

**THE DETERMINANTS OF INTEREST RATES SPREADS
AMONG COMMERCIAL BANKS KENYA**

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D61/70763/2008

**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE AWARD OF THE DEGREE OF MASTER
OF BUSINESS ADMINISTRATION, UNIVERSITY OF NAIROBI**

OCTOBER 2015

DECLARATION

I declare that this is my original work and has never been presented in any other college or examination body

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ACKNOWLEDGEMENT

I am grateful to God for giving me the grace and strength to complete this project.

I would like to thank all the people who have continuously supported and encouraged me throughout the period of doing this proposal. I am grateful to my supervisor, Dr. Josephat Lishenga for valuable guidance in writing my proposal and for patiently and selflessly guiding me throughout the study and for understanding my long distance travels from Eldoret.

To my family for their continuous support, encouragement and their sacrifices and opportunities accorded to me have enabled me come this far.

Lastly, I salute the entire University of Nairobi fraternity for giving me the conducive environment to thrive academically and for providing me with the resources necessary to see me through this far and expecting to graduate soon.

DEDICATION

I dedicate this research project to my dear wife Joyce, wonderful daughter Chebet, and adorable sons Ryan and Kipchumba for inspiring and granting me ample time during the entire period of studies. You have been my best cheerleaders. To my brothers and Sisters, thanks for your moral support.

Also to my parents who have always encouraged me and helped me understand the value of education and hard work in life.

To my classmates, colleagues and friends, I say a big thank you for your moral and material support during the research process.

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ABBREVIATIONS

CBK	Central Bank of Kenya
CMA	Capital Markets Authority
GDP	Gross Domestic Product
GLS	Generalised Least Squares
IRS	Interest Rate Spread
MFI	Microfinance Institution
OLS	Ordinary Least Squares
SSA	Sub-Saharan Africa
UK	United Kingdom

ABSTRACT

In Kenya, there is a widespread perception that interest rate spread is too wide. Banks, on the other hand, have justified the wide interest rate spread on the basis of some economic variables that affect the banks. This study was largely a quantitative research given that the study sought to examine the determinants of the bank interest rates among commercial banks in Kenya. The study focused on the licenced large commercial banks according to the CBK which include in Kenya KCB, Equity, Standard chartered, Barclays Bank and Cooperative bank. The study used secondary data available from the annual financial reports from year period between 2010 and 2014. The collected data was organised into SPSS and analysed using descriptive analysis, correlation analysis, and regression analysis.

The study found out that the model summary of multiple regression model, showed that all the three predictors (credit risk, operation cost and liquidity risk) explained 83.5 percent variation of interest spread considering the three study independent variables, there is a probability of predicting interest spread by 62.1% ($R^2 = 0.621$). The F statistic is equal to 63.391 and p value of $0.000 < 0.05$ level of significance implying that the joint contribution of credit risk levels, liquidity and operating cost significantly predict interest spread. Thus justifying the following estimation model:-

The study revealed that credit risk was positively and significantly associated with interest spread ($r = 0.3661$, $p < 0.01$) indicating 36.61% positive relationship with interest spread. The study further found that operation cost was positively and significantly correlated to interest spread ($r = 0.695$, $p < 0.01$) showing that operation cost has 69.5% positive relationship with interest spread. Finally, the study found that liquidity risk was positively correlated with interest spread ($r = 0.778$, $p < 0.01$) an indication of 77.8% positive relationship with interest spread credit risk had a weak negative effect on interest rate spread ($\beta = -.001$, $p = 0.997$).

Consistent with some past literature on the factors that influence interest rate spreads, the study concludes that credit risk had a significant effect on interest spread with each unit increase in interest spread for each unit increase in credit risk. The study also concluded that each unit increase in operation cost, there was -0.0215 units decrease in interest spread. The study concluded that liquidity risk has significant effect on interest spread for each unit increase in liquidity risk, there was up to 0.757 units increase in interest spread. The study also recommends that the Government, through the Central Bank of Kenya should be instrumental in developing policies and regulations to guide commercial banks in setting up of optimal interest rate spreads in order to promote loan uptake as well as improve performance of these commercial banks.

CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

One of the expected benefits of financial liberalization and deepening of the financial sector is the narrowing of the interest rate spread which is the difference between the interest rate charged to borrowers and the rate paid to depositors. This is predicated on the understanding that liberalization enhances competition and efficiency in the financial sector. Thus, a wide deposit- lending interest rate spread could be indicative of banking sector inefficiency or a reflection of the level of financial development (Folawewol and Tennant, 2008). Embedded in the spread, is the information on the efficiency of financial intermediation, profitability, monetary policy impact, among others. An analysis of bank interest rate spreads is therefore central to the understanding of the financial intermediation process and the macroeconomic environment in which banks operate (Sologoub 2006:2).

A change in the interest rates affects the debt-equity choice of a firm, the overall cost of capital and real interest rates, and thereby sets in motion a chain of responses influencing the desired level of the capital stock and its productivity as well as the availability of savings and consequent speed of adjustment of the actual capital stock to its desired level (Sologoub 2006:2). Hualan (1992) found that interest rate is one of the most important factor that affect the bank financial performance.

1.1.2 Interest Rate Spreads

Interest rate is the price a borrower pays for the use of money they borrow from a lender/financial institutions or fee paid on borrowed assets (Crowley, 2007). Interest can be thought of as "rent of money". Interest rates are fundamental to a 'capitalist society' and are normally expressed as a percentage rate over the period of one year. Interest rate as a price of money reflects market information regarding expected change in the purchasing power of money or future inflation (Ngugi, 2001).

Commercial banks mobilize savings by offering various types of deposit products to savers and channel such savings as loans and advances to borrowers and investors. The difference between the rates at which banks lend money to borrowers and the rate they are paying to depositors are generally known as interest rate spread (IRS). The efficiency of the banking system is reflected by series of financial indicators and more importantly by IRS and Net Interest Margin (NIM). IRS is an important indicator of efficiency level of a bank or banking system. It reflects profit maximizing ability of the

financial intermediaries (Bandaranayake, 2014).

Over the past few years, interest rate spread of commercial banking system has caught researchers' attention throughout the world. As financial intermediaries, banks play a crucial role in the operation of most economies. The efficiency of financial intermediation can affect economic growth. Crucially, financial intermediation affects the net return to savings and the gross return to investment (Demirguc-Kunt, & Huizinga, 1999).

The issue of Bank interest rate spreads in Kenya has generated considerable public debate recently as the gains of the macro stability have not been translated into significantly declining interest rate spreads. According to a new Central Bank of Kenya (CBK) report, six top banks are squeezing borrowers while using their dominance in the skewed market to pay less for deposits. The 10th report of CBK's Monetary Policy Committee shows that the influential financiers enjoy an average interest spread of 15.3 per cent compared to 11 per cent for the small banks. Interest spread is the difference between the price at which a bank offers a loan and the cost it paid for the deposits used for lending.

Kenyan banks posted slower quarter-on-quarter pre-tax profit growth of 11.6 per cent to Sh37.7 billion as lending cooled off in the first three months of the year. The lenders had previously recorded 18.4 per cent profit growth against a loan book expansion of 5.6 per cent compared to 3.5 per cent this year. At the time the profit stood at Sh33.4 billion according to Central Bank of Kenya (CBK) credit officers' survey. Analysts noted the banks were grappling with tight liquidity, forcing them to pay higher interest rates to attract deposits. Customer savings held by the banks rose by 3.4 per cent to Sh2.41 trillion. CBK's aggressiveness in mopping up cash as it sought to protect the shilling has been a key source of the tight liquidity.

In the year-to-date the lenders loaned out Sh60 billion to the private sector pushing their loan book past the Sh2 trillion mark for the first time to Sh2.03 trillion. "The demand for credit generally remained constant in six economic sectors and increased in five economic sectors in the quarter ended March 2015," said Central Bank. Banks' total assets grew at a faster pace of 20 per cent to Sh3.4 trillion from Sh2.8 trillion in December. Mr. Mwangi attributed the slower growth in profits compared to asset expansion to lower interest margins resulting from the tight liquidity. The banks have also been under increased pressure to

lower interest rates charged on loans especially with the introduction of a standardized pricing mechanism pegged on the Kenya banks' reference rate (KBRR, 2008).

Effectively, the big lenders are raking in nearly 40 per cent more in profit margins than their smaller competitors. CBK data shows the majors offer the most expensive credit at 19.7 per cent and pay the lowest for deposits at 4.4 per cent. The industry average lending rate is 17.87 per cent and deposit rate is 6.39 per cent. The wide margins have been key drivers of high profits reported by commercial banks as they are able to cater for their operational costs and retain much more. The report of this financial year 2015, the banks have made profits before tax of more than Sh48.7 billion during a period characterized by sluggish economic growth and surging bad loans. "There is still scope for banks to reduce their spreads further given the various initiatives implemented by CBK and Kenya Bankers Association (KBA) to reduce the cost of doing business," reads the report. The huge margins have seen the large banks dominate the other players to grow their share of industry profit to 65.5 per cent, equaling Sh70.6 billion, up from 62.3 per cent a year, (CBK report 2014).



Figure 1(The official interest rate since August 2010 to 2014 from Central Bank Rate (CBR) Central Bank of Kenya

1.1.3 Determinants of interest rate spread

The market or industry-specific determinants of spreads includes accounting for the impacts of the structure and development of the banking sector, prescribed reserve requirements, and economies/diseconomies of scale, as determined by market size. The structure and development of the banking sector is captured using two proxies- the

An argument has been made to explain the failure of spreads in developing countries to converge to international levels even after financial liberalization, suggests that high interest rate spreads in developing countries will persist if financial sector reforms do not significantly alter the structure within which banks operate (Chirwa and Mlachila, 2004). This structure refers to the market/industry and macroeconomic environment in developing countries. The market-specific determinants of commercial bank interest rate spreads highlighted in the literature typically include lack of adequate competition in the banking sector and consequent market power of commercial banks, the degree of development of the banking sector, and explicit and implicit taxation such as profit taxes and reserve requirements.

Both implicit and explicit taxes widen the interest spread as they increase the intermediation costs. These include: reserve requirement, withholding taxes, stamp duties, transaction taxes, value added taxes, profit taxes and license fees. Reserve and liquidity requirements, mandatory investment levels, and interest controls are categorized as implicit taxes. A reserve requirement with no interest payment tends to have a higher opportunity cost as it squeezes the excess reserve available for banks to advance credit, reducing the banks income earning asset. However, Fry (1995) observes that the impact of a reserve requirement will depend on the elasticity of loan and deposit interest rates. On the other hand, mandatory investment, where banks continue providing funds to priority sectors despite the rate of return, squeezes the bank profit margin if the sectors investment yield is low.

1.1.4 Kenyan banking system

Kenya currently has 43 banks, with 1,313 branches and 34,064 employees, accounting for about two thirds of the financial system's assets. In terms of shareholding, the Central Bank identifies 14 banks with foreign ownership, accounting for 32.2% of net assets in 2012. The Central Bank also identifies 6 banks with state ownership accounting for 24.8.2% of net assets in 2012, with the government having majority ownership in three of these, which account for 4.2% of net total assets (Consolidated Bank; Development Bank of Kenya; and the National Bank of Kenya), The other three banks are CFC Stanbic, Housing Finance; and

Kenya Commercial Bank. The remaining 23 are local private banks, accounting for 43.0% of the banking sector's net assets, (KBA report 2014).

Waweru and Kalani, (2009) states that the activities of commercial banks expose them to credit risk and techniques such as provision for debts and credit screening and monitoring provide a temporary cover to level of NPLs. In Kenya, after the banking crisis, measures were taken to protect against such events again. Ngugi, (2001) in response to Kenya's financial crisis the banking act was revised and approved in 1989 to improve and enhance the mandate of CBK in terms of regulation and supervision function in regard to activities of commercial banks and NBFIs.

Karumba and Wafula, (2012) in their article on alternative for Kenyan banking industry identified that credit risk is one of the oldest and most challenging risk faced by banks, which results due to the probability that borrowers may default terms of their debt and hence putting an institutions capital into risky positions. Increase in defaults lead to piling of non-performing loans in an institutions balance sheet. Musyoki and Kadubo, (2011) in their paper on credit risk management on financial performance of banks concluded that default rate is the most important factor as it influences 54% in total credit risk influence on bank performance.

Kenya has a well-developed financial system for a country of its income level (Beck and Fuchs 2004). Kenya's level of financial development is not too far off from the predicted level in a global cross-country model (Allen et al. 2012). Christensen (2010) classifies Kenya as a frontier market economy whose financial market is advanced, but not to the same extent as emerging markets e.g. S. Africa, given that its M3/GDP ratio was about 34% compared to an average of 63% for emerging market economies in 2008-10 although these indicators have improved over time. It is therefore unlikely the size of the Kenya's financial sector is beyond the threshold to negatively impact on economic growth.

Griffith-Jones and Karwowski (2013) also show that credit expansion in Kenya has been relatively modest in the last decade (at 19.5% over 2000-10) compared to other selected SSA countries (for example Angola 1545.5%, Malawi 215.6%, Mali 286.7%, Niger 174.4%, Nigeria 173.0%, Sao Tome and Principe 709.8%, Sierra Leone 384.2%, Sudan 505.6%, Tanzania 274.4 and Uganda 152.8%). With the country aspiring to MIC status by 2030, it

apparently has a long way to go in building its financial sector. In its monetary programming, the CBK endeavours to keep the path of private sector credit growth rate close to the projected nominal GDP path. As seen in Figure 3, domestic credit to the private sector (DCP) closely tracked the nominal GDP over 2005-2009, with acceleration in 2010-2011, which was broadly reversed in 2012, with another acceleration in the second half of 2013. Private sector credit growth picked-up during the first half of 2013 in response to the gradual easing of the monetary policy stance, pick-up in economic activity and, improved investor confidence in the economy after the March 2013 elections. The CBK reduced the Central Bank Rate (CBR) from 9.50% to 8.50% in May 2013 and retained it at this level in the rest of 2013. Consequently, the annual growth in the overall private sector credit rose from 12.69% in June 2013 to 21% in December 2013, above the projected growth path of 16.2% in the year to December 2013.

1.2 Statement of the Problem

Interest rate spreads for selected African countries as shown that spread is driven by various factors. Whereas spread has been declining in Kenya, Namibia and Tanzania, it has been rising in Rwanda, Mauritius and Botswana. Spread has been rising and falling in Uganda with little net effect over the period. In Kenya spread has been on a downward trend following liberalization though still remaining relatively high. Uganda has relatively persistent high interest spread among the selected countries while South Africa experiences relatively lower interest rate spread, (Spratt 2013).

Beck and Hesse (2009) attribute the high and persistent Ugandan spread to among other factors high cost of doing business, high T-bill rates, institutional deficiencies and high inflation. South Africa's spread is much lower and declining at a steady rate compared to that of Kenya. Although Botswana's spread is on a rising trend, it has been lower than that of Kenya.

Spreads vary widely across countries. Moreover, the relative size of cross-country margins appears to change over time. Following liberalization, policymakers expected that interest rate spreads would converge to international levels. It was expected that with increased competition, market forces would reduce and keep bank spreads at levels similar to those prevailing in industrialized economies. Narrow spread would have signalled the success of financial sector reforms and liberalization. The persistence of high spreads even after liberalization thus calls for a better understanding of the behaviour of interest rate

spreads. Knowledge generated relating to spread will therefore benefit not only the regulator but also Government in the formulation of appropriate interventions, (Spratt 2013).

Policy makers in Kenya have for some time been actively engaged in developing a panacea to the persistently wider interest rate spreads with hope that this would promote competitiveness, efficiency and stability in the domestic financial system and ultimately narrow the intermediation spreads (Central Bank of Kenya, report June 2014). Interest rates are major economic factors that influence the economic growth in an economy all over the world. Interest rates are economic tools used by CBK to control inflation and to boost economic development. Control of the inflation or deflation in the economy is a major role entrusted to the CBK by the government. The rationale behind the need to control the interest charged on credit or any other financial instrument is based on the need to control economic patterns that has great effects to the society.

One of the key criticisms of the Kenyan banking sector is that the cost of credit and the interest rate spread remains high, (Oloo, 2013). This has raised concerns from government, regulators and parliament, with the latter trying severally to introduce legislation to control them. The interest rate spread was fairly stable, although gradually increasing, between January 2005 and October 2011, averaging 9.56%. It jumped to a peak of 13.05% in December 2011 following a decision by the Central Bank of Kenya to raise the policy Central Bank Rate (CBR) from 11% to 16.5% in November 2011 and to 18% in December 2011 where it stayed until June 2012. As a consequence, both deposit and lending rates rose sharply as the CBK attempted to control inflation and stem currency depreciation. The increase in the spread was because banks raised the lending rate more than the deposit rate. The spread subsequently gradually decreased as the central bank has relaxed monetary policy, lowering the CBR from 18% to 9.5% during January-April 2013 and to 8.50% since May 2013. At an average of 10.02% over 2005-13, the interest rate spread has therefore remained high despite improved economic conditions in the country.

According to the critics of commercial banks, there have been many developments that have taken place in the country that should have significantly reduced the spread, (Oloo, 2013). These include; improvements in technology (ATMs, mobile phones, etc) that have reduced the cost of doing business, and the need for human resource requirements; agency banking,

with 16,000 agents that are now available to banks at nominal cost; and ; introduction of credit reference bureau to reduce information asymmetries and risk. As well, the opening of Currency Centres across the country has reduced costs associated with transporting cash for the banks. The spread between the lending rate and the risk free 91-days Treasury bill rate is also high and more volatile at an average of 7.43% over 2005-13 .This spread can be taken as a measure of the risk premium faced by banks. It captures perceived risk by lenders of borrowers' ability to pay; as well as inefficiency in the banking system. It has however declined since the mid-2011 denoting a decline in the risk premium. The collapse of the 91-days TBR in 2005 was due to a reduction of the required cash ratio from 10% to 6% in 2003 which injected a lot of liquidity into the economy, drastically lowering interest rates.

The persistently high spreads and growing profitability of the industry have left it open to repeated criticisms of collusive price-setting behaviour (World Bank 2013, Oloo 2013). In the popular press and elsewhere, Kenyan banks have repeatedly been portrayed as using their market power to extract high interest rates from businesses, especially SMEs. The larger banks have been particularly subject to this criticism, based on the perception that they use their reputational advantage to charge higher rates on loans and advances, while not having to pay high interest rates to attract deposits. This perception of high spreads at big banks is reinforced by data showing them to be the most profitable segment of the industry. The competition Commission has launched an investigation into the price-setting behaviour of commercial banks, based largely on the concerns of consumers regarding interest rate spreads.

Commercial banks in Kenya have continuously maintained wide interest rate spreads despite efforts by both the government and the regulator to ensure the interest rate spreads narrow down. This has led to a lot of debates both in public and private panels which makes it clear that it is important for the involved parties to understand the factors that determine interest rate spread among commercial banks in Kenya in order to effect valuable changes. Dr Patrick Njoroge, the new Central Bank Governor said that taming the high interest rate spreads among banks in the country is among the top priorities (Daily Nation, 16, June, 2015). "The Kenya parliament has for the second time failed to put into law mechanism that will reduce the interest rates among banks", (Daily nation 29th, August, 2015, <http://www.businessdailyafrica.com/Banks-profit-grows-slowly-in-the-first-3-months-of-2015/-/539552/2708102/-/al8e9bz/-/index.html>).This study therefore will seek to investigate the determinants of interest rate spread among commercial banks within the

stated period of 2010 to 2014.

1.3 General Objectives of the Study

The general objective of the study is to deepen understanding on the determinants contributing to interest rate spreads in Kenya's banking sector so as to resolve debates on the possible causes of the relatively high spread.

1.3.1 Specific objectives

- I. To establish the influence of credit risk on interest rate spread among commercial banks in Kenya.
- II. To establish the influence of operation cost on interest rate spread among commercial banks in Kenya
- III. To establish the influence of Liquidity risk rate on interest rate spread among commercial banks in Kenya.

1.4 Significance of the Study

The study attempts to analyse the determinants of Interest rate spreads in Commercial Banks in Kenya, with a view to identifying the current state of interest rate spreads. This is because the Central Bank of Kenya monetary policy framework and its implementation have been guided by a need to ensure, among others a) realistic interest rate spreads that encourage financial deepening b) a safe, sound, efficient and competitive banking system through discreet risk management.

This study will serve as a source reference to the researchers of similar interest and by so doing contribute to existing literature on the topic under study. It will help to enrich the knowledge of future researchers and students who wish to broaden their understanding on this topic.

The study will provide a comprehensive resource material for policy makers in the banking, non- financial institution as well as other business communities on the effect of high interest rate and how to tackle the problem high interest rate.

CHAPTER TWO; LITERATURE REVIEW

2.1 Introduction

This chapter is a review and appraisal of the literature supporting the research objectives. It reviews interest rate spreads and its determinant. Interest rate spread consists of several components: operating cost, profits, reserves and provisions for bad debts based on the accounting perspective.

2.2 Theoretical Literature Review

This section reviews relevant theories in the area of interest rate spread. Theories such as Keynesian Liquidity Preference Theory theory of money demand

2.2.1 Keynesian Liquidity Preference Theory

Keynesian liquidity preference theory is a stock theory. The theory determines the interest rate by the demand for and supply of money. It emphasizes that the rate of interest is a purely monetary phenomenon as distinct from the real theory of the classics. It is a stock analysis because it takes the supply of money as given during the short run and determines the interest rate by liquidity preference or demand for money. According to Fry (1995) applying this theory explains the premium offered in forward rates in comparison to expected future spot rates. This premium is used as payment for the use of scarce liquid resources. According to Keynes, the demand for money (liquidity preference) arises from three motives; first is transactions motive, it relates to demand for money for current transactions of individual and business firms. In inflation times the transaction cost of banks may increase because in order to obtain the same level of goods / service more money is needed. This theory is therefore linked to the reasons as to why commercial banks charge higher cost for their services

According to Keynes, the return inherent to an investment must surpass the risk of investment. If a bank is lending to a risky sector such as agricultural sector it tends to charge high interest rate in order to compensate for the likelihood of default hence business risks. When money is not required immediately as a means of payment it can be held as an asset for future consumption or it can be converted into another asset. He talks of bond as a major finance asset which can be acquired by an individual.

A bond is a government stock or security whose terms (capital repayment at maturity and interest) are always honored. This means that there are no uncertainties hence no business risks. Individuals hold bond for two reasons: a) to earn interest and b) for capital gain. The relationship between the price of bonds and its rate of interest is inverse relationship. This implies that when interest rates are high, prices of the bonds are low. This in effect means that people may be reluctant to hold bonds for fear that the rate of interest may go up and thus bond prices fall. On the other hand if an individual strongly expects a fall in interest rate, he will be anxious to hold bond in the expectation of making a capital gain when their price goes up.

However this theory fails to capture other determinants of interest such as government regulation and competition among others. The preference for liquidity can be accounted for by the fact that economic units need to hold certain levels of liquid assets for purchase of goods and services and the fact that these near term future expenditures can be difficult to predict. Liquidity theory is limited by its short-term nature, the assumptions that income remains stable and also that only supply and demand for money are considered by the theory. It however shows great connection with IRS in that if people prefer to hold on to money instead of investing or depositing, it would lead to high interest rate spread and if people deposit rather than holding it leads to low interest rate spread due to high demand and high supply respectively.

2.3 Determinants of Bank Interest Rate Spreads

Studies that examine determinants of bank interest rate generally use variables that fall into three categories ; individual bank-specific factors such as operating or administrative costs, non-performing loans, return on asset, structure of the balance sheet, non-interest income or non-core revenues, bank size, liquidity ratio of a bank, among others: factors specific to the banking industry such as the degree of competition as could, for instance, be indicated by market concentration, regulatory requirements such as minimum core capital requirements, statutory reserve requirements or regulated minimum deposit rates; and, macroeconomic indicators which include growth rate of the real Gross Domestic Product (GDP) growth rate and inflation rate. Some studies focus on one category of factors while others consider two or all the three categories of factors in estimating the interest rate spread.

Kenya's financial sector has undergone reforms since the late 1980s aimed at achieving (i) stability so as to ensure that banks and other financial institutions taking deposits can safely

handle the public's savings and ensure that the chances of a financial crisis are kept to a minimum; (ii) efficiency in the delivery of credit and other financial services to ensure that the costs of services become increasingly affordable and that the range and quality of services better caters to the needs of both savers and investing businesses; and (iii) improved access to financial services and products for a much larger number of Kenyan households (Nyaoma 2006).

The country formally adopted financial sector reforms in 1989, supported by a \$170 million World Bank adjustment credit. Financial reform proposals were first incorporated in the 1986–90 structural adjustment program. The main features of the program included: (i) interest rate liberalization which was achieved in July 1991; (ii) liberalization of the treasury bills market in November 1990 which was accompanied by introduction of the treasury bonds of long-term maturities - one, two and five-year maturities; (iii) setting up a Capital Markets Authority in 1989 to oversee the development of the equities market; (iv) abolition of credit guidelines in December 1993 (which were in existence since 1975 in favour of agriculture); and (v) improving and rationalizing the operations and finances of the DFIs.

Financial sector reforms have undoubtedly strengthened Kenya's banking sector in the last decade or so, in terms of product offerings and service quality, stability and profitability (Kamau 2009). Major indices show an improvement, including: (a) the capital adequacy ratio; (b) rates of return on assets (ROA); (c) non-performing loans; (d) growth and composition of credit to the private sector; and (e) composition of banks assets and liabilities.

Kenya banks justify the high spreads as due to the difficult business environment they operate in (Oloo 2013). The main argument is that dispute resolutions take too long and are costly; while national infrastructure services (e.g. electricity) are expensive and unreliable. They also cite the high cost of attracting, training and maintaining human resources. Salaries and other forms of labour compensation make up a large part of their overhead, as the scarcity of skilled financial sector workers leads to high turnover and compensation packages geared to retain scarce skills (World Bank 2013). Most banks estimate that salaries make up 50% of their overhead cost despite the fact that Kenya has a fairly well-developed pool of banking skills. Given the large share of salaries in the overhead costs of the banking sector, increasing the supply of skilled labor to this sector should be a priority. Nevertheless, the largest portion of spreads is explained by profits in recent times (World Bank 2013).

2.3.1 Credit Risk on interest rate spread

Credit risk is the most obvious risk to microfinance and other financial institutions by the nature of its activity. In terms of potential losses, it is typically the largest type of risk. The default of a small number of members may result in a very large loss for the financial institution (Bessis, 2003). Credit risk is the risk that a borrower defaults and does not honour his or her obligation to service debt. It can occur when the member in a financial institution is unable to pay or cannot pay on time. There can be many reasons for default. In most cases, the obligator is in a financially stressed situation and may be facing a bankruptcy procedure. Credit risk is the potential change in net asset value due to changes in the perceived ability of counterparties to meet their contractual obligations. It occurs when a borrower does not pay back the loan. The definition makes it clear that credit risk arises much earlier than the final failure to pay becomes visible.

Non-performing loans to total loans ratio (NPLR) is used as an indicator of credit risk or quality of loans. An increase in provision for loan losses implies a higher cost of bad debt write offs (Were & Wambua, 2013). Given the risk-averse behaviour, banks facing higher credit risk are likely to pass the risk premium to the borrowers, leading to higher spreads. Hence the higher the risk, the higher the pricing of loans and advances to compensate for likely loss.

While subsidized rates can help increase loan accessibility, it tends to favor the wealthy and politically connected and borrowers who might not take the loans seriously enough (Muraki, et al., 1997: 36). Borrowers may take loans less seriously since the rate is lower than the market rate and money may not be used for the best investment available in the market. However, lower interest rates may be helpful for small borrowers who may not know many high return investment opportunities.

According to a World Bank report (1994) in Uganda, owing to lack of proper regulations the country's banking industry was described as extremely weak, with huge non-performing assets and some banks teetering on the verge of collapse. Mukalazi (1999) notes that reeling from years of economic mismanagement and political interference, Uganda's banking industry posted huge losses in the early 1990s. To help address credit risk management in Ugandan banks, the government has introduced a statute that deals with several issues

Many of the bad debts were attributable to moral hazard: the adverse incentives on bank owners to adopt imprudent lending strategies, in particular insider lending and lending at high interest rates to borrowers in the most risky segments of the credit markets. According to Brown (1998), the single biggest contributor to the bad loans of many of the failed local banks was insider lending. In at least half of the bank failures, insider loans accounted for a substantial proportion of the bad debts.

2.3.2 Liquidity rates

Some of the studies Tennant and Folawewo (2008) show that the degree of development of the banking sector is not an important determinant of interest rate spread. A few studies show, however, that the development of the banking sector in low income countries in Asia, Europe, Latin America and SSA has a significant negative effect on interest rate spread. The contradictory result on the effect of banking sector development on interest rate spread is seemingly surprising they contradict findings obtained by some important studies (Crowley 2007; Moore & Craigwell 2000; Demirguc-Kunt & Huizinga 1998) in the area. Other macroeconomic factors found to impact positively on interest rate spread include: degree of government borrowing from the commercial banking sector (Tennant & Folawewo, 2009); Interest rate uncertainty (Brock & Franken, 2003); and high real interest rates (Demirguc-Kunt & Huizinga, 1998).

Khawaja and Din (2007) in their investigation of determinants of interest spread of the banking industry in Pakistan given the specific features of banking industry in Pakistan such as the non-existence of financial intermediaries that can serve as an alternative to banks for small savers, making them to include inelasticity of deposit supply to banks as a determinant of interest spread, they found out that inelasticity of deposit supply impacts positively on spread while concentration does not cause interest spread.

Hawtrey and Liang (2008) have studied bank interest margins in 14 Organisation for Economic Co-operation and Development (OECD) countries for the period 1987 to 2001. The explanatory variables they used were market structure, operating cost, degree of risk aversion, interest rate volatility, credit risk, scale effects (transaction size of loans and deposits), implicit interest payments, opportunity cost of bank reserves, and managerial efficiency. They employed a single step panel regression with fixed effects and found significant coefficients for most of the variables. They concluded that market power,

operating costs, risk aversion, volatility of interest rates, credit risk, and opportunity cost, and implicit interest payments have a positive impact on overall interest rate spreads. Inflation effect is also found to be statistically insignificant. These results are consistent with those of other studies based on African countries. For instance, studies by Bennaceur and Goaied (2008) based on evidence from Tunisia, Chirwa and Mlachila (2004) based on the case of Malawi and Ahokpossi (2013) using a sample of banks in SSA countries find an insignificant impact of economic growth on the level of different measures of spreads. In the case of Tunisia, Ben-Khediri et al (2005) also fails to find a significant influence of inflation and real output growth on bank interest margins and profitability. Beck, Thorsten and Hesse (2006) in a study on “Why are Interest Rate Spreads so High in Uganda?” found that bank-specific variables explained a larger proportion of cross bank variation in spreads and margins compared to macroeconomic factors.

2.3.3 Treasury bill rates

Ngugi (2001) analyzed the interest rates spread in Kenya from 1970 to 1999 and found that interest rate spread increased because of yet-to-be gained efficiency and high intermediation costs. Increase in spread in the post-liberalization period was attributed to the failure to meet the prerequisites for successful financial reforms, the lag in adopting indirect monetary policy tools and reforming the legal system and banks’ efforts to maintain threatened profit margins from increasing credit risk as the proportion of non-performing assets. She attributed the high non-performing assets to poor business environment and distress borrowing, owing to the lack of alternative sourcing for credit when banks increased the lending rate, and the weak legal system in enforcement of financial contracts. According to her findings, fiscal policy actions saw an increase in Treasury bill rates and high inflationary pressure that called for tightening of monetary policy.

As a result, banks increased their lending rates but were reluctant to reduce the lending rate when the Treasury bill rate came down because of the declining income from assets. They responded by reducing the deposit rate, thus maintaining a wider margin as they left the lending rate at a higher level. Postulating an error correction model and using monthly data for the study period, Ngugi (2001) found that for Kenya, rising inflation resulting from expansionary fiscal policy, tightening of monetary policy, yet-to-be realized efficiency of banks and high intermediation costs explained interest rate spreads.

Maudos et al (2004) analyzed interest margins in the principal European banking countries over the period 1993–2000 by considering banks as utility maximizers bearing operating costs. They found that factors that explain interest margins are the competitive condition of the market, interest rate risk, credit risk, operating expenses, and bank risk aversion among others. Elsewhere Angbazo (1997) tested the hypothesis that banks with more risky assets and higher interest rate risk select lending and deposit rates so as to earn wider net interest margins. He used United States bank data from 1989–93 and found evidence in support of the hypothesis.

An increase in operating costs is expected to have positive influence on interest rate spreads (Were & Wambua, 2013). High operating costs are likely to include costs due to inefficiency leading to higher spreads and hence this variable is commonly used as an indicator of operational inefficiency. A higher cost of financial intermediation will drive up interest rates on loans while depressing interest rates on deposits. The degree to which banks are exposed to liquidity risk varies across banks. A bank with higher liquidity faces lower liquidity risk hence is likely to be associated with lower spreads due a lower liquidity premium charged on loans (Were & Wambua, 2013). Banks with high risk tend to borrow emergency funds at high costs and thus charge liquidity premium leading to higher spreads (Ahokposi 2013).

2.3.4 Operational cost on interest rates

Over the past few years, interest rate spread of commercial banking system has caught researchers' attention throughout the world. As financial intermediaries, banks play a crucial role in the operation of most economies. The efficiency of financial intermediation can affect economic growth. Fundamentally, financial intermediation affects the net return to savings and the gross return to investment (Demirguc-Kunt & Huizinga, 1999).

Jayaraman and Sharma (2003) recognized the reasons for high IRS as lack of adequate competition, scale diseconomies due to small size of markets, high fixed and operating costs, high transportation costs of funds perceived market risks and the risk profile of the bankers. Khawaja and Din (2007) examine to what extent macro- economic variables influence the IRS. The central bank influences the yield on treasury bills of a country, which in turn affects the deposit and lending rates.

An argument has been made to explain the failure of spreads in developing countries to converge to international levels even after financial liberalization. (Chirwa and Mlachila, 2004) suggests that high interest rate spreads in developing countries will persist if financial sector reforms do not significantly alter the structure within which banks operate. This structure refers to the market/industry and macroeconomic environment in developing countries. The market-specific determinants of commercial bank interest rate spreads highlighted in the literature typically include lack of adequate competition in the banking sector and consequent market power of commercial banks, the degree of development of the banking sector, and explicit and implicit taxation such as profit taxes and reserve requirements. Cross-country studies have also established that interest rate spreads for Banks tend to fall as institutional factors improve. Such factors include the efficiency of the legal system, contract enforcement, and decreased levels of corruption, which are all critical elements of the basic infrastructure needed to support efficient banking.

2.4 Empirical Review

2.4.1 International Studies

Brock and Franken (2003) studies interest rate spread in Chile, showing that the influence of industry concentration, business cycle variables, and monetary policy variables on interest rate spreads differs markedly depending on whether the spreads are computed from balance sheet data or from disaggregated loan and deposit data.

Gambacorta (2004) studies factors explaining cross-sectional differences in bank interest rates of Italian banks by considering both micro and macroeconomic factors. The variables considered include: (i) loan and deposit demand (ii) operating cost, credit risk and interest rate volatility (iii) impact of monetary policy through changes in policy rates and reserve requirements and (iv) the structure of the industry. Results showed that interest rates on short term lending of liquid and well capitalised banks react less to monetary policy shocks. In addition, banks that predominantly lend for long term do not change their interest rates more frequently as those whose lending is largely for short term. Bank size was found to be irrelevant in influencing interest rate margins.

According to Gambacorta (2004), changes in monetary policy can affect deposit and lending rates through the interest rate, bank lending and bank capital channels. For instance, a monetary tightening that raises policy rate and short term interest rates makes it more costly for banks to get funds and they pass these costs to borrowers through higher

lending rates. The bank lending channel works through moral hazard and adverse selection. Following monetary tightening that leads to higher interest rates, banks tend to attract more risky customers and to compensate for the higher risk they increase lending rates.

Beck and Hesse (2006) uses bank-level dataset on the Ugandan banking system to examine the factors behind the consistently high interest rate spreads and margins. While foreign banks have lower interest rate spreads, there is no robust and economically significant relationship between interest spread and privatization, foreign bank entry, market structure and banking efficiency. Similarly, macroeconomic variables explain little of the over-time variation in bank spreads. Bank-level characteristics, on the other hand, such as bank size, operating costs, and composition of loan portfolio, explain a large proportion of cross-bank, cross-time variation in spreads and margins. However, time-invariant bank-level fixed effects explain the largest part of bank variation in spreads and margins. Further, the study finds evidence that banks targeting the low end of the market incurred higher costs and therefore had higher margins.

Grenade (2007) estimates the determinants of commercial banks interest rate spreads in the Eastern Caribbean Currency Union using annual panel data of commercial banks. The empirical model includes regulatory variables (statutory minimum savings deposit rate) as well as market power, operating costs as a ratio of earning assets, ratio of provisions for loan losses to total earning assets as a measure of credit risk, liquidity risk proxied by the ratio of liquid assets to total assets and real GDP as an indicator of economic activity. Market power is proxied by the Herfindahl-Hirschman index (HHI) computed using the market shares of loans and advances in the banking industry. The spread is found to increase with an increase in market power, the regulated savings deposit rate, real GDP growth, reserve requirements, provision for loan losses and operating costs.

Aboagye, et al (2008) studies the response of net interest margin of banks to changes in factors that are bank-specific, banking industry specific and Ghanaian economy macroeconomic factors. It finds that an increase in the following factors increases the net interest margin of banks: bank market power (or concentration), bank size, staff costs, administrative costs, extent to which a bank is risk averse and inflation. On the other hand, an increase in excess reserves of banks, central bank lending rate and management

efficiency decreases the net interest margin of banks.

Steffen (2008) examined how lending relationships affect loan rate smoothing in UK for the period 1996 – 2005. Using panel data regression techniques on the data, the study found a negative but insignificant effect of loan size on interest rate spread thus leading to the conclusion that loan size does not significantly affect bank interest rates.

Siddiqui (2012) estimates the interest rate spread in Pakistan based on individual bank specific factors using annual panel data of 22 banks. The variables include market share measured as a bank's deposits as a percentage of total deposits of the banking sector, liquidity risk variable, administrative expenses as a percentage of total assets, nonperforming loans as a percentage of net advances, net interest income as a percent of total income and return on assets after payment of tax as a percent of average assets. The spread is found to be significantly affected by administrative costs, non- performing loans and return on assets in all the regressions (pooled, fixed and random effects regressions).

Mannasoo (2012) investigates the role of the recent global financial crisis on interest spreads in Estonia. The approach follows works of Ho and Saunders (1981) in which the spread is decomposed into a pure spread and the remaining component that is explained by market structure, regulation and idiosyncratic bank factors. The pure spread is explained by the degree of bank risk aversion and the market structure of the banking sector. The volatility of money market interest rates is found to have a long- run impact on the spread. Other factors that drive the interest margins are the regulatory variables, efficiency of banks and bank-portfolio effects. Credit risk was found to play a minimal role while higher bank liquidity was associated with lower interest margin.

Akinlo & Owoyemi (2012) examined the determinants of interest rate spreads in Nigeria using a panel of 12 commercial banks for the period 1986-2007. The pooled and fixed effects regression results showed that bank loan size had a positive effect on interest rate spread. Thus as loan sizes rise, the interest rate spread also rise.

Calcagnini et al. (2012a) sought to examine the link between loans, interest rates and guarantees in Italian banks. The study used 60 large Italian banks, 300,000 firms and 200,000 producer households which received loans of a certain amount. Using random effects panel data analysis technique, the study found that loan size was negatively related to interest rate spread (measured as interest rate – overnight rate). Larger loans

therefore tended to results in lower interest rate spread and vice versa.

Calcagnini et al (2012b) analysed the role of guarantees on loan interest rate before and during the recent financial crisis in Italian firm financing. The data for 2006 – 2009 was used from the Bank Supervisory Reports. Loan size had a negative effect on bank loan interest suggesting that higher loan sizes were associated with lower bank loan interest.

Nampewo (2013) studies the determinants of the interest rate spread of the banking sector in Uganda using time series data for the period 1995 – 2010. The study applies the Engle and Granger two-step procedure to test for co-integration between the bank rate, treasury bill rate, exchange rate volatilities, the ratio of money supply to gross domestic product (M2/GDP) and the proportion of non-performing loans to total private sector credit. Results show that the interest rate spread in Uganda is positively affected by the bank rate, the Treasury bill rate and non-performing loans. On the other hand, M2/GDP ratio and real GDP have a negative influence on the spread. However the analysis is undertaken at macro level hence concealing micro and bank- specific characteristics.

2.4.2 Studies from Kenya

In Kenya, few studies exist that examine the interest spread determination. Beck et al (2010) examine developments in Kenya's financial sector with a specific focus on stability, efficiency and outreach, and use interest rate spreads as a proxy for the efficiency of financial intermediation. They base their analysis on export constructed spreads and decompose the spreads into different components based on a set of factors such as administrative costs, loan loss provisions and taxes.

Among the most cited studies on factors explaining interest rate spread in Kenya are Ndung'u and Ngugi(2000) and Ngugi (2001). Ndung'u and Ngugi (2000) theoretically derived factors likely to explain the interest rate spread and empirically estimated an interest rate spread equation using monthly time series data for the period April 1993 to June 1999, while Ngugi (2001) extends the monthly time series data to December 1999. The factors considered by the former are deposits, loans, Treasury bill rate and interbank rate. They find that the spread are positively related with deposits but negatively related to loans. In addition to the factors above, Ngugi (2000) incorporates excess liquidity and non-performing loans ratio as explanatory variables and finds that arise in non-performing loans ratio leads to a rise in spreads while excess liquidity is negatively related with spreads. Both studies are undertaken at the macro level, mainly

focusing on the macro industry-level variables.

Moore & Craigwell (2000) used firm-level data of Barbadian banking industry to examine the relationship between interest rates and loan sizes. Six banks were studied for the period 1986 to 1998. Using fixed effects panel data framework, the study found a negative relationship between interest rates and loan sizes. The study concluded that interest rates differences were as a result of smaller loans among other factors. This was contrary to traditional finance theory which argues that as loan sizes rise, interest rates also rise to accommodate the increase in associated risk of the loan.

A study by Were & Wambua (2013) goes beyond these factors by considering not only macroeconomic variables but also bank-specific variables using panel data for the commercial banks. Additionally, the study covers a more recent period ranging from 2002 to 2011 during which there have been significant changes both in the policy and macroeconomic environment. The study finds that bank-specific factors play a significant role in the determination of interest rate spreads. These include bank size based on bank assets, credit risk as measured by non-performing loans to total loans ratio, liquidity risk, return on average assets and operating costs. The impact of macroeconomic factors such as real economic growth and inflation is not significant. Similarly, the impact of policy rate as an indicator of monetary policy is found to be positive but weak. On average, big banks had higher spreads compared to small banks.

There have been several studies of interest rate spreads in Kenya (Abdul et al. 2013, Were and Wambua 2013, World Bank 2013). The World Bank (2013) provides a good summary of these studies, first noting that that, while no hard rules prescribe the optimal interest spreads that correspond to specific market conditions, market lending rates are typically a mark-up over the risk-free (government paper) interest rate, the magnitude of the mark-up depending on a host of factors, including industry structure, tenor, overhead costs, and risk. Determining this mark-up when information markets are incomplete is especially challenging.

According to the Kenya Bankers Association (Oloo 2013), interest rate spreads reflect the macroeconomic, regulatory and institutional environment under which banks operate such that the determinants of the spread are in four categories: macroeconomic factors and the state of financial sector development; industry-specific factors; and bank-specific factors.

According to the Kenya Bankers Association (Oloo 2013), the banks best interests are served when interest rates remain low and stable, arising from a stable macroeconomic environment. Further, a low interest rate regime has a direct relationship with the quality of the banks' loan books, with expectations that non-performing loans will increase in a regime of high interest rates

Kenya banks justify the high spreads as due to the difficult business environment they operate in (Oloo 2013). The main argument is that dispute resolutions take too long and is costly; while national infrastructure services (e.g. electricity) are expensive and unreliable. They also cite the high cost of attracting, training and maintaining human resources. Salaries and other forms of labour compensation make up a large part of their overhead, as the scarcity of skilled financial sector workers leads to high turnover and compensation packages geared to retain scarce skills (World Bank 2013).

2.5 Summary of Literature Review

The theoretical review shows that a number of theories explain interest rates determination. These theories have not been tested in the context of commercial banks in Kenya and it may therefore be interesting to examine which of the theories best explain interest rate spread determinants for commercial banks in Kenya.

From the empirical review above, it can be observed that while other studies have found negative relationship between interest rate and loan size, others have found positive effects while others have found no significant relationships. Further, one study was clear that the direction of the relationship runs from loan sizes to interest rate and on the other way round as has been assumed by most scholars. Thus, the results as to the relationship are inconsistent hence need for further research. Secondly, no study of this nature has been done in Kenya hence the need for the present study. Thirdly, it will be important to estimate the direction of relationship for Kenyan banking industry hence the need for the present study.

CHAPTER THREE; RESEARCH METHODOLOGY

3.0 Introduction

This chapter deals with details regarding the procedures used in conducting the study. It covered key areas which include research design, target population, sample size and sampling procedures and techniques, instruments, measurement of variables and analysis techniques. Income statements and consolidated balance sheets of large commercial banks in Kenya which are KCB, Equity, Barclays, Standard Chartered, National and cooperative banks.

3.1 Research Design

This study was largely a quantitative research. Given that the purpose of this study was to examine the determinants of interest rates among commercial banks in Kenya the appropriate design was causal predictive research design. According to Johnson and John (2002) research design provides a framework or plan of action for the research. A research design is the structure, or the blueprint, of research that guides the process of research from the formulation of the research questions and hypotheses to reporting the research findings (Gakure, 2010). This study used exploratory and explanatory approaches. The exploratory methodology was used to identify the factors affecting determination of interest rate spreads which included, credit risk, liquidity and operational cost. Saunders et al (2007) described exploratory studies as a valuable means of finding out, seeking new insights, asking questions and assessing a phenomenon in a new context.

3.2 Target Population

Carr and Griffin, Zikmund (2010) describe a population (universe) as any complete group for example, of people, sales territories, stores, or college students that share some common set of characteristics. Beck and Polit (2003) refer to the term population as the aggregate or totality of those conforming to a set of specifications. CBK (2014) identified the total number of commercial banks licensed to operate in Kenya as forty three in number and one mortgage finance institution. In this study the targeted 6 commercial banks in Kenya that are categorized as big banks by central bank of Kenya CBK (2014). These banks are KCB, Equity, National Bank, Cooperative Bank, Barclays Bank and Standard Chartered Bank

3.4 Data collection techniques

Dawson (2009) states that secondary research data involves the data collected using information from studies that other researchers have made of a subject. This study applied the used of secondary data. The study used available data on interest rate spreads determinants which included; credit risk, liquidity and operation costs for the period 2010 to 2014 obtained from the central bank of Kenya website and the annual financial reports from the 6 large commercial banks as categorized by the CBK. The study also used theoretical and empirical data gathered from other related studies. The analysis used the secondary data because the verification process is more rapid and the reliability, availability and convenience of information regarding test research questions and its conclusion are greatly enhanced.

3.5 Model Specification and Data Analysis

To examine the determinants of interest spread for Commercial banks in Kenya, the study will employ a variant of the model used by Peria and Mody (2004). The original motivation is from the dealership model of bank spreads developed by Ho and Saunders (1981), extended by Allen (1988) and Angbazo (1997). These models predict that market structure of the banking sector, macroeconomic variables, operating costs, regulatory costs and the credit risk can affect interest spreads. In addition, the study will include the share of current and savings account deposits in total bank deposits as an explanatory variable. These deposits are by and large interest-insensitive and the larger is the share of such deposits the less incentive the banks have to offer on higher returns deposits. Secondary data will be obtained from the Central Bank of Kenya annual reports from the year 2010 to 2014, the management of the commercial banks will also assist in giving out necessary information required by the researcher. The Kenya National Bureau of Statistics website and annual report will be used by the researcher. Dawson (2009) states that secondary research data involves the data collected using information from studies that other researchers have made of a subject. Schwab (2005) states that secondary data refers to information used for research purposes but that have been collected for other purposes.

The use of this variable is especially important in the commercial banks in Kenya where a major chunk of the bank deposits are held in low yield (current and savings) types. This study will use the model below

where r_{it} is the interest rate spread for bank i in period t , computed as the difference between lending rate and deposit rate, X_{it} is a vector of bank specific variables, α_i is bank-specific fixed

effects capturing the impact of unobservable (omitted) effects, Z_t is a vector of time-specific variables and ε_{it} is the statistical disturbance term.

$$R_{it} = \alpha_i + X_{it1} + X_{it2} + X_{it3} + Z_t Y + \varepsilon_{it}$$

X_1 credit risk

X_2 Operational cost

X_3 Liquidity rate

Description of variables

Credit risk: Non-performing loans to total loans ratio (NPLR) is used as an indicator of credit risk or quality of loans. An increase in provision for loan losses implies a higher cost of bad debt write-offs. Given the risk-averse behaviour, banks facing higher credit risk are likely to pass the risk premium to the borrowers, leading to higher spreads. Hence the higher the risk, the higher the pricing of loans and advances to compensate for likely loss.

Operating costs: Computed as operating expenses as a ratio of total net operating income (*OPERAT*). Banks incur costs of financial intermediation such as screening loan applicants to assess the risk profile of borrowers and monitor the projects for which loans are advanced. An increase in operating costs is expected to have positive influence on interest rate spreads. High operating costs are likely to include costs due to inefficiency, leading to higher spreads and hence, this variable is commonly used as an indicator of operational inefficiency. A higher cost of financial intermediation will drive up interest rates on loans while depressing interest rates on deposits.

Liquidity risk: Computed as the ratio of bank's liquid assets to total assets (LQDR). The degree to which banks are exposed to liquidity risk varies across banks. A bank with higher liquidity faces lower liquidity risk hence is likely to be associated with lower spreads due to a lower liquidity premium charged on loans. Banks with high risk tend to borrow emergency funds at high costs and thus charge liquidity premium leading to higher spreads (Ahokpossi, 2013).

CHAPTER FOUR

DISCUSSION, PRESENTATIONS AND INTERPRETATION OF THE RESULTS

4.1 Overview

This chapter presents a discussion of the results and the process through which the results were obtained. In addition to this, demographic information of respondents is presented. Finally, the statistical methods of analysis are discussed, which include a descriptive analysis, a correlation analysis, and a multiple regression analysis through SPSS version 20.

4.2 Descriptive statistics

Study findings in table 4.7 illustrated interest spread, credit risk levels, liquidity and operation cost for the sampled banks for quarterly results for the last five year which made a total of 120 observations. The six banks were rated as being large by central bank of Kenya. Results in table 4.1 reported that interest spread was 8.03%. It was also shown that credit risk levels was 44.81% operating cost (mean=0.4481). Liquidity was reported to be 1.824 current assets over current liabilities of firms and a company size of 7.1654.

Table 4.1 All Sectors

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Interest spread	120	-0.31	0.47	0.0803	0.09548	-0.274	4.351
credit risk	120	0	3.19	0.4481	0.50017	2.117	5.484
liquidity	120	0	12.41	1.8324	1.34726	4.332	25.64
Operation	120	4	9.96	7.1654	1.0096	0.369	0.371

4.4 Descriptive Statistics

The findings in table 4.7 provide descriptive statistics for all variables. Results showed that operation cost had the highest mean of 3.7. This implies that banks demonstrated more operation cost with less demonstration on credit risk (3.14). Further, to test the normality distribution the study examined the Skewness and kurtosis values. Skewness is used to measure the symmetry of a distribution while kurtosis is used to measure the peakness or flatness of a distribution (Tabachnick and Fidell, 2007). Based on the results, the values of Skewness and kurtosis revealed that the data was normally distributed where the Skewness values was in the range of -0.356 to 0.574. The value for kurtosis, on the other hand, was in the range of -0.452 to -1.462 well below the threshold of ± 10 .

Table 4.2 **Descriptive Statistics**

	N	Mean	Std. Deviation	Skewness	Kurtosis
Interest spread	120	3.3502	0.85221	0.574	-0.452
Credit risk	120	3.1387	0.95749	0.58	-0.634
Operation cost	120	3.7502	0.91583	0.085	-1.441
Liquidity risk	120	3.2608	1.02269	0.33	-0.83

Source (survey data, 2015)

4.5 Test of Normality

The normality tests are supplementary to the graphical assessment of normality. Kolmogorov-Simonov test and Shapiro Wilk was used to test normality of the data. The test statistics are shown in table 4.8. In this study, the p-value is more than 0.05. Therefore the study rejects the alternative hypothesis and concludes that the data comes from a normal distribution.

Table 4.3**Test of Normality**

	Kolmogorov-Smirnov (KS) test			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
interest spread	0.243	120	0.061	0.849	120	0.841
Credit risk	0.136	120	1.141	0.912	120	0.072
Operation cost	0.158	120	0.067	0.887	120	0.205
Liquidity risk	0.153	120	0.112	0.918	120	0.311

a Lilliefors Significance Correction

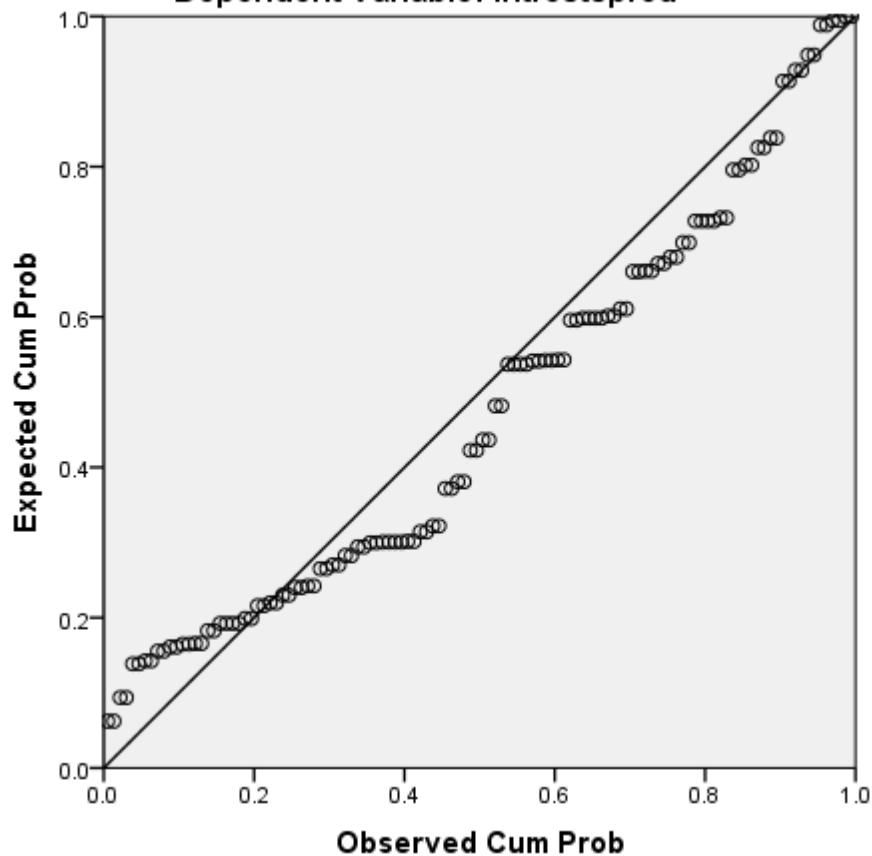
Source (survey data, 2015)

4.4.2 Test of Linearity and Homoscedasticity

Findings showed a random pattern; with no nonlinearity this is true because points are not far above and below the Y axis 0 line. Thus, the assumption that there data was linear and normal was attained

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: intrestspred



4.5 Correlation Results

Correlation analysis is a technique of assessing the relationship between variables: credit risk, operation cost and liquidity risk with interest spread. Thus, the study analyzed the relationships that are inherent among the independent and dependent variables. The results regarding this were summarized and presented in Table 4.9.

Findings revealed that credit risk was positively and significantly associated with interest spread ($r = 0.3661$, $p < 0.01$) indicating 36.61% positive relationship with interest spread. Further, operation cost was positively and significantly correlated to interest spread ($r = 0.695$, $p < 0.01$) showing that operation cost has 69.5% positive relationship with interest spread. Moreover, liquidity risk was positively correlated with interest spread ($r = 0.778$, $p < 0.01$) an indication of 77.8% positive relationship with interest spread.

Table 4.4 **Correlation Results**

	interest spread	Credit risk	operation cost	liquidity risk
interest spread	1			
Credit risk	.366**	1		
operation cost	.695**	.508**	1	
liquidity risk	.778**	.315**	.860**	1

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

4.6 Regression Results

Table 4.10 illustrates the model summary of multiple regression model, the results showed that all the three predictors (credit risk, operation cost and liquidity risk) explained 83.5 percent variation of interest spread. This showed that considering the three study independent variables, there is a probability of predicting interest spread by 62.1% ($R^2 = 0.621$).

Table 4.5**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
N 1	0.788 ^a	0.621	0.611	0.62081	0.938

a Predictors: (Constant), Credit risk, Operation cost, liquidity risk

b Dependent Variable: Interest spread

Source (survey data, 2015)

Table 4.10 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	73.293	3	24.431	63.391	.000 ^b
1	Residual	44.707	116	.385		
	Total	118.000	119			

a. Dependent Variable: interest spread

b. Predictors: (Constant), liquidity risk, credit risk, operation cost

Source (survey data, 2015)

F test is used to find out whether there is an influence of independent variables on the dependent variable. The value of F statistic is equal to 63.391 and p value of $0.000 < 0.05$ level of significance implying that the joint contribution of credit risk levels, liquidity and operating cost significantly predict interest spread. Thus justifying the following estimation model:-

$$\text{interest spread} = -4.295288E - 016 + 0.141x_1 - 0.028x_2 + 0.757x_3 + 0.06723$$

Where

x_1 = credit risk

x_2 = operation cost

x_3 = Liquidity risk

4.8 Test of Hypotheses

Hypothesis 1 (H_{01}) stated that credit risk has no significant effect on interest spread. Findings showed that credit risk had coefficients of estimate which was significant basing on $\beta_1 = 0.141$ (p-value = 0.043 which is less than $\alpha = 0.05$). The null hypothesis was thus rejected and it was concluded that credit risk had a significant effect on interest spread. This suggested that there was up to 0.141 unit increase in interest spread for each unit increase in credit risk. The effect of credit risk was more than 2 times the effect attributed to the error, this was indicated by the t-test value = 2.04.

Hypothesis 2 (H_{02}) stated that operation cost had no significant effect on interest spread. However, research findings showed that operation cost had coefficients of estimate which was negative and not significant basing on $\beta_2 = -0.028$ (p-value = 0.830 which was more than $\alpha = 0.05$) hence the null hypothesis was accepted. This indicated that for each unit increase in operation cost, there was -0.0215 units decrease in interest spread. Furthermore, the effect of operation cost was stated by the t-test value = -0.0215 which implied that the standard error associated with the parameter was less than the effect of the parameter.

Hypothesis 3 (H_{03}) postulated that liquidity risk had no significant effect on interest spread. Findings showed that liquidity risk had coefficients of estimate which was significant basing on $\beta_3 = 0.757$ (p-value = 0.000 which is less than $\alpha = 0.05$) implying that the null hypothesis was rejected and it was concluded that liquidity risk has significant effect on interest spread. This indicated that for each unit increase in liquidity risk, there was up to 0.757 units increase in interest spread. The effect of liquidity risk was stated by the t-test value = 6.49 which indicated that the effect of liquidity risk was over 6 times that of the error associated with it.

The rule of thumb was applied in the interpretation of the variance inflation factor. From table 4.12, the VIF for all the estimated parameters was found to be less than 5 which indicated the

absence of multicollinearity among the independent factors (Hair, *et al.*, 2010). This implied that the variation contributed by each of the independent factors was significant independently and all the factors were included in the prediction model.

Table 4.6

Regression Test Results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	4.288E-016	0.057		0.000	1.000		
Credit risk	0.141	0.069	0.141	2.047	0.043	.685	1.461
operation cost	-0.028	0.129	-0.028	-0.215	0.830	.198	5.056
liquidity risk	0.757	0.117	0.757	6.490	0.000	.240	4.163

a Dependent Variable: Interest spread

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The objective of this study was to examine the determinants of interest rates spreads among commercial banks Kenya. This chapter presents the summary of findings, conclusion, recommendations, and suggestions for further research.

5.2 Summary and Interpretation of Findings

The study sought to establish the determinants of interest rates spreads among commercial banks Kenya. Interest rate spread was measured as the difference between interest charged on loans and that charged on deposits. Interest spread, credit risk levels, liquidity and operation cost for the sampled banks for quarterly results for the last five year which made a total of 120 observations. The six banks were rated as being large by central bank of Kenya. The interest spread was 8.03% while credit risk levels was 44.81% and operating cost (mean=0.4481). Liquidity was reported to be 1.824 current assets over current liabilities of firms and a company size of 7.1654

The model summary of multiple regression model, showed that all the three predictors (credit risk, operation cost and liquidity risk) explained 83.5 percent variation of interest spread. This showed that considering the three study independent variables, there is a probability of predicting interest spread by 62.1% ($R^2 = 0.621$). The ANOVA results show that the F statistic is equal to 63.391 and p value of $0.000 < 0.05$ level of significance implying that the joint contribution of credit risk levels, liquidity and operating cost significantly predict interest spread. Thus justifying the following estimation model:-

The study examined the effect of credit risk on interest rate spreads. Credit risk is measured as the ratio of non-performing loans to total loans. The study revealed that credit risk was positively and significantly associated with interest spread ($r = 0.3661$, $p < 0.01$) indicating 36.61% positive relationship with interest spread.

The study examined the effect of operating costs on interest rate spreads. Operating costs are measured as the log of operating costs. The study found that operation cost was positively and significantly correlated to interest spread ($r = 0.695$, $p < 0.01$) showing that operation cost has 69.5% positive relationship with interest spread.

The study examined the effect of liquidity on interest rate spreads. Liquidity risk is measured as ratio of bank liquid assets to total assets. The study found that liquidity risk was positively correlated with interest spread ($r = 0.778$, $p < 0.01$) an indication of 77.8% positive relationship with interest spread. Credit risk had a weak negative effect on interest rate spread ($\beta = -.001$, $p = 0.997$).

5.3 Conclusions of the Study

The study found that credit risk has no significant effect on interest spread. The null hypothesis was thus rejected. Consistent with some past literature on the factors that influence interest rate spreads, the study concludes that credit risk had a significant effect on interest spread. This suggested that there was up to 0.141 unit increase in interest spread for each unit increase in credit risk. The effect of credit risk was more than 2 times the effect attributed to the error.

The study stated that operation cost had no significant effect on interest spread hence the null hypothesis was accepted. Consistent with some past literature on the factors that influence interest rate spreads, this indicated that for each unit increase in operation cost, there was - 0.0215 units decrease in interest spread. Furthermore, the effect of operation cost was stated by the t-test value = -0.0215 which implied that the standard error associated with the parameter was less than the effect of the parameter.

The study postulated that liquidity risk had no significant effect on interest spread. Therefore the null hypothesis was rejected and it was concluded that liquidity risk has significant effect on interest spread. This indicated that for each unit increase in liquidity risk, there was up to 0.757 units increase in interest spread. The effect of liquidity risk was stated by the t-test value = 6.49 which indicated that the effect of liquidity risk was over 6 times that of the error associated with it. This is consistent with the results of some of the past studies on interest rate spreads.

5.4 Limitations of the Study

The study relied on secondary data from the annual banking supervision reports. While this is a reliable source of data, it is quantitative in nature and therefore it was not possible to fully interrogate the determinants that influence the interest rate spreads of commercial banks as may have been the case if interviews were conducted. To improve this, it will be important to use mixed methods in data collection.

The study used data from the banking supervision reports of the Central Bank of Kenya. These reports are summaries of the banking sector performance on various indicators. While this was easier to collect and therefore more useful for the study, it provided only the time series data on an industry level and not individual bank level. Thus, the use of such data may limit the

way the results are applied to the firms as they are industry specific and not firm specific.

The study covered 5 year period beginning 2010 to 2014. While this period is fairly short, it is not long enough to show the long run determinants of interest rate spread among commercial banks Kenya. This may therefore limit the applicability of the model to infer interest rate spreads in Kenya.

Most of the variables examined in this study as control variables were firm specific. Most of the macroeconomic factors were not addressed. Thus, the study may be limited in its application as the factors were not exhaustive in explaining interest rate spread.

5.5 Recommendations of the Study

5.5.1 Recommendations for Policy and Practice

The independent variables used in the study did not significantly influence the interest rate spreads of the commercial banks. The study therefore recommends that other factors that influence the interest rates of commercial banks be used in order to ensure that commercial banks set optimal interest rate spreads and thus improve their performance.

The study also recommends that the Government, through the Central Bank of Kenya should be instrumental in developing policies and regulations to guide commercial banks in setting up of optimal interest rate spreads in order to promote loan uptake as well as improve performance of these commercial banks. Increased loan uptake will lead to growth in the economy of the country.

5.5.2 Suggestions for Further Research

The study suggests that a comprehensive study is carried out to evaluate various other factors that may influence interest rate spreads as well as through the use of primary data. There is also need for more studies to examine the factors that influence the interest rate spreads of

commercial banks. This will be important in providing insights into how the setting up of interest rate spreads by commercial banks can be improved.

Studies also need to be done on this subject using panel regression techniques. These will provide more robust results than the current study which was based on the time series data. Panel regressions will also be more firm specific.

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Appendix 1: List of Commercial Banks in Kenya

1. African Banking Corporation Limited
2. Bank of Africa Kenya Ltd
3. Bank of Baroda (K) Ltd.
4. Bank of India
5. Barclays Bank of Kenya Ltd
6. CFC StanbicBank Ltd
7. Charterhouse Bank
8. Chase Bank Ltd
9. Citibank N.A. Kenya
10. Co-operative Bank of Kenya Ltd
11. Commercial Bank of Africa Ltd
12. Consolidated Bank of Kenya
13. Credit Bank
14. Development Bank of Kenya
15. Diamond Trust Bank Ltd
16. Dubai Bank Kenya Ltd
17. Eco Bank Ltd
18. Equatorial Commercial Bank Ltd
19. Equity Bank
20. Family Bank Ltd
21. First Community Bank Ltd
22. Fidelity Commercial Bank Ltd
23. Giro Commercial Bank Ltd
24. Guaranty Trust Bank Ltd formerly Fina Bank
25. Guardian Bank Ltd
26. Gulf African Bank Ltd
27. Habib Bank A.G. Zurich
28. Habib Bank Ltd
29. Imperial Bank Ltd
30. Investments & Mortgages Bank Ltd
31. Jamii Bora Bank Ltd

32. K-Rep Bank Ltd
33. Kenya Commercial Bank Limited
34. Middle East Bank (K) Ltd
35. National Bank of Kenya Ltd
36. NIC Bank Ltd
37. Oriental Commercial Bank Ltd
38. Paramount Universal Bank Ltd
39. Prime Bank Ltd
40. Standard Chartered Bank (K) Ltd
41. Transnational Bank Ltd
42. UBA Kenya Ltd
43. Victoria Commercial Bank Ltd

(Source: Central Bank supervision department report – 2015)