THE EFFECT OF INTEREST RATE VARIATIONS ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY

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DECLARATION

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

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

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DEDICATION

I dedicate this project to my parents, Mr and Mrs Kimita, my sisters Joyce and Florence Kimita and my brother Willie Kimita. Your continued support and unconditional love is heaven sent.

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LIST OF ABBREVIATIONS

ANOVA	-	Analysis of Variance
BIF	-	Bank Insurance Fund
BIS	-	Bank for International Settlements
CBK	-	Central Bank of Kenya
ECB	-	European Central Bank
FDIC	-	Federal Deposit Insurance Corporation
GDP	-	Gross Domestic Product
KBRR	-	Kenya Bank's Reference Rate
KNBS	-	Kenya Bureau of statistics
NIMs	-	Net Interest Margins
PBT	-	Profit Before Tax
ROA	-	Return on Assets
ROE	-	Return on Equity
SME	-	Small and Medium - Sized Enterprises

ABSTRACT

Financial systems should promote economic growth by diversifying all aspects of an economy, be it accomplishing portfolios or even meeting liquidity requirements for financial institutions. In Kenya, the central bank recognizes efficiency in the banking sector as the precondition for macroeconomic stability and the existence of effective monetary policy execution. In Kenya the interest rate have been varying greatly affecting the Financial Performance of banking institutions. The objective of this study was to determine the effect of interest rate variation on the Financial Performance of Commercial Banks in Kenya. A descriptive design was used in this study, to show trends and comparative analysis of the Interest Rate Variations over the years. All 42 operational Commercial Banks in Kenya as at the year 2015 were considered. Therefore, a census will be used. To achieve the objective of this study, secondary data sources were used to gather information. The study covered a period of 10 years, from the year 2006 to 2015. The data obtained from the secondary sources was analyzed using statistical package for social sciences (SPSS). The findings on the regression coefficients established that interest rate variation had an insignificant positive relationship with the Financial Performance of Commercial banks but a negative relationship was witnessed in the case of credit risk and inflation. The findings also established an insignificant positive relationship between GDP growth and Financial Performance of Commercial Banks. The study concluded that interest rates variation, credit risk and inflation have an inverse relationship with Financial Performance of Commercial banks while GDP growth rate has a direct relationship with the Financial Performance of Commercial Banks in Kenya. The study recommended that Commercial Banks in Kenya should come up with appropriate strategies on Interest Rate Variation and Credit Risk to ensure that they do not reduce their Interest Income hence Financial Performance.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

During the early 1980s, many Commercial Banks shifted the interest rate they were offering on loans from fixed rates to variable rates (Zook & Ladue, 1983). This was because of the increased variability experienced at the time. Although the banking sector had experienced variable rates before, the index of the rates were always average to the cost of funds and were always less volatile than the rates induced by commercial banks. This left many customers without any form of fixed rate on general credit sources despite its importance in their businesses. These are some of the modifications that were made by financial institutions, in an effort to adapt to the ever changing global environment. In addition to this, the global financial market has seen extensive expansions in the past few decades, accompanied by the big business practise evolution. An array of innovative financial instruments and techniques have been developed, which have affected the economic performance of businesses (Nyakundi & Jagongo, 2013).

Interest rates work in such a way that both investors and savers (depositors) are affected; investors through the cost of capital and savers through returns. Nduati (2012) argued that interest rates have a major influence on how Commercial Banks in Kenya perform. He further recommended that Central Bank should contribute in boosting the financial performance of Kenyan Banks by monitoring the measures put in place to regulate interest rate spread.

Interest rates are the economic tool used by regulatory bodies such as CBK to monitor inflation and in the process promote growth in an economy (Corb, 2012). Hence, lack of discipline and good decisions making when it comes to interest rates can directly

affect the economic growth in the industry and lead to poor financial performance in the financial markets. The variation of lending rates to investors and institutions affects the willingness and capacity of investors to borrow. Should Central Banks increase their interest rates, it is inevitable that other financial institutions will follow suit and increase their rates as well since they are all after maximizing profits (Giovanni, 2006).

Research has shown that banks benefit widely from a steep yield curve, which is as a result of both the long and short term interest rates this means that net interest margins (NIMs) increase when the yield curve steepens. Consequently, the NIMs decrease when the yield curve flattens. It is advisable to have all net interest rates income flow through the bottom-line profits. This ensures the interest rates have a minimal effect on the banking profits; however, other changes to economic conditions have a relatively bigger impact on the profit of the banks (Genay, 2014).

1.1.1 Interest Rate Variation

An interest rate is that price that is paid by a borrower so as to be able to have access and utilise resources at the present instead of at another time in the future (Casa, Girardone & Molyneux, 2006). Crowley (2007) states that Interest rate is the price paid by a borrower to make use of borrowed money from one who loans out. Interest rates reflect the basic foundations of an economy. This in mind, interest rate variation or variable interest rates as its commonly known is the rate offered on a loan or security that keeps on changing from time to time since it depends on a base rate/ bench mark rate that is unsteady as well. It presents a scenario where the borrower's interest rates may fall or rise depending on the underlying indices. When the benchmark rate falls, the borrower's rate which he/she is supposed to pay back declines too and when the

underlying interest rate of index increase, the payment interest rates rise (Onuonga, 2014).

To understand the importance of this study, a different perceptive is needed on the concept of interest rate variation. It is the role of the Central Bank to ensure that interest rates do not fluctuate too much, to control risk and have a stable economy. First, investors' response to the variation in interest rates is similar in most cases. When the rates drop investors and customers borrowing and spending rises, the opposite applied in the case of high interest rates. Therefore the variation experienced in such cases and its effect on the borrowing and spending of customers leads to a variation and instability in the economic performance. Also not to forget the effect of varying interest rates on risk and the ability to make valuable and effective financial decisions. Too much variation in interest rates lead to an economy that is unproductive and highly inefficient (Cecchetti, 2008). So, how does this variation in interest rates affect the overall financial performance of commercial banks in Kenya?

Interest rate risk management is a process used by financial institutions such as commercial banks to determine the different interest rates and maturity offered to their clients. The services offered by commercial banks are diverse and that leaves them vulnerable to the uncertain economic environment, such as loans. Such activities may mean their earnings are dependent on the interest rates they provide (Sashoo, 2012). By comparing their financial performance, based on their profitability, banks are able to manage their operational mechanisms such as the loans given and their corresponding interest rates. Furthermore, the interest rate management process is based on the analysis of the bank's financial performance in previous years as well as the economic environment. Interest rate risk management is measured by applying financial

performance measurement tools such as ROA, ROE, NIMs among others (Bosworth, 2014).

1.1.2 Bank Financial Performance

Bank financial Performance refers to the measurement of how efficiently a bank can make use of its available resources to gain maximum profit. It is the capacity of a bank to generate sustainable profitability (Genay, 2014). Profitability refers to the net profit generated from all the operations of a business after all the costs and expense such as tax and other operational costs that had been incurred in the process have been deducted (Albertazzi & Gambacorta, 2006). Profitability is a bank is the surest way to guard against unexpected losses, since when a bank is making good profits its capital position is strengthened and it gives investors the necessary peace of mind to keep borrowing from the bank leading to surety of future returns (Onuonga, 2014).

Banks' financial performance is determined by several factors whose indicators differ strongly. However, several identifiers or indicators have been used over the years by banking institutions to determine how well they are doing (Bikker, 2010). Operating income is one such indicator, where it refers to the bank's income from ongoing operations and activities. To put these words into context and to determine how they relate to interest rate variations, we have to understand the underlying determinates of operation income. Operating income is determined by the interest rate of assets, more importantly, the interest rates allocated to loans given to customers. Operating income is at its highest when the overall interest rates are at their peak maximum. Of course, this applies to fluctuating interest rate; this explains why in 1981 most banks interest income rose to 93% of the total operating income after the interest rates rose to 15% (Kalari & Kool, 2005).

Another indicator of a bank's financial performance is the operating expenses. These are the expenses incurred by a bank's ongoing activities and operations. Interest rates play a key role in this indicator, where, they determine the interest payment rates of ongoing liabilities and especially on deposits. Similar to interest income, which is determined by the interest rates provided, interest expenses also depend on the interest rates provided by the bank. Interest rate as a variable to the total operating expenses reached an all-time high of 74% in 1981 because of the high-interest rates at the time. Although, these values fell to 35.3% in 2005 when interest rates fluctuated and moved to the lower ends (Kalari & Kool, 2005).

These two indicators combined provide the final necessary assessment needed to indicate the financial performance of a bank, the net operating income. Although this value does provide an indicator of a bank's financial performance, it does not adjust its financial performance based on the bank size. This makes it difficult for a bank to know how it compares to the market and in particular to other banking institutions. Return on assets (ROA) is a basic measure that can be used to determine a bank's profitability relative to the size of the bank. ROA is determined by comparing the net income with the assets (Net income/assets). In addition to these, other two measures are incorporated to determine the equity holder's shares and the other to determine the net interest margin (NIM). The return on equity (ROE) gives the bank owners an exact value of the amount earned by the bank in return to their equity investment (ROE= Net income/capital) (Biker, 2010).

1.1.3 Interest Rate Variation and Bank Financial Performance

From the theoretical background given, one point stands out, interest rates. From the first indicator, which is operating income, interest rate is the highest determinant of the

operating income of a bank in a given year. A similar trend is also observed when it comes to the operating expenses, where again the expenses of running the bank are majorly determined by the interest rates. Subsequent indicators are all determined by these two indicators, therefore, interest rates generally determine a bank's financial performance.

However to completely understand how the interest rates affect a bank's financial performance, we need to highlight the two key principles of interest rates that affect a bank. First, all banks make a profit from the difference between the lending rates given to the borrowers and the deposit rates given to the customer making deposits into the banks. This always results in a lending spread that falls when the yield curve flattens (Genay, 2014). Secondly, higher interest rates decrease the present discounted value of the assets. This is because banks hold onto fixed income assets e.g. loans and bonds. Furthermore, banks face bigger losses when the duration of their assets increases relative to that of the liabilities (King, 2015).

The Empirical relationship between interest rates and financial performance of commercial banks has been confirmed in various studies previously undertaken. Sattar and Khan (2014) in their study concluded that interest rates considerably affect the bank's interest income. They further proved that banks' income is related to interest rates that shows that the financial performance of commercial banks and the interest rates offered to investors cannot be separated.

Another study by Okoye & Onyekachi, (2013) supports the relationship between interest rates and bank financial performance and go further to conclude that the two are intertwined and hence the significant relationship.

1.1.4 Commercial Banks in Kenya

Commercial Banks are institutions intimately involved in the creation of money and credit. They provide benefits to both lenders and borrowers, and contribute to economic efficiency and growth (Thomas, 2006). All commercial banks despite their location perform similar functions, they include deposits and loans, which is similar to what other savings and credit institutions do (Saunders & Cornett, 2003). However, they differ in the composition of assets and liabilities they hold. The construction of the Kenya– Uganda railway attracted the first banks to East Africa, hence breaking ground for international banks, and later African Banks (Were & Wambua, 2013). The origin of commercial banking in Kenya related to commercial connections in East Africa, which existed towards the End of the 19th Century.

Their establishment in Kenya was just in line with the practice of British banks to follow the development of trade in their colonies and concentrate on the finance of international trade. This opened opportunities for traders and settlers who had come to Kenya and the growing community provided initial sources of deposits in excess; and the surplus, which remained unutilized in Kenya, was invested in London. This situation prevailed mainly because there was a gap between bankers and prospective borrowers (Sashoo, 2012). Over time Kenyan Banks have realised tremendous growth especially through automation, where modern techniques and methods were introduced and implemented so as to improve and ensure customer satisfaction and economic growth.

The banking industry in Kenya is monitored by three main regulators; The Companies Act, Central Bank of Kenya (CBK) Act and the Banking Act. These Acts offer guidance in time of need and a surety when laws are needed to enhance the management of

Commercial Banks (CBK, 2016). The central bank of Kenya is the institution entrusted with the task of implementing regulatory policies for achieving and maintaining inflation. In Kenya, the CBK has taken a monetary targeting framework to meet its inflation objectives. Although these frameworks have remained constant, the CBK has continuously adjusted the policies to keep inflation at a minimum (Durevell & Ndungu, 1999).

High interest rates variations are still experienced in Kenya despite the liberalization of the financial sector. However, this is experienced across Africa, due the low economic growth (Were & Wambua, 2013). To understand why the interest rates are so high, we need to examine how these interest rates are determined. All the studies conducted by prior researcher indicate three principles are followed when coming up with the interest rates. First, a bank's individual operating expenses/cost ranging from nonperforming loans to the size of the bank. Secondly, determinants of the banking sector, such as the degree of competition, which is determined by the market concentration. Thirdly, macroeconomic indicators, which affect all sectors of business in a country, such as, gross domestic product growth rate and inflation rate. Therefore, for better-improved rates in the countries, economic growth must be substantial enough to warrant a lower interest rate variation.

In the past, the Banking industry in Kenya has grown exponentially in all the releant sectors affecting profitability and financial performance. The Kenyan banking industry's balance sheet grew by 3.4% from Kshs 3.26tn in December 2014 to Kshs 3.37tn in March 2015. The growth can be attributed to several valid factors such as resilience by banks to reduce their rates following the introduction of the KBRR. (Cytton, 2015). Although the profitability of the Kenyan commercial banks has been erratic, several reforms have been made in an effort to improve the profitability as well

as the stability of these institutions. However, despite the different reforms, the trend has not been impressive as indicated by the profit before tax (PBT) reports of between 2008 and 2013. Increases in profit between this period was always below 20%; 2008 13.4%, 2009 13.4%, 2013 16.6% except in 2010 when PBT rose by 52%. (Were & Wambua, 2013).

1.2 Research Problem

Financial systems should promote economic growth by diversifying all aspects of an economy, be it accomplishing portfolios or even meeting liquidity requirements for financial institutions. As stated before, risk management enables financial institutions to evaluate interest rates and therefore, it is through risk management solutions that financial efficiency is met. However, a lot of financial elements are involved when developing proper risk management solutions. These elements are the reason for this research as they determine the lending rates and variations of these rates for all financial institutions, such as commercial banks of Kenya. The occurrence of these financial elements as we shall see determine the economy's productivity. Proper rationale is needed for financial institutions to have effective operation efficiency. This combined with the necessary standards of financial performance will lead to a positive effect on the overall growth of an economy (Estrella, 2001).

In Kenya, the central bank recognizes efficiency in the banking sector as the precondition for macroeconomic stability and the existence of effective monetary policy execution. In addition to this, a positive economic change (growth) is determined by the banking sector's ability to allocate credit effectively and efficiently (Hartmann, 2004). Interest rates in the Kenyan banking industry keep on varying greatly affecting the financial performance of Commercial Banks. According to Robinson (2010), banks'

profitability is affected by unexpected variances when it comes to interest rates. The exposure that the bank encounters in an environment of varying interest rates largely affects its performance in the market, which has been a major concern for policy makers and bankers, is the basis of this study. When banks perform poorly, they find themselves in a tricky situation that forces them to set high interest rates for their customers so as to improve performance and cap the losses experience. This in turn has a negative effect on the customer since most will tend to shy away from borrowing as a result (Matu, 2006). Proper interest rate management works in both the banks' and customers' favour. On one hand the banks' risk tolerance level rises and the customer is able to borrow hence improving performance and more profit for the banks. Interest rates is a major determinant of the profitability of Commercial banks among other factors (Gardner, 2005). High interest rates have always been a major problem experienced by investors in the market, which has proven to be a challenge to eliminate. This study is based on these sentiments that determine the credit availability to Kenyan entrepreneurs. It seeks to examine the determining factors that affect the fluctuation of the interest rates offered by commercial banks in Kenya, at the same time examining the effects of these variations.

In the past several scholarly articles and research have examined and confirmed the effects of fluctuating interest rates and performance of banks, for instance, Malik's (2014) research tried to solely determine the consequence of interest rates on Bank's profitability. However, this research uses average values of ROA, ROE and Net Interest, which may create a bias due to various outliers and also it did not take into account other internal and external determinants of banks' financial performance beside interest rates when coming up with a conclusion. Another study by Sattar & Khan (2014) confirmed the relationship between interest rate variation and banks' financial

performance, however the research's conclusions were determined by only four banks in Pakistan, hence creating a bias due to the sample size, same as Ngugi's (2001) study which confirmed the relationship but did not involve all the operational Commercial Banks in Kenya at the time. Most of the studies carried out measured fewer variables that are known to affect the Commercial Banks' financial performance.

In this research, a holistic approach will be used in conducting the research. Both internal and external factors that contribute to the financial performance of commercial banks in Kenya will be put into consideration as well as methodologies such as standard deviation will be included in determining the conclusion of our study to avoid occurrences of any biases. Therefore this study answers the question: What is the effect of interest rate variation on the financial performance of Commercial Banks in Kenya?

1.3 Research Objective

The objective of this study was to determine the effect of interest rate variation on the financial performance of commercial banks in Kenya.

1.4 Value of the study

Theoretically, for maximum profits the return of assets, return on equity and net interest margin must be favourable. A bank needs to have interest rates that are low to attract customers who will borrow loans and later pay with interest, which creates profits (Genay, 2014). At the same time the interest rates must align with the economic environment within a given country or the banks is set to fail due to financial constraints. This research will aim at identifying a balance between the two extreme ends, by developing financial decisions that optimise a bank's financial performance. After the research, the key parameters in developing interest rates will be determined.

The Central Bank of Kenya is the body responsible for developing regulation policies to govern financial institutions such as commercial banks. These policies ensure efficient banking systems that meet economic needs. Some of these policies were adopted from other countries but have been adjusted to suit the Kenyan economic state. Through this research, these policies will be examined and possible recommendations made to maximize economic growth.

Business entrepreneurs and investors are the focus of this research as they contribute to the overall growth of the economy, which later results in improved profit margins for the banks. They therefore, stand to benefit from this research, as it will help them attain favourable interest rate margins that suit their business needs and those of the economy. Remember, Interest rates have an indirect impact on the financial performance of an economy, with rising interest rates investors are discouraged which results in reduced investment state in any country (Ngugi, 2004).

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents the literature on the various theories that further define the relationship existing between interest rates and the financial performance of commercial banks in Kenya. It also brings together and summarizes other researchers' work in the same field of the study. It specifies the objectives, methodologies and findings of other researchers. Finally it gives a summary on the theoretical and empirical relationship of the variables while also outlining the gaps in past studies done by other researchers.

2.2 Theoretical Review

Over the years, researchers have come up with various theories aimed at explaining the effect of interest rate variations on the financial performance of Commercial Banks in Kenya. We highlight some of these theories in this section of the study.

2.2.1 Loanable Funds Theory

This neo-classical theory of interest that was formulated in the 1930s by Robertson & Ohlin. According to this theory the demand and supply of loanable funds is what determines interest rates. This theory presents a more practical approach to interest theory as compared to other classical theories. In this theory, demand for loanable funds is determined by three factors; investment, hoarding and dissaving. Investment demand is the main source of demand for loanable funds. New capital goods such as inventories form the broader class of investments. Any entrepreneur compares the expected returns to the rate of interest before making an investment decision. The demand for loanable funds and the rate to which investors are willing to have an inverse relationship.

Hoarding, according to the theory, demand of loanable funds is also determined by people who hold on to idle cash to meet their liquidity requirements. Finally, dissaving opposite to saving decreases interest rates because it occurs when people spend more beyond their income (Kumar, 2015).

This theory provides a baseline for this research by creating a relationship between the investors (entrepreneurs) and the topic of the study. Hence, we can draw conclusive results based on the data collected in our research and the theoretical framework given by this theory.

2.2.2 The Classical Theory of Interest

This theory began in 1776 and ended around 1870, which unlike the neoclassical theory above, believes saving and investment can be equal. It's a very old theory whose accounts and details are less known. However, according to this theory interest rates are a major factor affecting the amount of investments and the willingness for investors to save as well as ensuring that an equilibrium is maintained between the two. Several scholars and economist have been credited as frontiers of the theory, the likes of Marshall, Cassel and Flux. To understand the theory, one has to view investment as the demand, while the saving as the supply and the rate of interest as the "price" of the investible resources. When the demand of a resource is equal to the supply, the price becomes relatively fixed. Interest rates vary depending on the varying market conditions from time to time. A situation whereby the investment and savings are equal at a certain rate is known as an equilibrium point (Maynard, 2014)

The importance of this theory in relation to our study is that it shows us how a variation in interest rates can affect the equilibrium between investments as a demand and savings as the supply.

2.2.3 Keynes Liquidity Preference Theory

This theory traces its origin to Keynes (1936), who defined rate of interest as the reward accorded to an individual after giving up his/ her liquidity state for a certain period of time. According to him, the demand for resources and the supply of money determines the interest rates. Also, investments and savings are equal, this disputes the theory proposed by neo-classical enthusiasts who base their idea on interest rates equilibrating savings and investments. Keynes theory is majorly a liquidity preference theory that he sees as a theory designed to fill the gaps between income and savings. That is, the theory is designed to offer a realization to understanding that change in income equalizes savings and investments and not the change in interest rates (Hawtrey, 2015).

This theory is particularly important to this study as it identifies other determinates that could affect a bank's financial performance other than interest rate. Therefore, it does provide an alternative to raising the bank's financial performance other than raising the interest rates in order to meet the high profit margins.

2.3 Determinants of Bank Financial Performance

Multiple internal and external factors can determine a bank's financial performance. Internal factors are those determinants that depend on the internal state of the bank; size of the bank, capitalization etc and external factors are those beyond the control of the bank; interest rate variation, inflation, GDP growth, tax and even market concentration among many others.

2.3.1. Internal Determinants

The size of a bank and how it relates to the financial performance of a bank is highly controversial and hotly debated amongst researcher. Different researchers will outline

different views, but, they can broadly be categorised into three classes. Those who tink that size has a positive effect on the financial performance, those who think it to have a negative effect and finally, others who believe size has no definitive impact on a bank's financial performance (Nassreddine, Sessi & Anis, 2013). First group believe a large bank is able to reduce cost due to economies of scale and also because a large bank can raise capital at lower cost (Bikker & Hu, 2002). Second group base their argument on lack of manageability, where a large bank is unable to conduct its affair effectively (Stiroh & Rumble, 2006). Finally, the third group view no statistical impact of the size of the bank to financial performance (Panizza & Yanez, 2007).

Credit risk also affects the financial performance of commercial banks. It should be closely monitored by ensuring that the credit rating of all the customers is considered before giving out any loans to customers and the management of how loans are disbursed to customers is efficient and well done. The result will mean that the number of non-performing loans will decrease substantially and therefore lessen the losses to the bank as a whole. (Nassreddine, Sessi & Anis, 2013).

2.3.2. External Determinants

Interest Rate Variation: Interest rate variation largely determines the performance of a bank since, investors' decision to borrow is influenced by the prevailing interest rates. When interest rates are low, investors will increase their borrowings and the reverse is true; when the rates rise borrowing from investors will reduce. (Thomas, 2006)

Inflation: The impact of inflation on the financial performance is dependent on the rate of growth of operating expenses. If they rise more than inflation a negative impact is experienced. However, when the growth rate is lower a positive effect is experienced i.e. improved financial performance of the bank (Revell, 1979).

GDP growth: The growth rate in any economy has an effect on the financial performance of a bank. High growth rate in the economy results is good economic and bank performance since the amount of investments and compensation will rise leading to higher demand in credit. This leads to an increased financial performance of the bank. (Cecchetti, 2008)

Tax: Tax has a direct impact on the ROA and ROE and hence its increase or decrease will affect the financial performance of the bank. However, based on the studies by Albertazzi & Gambacorta (2009) taxation has an insignificant effect of a banks performance.

2.4 Empirical Review

In 2003, the rise in the Hong Kong dollar risk premium was investigated using a research relating the Hong Kong dollar to the US dollar interest rate. Its objective was to determine the effects of these two currencies to asset quality and net interest margin. Using data from 1993-2001, the researchers were able to draw up conclusive results by relating the different factors affecting the financial state of commercial banks. The conclusion to this study was; a rise in the spread always resulted in squeezed net interest margins and worsened the assets quality (Wensheng, Lai, Leung & Shu, 2003). So, our earlier sentiments of increased bank financial performance due to steep yield curves are supported by this study and goes to prove the theory stated in the previous chapter of this report.

King (2015), in her study of Interest income highlighted the importance of interest rates to the overall bank financial performance. Her main objective involve the discovery of the how interest income and financial performance were related and how important one was to the other. According to her findings banks usually charge high interest on money

they lend than on the interest they pay on deposits. Net interest income is the resultant difference between the two and the source of substantial profits to the bank. In this research done in the US, an average amount of $80 million dollars was recorded in terms of quarterly net interest income. This research highlights one major source of income for financial institutions and especially those dealing with lending services. Therefore, a bank will experience improved performance if the interest rate given to lenders is greater than that paid on deposits.

Interest rate spread, was a major highlight to Nduati (2012) research. In this research, Nduati defined the spread as the variance between the customers deposit rate and the borrowers lending rate. In his extensive findings he discovered the spread was determined by individual institution. Low spreads were seen to provide a stiff foundation for financial institutions seeking competitive edge. Using data collected from the CBK offices he was able to analyse the spread of different banks and draw up these conclusions. This study was helpful in relating the material collected from international scholars as it gave a local view on the findings of the spread. According to this research interest rate spread was the single most important determinant in bank's financial performance in Kenya, this goes to explain why the interest rates in Kenya are so high.

Flannery, (1978) sought to study how the varying market interest rates affected the overall performance of commercial banks. Using data collected from over 70 US commercial banks, Flannery was able to compare the assets owned by different banks to the interest rates offered by the market. After statistical analysis, these banks profitability was determined to be responsive to the level of market interest rates. In addition to this, a change in the market rates was accompanied with a response by the bank revenues and cost, which always cancelled each other. Some recent researchers

have disputed such findings based on the age of the research. However, this study was able to give a relation between market interest rates and the financial performance of the bank.

Waseem and Sattar (2014), analysed the effect interest rate variations pose on the profit generated from four of the major commercial banks in Pakistan between 2008 and 2012. They focused their study on Pearson correlation technique, where, they related the interest rates provided by each individual bank with the profits experienced at the end of a financial year. Their conclusion was, bank's profitability is dependent on monetary tools enforced by the banks, and in this case, the monetary tool was interest rate. This research had a close relation to the Kenyan financial market especially when it came to the overcharged interest rates. In all the banks highlighted, borrowers were given higher interest rates as compared to depositors.

A similar study was done by Apir (2015), who highlighted just how interest rate risk affects the performance of Nigerian Banks. To identify the causality line between the interest rate and banking, Apir used analysed data from selected banks in Nigeria. In his findings, the volatility of interest rates affects the overall financial performance of banks. However, it's also dependent on the administration offered by governments in relation to the interest rates they offer in a given country. This study also revealed the existence of a degree of uniformity of interest rates and which results in greater competition among commercial banks. In Kenya, the CBK should enforce radical policies that seek to protect entrepreneurs from harsh interest rates charges. This would increase the lending rate and also improve investment.

In another similar study done by Nassreddine, Sessi & Anis (2013), several key factors determine the financial performance of a bank and not necessary the interest rate. In

this study, several internal and external factors were considered when highlighting the financial performance of a bank. Size of the bank, capital, liquidity and credit control were considered. Moreover, using data collected by previous researchers they were able to use cognitive mapping techniques to highlight the effect of each determinant. Nevertheless, one consistent factor was always evident when evaluating each determinant, interest rate.

Carroll and McCann (2015), in their research on SME in Europe highlighted Bank fundamentals as the root cause of high interest rates. Following a research using the Residual Interest Rates model, the data collected from banks across Europe outlined assets and net worth as the determinants of interest rate variations. When the net worth of a bank is low, the leading year is attributed with high interest rates. Similar results were seen when the assets of a company were low. This clearly supports our discussions in the previous section of this report, where, we highlight internal determinants such as size as a consideration in developing the interest rates.

In a study to determine whether interest rates and economic growth are related, Bosworth (2014) was able to identify the importance of capital investment as the link between the two. In his study based on data collected in the UK, he was able to compare the different GDPs recorded over the years with the interest rates. Whenever the capital investment was high, the interest rates were low and a higher GDP was recorded, the reverse was also true in all the scenarios considered. A true justification of the importance of capital investment in a country's economy.

Finally, in another study by done by the ECB (2010), ROE (Return on equity) was seen to be a weak indicator of a bank's financial performance. Other indicators such as ROA, Net of interest margin were seen to be necessary in order to develop a conclusion on

the financial performance of a given bank. All these factors are also determined by the interest rate margin, which only goes to show the importance of this concept under study in this research.

2.5 Conceptual Framework

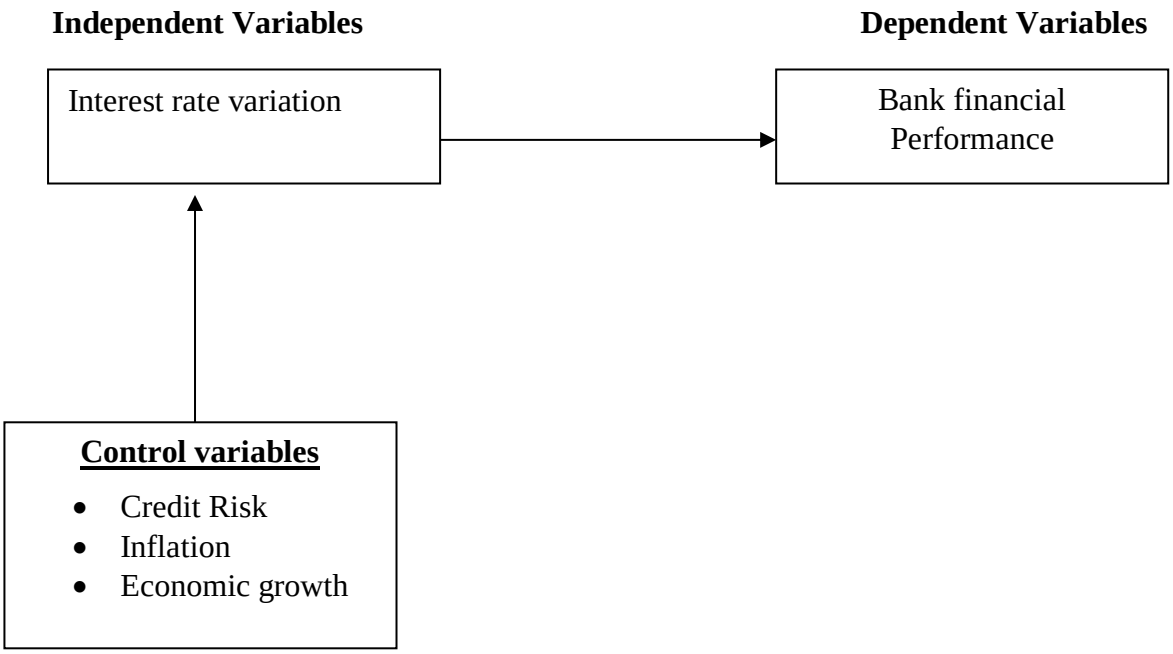

Figure 2.1 Conceptual Framework

2.6 Summary of Literature Review

All the theories highlighted in this section relate interest rate to the financial performance of a financial institution. How the customer demands and the banks' supply loanable funds determines the interest rates in the Loanable fund theory which is in contrast to the classical theory (opposite of the loanable theory) where saving and investment determine interest rates and also can be equal at times. Investment rate is determined by the interest rates which can correlate with the saving done by a given institutions or individual. Keynes theory somehow provides a compromise between the two. In this theory, the demand and supply of resources or money is the determinant of

interest rate variation. However, little is said on the state of saving and investment. All these theories base their argument on one central point, interest rate.

From the research material borrowed from different researchers, interest rate has greatly affected banks' Financial Performance. In developing countries; Kenya, Pakistan, Nigeria etc, the interest rates charged are very high, due to the economic environment or due to lack of administrative policies. This cripples the economy further as few people are willing to take the risk of investing under the high interest rates. However, different findings are seen in developed countries. Low interest rates are provided which encourages more entrepreneurs, improving the economy.

Despite the numerous studies done, no conclusive or statistical conclusions have been made regarding the interest rates provided. No researcher has come up with a layout or key for allocating interest rates based on a countries economy or even GDP. If such a clear cut outline existed, policy makers would have an easier job in setting the required interest rates. However, one can understand the difficulty in making such a layout, because of the unpredictability of economic environment.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section brought together and discussed the research design and the population that was targeted for this study. Data collection methods were also outlined together with the tools and methods of analysis.

3.2 Research Design

The research design is the mode used by researchers to bring together different variables of the study to find out if the variables are related and how they affect the study while still trying to resolve the research problem. A descriptive design was used in this study, to show trends and comparative analysis of the interest rate variations over the years. Descriptive design can better define and measure the significance of the study variables. Through this method of analysis, the objective of this study was attained by measuring the variables over the years.

3.3 Population

All 42 operational Commercial Banks in Kenya as at the year 2015 were studied. Therefore, a census was used.

3.4 Data Collection

Secondary data sources were used to collect the necessary information to address the research problem and achieve the research objective. The focus of the study was between the year 2006 and 2015, a period of 10 years.

Income statements and balance sheets, from CBK offices or websites, for the 42 Commercial Banks served as the main sources of data. However, large data sources,

such as databases from audit firms was also considered as a source of data as well as the Kenya Bureau of statistics (KNBS) offices and website, especially because they provide a wide variety of data from a centralised source.

All the data considered had to meet the minimum requirements of completeness and accuracy even before being fitted in the analytical model.

3.5 Data Analysis

Data analysis is a process that involves understanding and explaining the collected data with the help of analysis tools so that the researcher can be able to fully make sense of it to be able to come up with a reliable conclusion of the study.

The data obtained from the secondary sources was analyzed using statistical package for social sciences (SPSS).

3.5.1 Analytical Model

The relationship between interest rate variations and Commercial Banks' performance and how the two affect each other was the focus of this study. Analysis of Variance (ANOVA) model was used to compare the relationship between the dependent and independent variables. The significance of our model was tested using t-tests and f-tests. To assist in the Analysis, the results obtained from the model were presented in tables. The model used was:

$$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where;

Y = banks' financial performance measured by return on asset (ROA)

- ROA = Net income/Total average assets on quarterly basis for the commercial banks in Kenya

X_1= Interest rates measured as the quarterly weighted average lending rate by commercial banks in Kenya

X_2 = Credit risk measured as the ratio of non-performing loans to total loans on quarterly basis for the commercial banks

X_3 = Inflation measured as the quarterly consumer price index (CPI)

X_4 = GDP Growth rate measured using the quarterly GDP growth rate

β_o = constant

$\beta_1 - \beta_4$ = Regression coefficients

ε = error term

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This chapter presents the findings/ results of the analyzed data. The chapter entails the descriptive statistics, correlations, regression results and interpretation of the study findings.

4.2 Descriptive Statistics

Table 4.1 Descriptive Statistics

Variables (Ratios)	Minimum	Maximum	Mean/ Average	Standard Deviation
ROA	.0427	.0995	.066186	.0152585
Interest Rates	12.870	20.340	15.49700	2.087543
Credit Risk	.044	.231	.08805	.055571
CPI	76.35	163.27	116.1051	28.00903
GDP growth Rate	1.10	8.90	4.8575	1.79285

Source: Research findings

The findings in table 4.1 shows that the average ROA for commercial banks was 0.066 and the minimum and maximum ROA is 0.0427 and 0.0995 respectively. The findings also show that the average value of interest rates was 15.49 with minimum and maximum interest rates being 12.87 and 20.34. The finding further indicates that the average credit risk for the commercial banks is 0.088 with the minimum and maximum

credit risk values being 0.044 and 0.231. The findings also show that the average consumer price index was 116.11 with minimum and Maximum CPI being 76.3 and 163.27. Finally, the findings show that the average GDP growth rate was 4.856 with a minimum and maximum GDP growth rate of 1.10 and 8.90 respectively.

4.3 Correlations

Table 4.2 Correlations

Variables (Ratios)	ROA	Interest Rates	Credit Risk	CPI	GDP growth Rate
ROA	1				
Interest Rates	-.529**	1			
Credit Risk	.326*	-.577**	1		
CPI	-.688**	.686**	-.750**	1	
GDP growth Rate	-.037	-.091	.285	.012	1

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

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

Source: Research findings

The findings on table 4.2 show that interest rates and inflation (CPI) have a strong negative and significant correlation with bank financial performance in terms of ROA. The findings also indicate that credit risk has a weak positive but significant correlation with bank financial performance. The findings further indicate that GDP growth has a weak negative correlation with commercial banks financial performance in Kenya.

4.4 Regression Analysis

4.4.1 Model Summary

Table 4.3 Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.762[a]	.581	.533	.104315

a. Predictors: (Constant), GDP growth Rate, CPI, Interest Rates, Credit Risk

Source: Research findings

The findings on table 4.3 show that the R square is 0.581, which means that the independent variable (Interest rate Variation) and control variables (Credit risk) explain 58.1% of the variation in the dependent variable (Bank financial performance). On the other hand, 41.9% is explained by other variables and the error term. The findings also show that the R value is 0.762 which indicates that the study variables are strongly correlated.

4.4.2 Analysis of Variance

Table 4.4 Analysis of Variance

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.527	4	.132	12.111	.000[b]
	Residual	.381	35	.011		
	Total	.908	39			

a. Dependent Variable: ROA

b. Predictors: (Constant), GDP growth Rate, CPI, Interest Rates, Credit Risk

Source: Research findings

The findings on table 4.3 show that the adopted regression model is significant as indicated by the p-value of 0.000, which is less than the significance level value of 0.05. This indicates that the model is fit and a good predictor of the relationship between the study variables.

4.4.3 Regression Coefficients

Table 4.5 Regression Coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.538	.184		8.350	.000
	Interest Rates	-.011	.011	-.150	-.983	.332
	Credit Risk	-1.465	.509	-.534	-2.878	.007
	CPI	-.005	.001	-.987	-4.923	.000
	GDP growth Rate	.010	.010	.114	.929	.359

a. Dependent Variable: ROA

Source: Research findings

The finding on table 4.5 leads to the following regression equation

$$Y = 1.538 - 0.011X_1 - 1.465X_2 - 0.005X_3 + .010X_4 + \varepsilon$$

The findings of the study found an insignificant negative (B = -.011) relationship between interest variation and the financial performance of commercial banks in Kenya. Additionally, the study found that credit risk and inflation have a significant negative relationship (B = -1.465 & -.005) with the financial performance of commercial banks in Kenya. Finally, the findings show there is an insignificant positive relationship (B = 0.10) between GDP growth and financial performance of commercial banks.

4.5 Interpretation of the Findings

The findings have established that in Kenya interest rates variation and commercial banks' financial performance are negatively related. This means a unit increase in the variation of interest rates reduces banks' financial performance by 0.011 units. Therefore, interest rates variation has an inverse relationship with Commercial Banks Financial Performance.

In addition, the findings have established that credit risk and inflation negatively and significantly influences the financial performance of commercial banks in Kenya. This means that a unit increase in credit risk and on the level of inflation reduces the financial performance of commercial banks by 1.465 and 0.005 units respectively. This also indicates that commercial banks' financial performance and credit risk have an inverse relationship.

Finally, the findings found that GDP growth is directly related to Banks' performance though insignificantly. This means that a unit growth in GDP increases Commercial Banks' performance by 0.10 units thus there is a positive relationship between GDP growth and the financial performance of commercial banks in Kenya.

The above findings are also similar to past studies by various scholars. King (2015) established that higher interest rates decrease the present discounted value of the assets. This is because banks hold onto fixed income assets e.g. loans and bonds. Furthermore, banks face bigger losses when the duration of their assets increases relative to that of the liabilities. Sattar and Khan (2014) concluded that interest rates considerably affect the bank's interest income. According to Revell (1979) rise in inflation has a negative impact on the financial performance of the bank. Cecchetti (2008) found that the growth

in economic activities within a country has a positive effect on the financial performance of a bank.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter outlines a summary of the study, the conclusions made and any recommendations that come about from the findings of the study. The study also presents the limitations encountered and makes suggestions for further research.

5.2 Summary

This study aimed at determining the effect of interest rate variations on the financial performance of commercial banks in Kenya. Hence, the study adopted interest rate variations as the independent variable, credit risk, inflation and GDP growth as the control variables and bank financial performance as the dependent variable. The finding established that average ROA for commercial banks was 0.066 and the average value of interest rates was 15.49. The finding also established that the average credit risk for the commercial banks was 0.088 whereas the average consumer price index was 116.11 while the average GDP growth rate was 4.856 respectively.

The study found that interest rates measured using the quarterly weighted average interest rates and inflation measured by the consumer price index had a strong negative and significant correlation with bank financial performance. The findings also established credit risk had a significant positive correlation with bank financial performance while GDP growth had a negative correlation with commercial banks financial performance in Kenya. The results of the model summary found that the independent variable (Interest rate variation) and control variables (Credit risk)

explained 58.1% of the variation in the performance of the commercial banking industry (dependent variable).

The analysis of variance (ANOVA) established that the adopted regression model was significantly a good predictor of the relationship between interest rates variation and financial performance of the banking industry in Kenya. The findings on the regression coefficients found that interest rates variation, credit risk and inflation rate all had a significant negative relationship with the financial performance of commercial banks in Kenya. The findings also established an insignificant positive relationship between GDP growth and financial performance of commercial banks.

5.3 Conclusions

The findings of the study found that interest rates variation and Banks' performance in Kenya were negatively related. Based on this finding, the study concludes that the variation of interest rates reduce financial performance of commercial banks therefore; interest rates variation has an inverse relationship with financial performance of commercial banks.

The findings of the study also found that credit risk and inflation had a negative and significant effect on the financial performance of commercial banks in Kenya. Based on this finding the study concludes that an increase in credit risk and the rise in inflation levels reduces the financial performance of commercial banks thus the three: credit risk, inflation and the financial performance of commercial banks in Kenya are inversely related.

The findings also found that GDP growth and the financial performance of commercial banks in Kenya are positively related. Based on this findings, the study concludes that when the growth in GDP increases the financial performance of commercial banks

increases as well thus there is direct relationship between GDP growth rate and the financial performance of commercial banks in Kenya.

5.4 Recommendations for the Study

The study recommends that Commercial Banks in Kenya should come up with appropriate strategies on interest rate variation to ensure that they do not reduce their interest income hence financial performance.

The study goes further to recommend that commercial banks should institute credit risk management policies and develop appropriate control strategies to ensure that credit risk does not adversely affect their profitability level.

The study further recommends that the government of Kenya through various regulatory entities and the ministry of finance should come up with appropriate ways to ensure good economic growth with less inflation to mitigate the effect of poor economic growth and inflation on financial performance of firms.

5.5 Limitations of the Study

The findings, the conclusions and recommendations made are limited to commercial banks in Kenya and not to any other entities with similar operation like commercial banks. This is because the determination of interest rates in the banking sector is different in other financial entities.

The study used return on assets to measure the Commercial Banks' financial performance but there are other ratios, such as Return on Equity, price to earnings ratio among others, which can be used to determine Commercial Banks' in Kenya Financial Performance.

Finally, the study focuses on interest rates as the main determinant of bank financial performance. This is clearly a limitation since the performance of the bank can also be determined by other variables which were not considered nor included in the study variables.

5.6 Suggestions for Further Research

The study considered the relationship between interest rate variations and the financial performance of commercial banks in Kenya. However, with the adoption of digital finance in the banking industry which has diversified lending by the use of various platforms like mobile banking, different interest rates are charged or less compared to loans traditional ways of lending. This study therefore recommends a study on the effect of mobile loans' rates on the financial performance of commercial banks.

Additionally, banks charge different rates on personal loans and mortgage rates. This study was general on interest rate variations of all loans. Thus, a recommendation for a study on mortgage interest rates variation on the financial performance of commercial banks in Kenya is vital.

Also there are other variables besides interest rates that affect the overall performance of Commercial banks in Kenya that were not put into consideration in this study. Further research should be taken to measure the effect of these other variables and their magnitude contribution on the financial performance of banks.

Finally banks have other sources of income beside loans that play a major role in their overall performance, such as investments. A study should be done to analyse other sources of bank's income and to determine their contribution on the performance of Commercial Banks in Kenya. An investigation to determine if there are other sources that are bringing in more income to the banks other than lending is necessary.

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APPENDICES

Appendix I: List of Commercial Banks in Kenya

	Bank Name	License Date
1	African Banking Corporation Limited	Date Licensed: 8th December, 1994
2	Bank of Africa Kenya Limited	Date Licensed: 30th April 2004
3	Bank of Baroda (K) Limited	Date Licensed: 1st July, 1953
4	Bank of India	Date Licensed: 5th June, 1953
5	Barclays Bank of Kenya Limited	Date Licensed: 1916
6	CfC Stanbic Bank Limited	Date Licensed: 1st June 2008
7	Charterhouse Bank Limited	Date Licensed: 1st August 1998
8	Chase Bank (K) Limited	Date Licensed: 1st April, 1996
9	Citibank N.A Kenya	Date Licensed: 1st July, 1974
10	Commercial Bank of Africa Limited	Date Licensed: 1st January, 1967
11	Consolidated Bank of Kenya Limited	Date Licensed: 18th December, 1989
12	Co-operative Bank of Kenya Limited	Date Licensed: 1st July, 1968
13	Credit Bank Limited	Date Licensed: 30th November, 1994
14	Development Bank of Kenya Limited	Date Licensed: 20th September, 1996
15	Diamond Trust Bank Kenya Limited	Date Licensed: 15th November, 1994
16	Ecobank Kenya Limited	Date Licensed: 16th June, 2008
17	Spire Bank Ltd	Date Licensed: 23rd June, 1995
18	Equity Bank Kenya Limited	Date Licensed: 28th December 2004
19	Family Bank Limited	Date Licensed: 1st May 2007
20	Fidelity Commercial Bank Limited	Date Licensed: 1st April, 1996
21	First Community Bank Limited	Date Licensed: 29th April, 2008
22	Guaranty Trust Bank (K) Ltd	Date Licensed: 13th January, 1995
23	Giro Commercial Bank Limited	Date Licensed: 17th December, 1992
24	Guardian Bank Limited	Date Licensed: 20th December, 1995
25	Gulf African Bank Limited	Date Licensed: 1st November 2007
26	Habib Bank A.G Zurich	Date Licensed: 1st July, 1978
27	Habib Bank Limited	Date Licensed: 2nd March, 1956
28	Imperial Bank Limited	Date Licensed: 8th January, 1996

29	I & M Bank Limited	Date Licensed: 27th March, 1996
30	Jamii Bora Bank Limited	Date Licensed: 2nd March, 2010
31	KCB Bank Kenya Limited	Date Licensed: 1st January 1896
32	Middle East Bank (K) Limited	Date Licensed: 28th November, 1980
33	National Bank of Kenya Limited	Date Licensed: 1st January, 1968
34	NIC Bank Limited	Date Licensed: 28th September, 1995
35	M-Oriental Bank Limited	Date Licensed: 8th February, 1991
36	Paramount Bank Limited	Date Licensed: 5th July, 1995
37	Prime Bank Limited	Date Licensed: 3rd September, 1992
38	Sidian Bank Limited	Date Licensed: 23rd March, 1999
39	Standard Chartered Bank Kenya Limited	Date Licensed: 1910
40	Trans-National Bank Limited	Date Licensed: 8th January, 1985
41	UBA Kenya Bank Limited	Date Licensed: 25th September, 2009
42	Victoria Commercial Bank Limited	Date Licensed: 11th January, 1996

Appendix II: Research Data

Year	Quarter	ROA	Interest Rates	Credit Risk	CPI	GDP growth Rate
2015	Q4	0.0427	17.450	0.0575	163.27	5.60
	Q3	0.0427	16.570	0.0572	160.93	6.60
	Q2	0.0427	15.480	0.0538	159.71	5.90
	Q1	0.0427	15.460	0.0601	154.48	5.20
2014	Q4	0.0504	15.990	0.0564	152.09	5.40
	Q3	0.0504	16.040	0.0579	151.62	5.40
	Q2	0.0504	16.360	0.0543	149.27	6.00
	Q1	0.0504	16.910	0.0543	145.99	4.60
2013	Q4	0.0629	16.990	0.0501	143.25	5.40
	Q3	0.0629	16.860	0.0531	140.99	4.40
	Q2	0.0629	16.970	0.0524	139.46	4.30
	Q1	0.0629	17.730	0.0502	136.72	5.20
2012	Q4	0.0560	18.150	0.0435	133.35	5.50
	Q3	0.0560	19.730	0.0446	131.78	4.50
	Q2	0.0560	20.300	0.0448	133.63	4.40
	Q1	0.0560	20.340	0.0452	131.36	3.90
2011	Q4	0.0597	20.040	0.0597	128.81	5.00
	Q3	0.0597	14.790	0.0538	123.88	4.00
	Q2	0.0597	13.910	0.0489	119.56	3.50
	Q1	0.0597	13.920	0.0437	112.41	4.80
2010	Q4	0.0995	13.870	0.0795	108.07	5.60
	Q3	0.0995	13.980	0.0742	106.32	7.20
	Q2	0.0995	14.190	0.0696	105.65	6.10
	Q1	0.0995	14.390	0.0625	105.01	1.40
2009	Q4	0.0756	14.800	0.0935	104.07	2.60
	Q3	0.0756	14.760	0.0901	102.90	1.90
	Q2	0.0756	15.090	0.0823	101.91	1.90
	Q1	0.0756	14.870	0.0794	99.50	6.20
2008	Q4	0.0682	14.870	0.1052	96.38	2.50

	Q3	0.0682	13.660	0.0943	93.75	2.60
	Q2	0.0682	14.060	0.0866	92.14	2.20
	Q1	0.0682	14.060	0.0896	87.18	1.10
2007	Q4	0.0754	13.320	0.1990	82.68	7.00
	Q3	0.0754	12.870	0.1498	80.90	6.90
	Q2	0.0754	13.140	0.1201	78.46	8.90
	Q1	0.0754	13.560	0.1060	78.90	6.20
2006	Q4	0.0713	13.740	0.2306	78.27	6.30
	Q3	0.0713	13.540	0.2229	76.80	7.50
	Q2	0.0713	13.790	0.2271	76.39	6.10
	Q1	0.0713	13.330	0.2182	76.35	4.50

Source: Central Bank of Kenya