}$

Where; $\alpha_{dv}$ is the constant; $\beta_{dv}$ is the regression coefficients; $\mu_{dv}$ represents error term or contribution of variables not considered by the study.

Inferential statistics was also used in the analysis of the secondary data which involved estimation of parameters and testing of statistical hypothesis and drawing conclusion about a population using a sample. Using this analysis, the researcher was able to obtain
the strength of relationship (R) value among the variables. The normality test was also conducted to ensure that the data sets used are normally distributed. Some of the parameters used included t-test, confidence interval, Pearson Correlation and coefficient of determination (R²). These are mainly presented in correlation matrix, ANOVA table, resulting from the regression analysis.

3.7 Chapter Summary

The chapter described the methodology that was used in carrying out the study. The research design was descriptive in nature focusing on KCB Ltd. The population was all the employees of KCB Ltd working within the various branch networks and head office units. The sample size, the sampling techniques and questionnaire as a primary data collection instrument were described. The questionnaire developed was pilot tested before a refined one was administered to the respondents.

Tables were discussed as the main secondary data collection tools for information of the researcher needed. Finally, data analysis methods to be used in the study were discussed, which paved the way for research findings which were discussed in chapter four.
CHAPTER FOUR

4.0 RESULTS AND FINDINGS

4.1 Introduction

This chapter provides a discussion of the study findings based on each of the objectives and the research questions. It covers both results from the secondary time series data from 2004 to 2013 on KCB lending volumes, rates and the loan defaulting; and the inflation rate analyzed using inferential and descriptive statistics. These results are then compared with the results from the respondent’s questionnaire in order to understand the effects of inflation of KCB lending volumes, bank interest rates and loan defaulting. The results are mainly presented using regression analysis, frequency tables and charts where areas those from the respondent’s questionnaire are mainly presented by use of frequency table and charts. The results and findings are organized into four main areas: First, General Information that covers the general characteristics of the respondents including Job Cadre, Age, sex and Length of Service. The research did not establish the marital status and education level of the respondent’s. Secondly, Research Question 1: relationship between inflation rate and the base lending rate. Thirdly, Research Question 2: relationship between both base lending rate and inflation rate on lending volumes and finally, Research Question 3 relationship between inflation rate and loan default rate.

4.2 Response Rate and Background Information

4.2.1 Response Rate

The research sought an assessment of the effects of inflation in lending activities at Kenya commercial bank. Questionnaires were given to 199 members of staff from 15 branches within Nairobi County and Head Office Corporate and Credit Units which gave a response rate of 99.5% since 198 respondents were covered.

4.2.2 Background Information

The general characteristics observed in the respondents were Job Cadre, Age, sex and Length of service at KCB.
4.2.2.1 Job Cadre

Out of the 198 respondents who filled the questionnaire 24 were from middle level management staff, 89 supervisors were senior staff and 85 were clerical staff. The largest number of respondents was found to be at supervisory level staff at 45% as is reflected in the below pie chart.

![Job Cadres of Respondents](image)

**Figure 4.1: Job Cadres of Respondents**

4.2.2.2 Length of Service at KCB Ltd

Table 4.1 indicates that 50% of the respondents have been at KCB for 3-5 years, 19.2% have worked for 0-2 years, 18.7% have worked for 6-8 years while 12.1% have worked for over 9 years. This can be observed in table 4.1.

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2 Years</td>
<td>38</td>
<td>19.2</td>
</tr>
<tr>
<td>3-5 years</td>
<td>99</td>
<td>50.0</td>
</tr>
<tr>
<td>6-8 years</td>
<td>37</td>
<td>18.7</td>
</tr>
<tr>
<td>9+ years</td>
<td>24</td>
<td>12.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>198</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Table 4.1: Length of time at KCB**
4.2.2.3 Gender of Respondents

The research covered 49 female (14%) and 149 (86%) males distributed across the fifteen branches as shown in Figure 4.2. The gender of staff suggests a high gender disparity at KCB.

![Figure 4.2: Gender of the respondents](image)

4.2.2.4 Age of Respondents

Table 4.2 presents the age distribution of the respondents from the 15 KCB branches in Nairobi County. The study shows that about 58.1% of the respondents were aged between 31 and 35 years and about 14.1% were below age 26 years. This suggests that majority of KCB employees are below age 36 years.

![Figure 4.2: Age Distribution of the Respondents](image)

<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-25</td>
<td>28</td>
<td>14.1</td>
<td>14.1</td>
</tr>
<tr>
<td>26-30</td>
<td>43</td>
<td>21.7</td>
<td>35.9</td>
</tr>
<tr>
<td>31-35</td>
<td>115</td>
<td>58.1</td>
<td>93.9</td>
</tr>
<tr>
<td>36 and above</td>
<td>12</td>
<td>6.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>198</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
4.3 Study Results Primary Data and Regression Analysis of the Secondary Data

The study used regression analysis and results of the respondent’s questionnaire to establish the relationship between new KCB lending volume, loan defaulting volume, base lending rates and the annual inflation rates from 2004 to 2013.

The analysis of respondents was mainly done using the descriptive statistics and the results are presented in frequency tables and charts while regression analysis focused on the secondary data.

The analysis of secondary data was conducted through regression of the dependent variables against the independent variable namely annual inflation rate and also the interest rate. Regression analysis is important as it produce the correlation between these variables. The regression model assumes that; first, the error term has a normal distribution with a mean of zero, secondly, the variance of the error term is constant across cases and independent of the variables in the model and an error term with non constant variance is said to be heteroscedastic, thirdly, the value of the error term for a given case is independent of the values of the variables in the model and of the values of the error term for other cases. In this study, linear regression analysis, assumed that the variation in dependent variable (new KCB lending volume, loan defaulting and base lending rates) is caused by independent variable namely inflation rate, KCB base lending rate and an error term. The correlations and the determination of inflation rate on the bank lending volumes, base rates and loan defaulting were established using the coefficient of determination \( R^2 \) and strength of association (R) value. Mukras (1993) states that coefficient of determination \( R^2 \) of value below 0.5 suggests insignificant effect of the inter-correlations. Prior to running the regression analysis, a scatter plot was examined to determine whether a linear model was reasonable for the variables. The resulting scatter plots appeared reasonable for the regression with some few possible causes of concern for the points which exerted undue influence on the layout of the regression line. The regression analysis produced the effects of the annual inflation rate on KCB new lending volumes, base lending rates and the loan defaulting from 2004 to 2013.

4.3.1 Correlation between the Variables

Correlation between variables was conducted to establish the strength of association. From Table 4.3 the study reveals that strong association of 0.774 exists between the
lending volumes and the base lending rates. There is weak correlation between lending volumes and inflation rates. Similarly, weak association exists between loan defaulting and the independent variables namely, inflation and base lending rates.

Table 4.3: Correlations between variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>INFLATION</th>
<th>BASE LENDING VOLUME (MILLION KSH)</th>
<th>BASE LENDING RATE</th>
<th>LOAN DEFAULTING (MILLION KSH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFLATION</td>
<td>Pearson Correlation: 1.000</td>
<td>-0.039</td>
<td>-0.040</td>
<td>-0.028</td>
</tr>
<tr>
<td>Sig. (2-tailed): 0.916</td>
<td>0.916</td>
<td>0.912</td>
<td>0.939</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>BASE LENDING VOLUME (MILLION KSH)</td>
<td>Pearson Correlation: -0.039</td>
<td>1.000</td>
<td>0.774</td>
<td>-0.085</td>
</tr>
<tr>
<td>Sig. (2-tailed): 0.916</td>
<td>0.916</td>
<td>0.009</td>
<td>0.815</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>BASE LENDING RATE</td>
<td>Pearson Correlation: -0.040</td>
<td>0.774</td>
<td>1.000</td>
<td>-0.107</td>
</tr>
<tr>
<td>Sig. (2-tailed): 0.912</td>
<td>0.912</td>
<td>0.768</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>LOAN DEFAULTING (MILLION KSH)</td>
<td>Pearson Correlation: -0.028</td>
<td>-0.085</td>
<td>-0.107</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig. (2-tailed): 0.939</td>
<td>0.939</td>
<td>0.768</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

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

4.3.2 Normality Test

Table 4.4 presents the results of normality test from the secondary data. The One-Sample Kolmogorov-Smirnov Test shows that all the dependent variables namely KCB New lending volumes, Base lending rates and the Loan Defaulting are normally distributed. This is true because if the significance value of the Kolmogorov-Smirnov Z Test is greater than 0.05, the data is normal. But if it is below 0.05, the data significantly deviate from a normal distribution.
Table 4.4: One-Sample Kolmogorov-Smirnov Test

<table>
<thead>
<tr>
<th></th>
<th>Inflation</th>
<th>Base lending volume (million ksh)</th>
<th>Base lending rate</th>
<th>Loan defaulting (million ksh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Normal Parameters (a,b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>9.079</td>
<td>104.839</td>
<td>14.960</td>
<td>12.600</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>3.9381</td>
<td>67.3513</td>
<td>2.8783</td>
<td>3.0558</td>
</tr>
<tr>
<td>Most Extreme Differences</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absolute Differences</td>
<td>.180</td>
<td>.167</td>
<td>.217</td>
<td>.235</td>
</tr>
<tr>
<td>Positive</td>
<td>.180</td>
<td>.164</td>
<td>.217</td>
<td>.235</td>
</tr>
<tr>
<td>Negative</td>
<td>-.133</td>
<td>-.167</td>
<td>-.178</td>
<td>-.155</td>
</tr>
<tr>
<td>Kolmogorov-Smirnov Z</td>
<td>.569</td>
<td>.529</td>
<td>.688</td>
<td>.743</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.903</td>
<td>.942</td>
<td>.732</td>
<td>.639</td>
</tr>
</tbody>
</table>

4.3.3 Normal Q-Q Plot

A normal Q-Q plot for all the variables was conducted in order to establish whether data are normally distributed so as to proceed with the regression analysis. This was to confirm the normality test done using Kolmogorov-Smirnov Z test of normality. Figure 4.3 and 4.4 shows the graphical presentation of the normality. Normality test for both base lending rates and inflation rates shows that the data points are close to the diagonal line and therefore the distribution is normal.
4.4 Relationship between Inflation and Base Lending Rate

4.4.1 Trends in base lending rate

The trend of changes in the base lending rate has been observed through two ways namely the respondents’ questionnaire and secondary data obtained from KCB.
4.4.1.1 Respondents

The rating of trends in lending rates in the last ten years as stated by the respondents was presented in Table 4.5. Majority of the respondents rated KCB lending rates to be in the upward trend during the ten year period.

**Table 4.5: Respondents Rating of Trends in Lending Rates**

<table>
<thead>
<tr>
<th>Rates</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing</td>
<td>142</td>
<td>71.7%</td>
</tr>
<tr>
<td>Constant</td>
<td>18</td>
<td>9.1%</td>
</tr>
<tr>
<td>Decreasing</td>
<td>23</td>
<td>11.6%</td>
</tr>
<tr>
<td>Others</td>
<td>15</td>
<td>7.6%</td>
</tr>
<tr>
<td>Total</td>
<td>198</td>
<td>100%</td>
</tr>
</tbody>
</table>

4.4.1.2 Secondary data

Table 4.6 indicates the fluctuation of the bank’s monthly base lending rate from January 2004 to December 2013.

**Table 4.6 Secondary data of trends in Base lending rate, 2004-2013**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BASE LENDING RATE</td>
<td>12.3</td>
<td>13.2</td>
<td>13.7</td>
<td>13.3</td>
<td>13.1</td>
<td>15.0</td>
<td>14.1</td>
<td>15.8</td>
<td>22.1</td>
<td>17.0</td>
</tr>
</tbody>
</table>

Source: Kenya Commercial Bank

Figure 4.5 shows that the base lending rates was at pick in the year 2012. This was mainly occasioned by the slump on the Kenya shilling against the major foreign currencies such the dollar, euro and sterling pounds.
4.4.2 Trends in Inflation rate

The trend in inflation rates are presented in Table 4.7. As shown in the table, inflation rate was discrete throughout the ten year period.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>INFLATION</td>
<td>11.8</td>
<td>9.9</td>
<td>6.0</td>
<td>4.3</td>
<td>15.1</td>
<td>10.5</td>
<td>4.1</td>
<td>14.0</td>
<td>9.4</td>
<td>5.7</td>
</tr>
</tbody>
</table>

Source: Kenya National Bureau of Statistics

Figure 4.6 indicates that in the last ten years, inflation was highest in 2008 and 2011. It was at its lowest in 2007 and 2010. However, the trend was not steady and fluctuated with a lot variance.
4.4.3 Analysis of Base lending rate against Inflation

In the first objective, the dependent variable namely annual KCB lending rates was regressed against annual inflation rate assuming the model of $KCB \text{ lending Rate (BR)} = \alpha_3 + \beta_3 \text{Inflation Rate (IR)} + \mu_3$. Table 4.8 provides the strength of association (R) between the annual KCB lending rates and annual inflation rates. The variability ($R^2$) of annual inflation on annual KCB lending rates from 2004 to 2013 was also determined. $R$ is the linear correlation between observed and model predicted values of annual inflation. The study indicates that first, negative relationship exists between annual KCB lending rates and annual inflation with coefficient of determination ($R^2$) of negative 0.123. This implies that annual inflation could account for 12.3% variability on annual KCB lending rates. The remaining 87.7% of the variations not accounted for by the independent variable namely annual inflation could be attributed to many other parameters which also affected the base lending rates and errors in the secondary data. The $R^2$ value of negative 0.123 was not very much below 0.5, suggesting slightly significant contribution of inflation rates on base lending rates. The study further suggests that inflation rate has little effects on the base lending rates since as inflation rates increases; moderate effect is exerted on base lending rates.

Table 4.8: Correlation between KCB Base lending Rates and Inflation

<table>
<thead>
<tr>
<th>Variable</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>0.040</td>
<td>0.002</td>
<td>-0.123</td>
<td>3.050</td>
</tr>
</tbody>
</table>

From Table 4.5, the study indicates that the relationship between KCB base lending rates and the independent variable namely annual inflation rate for the last ten years can be shown using regression equation:-

$KCB \text{ lending Rate (BR)} = 15.23 - 0.04 \text{Inflation Rate (IR)} + \mu_3$

As shown in the regression equation, the study reveals that a unit change in the inflation rate influences change in KCB base lending rate by minus 0.04. The study therefore suggests that the effect on base lending rates could partly be attributed to inflation.
Table 4.9: Contribution of Inflation Rates on Base lending Rates

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>15.227</td>
<td>2.535</td>
<td>6.007</td>
<td>0.000</td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.029</td>
<td>0.258</td>
<td>-0.040</td>
<td>-0.114</td>
</tr>
</tbody>
</table>

Figure 4.7 shows the trends in KCB base lending rates and inflation rates over a ten year period. The study reveals that fluctuations in inflation rates do not necessarily result into a positive change in the base lending rates.

Figure 4.7: Relationship between KCB Base lending Rates and Inflation Rate from 2004 to 2013

According to the Respondents, changes in inflation rates have effects on the KCB base lending rates. Figure 4.8 show that 89.0% out of the 198 respondents agreed that inflation affects base lending rates. About 66% of the respondents stated that a rise in inflation moderately increases the base lending rate while 34% of the respondents said it significantly increase the base lending rates said that there were effects on inflation on the lending rates.
Figure 4.8: Effects of Inflation on Base Lending Rates

From the ongoing discussions, the study suggests that inflation rate has positive or negative influence on the KCB base lending rates. This fact has also been confirmed through the questionnaire. There are also other major factors that contribute to either increase or decrease in the KCB base lending rates which the study did not investigate but are jointly grouped as error term.

4.5 Relationship between KCB New lending Volumes, Base Lending Rates and Inflation Rates

The study sought to investigate the effects of inflation and base lending rates on the KCB new lending volumes. This is derived from the objective two of the study. Normality test was done for the base lending volume and the result is presented in the Q-Q plot.

4.5.1 Trends of the New Lending volume

The study reveals that new loans and advances at KCB have been growing steadily over the last ten years from 33.6 million Kenya shillings in the year 2004 to 204.6 million in the year 2013. The growth was slower between 2004 and 2007 compared to the years that followed with a steady increase up to 2013 as shown in Figure 4.9.
Figure 4.9 Total New loans and advances and yearly growth

The normal Q-Q plot in Figure 4.10 shows that the data for base lending volumes are normally distributed since the data points are close to the diagonal line. This suggests that regression analysis of the variables provided plausible results.

Figure 4.10: Normality Test for the KCB Lending Volumes
4.5.1.1 Respondents

The respondent’s questionnaire sought to establish the rating of trends in KCB lending volumes for both corporate and retail customers from 2004 to 2013 by the KCB employees. The study reveals in Figure 4.11 that both cooperate and retail lending volumes were on an increasing trend in the last ten years. About 68.2% and 50.6 % of the respondents stated that cooperate and retail lending volumes respectively, depicted an upward trend in the last ten years. The respondents provided varied reasons for the trends in the lending volumes. About 12.1% of the respondents who stated that there was an increasing trend singled out aggressive marketing and expansion of KCB outlets in order to increase the customer base as one of the main contributing factors in the upward trend in the lending volumes. The study shows that about 6 in 100 respondents stated that growth of asset book and incomes from interest as well as increase in the number of products may have contributed to the observed trends in the lending volumes. Insignificant respondents felt that leverage on technology may have caused the upward trend. This suggests that in spite of other factors such as inflation and changes in the interest rates, the lending volumes increases.

![Figure 4.11: Trends in KCB Corporate and Retail Lending](image)

Figure 4.11: Trends in KCB Corporate and Retail Lending
4.5.2 Analysis of Base Lending Rates and Inflation Rates against KCB New lending Volumes

The study sought to investigate the effects of inflation and base lending rates on the KCB new lending volumes. This is derived from the objective two of the study. From Table 4.10 the $R^2$ value of 0.484 implies that KCB base lending rates and inflation rate have significant effects on the new lending volumes. Furthermore, the strength of association at 77.4% is significantly high suggesting that the two variables namely base lending rates and inflation jointly have huge effects on the new base lending volumes. The study shows that base lending rates and annual inflation rates jointly accounts for 48.4% of the variability in the KCB new lending volumes. The rest or 51.6% of the variability is accounted by other factors which this study did not investigate.

Table 4.10: Joint Correlation between KCB New lending Volumes and the Inflation and Base Lending Rates

<table>
<thead>
<tr>
<th>Variables</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>R Square Change</th>
<th>F Change</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Lending Rate, Inflation</td>
<td>0.774</td>
<td>0.599</td>
<td>0.484</td>
<td>48.388</td>
<td>0.599</td>
<td>5.218</td>
<td>1.755</td>
</tr>
</tbody>
</table>

As indicated in the equation, the relationship between the KCB new lending volumes as dependent variable and the independent variables namely base lending rates and inflation rates over the last ten years was expressed as;

$$KCB \text{ New lending volume (BV)} = \alpha_4 + \beta_4 \text{ Bank lending Rate (BR)} + \beta_4 \text{Inflation Rate (IR)} + \mu_4$$

When the KCB new lending rate was regressed against base lending rates and inflation rates, the equation becomes $BV = -164.689 + 0.773BR - 0.008IR + \mu_4$

From Table 4.11, the study reveals that a change of one unit in KCB base lending rate influences change of 0.773 units in the KCB new lending volumes and a change of a single unit in the inflation rate results into a negative change of 0.008 units in the new bank lending volumes. The study therefore suggests that inflation has no major effects on
the KCB new lending volumes but the base lending rates contributes most towards reduction in the new bank lending volumes.

**Table 4.11: Joint Contribution of Inflation Rates and Base Lending Rates on KCB lending Volumes**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>B</td>
<td>Beta</td>
<td></td>
<td></td>
<td>Zero-order</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-164.689</td>
<td>94.388</td>
<td>-1.745</td>
<td>0.125</td>
<td></td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.129</td>
<td>4.099</td>
<td>-0.008</td>
<td>0.976</td>
<td>-0.039</td>
</tr>
<tr>
<td>Base Lending Rate</td>
<td>18.095</td>
<td>5.608</td>
<td>0.773</td>
<td>0.015</td>
<td>0.774</td>
</tr>
</tbody>
</table>

Figure 4.12 further confirms that the effects of inflation rates on KCB new lending volumes is slightly significant. Fluctuation in both the inflation rates and KCB bank lending volumes shows that the lending volumes increases even with an increase or drop in the inflation rates. In contrast, fluctuations in both KCB lending volumes and base lending rates indicates that as base lending rates increases, there is significant negative or positive change in the KCB new lending volumes.

**Figure 4.12: Relationship between KCB New Lending Volumes, Base Lending Rates and Inflation Rate from 2004 to 2013.**
From the foregoing discussions, it is evident that jointly inflation has moderate effects on the KCB new lending volumes while base lending rates has a major effects.

In the study, KCB new lending volumes were regressed against the base lending rates and inflation rate separately. The equations are:

\[
KCB \text{ New lending volume (BV)} = \alpha_1 + \beta_1 \text{ Base lending Rate (BR)} + \mu_1
\]

\[
KCB \text{ New lending volume (BV)} = \alpha_2 + \beta_2 \text{ Inflation Rate (IR)} + \mu_2
\]

Table 4.12 and Table 4.13 further confirms that even with linear regression of KCB lending volumes against base interest rates and inflation rates, similar results are obtained. It confirms significant correlations between KCB lending volumes and base lending rates as well as greater effects exerted by the base lending rates on the lending volumes as confirmed by the R$^2$ value of 54.8% and R- Value of 0.774. Similarly, the study revealed that inflation rate exerted little negative effects on the KCB lending volumes as confirmed by the R2 value of minus 12.3% and an R- Value of 0.039. This suggests that whether jointly or singularly, annual base lending rates has greater effects on the annual KCB New Lending Volumes compared with annual inflation rates.

**Table 4.12: Correlation between KCB lending Volumes and Base Lending Rates**

<table>
<thead>
<tr>
<th>Variable</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>R Square Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Lending Rate</td>
<td>0.774</td>
<td>0.598</td>
<td>0.548</td>
<td>45.266</td>
<td>0.598</td>
</tr>
</tbody>
</table>

**Table 4.13: Correlation between KCB lending Volumes and Inflation Rates**

<table>
<thead>
<tr>
<th>Variable</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>R Square Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>0.039</td>
<td>0.001</td>
<td>-0.123</td>
<td>71.384</td>
<td>0.001</td>
</tr>
</tbody>
</table>
The two equations can equally be presented as;

\[(BV) = -165.969 + 0.774 (BR) + \mu_1\]

\[(BV) = 110.839 - 0.039 (IR) + \mu_2\]

Tables 4.14 and 4.15 present the contribution of base lending rates and inflation rates on the KCB new lending volumes over ten year period. Further, the base lending rates contribute to the variations in the KCB lending volumes more than the inflation rates. A unit change in base lending rates results into 77.4% change in the new lending volumes while a unit change in the inflation rate results into negative 3.9% change in the new lending volumes. The study therefore suggests that the two independent variables singly has effects on the KCB New lending Volumes with base lending rates exerting greater effects.

**Table 4.14: Contribution of Base Lending Rates on KCB lending Volumes**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>-165.969</td>
<td></td>
<td>-2.082</td>
<td>0.071</td>
<td>Zero-order</td>
</tr>
<tr>
<td>Std. Error</td>
<td>79.718</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta</td>
<td>0.774</td>
<td></td>
<td>3.453</td>
<td>0.009</td>
<td>0.774</td>
</tr>
<tr>
<td>Base Lending Rate</td>
<td>18.102</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.242</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 4.15: Contribution of Inflation Rates on KCB lending Volumes**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td>B (Constant)</td>
<td>110.839</td>
<td></td>
<td>1.869</td>
<td>0.099</td>
<td>Zero-order</td>
</tr>
<tr>
<td>Std. Error</td>
<td>59.318</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta</td>
<td>-0.039</td>
<td></td>
<td>-0.109</td>
<td>0.916</td>
<td>-0.039</td>
</tr>
<tr>
<td>INFLATION</td>
<td>-0.661</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.042</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If in the study the hypotheses were made such that;
**Ho:** $\mu = 0$ There is no significant statistical relationship between annual KCB new lending volumes and both inflation rate and the KCB base lending rates.

**H1:** $b_1 = 0$ There is significant statistical relationship between annual KCB new lending volumes and both inflation rate and the KCB base lending rates.

The two hypotheses were then tested using the t-statistics which resulted from the regression analysis. This is because the t-distribution is normally used when the variance is unknown. The acceptance zone was defined by $A: t < 1.96$ while the rejection zone was defined by $R: t > 1.96$. This indicates that a null hypothesis is accepted if $t$ – statistic is less than or equal to 1.96 and the alternative hypothesis rejected. Like the normal distribution, t-distribution is symmetric and it approximates the normal distribution for large samples and presents a fatter tail than normal for samples equal or less than 30 observations (Pindyck, et al., 1981). The significance level was set at 95% or 0.05 which implied that the critical region includes the values of the variables with low probability of being observed or values which correspond to the level of significance.

The study reveals that there is no statistically significant relationship between KCB new lending volumes and inflation rates since the t-value is minus 0.032 which is far away from the normal distribution of $t = \pm 1.96$. But there is significant statistical relationship between KCB new lending volumes and the base lending rates since the t-value of 3.227 is greater than the normal distribution t value of $\pm 1.96$. The statistical relationship between base lending rates and annual inflation rates were also statistically insignificant with a t-value of negative 0.114.

**4.5.3 Analysis of Base Lending and Inflation Rates on KCB New lending Volumes from Respondents perspective**

The respondents provided professional opinion on the effects of base lending rate and inflation rates on the KCB lending volumes in the past ten years. The study sought their opinion on how the changes in the base lending rates and inflation have impacted on the new lending volumes over ten year period. From Figure 4.13 the study shows that 91.0% out of 198 respondents stated that changes in base lending rates have effects on the KCB new lending volumes. About 47.6% of the respondents indicated that the effects moderately decrease the lending volumes while 33.0% said that it moderately increase the
lending volumes. In total, 54.1% of the respondents had the opinion that changes in base lending rates decreased the KCB new lending volumes.

**Figure 4.13: Respondents rating of Effects of Base lending rates on KCB New lending Volumes**

The effects of inflation on both corporate and retail new lending volumes for the last ten years are presented in Figure 4.14. The study reveals that rise in inflation results into moderate increase in both corporate and retail new lending volumes. The proportion of key informant who alluded to this fact was 44.4% for the corporate and 42.3% in respect of the retail new lending volumes. About that 31.3% and 30.8% of the respondents said that the rise in inflation causes a moderate decrease in corporate and retail new lending volumes respectively.

**Figure 4.14: Effects of Rise in Inflation on Corporate and Retail KCB New Lending Volumes**
4.6 Relationship between Inflation rate and Loan Default Rate

4.6.1 Trends in Loan Default rate

The trend of changes in the loan default rate has been observed through two ways namely the respondent’s questionnaire and secondary data obtained from the KCB Annual Financial Statement reports.

Figure 4.15 shows the trends in loan defaulting from 2004 to 2013. Loan defaulting was highest in 2004 and lowest in 2007. The trends in loan defaulting volume oscillated over the entire period depicting an upward trend between 2008 and 2010. It rose again between 2011 and 2013.

![Figure 4.15: Trends in Loan Defaulting, 2004 -2013](image)

The Q-Q plot on Figure 4.16 indicates that loan defaulting depicted a normal distribution of the data.
Figure 4.16: Normality Test for KCB Loan Defaulting

Relationship between Loan Defaulting and Inflation Rate

The third objective was to establish the relationship between annual KCB loan defaulting and annual inflation rates in the past ten years. The annual loan defaulting was regressed against the inflation rates. The guiding equation from the conceptual framework was:

\[ KCB \text{ Loan Defaulting volume (LDV)} = \alpha + \beta \text{ Inflation Rate (IR)} + \mu \]

The effects of inflation on the loan defaulting could be explained by the R and R² Values in Table 4.16. The R-value of 0.028 shows positive but weak association between loan defaulting volumes and the inflation rates. The study reveals that only 12.4% of the variations in the loan defaulting is explained by the inflation rates. This suggests that inflation partly influences the KCB defaulting rates.

Table 4.16: Correlation between KCB Loan Defaulting Volumes and Inflation Rates

<table>
<thead>
<tr>
<th>Variable</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>0.028</td>
<td>0.001</td>
<td>-0.124</td>
<td>3.240</td>
</tr>
</tbody>
</table>

Table 4.12 presents the contribution of inflation rates on the loan defaulting volumes. The equation derived from Table 4.17 was; \( LDV = 12.797 - 0.028 \text{ IR} + \mu \)
The study indicates that a unit change in the inflation rate results into a change in the loan defaulting volume by negative 0.028 units. It is therefore imperative that inflation has effects on the loan defaulting even though the effects are minimal.

**Table 4.17: Contribution of Inflation Rates on KCB lending Volumes**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td>Zero-order</td>
</tr>
<tr>
<td>(Constant)</td>
<td>12.797</td>
<td>2.692</td>
<td></td>
<td>-4.753</td>
<td>0.001</td>
</tr>
<tr>
<td>Inflation</td>
<td>-0.022</td>
<td>0.274</td>
<td>-0.028</td>
<td>-0.079</td>
<td>-0.028</td>
</tr>
</tbody>
</table>

Figure 4.19 further confirms that the KCB loan defaulting volumes decreases with reduction in the inflation rate during the ten year period. This trend is in tandem with the results of the regression analysis which show that inflation has effects on the KCB loan defaulting volumes.

**4.6.1.1 Respondents**

The rating of trends in loan defaulting is as shown in Figure 4.17. The study shows that loan defaulting have been on an upward trend in the last ten years. This probably has been as a result of changes in the interest rate rates occasioned by the high inflationary forces. Other factors that may have contributed to the increasing trend in the loan defaulting are dishonest customers, failed business ventures and changes in the monetary policies by the government.
4.6.2 Effects of Inflation and base Lending rates on KCB Loan Defaulting

Loan defaulting in any commercial institutions may have negative impact on the banks money reserves base. There are several factors that may contribute to loan defaulting with key among them being inflation, high interest rates, monetary policies and general changes in the money market as well as unfavorable international trade. The effects of changes in inflation and base lending rates on loan defaulting was established and the results are presented in Figure 4.18. The study indicates that 86.0% of the respondents stated that base lending rates has effects on the loan defaulting with 43% and 57% respectively saying that loan defaulting significantly and moderately increases with a rise in base lending rates. This suggests that there is strong relationship between loan defaulting and base lending rates.

Figure 4.17: Respondents Rating of Trends in KCB Loan Defaulting, 2004-2013

![Figure 4.17: Respondents Rating of Trends in KCB Loan Defaulting, 2004-2013](image)

Figure 4.18: Effects of base lending rates on loan defaulting

![Figure 4.18: Effects of base lending rates on loan defaulting](image)
Figure 4.19 shows that 62% of the respondents stated that inflation moderately increase defaulting rate while 25% of them asserted that inflation significantly increase KCB loan defaulting rate.

Figure 4.19: Respondents views on Changes in Loan Defaulting

From Figure 4.20 the major cause of loan defaulting are inflation (65.2%), deaths (15.2%) and base lending rates at 12.2%. This suggests that inflation accounts for most of the loan defaulting in KCB as asserted by the respondents.

Figure 4.20: Cause of KCB Loan Defaulting

The study sought to establish the Respondents general opinion on the effects of inflation on lending volumes, base lending rates and loan defaulting. From Figure 4.21, the results revealed that 89.1% of the respondents asserted that inflation increases loan defaulting while 71.8% said that it increases base lending rates. About 67.2% stated that inflation
reduces new lending volumes. The study suggests that inflation has negative impact on KCB lending volumes, base lending rates and loan defaulting.

**Figure 4.21: Respondents General opinion on Effects of Inflation on Lending Volumes, Base Lending Rates and Loan Defaulting (N = 174)**

### 4.7 Chapter Summary

This chapter presents the finding of both the primary data and Secondary data. The finding point to a weak but positive relationship between the inflation rate and KCB base lending rate. The result also indicate strong positive relationship between base lending rate and the new lending volume and weak relationship between inflation levels and the new lending volumes at KCB Limited, when considered separately, however considered jointly the two variables have a moderate effect on the banks’ new lending volume at KCB Limited. Lastly the findings indicated a strong relationship between loan default rate and inflation rate levels. The next chapter will tackle the Summary, Discussion and Recommendation of the study.
CHAPTER FIVE

5.0 DISCUSSIONS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of findings, gives conclusions and offers recommendations of the study. These recommendations may contribute to change of some policies or operational mechanisms by KCB management.

5.2 Summary

The study answered the following questions: First, What is the relationship between annual inflation rate and KCB base lending rate from the year 2004 to 2013? Secondly, what is the relationship between annual KCB new lending volumes and both inflation rate and interest rate from 2004 to 2013? And lastly, what is the relationship between KCB annual loan default volumes and inflation rate from 2004 to 2013?

The research methodology involved a descriptive study taking a survey format involving the use of questionnaires only and inferential statistical analysis using secondary data. The researcher used a sample size of 190 KCB staff through multi-stage sampling procedure while purposive sampling was used to select secondary data on KCB new lending volumes, loan defaulting, KCB base lending rates and the annual inflation rates. Secondary data was obtained from banks administrative records and documentation while data on inflation rates was obtained from the Kenya National Bureau of Statistics. Primary data was mainly obtained from KCB employees through respondents’ questionnaire. Data was analyzed using Statistical Package for Social Sciences (SPSS) program and presented using frequency tables, charts and inferential statistics.

The key research finding for the research question one concerning the relationship between annual inflation rate and KCB base lending rate from the year 2004 to 2013, showed an increasing trend in base lending rate over the year while inflation level was marginally increasing except for the year 2012. The regression analysis between the two variables showed that there was a positive relationship between the inflation rate and the base lending rate set by the bank, however from the regression analysis of the two variable showed that inflation only accounted for 12.3% variability of annual KCB base
lending rate depicting a weak relationship between base lending rate and inflation rate. The study further showed that the 89% of the respondents’ indicated that inflation has effect on the base lending rate, with 66% of them indicating that inflation moderately increase the base lending rate.

The findings on second objective, concerning the relationship between annual KCB new lending volumes and both inflation rate and base lending rate from 2004 to 2013 showed that the base lending rate and annual inflation rate jointly accounts for 48.4% variability in the KCB new lending volumes. The regression analysis showed that a unit change KCB Lending rate influences a change of 0.773 units in the KCB new lending volume and a single unit change in inflation results into a negative change of 0.008 units in the new lending volume. The study therefore suggests that inflation rate has less effects on the KCB new lending volumes while base lending rates has a significant effect on the new lending volumes. Analysis of respondents’ questionnaire also indicated similar results.

The key study findings on objective three concerning the relationship between KCB annual loan default volumes and inflation rate from the year 2004 to 2013, showed a positive but weak association between loan defaulting volumes and inflation rates as illustrated by regression analysis findings; the R – value of 0.028; that is a unit change in inflation rate only influences a change in the loan defaulting volume by 0.028. The findings also revealed that inflation rate only contributes 12.4% of the variation in the loan default rate. The analysis of respondents’ questionnaire suggest that inflation is a major cause of loan defaulting and has strong relationship with loan defaulting.

5.3 Discussions

5.3.1 Relationship between Base lending Rates and Inflation Rate
The study findings show that base lending rates depicted an increasing trend while inflation was marginally increasing except in the year 2012 when it was at its highest mainly due to slump on the Kenya shilling against the major foreign currencies such as the dollar, euro and sterling pounds. The regression analysis shows that annual inflation accounted for 12.3% variability on annual KCB base lending rates while the R^2 value of negative 0.123 was not very much below 0.5, suggesting slightly significant contribution of inflation on base lending rates. This can be explained by Kamisky and Reinhart (2006)
assertion that investors expect a beneficial return on the amount of money they lend and if inflation rate rises, the real value of their investments is reduced at the annual rate of inflation.

A weak relationship between the base lending rate and the inflation rate as per the finding indicates that there exits other key economic factors that influences the fluctuations of the banks base lending rate. These include the monetary policy of the country, the supply and demand of money (Quaden, 2004).

The regression equation shows that a unit increase in inflation rate influences the base lending rates by negative 0.04, Quaden (2004) explains this almost inverse relationship where a high inflation level does not necessarily equal the mean a low interest rate and vice versa, which is explained that when there is more money in the economy people tend to spend more, thus driving up the cost of goods and services. If there is less money in the economy people spending power is significantly hampered thus the cost of goods and services reduces. If the interest rate are high lending becomes expensive hence less money in the economy, where areas if the interest rate are low, money is easier and cheaper to borrow.

According to Stiglitz and Weiss (2004) Inflation increase can be influenced by host country’s international lending and international debts. That is the countries that have borrowed money are forced to increase their interest rate to keep up with the debt. Similarly a drop in currency rate also results in inflation as export and import differences lead to exports being cheaper while imports being expensive. Hence if a country is net importer that is they import more than export, they are likely to increase their interest rate so that they can raise more money for import purpose. Where areas if a country is a net exporter they are likely to reduce the interest rate which will consequently lead to commercial banks reducing their base lending rates.

The study further shows that 89% of the key informants stated that inflation has effects on base lending rates with 66% of them indicating that inflation moderately increase the base lending rate. According to Plosser (2008) inflation comes about because the amount of money spent grows quickly than the volume of the output produced. The Central Banks sets an interest rate based on the inflation which it uses to lend to other commercial
banks, Building societies and other financial institutions. This interest then affects the price of other financial assets such as shares and bonds, exchange rate hence affecting both consumers and business demand in various ways. And as a result a weak relationship between inflation rate and the base lending rate.

According to Makin (2003), the positive correlation between interest rate and a high inflation rate does not necessary mean a higher interest rate causes a greater inflation. On the contrary it could mean that the central bank is responding to greater inflation by raising the interest rate, when the inflation starts to increase, the price of goods and services sky rockets, the central bank is forced to increase their lending rate to reduce demand, consequently commercial banks also increase their lending rate intendment with central banks rates.

Gale and Orszag (2005) notes that in cases of extremely rapid inflation lenders will want to have a high interest rate as a necessity to protect their investment and if the interest rate is not kept high the lenders will lose their money and borrowers will be the beneficiaries from it.

5.3.2 Relationship between KCB lending volumes against Inflation and Base lending Rates

The study used both results from regression analysis and respondent questionnaires. The study revealed that the base lending rates and annual inflation rates jointly accounts for 48.4% of the variability in the KCB new lending volumes. The regression analysis shows that a change of one unit in KCB base lending rate influences change of 0.773 units in the KCB new lending volumes and a change of a single unit in the inflation rate results into a negative change of 0.008 units in the new bank lending volumes. The study therefore suggests that inflation has no major effects on the KCB new lending volumes but the base lending rates contributes most towards reduction in the new bank lending volumes.

Asari et al. (2011) undertaking a study on the relationship between inflation and lending rate on lending volume in commercial banks in Malaysia for the period 2006 to 2011 noted that there is a strong long run relationship between lending rate and commercial banks lending volume while inflation and lending rate have significant relationship in the long run, however in the short run both couldn’t influence commercial bank lending
volumes significantly. Chodechai (2004) while investigating factors that affect interest rate, degree of lending volume and collateral setting in loan decision of banks, advises that commercial banks ought to be careful with their lending decision as banks cannot charge loan rates that are too low because the revenue from interest income will not be enough to cover the cost of deposits. And moreover, charging very high loan rates may also create an adverse selection situation and moral hazard problem which will discourage borrowers.

The study reveals that a rise in inflation results into moderate increase in both corporate and retail new lending volumes. About 54.1% of the respondents had the opinion that changes in base lending rates decrease the KCB new lending volumes. It shows that inflation rate has little effects on KCB lending volumes while base lending rates has significant effect on lending volumes. The T-values in the regression analysis further confirm that base lending rates have greater effect than inflation rate on the new lending volumes. The lending volumes for both corporate (68.2%) and retail (59.6%) increased over the ten year period according to the key informants.

According to Latif et al. (2009), high commercial bank lending rate significantly affect the level of investments this because it raises the cost of capital which eventually reduces the return investments. The unchecked inflation affects people’s savings adversely; resulting into a reduction of customers deposits and thus banks are forced to get expensive money elsewhere which they lend at high interest rate to borrowers.

The Kenya Economic Survey, 2013 shows that there has been negative association between inflation and commercial banks lending volumes and base lending rates. It indicates that as inflation increases, the commercial bank lending volumes in Kenya declines. Conversely, there exists positive relationship between the base lending rates and inflation rates. As inflation increases, so does the base lending rates which further affects the lending as per study finding.

According to Davies (2013) undertaking a study on determinants of the share of The Effects of Adjustable Rate Mortgages on House Price Inflation in the primary mortgage market noted that a lag of house price appreciation, which was interpreted by the potential buyers to represent an expected house price appreciation stimulates lending by raising the
percentage of loans offered to borrowers seeking adjustable rate mortgages. The results
the findings of the study and a suggestion that anticipated higher future prices stimulate
lending activity.

5.3.3 Relationship between Loan Defaulting Volumes and Inflation Rates

Tschach (2011), undertaking a study on inflation on long term housing loans, notes that
banks have to charge a higher nominal rates as compared to short term loan because of
the fluctuations in inflation figures. And as result borrowers have to pay for higher
interest payments, which may affect their repayment ability thus default on these loans.

The study findings indicates positive but weak association between loan defaulting
volumes and the inflation rates as illustrated by the regression analysis findings; the R-
value of 0.028 The study reveals that only 12.4% of the variations in the loan defaulting is
explained by the inflation rates. This suggests that inflation partly influences the KCB
defaulting rates. Furthermore, the study indicates that a unit change in the inflation rate
influences a change in the loan defaulting volume by negative 0.028 units. This findings
were consistent with Bokpin (2009) findings that during high inflationary pressures firms
desists from external sources of financing such as commercial banks as this would
increase their long term or short term debt thus affecting their ability to service these
loans resulting to defaults.

The low relationship between inflation and loan default rate indicates there are other key
economic factors that adversely affect the loan default rate as illustrated by Hoque (2004)
who noted that high interest rates charged by commercials banks, information asymmetry
between the borrower and the lender, doubtful credit worthness, overstated collaterals and
inefficiency as some of factors that contribute to the high loan default rate in developing
economies.

The theory of Asymmetric information indicates that it may be difficult to distinguish
between good and bad borrower (Auronen, 2003) which may lead to adverse selection and
moral hazard problems. The person with more information about a particular item is
thus able to negotiate optimal terms for the transaction (in this case the borrower) than
the other party with with less information (in this case the lender), and as a result the
lender is disadvantage in making decision concerning the transaction (Auronen, 2003), this
has led to banks extending loans to persons or firms irrespective of their credit ratings, all
borrowers are thus charged the same normal interest that reflect their collective experience. If this rate is higher than the good borrower can manage, they are pushed out of the market, forcing banks to increase their rates to the remaining borrowers which is likely to lead to loan defaulting.

The study findings from the respondents' perspective, the study showed that 62\% of the respondents stated that inflation moderately increase defaulting rate while 25\% of them asserted that inflation significantly increase KCB loan defaulting rate. About 86.0\% of the respondents stated that base lending rates have effects on the loan defaulting with 43\% and 57\% respectively saying that loan defaulting significantly and moderately increases with a rise in base lending rates suggesting that there is strong relationship between loan defaulting and base lending rates. The respondents identified major cause of loan defaulting as inflation (65.2\%). The study therefore suggests that inflation is a major cause of loan defaulting and has a strong relationship with loan defaulting.

5.4 Conclusion
5.4.1 Relationship between Base lending Rates and Inflation

The study finding have shown that there has been steady increase of inflation for the period under review and corresponding increase in the base lending rate of KCB Limited, the empirical evidence from this study for both the primary data and secondary data have further suggested inflationary forces significantly affect the base lending rate charged by the bank.

5.4.2 Relationship between KCB lending volumes against Inflation and Base lending Rates

In conclusion from the empirical evidence from this study suggests inflation rate has marginal impact KCB new lending volume, however the base lending rate has a significant effect on the lending volume. Consequently shows that inflation mainly affect the base lending rate which in turn has greater effects on the lending volumes.

Considered jointly it both inflation rate and base lending rate have a moderate effect on the lending volumes at KCB.
5.4.3 Relationship between Loan Defaulting Volumes and Inflation Rates

The major contributing factor to loan defaulting at KCB was the changes in inflation rates as observed by the key informants despite of the regression analysis showing little contribution of inflation rate to the loan defaulting. This shows that other factors which the study did address have major contribution to the loan defaulting at KCB.

5.5 Recommendations

5.5.1 Recommendations for Improvement

5.5.1.1 Relationship between Base lending Rates and Inflation Rates

KCB should come up with policies to control base lending rates to a manageable level even with high inflation rates.
5.5.1.2 Relationship between KCB lending volumes against Inflation and Base lending Rates

Inflationary forces cannot be controlled by a single bank since it is brought about by both monetary and macro policies. There is need for KCB to invent products that can attract new borrowers even with increasing inflation and base lending rates.

5.5.1.3 Relationship between Loan Defaulting Volumes and Inflation Rates

KCB should develop mechanisms to adequately appraise the loan applicants at all the branches nationally to minimize on the loan defaulting rates.

5.5.2 Recommendation for further Research

Further research to establish the other major causes of loan defaulting at KCB is highly recommended.

An in-depth study to determine the effects of base lending rates on new lending volumes and loan defaulting using a larger sample and scope with the customers and KCB employees as the research subjects is recommended.
REFERENCES


Davies, S. A. (2013). The Effects of Adjustable Rate Mortgages on House Price Inflation. *International Journal of Humanities and Social Science* Vol. 3 No. 9, Middle Tennessee State University.


Mangani, R. (2009): *The Effectiveness of Monetary Policy in Malawi, Department of Economics*, University of Malawi.


Ziramba E. (2008), “Bank lending, expenditure components and inflation in South Africa: assessment from Bounds testing approach” Department of Economics, University of South Africa
APPENDICES

APPENDIX I: COVER LETTERS

George Omondi
United States International University-Africa,
P.O. BOX 14634, 00800.
Nairobi.

Dear Respondent,

I am carrying out research on the effects of inflation on commercial banks’ lending. This is in partial fulfillment of the requirement of the Masters in business Administration finance Option (MBA) degree program at the United States International University.

This study uses KCB Limited as the case study from which you have been selected as one of the lucky respondents. The result of this study will provide the management with the necessary information about the relationship between the country’s inflation rate and the banks’ base lending rate, lending volumes and whether inflation affects loan default rate. Hence assist banks policy makers when making decision on the interest rate to be charged or set on loans.

This is an academic research and confidentiality is strictly emphasized, your name will not appear anywhere in the report. Kindly spare some time to complete the questionnaire attached.

Thank you in advance,

Yours sincerely,

George Omondi
George Omondi
United States International University-Africa,
P.O. BOX 14634, 00800.
Nairobi.

The Kenya Commercial bank of Kenya,
Nairobi.

Dear Sir/ Madam,

RE: Request for Secondary Data

I am carrying out research on the effects of inflation on Commercial banks’ lending with a specific focus on KCB Limited for the period 2004 - 2013. This is in partial fulfillment of the requirement of the Masters in business Administration finance Option (MBA) degree program at the United States International University.

Kindly provide me with data on Base lending Rates, New Lending Volume and Loan Default Volumes for the ten year period 2004 to 2013 as per attached collection sheet.

Thank you in advance.

Yours sincerely,

George Omondi
Dear Sir/ Madam,

RE: Request for Secondary Data

I am carrying out research on the effects of inflation on commercial banks’ lending during the ten year period (2004 – 2013). This is in partial fulfillment of the requirement of the Masters in Business Administration finance Option (MBA) degree program at the United States International University.

Kindly provide me with data on Inflation Rates for the ten year period 2004 to 2013 as per attached collection sheet.

Thank you in advance.

Yours sincerely,

George Omondi
APPENDIX II: QUESTIONNAIRE

TOPIC: EFFECTS OF INFLATION ON COMMERCIAL BANKS LENDING IN KENYA: A CASE STUDY OF KENYA COMMERCIAL BANK LIMITED

PART I: GENERAL INFORMATION

Kindly answer all the questions either by ticking in the boxes or writing in the spaces provided.

Position------------------------Senior level Management □ Middle level management □
Supervisory Level □ General Staff □

Sex of respondent: Female □ Male □

Age 20-25 years □ 26-30 years □ 31-35 years □ 36 years and over □

Education: Secondary □ Middle level College □ University □

How long have you worked for this organization?

1) Less than 2 years □

2) 3-5 years □

3) 6-8 years □

4) 9 years and over □
**PART II:**

**TRENDS**

Please tick the numeric value corresponding to your personal opinion for each statement.

<table>
<thead>
<tr>
<th>Q1</th>
<th>In your opinion, how do you rate the trends in the KCB corporate lending volumes between 2004 and 2013?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Increasing (2) Constant (3) Decreasing (4) Others (Specify)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q2</th>
<th>In your opinion, what were the trends in the KCB retail lending volumes between 2004 and 2013?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Increasing (2) Constant (3) Decreasing (4) Others (Specify)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q3</th>
<th>What factors contributed to your responses in Q1 and Q2?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q4</th>
<th>In the past 10 years, how would you rate the trends of KCB lending rates?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Increasing (2) Constant (3) Decreasing (4) Others (Specify)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q5</th>
<th>In your opinion, how do you rate the trends of KCB Loan default rate?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Increasing (2) Constant (3) Decreasing (4) Others (Specify)</td>
</tr>
</tbody>
</table>

**BASE LENDING RATE**

<table>
<thead>
<tr>
<th>Q6</th>
<th>In your opinion, does changes in inflation affect the banks’ base lending rate?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Yes (2) No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q7</th>
<th>If yes in Q6, how does a rise in Inflation rate affect the bank's base lending rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Highly increases (2) Moderately increases (3) No effect (4) Moderately decreases (5) Highly decreases.</td>
</tr>
</tbody>
</table>
### LENDING VOLUME

<table>
<thead>
<tr>
<th>Q8</th>
<th>In your opinion, are the changes in the KCB lending rates affecting the bank lending volumes?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Yes   (2) No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q9</th>
<th>If yes in Q8, how does a rise in lending rate affect the lending volume uptake?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Highly increases   (2). Moderately increases   (3). No effect   (4). Moderately decreases   (5). Highly decreases.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q10</th>
<th>In your opinion, how does the rise in inflation affect KCB Corporate lending volumes?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Highly increases   (2). Moderately increases   (3). No effect   (4). Moderately decreases   (5). Highly decreases.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q11</th>
<th>In your opinion, how does the rise in inflation affect KCB retail lending volumes?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Highly increases   (2). Moderately increases   (3). No effect   (4). Moderately decreases   (5). Highly decreases.</td>
</tr>
</tbody>
</table>

### DEFAULT RATE

<table>
<thead>
<tr>
<th>Q12</th>
<th>In your opinion, are the changes in the KCB lending rates affecting the bank’s loan default rate?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Yes   (2) No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q13</th>
<th>If Yes in Q12, how does a rise in lending rate affect the rate at which loans are Defaulted by customers?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Highly increases   (2). Moderately increases   (3). No effect   (4). Moderately decreases   (5). Highly decreases.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q14</th>
<th>In your opinion, how does the rise in inflation affect the rate of loan defaulting in your branch/unit?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1) Highly increases   (2). Moderately increases   (3). No effect   (4). Moderately decreases   (5). Highly decreases.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q15</th>
<th>Please kindly mention the major causes of loan defaulting in your branch</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Inflation 2. Deaths 3. Base lending 4. Income levels 5. Other (specify)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Q16</th>
<th>In general, what would say are the effects of inflation on the KCB bank new lending volumes, base lending rates and loan defaulting?</th>
</tr>
</thead>
</table>

| Q17 | Any general comments about KCB lending and how to improve on the lending and defaulting volumes |

THANK YOU FOR TAKING YOUR TIME TO COMPLETE THE QUESTIONNAIRE

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## APPENDIX III: DATA COLLECTION SHEETS

<table>
<thead>
<tr>
<th>YEAR</th>
<th>BASE LENDING RATE (%)</th>
<th>NEW LENDING VOLUME (000')</th>
<th>LOAN DEFAULT VOLUME (000')</th>
<th>INFLATION RATE (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>12.3</td>
<td>33,644,314</td>
<td>19,772,301</td>
<td>11.8</td>
</tr>
<tr>
<td>2005</td>
<td>13.2</td>
<td>32,849,035</td>
<td>12,673,947</td>
<td>9.9</td>
</tr>
<tr>
<td>2006</td>
<td>13.7</td>
<td>40,658,629</td>
<td>11,482,292</td>
<td>6.0</td>
</tr>
<tr>
<td>2007</td>
<td>13.3</td>
<td>56,477,448</td>
<td>9,519,435</td>
<td>4.3</td>
</tr>
<tr>
<td>2008</td>
<td>13.1</td>
<td>79,343,099</td>
<td>9,638,119</td>
<td>15.1</td>
</tr>
<tr>
<td>2009</td>
<td>15.0</td>
<td>96,557,588</td>
<td>12,172,875</td>
<td>10.5</td>
</tr>
<tr>
<td>2010</td>
<td>14.1</td>
<td>137,344,568</td>
<td>13,053,727</td>
<td>4.1</td>
</tr>
<tr>
<td>2011</td>
<td>15.8</td>
<td>179,843,987</td>
<td>10,414,948</td>
<td>14.0</td>
</tr>
<tr>
<td>2012</td>
<td>22.1</td>
<td>187,022,664</td>
<td>12,019,204</td>
<td>9.4</td>
</tr>
<tr>
<td>2013</td>
<td>17.0</td>
<td>204,646,324</td>
<td>15,199,949</td>
<td>5.7</td>
</tr>
</tbody>
</table>